Eastwood
CONSULTING ENGINEERS



Drainage Assessment

LAND SOUTH OF LONGSIGHT ROAD, LANGHO

HALLAM LAND MANAGEMENT LTD

26/02/2025

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DRAINAGE ASSESSMENT

LAND SOUTH OF LONGSIGHT ROAD, LANGHO

FOR

HALLAM LAND MANAGEMENT LTD



49343-ECE-XX-XX-RP-C-0002

26 February 2025

Eastwood Consulting Engineers is a trading name of Eastwood and Partners (Consulting Engineers) Limited
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DRAINAGE ASSESSMENT

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FOR

HALLAM LAND MANAGEMENT LTD

Job No.	:	49343
Report Status	:	Issue 3
Document Date	:	26 February 2025
Approved	:	

Chris Hodge

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	Attenuation calculations
	ReFH2 Greenfield Runoff Calculations
	SuDS checklist
	Live SuDS maintenance checklist
	Proposed Drainage Strategy

Issue 1:	*03 December 2024*	
Issue 2:	*14 February 2025*	*Updated with new layout, drainage strategy and associated text changes.*
Issue 3:	*26 February 2025*	*Updated with new layout, location plan and minor text changes.*

EXECUTIVE SUMMARY

Surface water disposal is considered in accordance with the drainage hierarchy in Building Regulations Part H 2015 and Planning Practice Guidance 'Reducing the causes and impacts of flooding', paragraph 080 reference ID 7-080-20150323.

Infiltration type SuDS such as soakaways will not be viable due to the impermeable ground conditions (clay and silt) on the site. Soakaway testing was conducted by Lithos Consulting (Ref: 008/5200/REG/dw). Infiltration rates could not be calculated as the water level did not fall to the 25% effective depth.

Surface water disposal will likely be via gravity to attenuation basins in the northern portions of the site before discharging via gravity to the central watercourse. This is subject to approval from the Lead Local Flood Authority and ordinary watercourse consent will also likely be required.

Surface water discharge will likely be restricted to the greenfield runoff rate of the developable catchment area of the central watercourse. The greenfield runoff rate has been proportionally split for the proposed west and east development areas to determine the proposed discharge rates, equating to 33.7 l/s and 18.3 l/s, subject to approval from the Lead Local Flood Authority.

Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus 50% climate change. The total estimated storage volume is approximately 2820 m^3 and 2040 m^3 for the central and eastern drainage networks respectively, subject to detailed design.

Source control SuDS features such as permeable paving (Type C) may be suitable (subject to site conditions) to incorporate into the site to provide source control water treatment and attenuation.

Foul effluent should discharge via gravity to the site low point before being pumped to the 300 mm public foul water sewer within the southern boundary of the site, subject to approval from United Utilities.

Maintenance of the drainage system will be in accordance with the recommendations provided by suppliers and product specifications. Maintenance of the potential SuDS systems for this site will also be in accordance with the recommendations within The SuDS Manual.

Method statements will be provided prior to construction. These will include details on how contaminated water, erosion and sediment control will be dealt with during the construction phase.

Both the surface and foul water drainage systems will be offered for adoption to United Utilities or a NAV (New Appointments and Variations).

1.0 THE DEVELOPMENT

1.1 Introduction

This Drainage Assessment has been prepared on the instruction of Hallam Land Management Ltd. This Drainage Assessment is to be read in conjunction with the Flood Risk Assessment (Ref: 49343-ECE-XX-XX-RP-C-0001).

The project comprises the proposed development of a 20.01 hectare greenfield site for residential.

1.2 Site Location and Description

The site is located north of Langho, to the north of Blackburn, and is centred on Grid Reference 370282E, 434509N (Appendix 1).

The site is bounded by Longsight Road to the north, woodland and residential properties to the east, a railway line to the south, Whitehalgh Lane along the western border and a farm on the north-west boundary.

The site is currently occupied by grassed farmland boarded by mature trees, hedgerows and wooden fences. An unnamed watercourse lines the woodland on the north-eastern border with a second passing through the south-north centreline of the site. There is also a public right of way crossing the eastern portion of the site.

The area east of the central watercourse falls from approximately 98.80 mAOD in the south to 77.00 mAOD in the north-west at an average gradient of 1 in 16. The area west of the central watercourse falls from approximately 102.33 mAOD in the south to 78.60 mAOD in the north at an average gradient of 1 in 17 (Appendix 2).

Proposals are for the development of approximately 300 household properties with access from Longsight Road in the north (Appendix 3).

2.0 DRAINAGE STRATEGY

2.1 Existing Drainage

The United Utilities sewer map (Appendix 4) records a 225 mm and a 300 mm surface water sewer south of the site connecting into a 1300 mm x 1550 mm surface water culvert, located beneath the railway embankment on the southern boundary of the site, which ultimately outfalls into the watercourse that crosses the centre of the site from south to north. There is also a 225 mm – 300 mm public foul sewer within the southern border of the site that connects into a 300 mm public combined sewer in the south-eastern corner of the site.

2.2 Consultation with Statutory Bodies

2.2.1 Lead Local Flood Authority

The Lancashire County Council Sustainable Drainage System (SuDS) Pro-forma Guidance (Appendix 5) states that surface water runoff to any highway drain, sewer or surface water body from development of greenfield sites, for in the 1 in 100 year 6 hour rainfall event, should never exceed the greenfield runoff volume for the same event.

The Lead Local Flood Authority at Lancashire County Council have been contacted to determine their restrictions and requirements for surface water discharge to an ordinary watercourse. The LLFA's response, dated 04.11.24, is summarised below (Appendix 5):

- Depending on how you plan to connect to the existing watercourse you may require a watercourse consent form from the LLFA;
- Discharge to watercourse is usually by a surface water outfall. Depending on the bank profile and proposed design, the outfall may or may not require consent;
- An application should be submitted with the minimal required documentation for an assessment to be made;
- We can get back to you regarding the need for consent and a fee will only be charged if a consent is required.

2.2.2 United Utilities

Pre-planning advice has been received from United Utilities; their reference 06544237 dated 6th November 2024. The main points of the advice are summarised below.

Foul water:

- Foul flow from the site will be allowed to drain to the public foul water/ combined sewer system.
- The preferred point of discharge would be to the 300 mm public foul water sewer crossing the site.

Surface water:

- Surface water discharge should be in line with the drainage hierarchy. Outlined in Paragraph 80 of the National Planning Practice Guidance.
- It is recommended that the multi-functional sustainable drainage systems are prioritised.
- The LLFA has responsibility for all surface water drainage concerns and their input to the proposal is critical.

Existing assets:

- There are public sewers located within the site boundary. Unrestricted access to the sewer for maintenance purposes will be required. A minimum clearance of 6 m (3 m from the centre line) should be maintained, unless there is a formal easement agreement in place.
- If the minimum clearance cannot be achieved, there should be consideration to diverting or abandoning the public sewer.

2.3 Ground Conditions

The British Geological Survey maps show that the site overlies Devensian Till, comprised of Diamicton. Bedrock geology is recorded as Mudstone of the Bowland Shale Formation.

A historical borehole log (Ref: SD73NW182 and SD73NW183) located approximately 500 m north-east of the site within the same geological formation of the site records; 0.2 to 0.3 m topsoil, 2.1 to 2.8 m clay and 9.8 m sand overlying limestone/sandstone. Groundwater was not recorded in the boreholes.

2.4 Greenfield Calculations

The greenfield runoff for the site is calculated using the ReFH2.3 statistical rainfall-runoff method with FEH 2013 rainfall data using the default catchment characteristics (Appendix 6).

Table 1 below summarises the total catchment runoff within the site boundary and runoff per unit area for varying return periods. These figures relate to the developable areas that will ultimately discharge into the central and eastern watercourses crossing the site (Appendix 6).

Greenfield runoff					
Catchment	**Existing greenfield runoff catchment**	**Return period**			
		1 in 1 yr	**1 in 10 yr**	**1 in 30 yr**	**1 in 100 yr**
Calder Operational Catchment	Central	52.0 l/s	104.5 l/s	135.1 l/s	171.6 l/s
	(11.7 ha)	7.3 l/s/ha	14.7 l/s/ha	19.0 l/s/ha	24.1 l/s/ha
	Eastern	19.8 l/s	39.7 l/s	51.3 l/s	65.2 l/s
	(7.92 ha)	8.4 l/s/ha	16.9 l/s/ha	21.8 l/s/ha	27.7 l/s/ha

Table 1: Greenfield runoff rates

2.5 Drainage Hierarchy

Surface water disposal should be in accordance with the drainage hierarchy in Building Regulations Part H 2015[1] and Planning Practice Guidance 'Reducing the causes and impacts of flooding', paragraph 080. Disposal via SuDS methods should be considered as the first option. Disposal to the public sewer should be considered only when SuDS methods and disposal to the watercourse are shown to be unsuitable.

2.5.1 Sustainable Drainage Systems (SuDS)

SuDS methods include water infiltration systems such as soakaways, basins and filter strips, together with swales, pervious pavements, detention basins, ponds and other wetland solutions. The various methods are considered in detail in The SuDS Manual (CIRIA C753).

Infiltration type SuDS such as soakaways will not be viable due to the impermeable ground conditions (clay and silt) on the site. Soakaway testing was conducted by Lithos Consulting (Ref: 008/5200/REG/dw). Infiltration rates could not be calculated as the water level did not fall to the 25% effective depth.

An assessment of SuDS methods and their applicability to this site is included in Appendix 6. Source control SuDS features such as permeable paving (Type C) may be suitable to incorporate into the site to provide source control water treatment and attenuation.

2.5.2 Watercourse

There are two unnamed watercourses crossing the site; one on the north-eastern boundary and another in the centre of the site. There is another unnamed watercourse located immediately north-west of the site. These watercourses are all tributaries of Bushburn Brook located approximately 510 m north of the site. Discharge to a watercourse is considered viable, subject to approval from the Lead Local Flood Authority.

[1] https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h

2.5.3 Public Sewer

A 225 mm and a 300 mm surface water sewer converge south of the site, connecting to a 1300 mm x 1550 mm surface water culvert located beneath the railway embankment on the southern boundary of the site, which ultimately outfall into the watercourse that crosses the centre of the site.

2.6 Proposals for Surface Water Disposal

The final design will need the approval of the relevant statutory bodies but will broadly follow these principles:-

- Surface water disposal will likely be via gravity to attenuation basins in the northern portions of the site before discharging via gravity to the central watercourse. This is subject to approval from the Lead Local Flood Authority and ordinary watercourse consent will also likely be required.
- Surface water discharge will likely be restricted to the greenfield runoff rate of the developable catchment area of the central watercourse. The greenfield runoff rate has been proportionally split for the proposed western and eastern development areas to determine the proposed discharge rates, equating to 33.7 l/s and 18.3 l/s, subject to approval from the Lead Local Flood Authority.
- Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus 50% climate change. The total estimated storage volume is approximately 2820 m^3 and 2040 m^3 for the central and eastern drainage networks respectively, subject to detailed design. Attenuation calculations are provided in Appendix 6.
- Source control SuDS features such as permeable paving (Type C) may be suitable (subject to site conditions) to incorporate into the site to provide source control water treatment and attenuation.
- The surface water drainage system will be offered for adoption to United Utilities or a NAV (New Appointments and Variations).

2.7 SuDS Maintenance

Maintenance of the potential SuDS systems for this site will be in accordance with the recommendations within The SuDS Manual (CIRIA C753, 2015) as stipulated in Table 2, along with any recommendations provided by suppliers and product specifications.

Table 2 summarises maintenance actions and frequency for each component (surface and sub surface) of the drainage system. Maintenance access requirements such as vehicle and machinery access (where applicable) will also need consideration.

Features adopted by authorities, such as drainage authorities, will be maintained under their normal regime of inspection and maintenance.

The maintenance schedules below should be followed to ensure flood risk on site does not increase through system blockages or poor maintenance. Following the maintenance schedule is required to ensure the drainage features remain functional for the lifetime of the development.

SuDS SYSTEM	**ACTION**	**FREQUENCY**
Permeable Paving (Type C)	Initial inspection of porous pavement	Monthly for three months after installation
	General removal of litter and debris. Brush regularly.	Monthly (or more frequently if required)
	Inspect porous pavements for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 hours after large storms for first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Brushing and vacuuming of porous pavements (standard cosmetic sweep over whole surface)	Annually, after autumn leaf fall
	Removal of weeds from porous pavements or management using glyphosate applied directly into the weeds by an applicator rather than spraying	Annually (or more frequently if necessary)

Permeable Paving (Type C)	Remedial work to any depressions, rutting and cracks of the permeable pavement considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure of the permeable pavement by remedial sweeping	Every 15 years or as required
Basin	Inspect surface inlet/ outlet structures removing obstructions and silt as necessary. Check there is no physical damage.	Monthly
	Mow grass access paths and verges surrounding basins at 35 to 50 mm minimum and 75 mm or as specified to provide a cared for appearance and allow pedestrian access.	Monthly or as required.
	Confirm whether a liner is present to hold water or prevent pollution of groundwater to protect.	Annually or every 3 years as required
	Where silt accumulated on apron or around inlet/ outlet, then remove.	Annually or every 3 years as required
	Retain as much existing vegetation as possible to ensure rapid re-colonisation of open areas.	Annually or every 3 years as required
	Undertake silt removal during September-October to minimise damage to protected wildlife and ensure re-growth of aquatic vegetation before winter.	Annually or every 3 years as required
Guttering, gullies and piped drainage system	General removal of litter and debris.	6 monthly, after autumn leaf fall (or as required)
	Cleaning of gullies, drainage channel and drainage channel sump units to remove debris and silt.	6 monthly, after autumn leaf fall (or more frequently if necessary)
	Cleaning of manholes to remove debris and silt.	Annually, after autumn leaf fall (or more frequently if necessary)
	If the system allows rainfall infiltration from above, check filter surface for blockages. Remove and replace infiltration material if deemed necessary.	Annually

Guttering, gullies and piped drainage system	Remove sediment from pre-treatment structures.	Annually or as required
	Inspection of all access chambers, inspection chambers, manholes and proprietary storage units to identify and make good any defects as necessary.	Annually
	Inspect inlets, outlets, vents and overflows to ensure they are operating as designed.	Annually
Vortex flow control	Remove Litter and Debris	Monthly
	Cleaning of flow control to remove debris and silt	Annually (or more frequently if necessary)
	Inspect inlets and outlets for blockages and clear if required	Monthly
	Repair any damages to flow control device and manhole	As required
	Repair any damage to manhole cover	As required
	Repair any damage to inlet/outlet	As required
Inlets	Inspection for debris and sediment build up.	Annually (and following poor performance)
	Inspect inlets for blockages and clear if required.	Monthly
	Inspect inlet pipework for blockages, clogging, standing water and structural damage.	Monthly
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate.	As required

Table 2: SuDS Maintenance

Method statements will be provided prior to construction. These will include details on how contaminated water, erosion and sediment control will be dealt with during construction.

2.8 Proposals for Foul Water Disposal

Foul effluent should discharge via gravity to the site low point before being pumped to the 300 mm public foul water sewer within the southern boundary of the site (Appendix 6), subject to approval from United Utilities.

The foul water drainage system may be offered for adoption to United Utilities or a NAV (New Appointments and Variations).

2.9 Residual Flood Risk

There is a potential flood risk to site occupiers and to others from surface water runoff as a result of developing the site. The residual risk can be managed by the general flood mitigation measures outlined below.

2.10 Mitigation Measures

The proposed surface water drainage system is designed to current best practice and to the standards laid out in the publication 'Design and Construction Guidance for foul and surface water sewers' and Building Regulations Part H 2015.

In the event of surface water exceedance during extreme rainfall events the site is laid out so that surface water runoff is directed away from houses, including those on neighbouring streets.

3.0 CONCLUSIONS

1. Infiltration type SuDS such as soakaways will not be viable due to the impermeable ground conditions (clay and silt) on the site. Soakaway testing was conducted by Lithos Consulting (Ref: 008/5200/REG/dw). Infiltration rates could not be calculated as the water level did not fall to the 25% effective depth.

2. Surface water disposal will likely be via gravity to attenuation basins in the northern portions of the site before discharging via gravity to the central watercourse. This is subject to approval from the Lead Local Flood Authority and ordinary watercourse consent will also likely be required.

3. Surface water discharge will likely be restricted to the greenfield runoff rate of the developable catchment area to the central watercourse. The greenfield runoff rate has been proportionally split for the proposed west and east development areas to determine the proposed discharge rates, equating to 33.7 l/s and 18.3 l/s, subject to approval from the Lead Local Flood Authority.

4. Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus 50% climate change. The total estimated storage volume is approximately 2820 m^3 and 2040 m^3 for the central and eastern drainage networks respectively, subject to detailed design.

5. Source control SuDS features such as permeable paving (Type C) may be suitable (subject to site conditions) to incorporate into the site to provide source control water treatment and attenuation.

6. Foul effluent should discharge via gravity to the site low point before being pumped to the 300 mm public foul water sewer within the southern boundary of the site, subject to approval from United Utilities.

7. Maintenance of the drainage system will be in accordance with the recommendations provided by suppliers' and product specifications. Maintenance of the potential SuDS systems for this site will also be in accordance with the recommendations within The SuDS Manual.

8. Method statements will be provided prior to construction. These will include details on how contaminated water, erosion and sediment control will be dealt with during the construction phase.

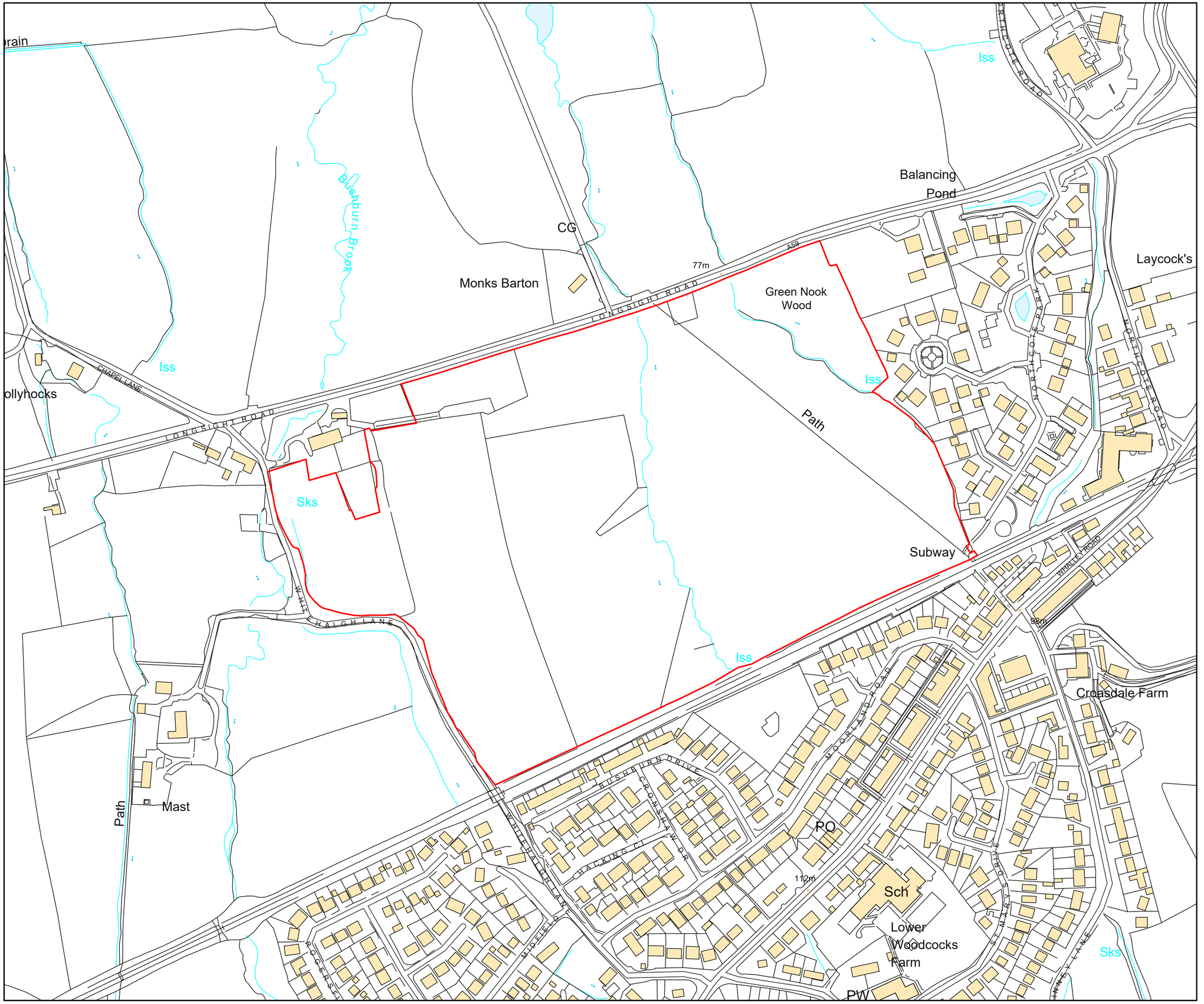
9. Both the surface and foul water drainage systems will be offered for adoption to United Utilities or a NAV (New Appointments and Variations).

APPENDICES

APPENDIX 1

The scaling of this drawing cannot be assured

Revision	Date	Drn	Ckd
-	-	-	-



Project

LAND OFF LONGSIGHT ROAD, LANGHO

Drawing Title

SITE LOCATION PLAN

Date	Scale	Drawn by	Check by
29.10.2024	1:2500 @ A2	SN	JB

Project No	Drawing No	Revision
333101612	0100	-

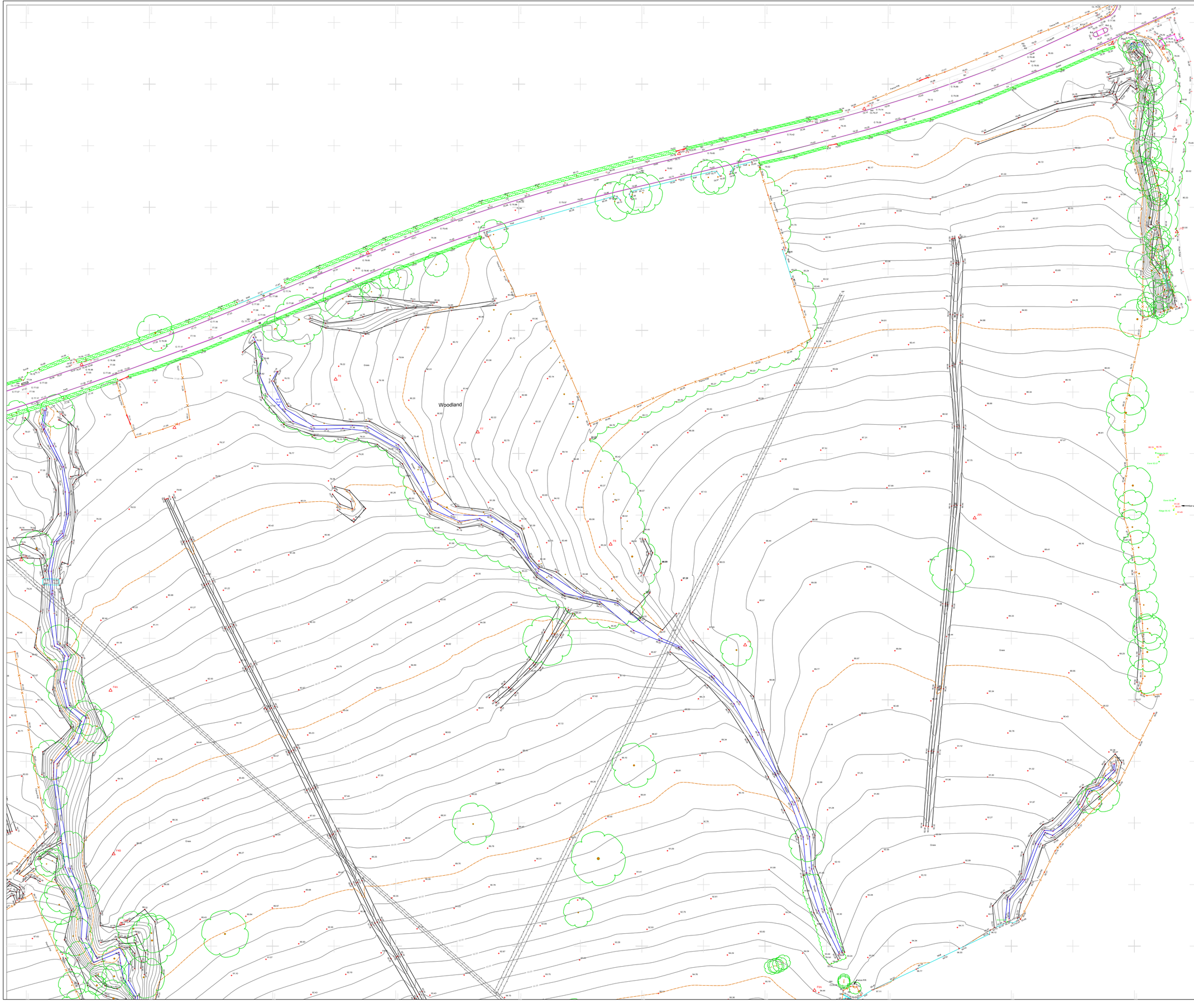
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APPENDIX 2



Members of

Legend

AV	Air valve
BH	Borehole
BOL	Bollard
BT	British Telecom cover
CATV	Cable television cover
CL	Cover level
DPC	Damp proof coarsing level
EarthER	Earthing rod
ELEC	Electric cover
EP	Electricity pole
Fence IRI	Iron railing fence
Fence C/B	Close board fence
Fence CP&P	Concrete post & panel fence
Fence Pa	Palisade fence
Fence PW	Post and wire fence
Fence P/R	Post and rail fence
Fence P/P	Post and panel fence
FFL	Finished floor level
F/B	Flower bed
FH	Fire Hydrant
G	Gulley
GAS	Gas cover
IC	Inspection chamber
IL	Invert level
INV	Invert level
LP	Lamp post
LT	Light
MH	Manhole
Nynex	Telecommunications cover
OSBM	Ordnance Survey Bench Mark
P/BB	Parking ticket machine
RE	Retaining wall
RS	Rodding eye
R/S wall	Retaining wall
SBX	Switch box
SP	Sign post
SPS	Safety playing surface
ST	Stop tap
SV	Service valve
TBM	Temporary Bench Mark
TP	Telegraph pole
TRP	Trial pit
TRL	Traffic light
W	Water cover
WL	Water level
WO	Wash out

SURVEY STATIONS

Name	Eastings	Northings	Height
F1	369976,767	434437,317	82,178
F1A	369951,412	434365,533	83,376
F2	369969,109	434415,595	83,221
F2A	370180,788	434182,071	101,233
F3	370197,930	434501,435	80,839
F4	370234,260	434553,838	82,517
F4A	370234,240	434553,838	82,317
F4B	370235,452	434437,429	86,640
F4C	370238,458	434600,046	88,347
F4D	370274,150	434344,214	92,745
F5	370281,191	434610,017	77,788
F5	370283,156	434610,017	77,788
J1	369915,766	434562,003	77,915
J10	370661,697	434791,007	76,326
J11	370668,697	434791,007	76,326
J12	370667,270	434720,018	81,027
J1A	369823,916	434512,170	78,810
J1B	369846,221	434470,097	79,273
J1C	369846,221	434470,097	79,273
J1D	369882,603	434514,514	80,050
J1E	369975,157	434517,074	88,312
J1F	370020,047	434717,097	95,488
J2	369974,818	434560,325	75,326
J3	370148,704	434612,901	77,877
J4	370148,704	434612,901	77,877
J5	370222,475	434636,154	77,096
J6	370338,695	434681,536	78,942
J7	370465,076	434721,774	79,719
J8	370641,097	434756,664	78,254
J9	370641,097	434756,664	78,254
J9A	370585,137	434573,809	88,409
J9B	370335,657	434630,130	78,186
F1	370383,377	434608,708	82,298
F2	370410,255	434522,222	84,636
F3	370471,055	434522,222	84,636
F3A	370520,093	434382,026	94,618

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

NOTE

Grid and Levels related to OS using GPS active network

Amendments		
Date	Surveyor	Description of work

Powers & Tiltman Ltd
Land Surveyors

Meridian House
58/60 Hillside Road, Frodsham, Cheshire WA6 6AG
Tel: 01928 734473 Fax: 01928 735573
Email: mail@powerstiltman.co.uk
www.powerstiltman.co.uk

Land off Longsight Road

Langho

Topographical Survey

Client : Hallam Land Management

Surveyed By : NS	Date : 25/02/2014	Scale
Drawn By : NS	Drawing No : 6886/01 Sheet 1	1:500
Checked By : MP	Amendment :	

Members of

Legend

AV	Air valve
BH	Borehole
BOL	Bollard
BT	British Telecom cover
CATV	Cable television cover
CL	Cover level
DPC	Damp proof coarsing level
EarthER	Earthing rod
ELEC	Electric cover
EP	Electricity pole
Fence IR	Iron railing fence
Fence CB	Close board fence
Fence CP&P	Concrete post & panel fence
Fence Pa	Palisade fence
Fence PW	Post and wire fence
Fence PR	Post and rail fence
Fence PP	Post and panel fence
FFL	Finished floor level
F/B	Flower bed
FH	Fire Hydrant
G	Gulley
GAS	Gas cover
IC	Inspection chamber
IL	Invert level
INV	Invert level
LP	Lamp post
LT	Light
MH	Manhole
Nynex	Telecommunications cover
OSBM	Ordnance Survey Bench Mark
PBM	Parking ticket machine
RE	Retaining wall
RS	Road sign
Rtt wall	Retaining wall
SBX	Switch box
SP	Sign post
SPS	Safety playing surface
ST	Stop tap
SV	Service valve
TBM	Temporary Bench Mark
TP	Telegraph pole
TRP	Trial pit
TRL	Traffic light
W	Water cover
WL	Water level
WO	Wash out

SURVEY STATIONS

Name	Easting	Northing	Height
F1	369876,797	434402,617	82,179
F1A	369901,412	434365,033	85,376
F2	369985,109	434413,055	83,221
F2A	370080,788	434182,071	101,233
F3	370180,995	434155,844	79,208
F4	370197,065	434556,844	75,208
F4A	370234,240	434503,839	82,317
F4B	370235,452	434457,429	86,840
F4C	370236,498	434409,040	88,347
F4D	370277,836	434375,591	90,109
F4E	370278,836	434375,591	90,109
F5	370260,196	434613,517	77,788
J1	369913,768	434542,603	77,915
J10	370661,687	434764,507	79,326
J11	370661,687	434764,507	79,326
J12	370667,210	434650,030	81,027
J1A	369823,218	434612,170	78,810
J1B	369846,225	434475,087	79,273
J1C	369847,673	434428,642	80,037
J1D	369873,107	434371,974	88,213
J1E	369873,107	434371,974	88,213
J1F	370020,047	434217,587	95,488
J2	369974,418	434560,325	74,326
J3	370060,437	434385,770	79,162
J4	370222,473	434536,154	77,099
J5	370222,473	434536,154	77,099
J6	370338,695	434681,536	78,842
J7	370465,078	434721,774	79,719
J8	370545,289	434739,946	79,279
J9	370581,137	434713,969	80,409
J9A	370581,137	434713,969	80,409
P6	370325,602	434635,130	78,186
P7	370431,205	434605,788	80,694
P8	370431,205	434605,788	80,694
P9	370437,009	434522,225	85,836
P9A	370520,093	434362,028	94,618

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

NOTE

Grid and Levels related to OS using GPS active network

Amendments			
	Date	Surveyor	Description of work

Powers&Tiltman Ltd
Land Surveyors

Meridian House
58/60 Hillside Road, Frodsham, Cheshire WA6 6AG
Tel: 01928 734473 Fax: 01928 735573
Email: mail@powerstiltman.co.uk
www.powerstiltman.co.uk

Land off Longsight Road

Langho

Topographical Survey

Client : Hallam Land Management

Surveyed By : NS	Date : 25/02/2014	Scale
Drawn By : NS	Drawing No : 6886/01 Sheet 2	1:500
Checked By : MP	Amendment :	

Members of

Legend

AV	Air valve
BH	Borehole
BOL	Bollard
BT	British Telecom cover
CATV	Cable television cover
CL	Cover level
DPC	Damp proof coarsing level
Earth/ER	Earthing rod
ELEC	Electric cover
EP	Electricity pole
Fence VB	Vast bollard fence
Fence CB	Close boarding fence
Fence C/P&P	Concrete post & panel fence
Fence Pa	Palisade fence
Fence P/W	Post and wire fence
Fence P/R	Post and rail fence
Fence P/P	Post and panel fence
FFL	Finished floor level
F/B	Flower bed
FH	Fire Hydrant
G	Gulley
GAS	Gas cover
IC	Inspection chamber
IL	Invert level
INV	Invert level
LP	Lamp post
LT	Light
MH	Manhole
Nymex	Telecommunications cover
OSBM	Ordnance Survey Bench Mark
PTM	Parking ticket machine
RE	Rodding eye
RS	Road sign
Rt wall	Retaining wall
SWX	Switch box
SP	Sign post
SPS	Safety playing surface
ST	Stop tap
SV	Service valve
TBM	Temporary Bench Mark
TP	Telegraph pole
TRP	Trial pit
TRL	Traffic light
W	Water cover
WL	Water level
WO	Wash out

SURVEY STATIONS			
Name	Easting	Northing	Height
F1	369576,702	434457,017	82,179
F1A	369901,412	434365,033	85,376
F2	369985,109	434615,255	83,201
F2A	370080,788	434182,071	101,233
F3	370197,869	434056,644	79,284
F4	370197,900	434056,644	79,284
F4A	370234,240	434003,839	82,317
F4B	370235,402	434457,426	86,840
F4C	370236,498	434409,240	85,347
F4D	370277,836	434275,057	95,109
F4E	370278,836	434275,057	95,109
F5	370260,196	434613,317	77,788
J1	369913,269	434794,857	77,815
J1D	370061,490	434754,661	78,326
J1E	370061,490	434754,661	78,326
J1J	370067,270	434650,230	81,027
J1K	369923,918	434512,170	79,810
J1L	369923,918	434512,170	79,810
J1S	369847,075	434628,062	85,207
J1D	369890,069	434314,316	86,000
J1E	369975,197	434317,074	85,312
J1F	370020,047	434217,087	85,488
J2	370064,417	434585,759	79,163
J3	370064,417	434585,759	79,163
J4	370146,708	434612,801	77,877
J5	370222,473	434636,134	77,036
J6	370338,695	434681,538	78,842
J7	370338,695	434681,538	78,842
J8	370064,298	434735,940	79,275
J9	370641,097	434765,484	78,274
J9A	370585,137	434573,928	80,409
F6	370325,652	434630,130	79,186
F7	370417,105	434563,199	81,654
F8	370437,305	434563,199	81,654
F9	370491,935	434522,225	88,836
F9A	370520,953	434362,228	94,818

KEY DIMENSIONS SHOULD BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORKS

NOTE

Grid and Levels related to OS using GPS active network

Amendments:			
	Date	Surveyor	Description of work

Powers & Tiltman Ltd
Land Surveyors

Meridian House
58/60 Hillside Road, Frodsham, Cheshire WA6 6AG
Tel: 01928 734473 Fax: 01928 735573
Email: mail@powerstiltman.co.uk
www.powerstiltman.co.uk

Land off Longsight Road

Langho

Topographical Survey

Client : Hallam Land Management

Surveyed By : NS	Date : 25/02/2014	Scale
Drawn By : NS	Drawing No : 6886/01 Sheet 3	1:500
Checked By : MP	Amendment :	

APPENDIX 3

Monks Barton

77m

LONGSIGHT ROAD

A59

Green Nook Woodland (Retained)

LAP

LEAP

Indicative provision for Langho Station

WHALGH LANE

BUSHBURN DRIVE

MOORLAND ROAD

N

0 25 50 75 m

Key:

- Site Boundary (19.88ha)
- Indicative residential dwellings
- Indicative private amenity space
- Proposed public open space
- Proposed BNG area (high value land- no public access)
- Proposed attenuation basins
- Proposed LEAP/LAP
- Existing vegetation
- Proposed vegetation
- Existing Public Right of Way
- Existing pedestrian access
- Indicative informal pedestrian and cycle routes
- Proposed vehiclular access
- Proposed pedestrian/cycle access
- Indicative tree lined primary street (adoptable)
- Indicative Private Drives
- Safeguarded for possible future improvement to railway station

Land Use Summary:

Red Line Boundary Area: 20.013ha

Net Developable Area: 9.00ha

Public Open Space: 10.84ha

Station Car Park: 0.159ha

Station Safeguarded Land: 0.01ha

Drawing Title
ILLUSTRATIVE MASTERPLAN

Project
LAND AT LONGSIGHT ROAD, LANGHO

Date	Scale	Drawn by	Approved by
20/02/2025	1:1000@A1	EF/SN	JB

Project No	Drawing No	Revision
333101612	0104	D

Client
HALLAM LAND

Stantec

Stantec UK Limited

100 Barbirolli Square
Manchester
M2 3PW
T: 0161 245 8900

stantec.com\uk

APPENDIX 4



The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
9906	110.43	SW	109.5	150			VC	28.79079	1 in 19
9906	110.43	SW	109.5	150			VC	28.79079	1 in 19
9906	110.43	SW	109.5	150			VC	28.79079	1 in 19
8001	106.65	SW	104.35	225			CO	3.807072	1 in 14
8001	106.65	SW	104.35	225			CO	3.807072	1 in 14
8901		SW		100			VC	10.26985	
8901		SW		100			VC	10.26985	
0000	104.39	FO	100.57	225			VC	23.62864	
0000	104.39	FO	100.57	225			VC	23.62864	
0011		FO	0	150			VC	22.71202	
0011		FO	0	150			VC	22.71202	
0011		FO	0	150			VC	22.71202	
0106		FO	0	225			VC	14.95483	
0106		FO	0	225			VC	14.95483	
9912		FO		100			VC	9.303029	
9912		FO		100			VC	9.303029	
9912		FO		100			VC	9.303029	
0009		FO	0	150			VC	30.13442	
0009		FO	0	150			VC	30.13442	
0009		FO	0	150			VC	30.13442	
0010		SW	0	150			VC	13.31877	
0010		SW	0	150			VC	13.31877	
0010		SW	0	150			VC	13.31877	
0105		SW	0	300			VC	11.46231	
0105		SW	0	300			VC	11.46231	
9902	111.62	FO	110.05	150			VC	52.23259	1 in 16
9902	111.62	FO	110.05	150			VC	52.23259	1 in 16
9902	111.62	FO	110.05	150			VC	52.23259	1 in 16
9900	114.19	FO	112.31	150			VC	66.47861	1 in 15
0004	109.42	SW	107.27	150			VC	30.10279	
0004	109.42	SW	107.27	150			VC	30.10279	
0004	109.42	SW	107.27	150			VC	30.10279	
0104	96.79	FO	95.64	225			VC	50.33454	1 in 252
0104	96.79	FO	95.64	225			VC	50.33454	1 in 252
0900	115.17	FO	113.5	150			VC	51.05569	1 in 15
0103	98.11	FO	96.36	225			VC	69.15684	1 in 100
0107		FO	0	225			VC	10.02119	
0107		FO	0	225			VC	10.02119	
0902	115.15	SW	113.12	225			VC	26.88227	1 in 15
0003	104.35	SW	101.96	300			VC	34.83129	104.35
0003	104.35	SW	101.96	300			VC	34.83129	
9903	114.42	SW	112.27	225			VC	36.99326	1 in 16
0001	109.41	FO	107.21	150			VC	31.36057	
9904	109.54	SW	107.63	225			CO	45.46642	1 in 14
9904	109.54	SW	107.63	225			CO	45.46642	1 in 14
9007		SW		0			VC	10.93256	
9007		SW		0			VC	10.93256	
0007	109.85	SW	107.93	150			VC	21.12019	1 in 35
0007	109.85	SW	107.93	150			VC	21.12019	1 in 35
0007	109.85	SW	107.93	150			VC	21.12019	1 in 35
0108		SW	0	650			MAR	19.3161	
9905	111.52	SW	109.56	225			CO	23.35217	1 in 15
9905	111.52	SW	109.56	225			CO	23.35217	1 in 15
9905	111.52	SW	109.56	225			CO	23.35217	1 in 15
9002	104.98	FO	101.42	150			VC	26.06696	1 in 32
9002	104.98	FO	101.42	150			VC	26.06696	1 in 32
9002	104.98	FO	101.42	150			VC	26.06696	1 in 32
0006	109.81	FO	107.81	150			VC	18.97182	1 in 37
0006	109.81	FO	107.81	150			VC	18.97182	1 in 37
0006	109.81	FO	107.81	150			VC	18.97182	1 in 37
0008		SW	0	150			VC	34.40472	
0008		SW	0	150			VC	34.40472	
0008		SW	0	150			VC	34.40472	
9901	109.67	FO	107.91	150			VC	49.84311	
9901	109.67	FO	107.91	150			VC	49.84311	
9001	105.67	FO	103.77	150			VC	64.64919	1 in 29
9001	105.67	FO	103.77	150			VC	64.64919	1 in 29
9005	105.06	SW	102.68	225			VC	23.18766	1 in 37
9005	105.06	SW	102.68	225			VC	23.18766	1 in 37
8000	106.49	FO	104.34	150			VC	58.6549	1 in 103
8000	106.49	FO	104.34	150			VC	58.6549	1 in 103
9000	108.41	FO	106.72	150			VC	40.08686	
9000	108.41	FO	106.72	150			VC	40.08686	
9004	105.66	SW	104.05	225			VC	66.06764	1 in 50
9004	105.66	SW	104.05	225			VC	66.06764	1 in 50
9016		FO		100			VC	21.96757	
9016		FO		100			VC	21.96757	
9003	108.32	SW	106.51	225			VC	46.25089	1 in 19
9003	108.32	SW	106.51	225			VC	46.25089	1 in 19

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned / Foul / Surface Water / Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined blue - surface water
brown - foul purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

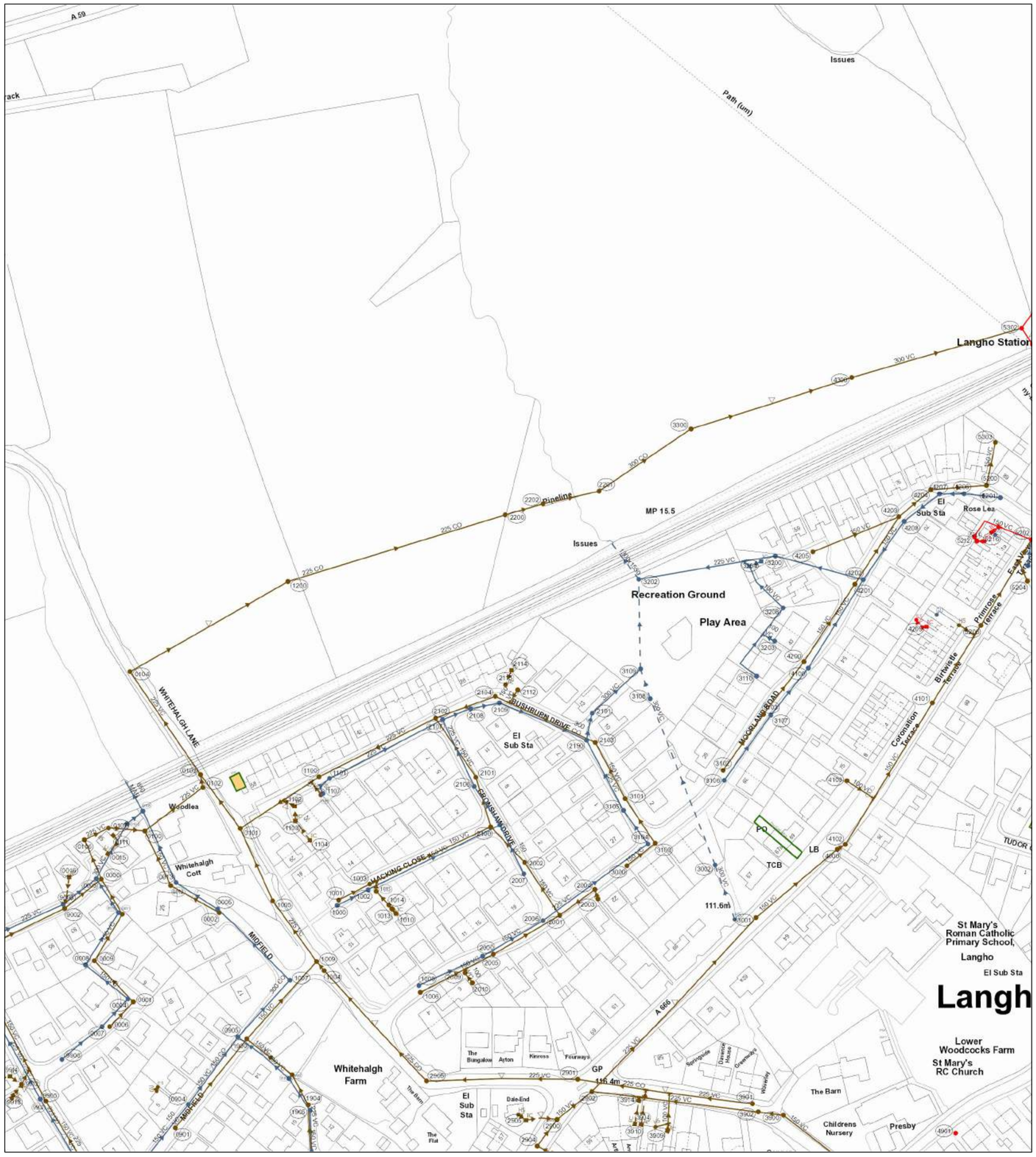
44714,

OS sheet Number: SD6934SE
Scale: 1:1250 **Date:** 06/12/2019
Nodes: 79
Sheet: 3 of 7

Printed by: Property Searches

SEWER RECORDS

United Utilities — helping life flow smoothly



Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
3102	105.55	FO	103.64	150			VC	38.3317	1 in 25
2001	109.75	FO	107.84	150			VC	35.23737	1 in 22
0005	106.92	SW	105.31	300			CO	27.27949	
0012		FO	0	150			VC	33.69905	
2904		FO	0	150			VC	18.57603	
1904		FO	0	150			VC	18.8632	
0013		SW	0	300			CO	43.70781	
0009		FO	0	150			VC	30.13442	
0009		FO	0	150			VC	30.13442	
0009		FO	0	150			VC	30.13442	
4200	103.48	FO	101.5	150			VC	51.37227	1 in 89
0010		SW	0	150			VC	13.31877	
0010		SW	0	150			VC	13.31877	
0010		SW	0	150			VC	13.31877	
2900	117.62	FO	115.55	150			VC	24.70208	
3002		SW		300			VC	99.17101	
2000	111.06	FO	108.85	150			VC	42.67538	1 in 45
1001	108.87	FO	107.52	150			VC	19.28566	1 in 43
5204	102.22	FO	100.21	150			VC	11.60845	
5204	102.22	FO	100.21	150			VC	11.60845	
0901	113.83	FO	111.73	150			VC	63.11325	1 in 32
0103	98.11	FO	96.36	225			VC	69.15684	1 in 100
2010		FO		100			VC	6.872562	
3202		SW		1300				25.83201	
0902	115.15	SW	113.12	225			VC	26.88227	1 in 15
5200	100.25	FO	98.55	150			VC	24.28536	
5200	100.25	FO	98.55	150			VC	24.28536	
1100	104.64	FO	100.54	225			VC	52.13778	1 in 2607
5206	103.82	FO	0	150			VC	41.0225	
5206	103.82	FO	0	150			VC	41.0225	
1005	106.87	FO	104.92	225			VC	43.96923	1 in 10
4206	100.28	SW	99.16	150			VC	13.5803	1 in 104
4206	100.28	SW	99.16	150			VC	13.5803	1 in 104
2004	108.83	FO	108.06	150			VC	24.15776	1 in 151
0007	109.85	SW	107.93	150			VC	21.12019	1 in 35
0007	109.85	SW	107.93	150			VC	21.12019	1 in 35
0007	109.85	SW	107.93	150			VC	21.12019	1 in 35
3203		SW		100			VC	7.579982	
2102	103.24	FO	100.89	225			VC	72.50292	1 in 259
0108		SW	0	650			MAR	19.3161	
2201	95.82	FO	94.19	300			CO	61.58193	1 in 181
9002	104.98	FO	101.42	150			VC	26.06696	1 in 32
9002	104.98	FO	101.42	150			VC	26.06696	1 in 32
9002	104.98	FO	101.42	150			VC	26.06696	1 in 32
3001	112.18	FO	110.05	150			VC	58.92071	1 in 21
3901	116.63	FO	114.41	225			VC	48.75964	1 in 69
1003	108.53	FO	107.04	150			VC	74.27203	1 in 26
3902	116.48	FO	114.55	225			VC	92.86987	1 in 90
0008		SW	0	150			VC	34.40472	
0008		SW	0	150			VC	34.40472	
0008		SW	0	150			VC	34.40472	
4300	96.54	FO	93.59	300			VC	98.18643	1 in 118
5205	101.86	SW	101.06	150			VC	14.60349	1 in 11
5205	101.86	SW	101.06	150			VC	14.60349	1 in 11
9906	110.43	SW	109.5	150			VC	28.79079	1 in 19
9906	110.43	SW	109.5	150			VC	28.79079	1 in 19
9906	110.43	SW	109.5	150			VC	28.79079	1 in 19
3107	104.36	SW	0	150			VC	33.39645	
1013		FO		100			VC	3.212783	
2104	102.63	FO	101.07	225			VC	35.279	1 in 220
3106	105.56	SW	0	150			VC	44.3218	
0002	106.9	FO	105.65	150			VC	30.67809	
3200	101.61	SW	98.17	225			VC	76.93964	
4201	102.94	FO	100.91	150			VC	44.59406	1 in 37
1004	109.4	FO	107.72	225			VC	6.536367	1 in 20
1007	109.82	SW	107.38	300			CO	56.19754	1 in 27
3900	116.1	FO	114.67	150			VC	14.18381	1 in 177
1006	111.76	FO	109.91	150			VC	45.67727	1 in 47
9902	111.62	FO	110.05	150			VC	52.23259	1 in 16
9902	111.62	FO	110.05	150			VC	52.23259	1 in 16
9902	111.62	FO	110.05	150			VC	52.23259	1 in 16
2009		FO		100			VC	2.336993	
2112		FO		150			VC	8.620085	
1000	108.9	SW	107.09	150			VC	19.21802	1 in 41
0904	113.44	SW	110.84	150			VC	23.5725	1 in 30
2007	108.13	SW	106.06	150			VC	30.12563	1 in 15
3105	105.95	SW	103.29	225			VC	43.98835	1 in 57
0003	104.35	SW	101.96	300			VC	34.83129	
0003	104.35	SW	101.96	300			VC	34.83129	
0001	109.41	FO	107.21	150			VC	31.36057	
2901	115.81	FO	112.95	225			VC	42.15162	1 in 50
2004	104.39	FO	99.2	225			VC	40.17606	1 in 23
2005	111.27	SW	108.37	150			VC	38.90879	1 in 37
1108		FO		150			VC	8.89665	
2202	95.26	FO	94.29	300			CO	31.76491	
1107		SW		150			VC	11.3114	
1009	109.18	FO	107.33	225			VC	41.56939	1 in 18
2100	106.82	FO	104.12	150			VC	28.73287	
1008	111.83	SW	109.46	150			VC	38.82469	1 in 36
3110		SW		100			VC	50.59472	
0101	102.36	FO	100.49	225			VC	37.14573	1 in 9
4204	100.77	FO	99.03	150			VC	30.95474	1 in 67
4204	100.77	FO	99.03	150			VC	30.95474	1 in 67
0000	104.39	FO	100.57	225			VC	23.62864	
0000	104.39	FO	100.57	225			VC	23.62864	
0905	111.65	SW	109.35	300			CO	42.69387	1 in 23
5201	100.54	SW	99.28	150			VC	20.22039	1 in 225
5201	100.54	SW	99.28	150			VC	20.22039	1 in 225
9912		FO		100			VC	9.303029	
9912		FO		100			VC	9.303029	
9912		FO		100			VC	9.303029	
4101	106.25	FO	104.08	150			VC	50.6467	1 in 21
4101	106.25	FO	104.08	150			VC	50.6467	1 in 21
1002	108.41	SW	106.6	150			VC	81.44424	1 in 48
0105		SW	0	300			VC	11.46231	
0105		SW	0	300			VC	11.46231	
0004	109.42	SW	107.27	150			VC	30.10279	
0004	109.42	SW	107.27	150			VC	30.10279	
0004	109.42	SW	107.27	150			VC	30.10279	
0104	96.79	FO	95.64	225			VC	50.33454	1 in 252
0104	96.79	FO	95.64	225			VC	50.33454	1 in 252
4202	102.71	SW	98.51	225			VC	50.40372	1 in 163
3100	107.54	FO	105.13	150			VC	29.92886	1 in 12
3103	104.49	FO	102.1	150			VC	36.89299	1 in 66
1903		FO	0	150			VC	32.06831	
4103		FO		100			VC	17.84291	
1101	104.57	SW	102.9	225			VC	70.70905	1 in 71
4102	109.3	FO	107.48	150			VC	92.18355	1 in 30
4100	103.39	SW	101.85	150			VC	57.82398	1 in 18
5202	101.64	CO	99.48	150			VC	23.29617	1 in 22
5202	101.64	CO	99.48	150			VC	23.29617	1 in 22
2200	95.86	FO	94.76	300			CO	21.7912	1 in 46
5211		CO		150			VC	2.989794	
5211		CO		150			VC	2.989794	
1905	114.01	SW	112.32	225			VC	21.09275	
1015		FO		100			VC	5.623276	
2105	106.71	SW	103.98	150			VC	25.6411	1 in 19
5302	93.85	CO	92.71	300			VC	101.8201	1 in 35
5302	93.85	CO	92.71	300			VC	101.8201	1 in 35
3101	105.73	FO	102.53	150			VC	35.30177	1 in 56
4205	101.84	FO	100.14	150			VC	51.45163	1 in 143
2191	103.6	SW	101.26	300			VC	36.37677	
1200	97.59	FO	95.21	225			CO	126.0018	1 in 360
2003	109.05	FO	108.31	150			VC	5.518061	1 in 29
1900	111.59	FO	109.76	150			VC	57.88701	1 in 25
2101		FO	0	150			VC	39.68903	
2002	107.97	FO	106.21	150			VC	27.23432	1 in 33
3208		SW		100			VC	34.156	
0011		FO	0	150			VC	22.71202	
0011		FO	0	150			VC	22.71202	
0011		FO	0	150			VC	22.71202	
2902	115.79	FO	0	225			VC	66.08918	
0106		FO	0	225			VC	14.95483	
0106		FO	0	225			VC	14.95483	
3104	107.31	SW	104.35	225			VC	22.95855	1 in 22
4207	100.68	SW	99	150			VC	24.78779	1 in 496
4207	100.68	SW	99	150			VC	24.78779	1 in 496
2107	103.47	SW	101.89	225			VC	16.55482	1 in 50
3108		SW		300			VC	17.33594	
0900	115.17	FO	113.5	150			VC	51.05569	1 in 15
0107		FO	0	225			VC	10.02119	
0107		FO	0	225			VC	10.02119	
2109	102.57	SW	101.29	225			VC	26.94831	1 in 128
2905	113.77	FO	111.1	225			CO	41.70231	1 in 24
1014		FO		100			VC	10.41596	
2103	103.9	FO	101.34	225			VC	61.00719	1 in 265
2108	102.89	SW	101.54	225			VC	16.42279	1 in 75
0102	98.71	FO	97.44	225			VC	7.199035	1 in 12
4000	109.39	FO	107.19	150			VC	5.368091	
3109		SW		300			VC	49.6987	
3300	96.18	FO	93.83	300			CO	46.97535	1 in 427
3000	107.96	FO	106.28	150			VC	19.87984	1 in 18
4203	101.5	FO	99.65	150			VC	23.3009	1 in 41
9905	111.52	SW	109.56	225			CO	23.35217	1 in 15
9905	111.52	SW	109.56	225			CO	23.35217	1 in 15
9905	111.52	SW	109.56	225			CO	23.35217	1 in 15
2190	104.19	SW	100.99	300			CO	8.726953	
4208	101.63	SW	98.87	150			VC	39.57629	1 in 128
2006	109.94	SW	107.29	225			VC	72.02003	1 in 44
0006	109.81	FO	107.81	150			VC	18.97182	1 in 37
0006	109.81	FO	107.81	150			VC	18.97182	1 in 37
0006	109.81	FO	107.81	150			VC	18.97182	1 in 37
1902		SW	0	300			VC	19.32139	
2106	105.58	SW	102.59	225			VC	41.01265	1 in 60
5212		CO		150			VC	38.28185	
5212		CO		150			VC	38.28185	
9004	105.66	SW	104.05	225			VC	66.06764	1 in 50
9004	105.66	SW	104.05	225			VC	66.06764	1 in 50
9001	105.67	FO	103.77	150			VC	64.64919	1 in 29
9001	105.67	FO	103.77	150			VC	64.64919	1 in 29
9005	105.06	SW	102.68	225			VC	23.18766	1 in 37
9005	105.06	SW	102.68	225			VC	23.18766	1 in 37

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned | Foul | Surface Water | Combined

- Public Sewer
- Private Sewer
- Section 104
- Rising Main
- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
red - combined, blue - surface water, brown - foul, purple - overflow

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

44714,

OS sheet Number: SD7034SW
Scale: 1:1250 **Date:** 06/12/2019
Nodes: 182
Sheet: 4 of 7

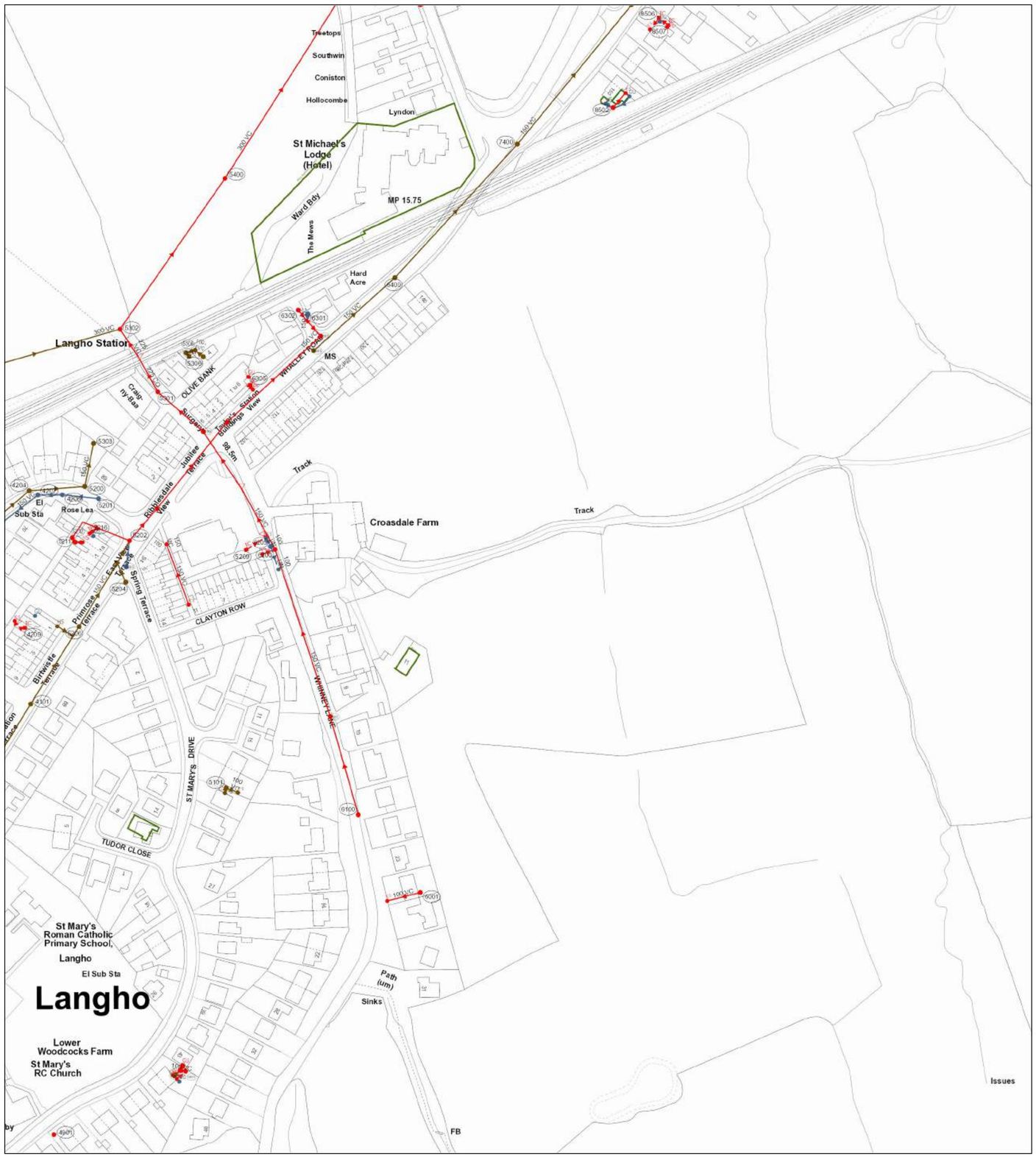
Printed by: Property Searches

SEWER RECORDS

United Utilities — helping life flow smoothly

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
5902		CO		100			VC	3.134233	
4300	96.54	FO	93.59	300			VC	98.18643	1 in 118
5205	101.86	SW	101.06	150			VC	14.60349	1 in 11
5205	101.86	SW	101.06	150			VC	14.60349	1 in 11
5300	98.61	CO	94.36	225			CO	33.39001	1 in 71
4204	100.77	FO	99.03	150			VC	30.95474	1 in 67
4204	100.77	FO	99.03	150			VC	30.95474	1 in 67
5304	98.25	CO	0	150			VC	70.64705	
5201	100.54	SW	99.28	150			VC	20.22039	1 in 225
5201	100.54	SW	99.28	150			VC	20.22039	1 in 225
4101	106.25	FO	104.08	150			VC	50.6467	1 in 21
4101	106.25	FO	104.08	150			VC	50.6467	1 in 21
6101	106.37	CO	105.06	150			VC	97.76237	1 in 21
5101		FO		100			VC	7.336361	
4207	100.68	SW	99	150			VC	24.78779	1 in 496
4207	100.68	SW	99	150			VC	24.78779	1 in 496
5204	102.22	FO	100.21	150			VC	11.60845	
5204	102.22	FO	100.21	150			VC	11.60845	
5203	100.65	CO	98.42	150			VC	61.6866	
5400	91.26	CO	89.79	300			VC	117.3694	1 in 36
5400	91.26	CO	89.79	300			VC	117.3694	1 in 36
6205		SW		100			UN	13.54252	
5308		FO		100			PVC	5.159397	
6301	95.44	SW	94.12	150			VC	4.013191	
5200	100.25	FO	98.55	150			VC	24.28536	
5200	100.25	FO	98.55	150			VC	24.28536	
5206	103.82	FO	0	150			VC	41.0225	
5206	103.82	FO	0	150			VC	41.0225	
5301	96.94	CO	93.87	225			CO	20.39042	1 in 42
6400	91.81	FO	0	150			VC	100.5006	
6200	101.78	CO	100.35	150			VC	38.01911	1 in 12
6100	108.55	CO	107.13	150			VC	56.49229	1 in 28
4102	109.3	FO	107.48	150			VC	92.18355	1 in 30
6001		CO		100			VC	19.0008	
5202	101.64	CO	99.48	150			VC	23.29617	1 in 22
5202	101.64	CO	99.48	150			VC	23.29617	1 in 22
4206	100.28	SW	99.16	150			VC	13.5803	1 in 104
4206	100.28	SW	99.16	150			VC	13.5803	1 in 104
5211		CO		150			VC	2.989794	
5211		CO		150			VC	2.989794	
6300	95.4	FO	93.05	150			VC	60.53537	
8502		CO		100			PVC	10.55326	
8502		CO		100			PVC	10.55326	
6302	95.53	CO	93.97	150			VC	7.897525	
5302	93.85	CO	92.71	300			VC	101.8201	1 in 35
5302	93.85	CO	92.71	300			VC	101.8201	1 in 35
4203	101.5	FO	99.65	150			VC	23.3009	1 in 41
5306		FO		100			PVC	5.79951	
7400	88.4	FO	85.93	150			VC	99.85457	1 in 68
7400	88.4	FO	85.93	150			VC	99.85457	1 in 68
5212		CO		150			VC	38.28185	
5212		CO		150			VC	38.28185	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned / Foul / Surface Water / Combined

- Public Sewer
- Private Sewer
- Section 104
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- Sludge Main
- Overflow
- Water Course
- Highway Drain

All point assets follow the standard colour convention:
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- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
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- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

44714,

OS sheet Number: SD7034SE
Scale: 1:1250 **Date:** 06/12/2019
Nodes: 52
Sheet: 2 of 7

Printed by: Property Searches

SEWER RECORDS

United Utilities — helping life flow smoothly

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Jessica Stevenson-Steels

From: seweradoptions@uuplc.co.uk
Sent: 06 November 2024 11:16
To: jessica.stevenson-steels@eastwoodce.com
Subject: RE: 06544237 - Pre Development - Longsight Road, Langho, BB6 8FB [Filed 06 Nov 2024 11:17]

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Filed by Mail Manager

Good morning, Jessica.

Pre-Development Enquiry for: 300 dwellings at Longsight Road Langho BB6 8FB (Grid ref: 370282E, 434509N)
UU Reference Number : 06544237

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.
If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:
https://www.unitedutilities.com/builders-developers/working-near-our-assets/

Foul Water
Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.
Our preferred point of discharge would be to the 300mm diameter public foul water sewer crossing the site. If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

Surface Water
All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.
Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The **North West SuDS Pro-Forma** provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.
The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).
The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are

outside of the jurisdiction of United Utilities.

Infiltration
Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.
A detailed evidence-based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.
Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:
https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs
If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:
https://www.gov.uk/government/publications/groundwater-protection-position-statements
Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody
If an evidence-based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the culverted/open ordinary watercourse/main river//canal/waterbody/pond (with onward flow) crossing the site proposed in your submission.
We would encourage you to identify and engage with any third-party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Highway Drainage
If an evidence-based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.
Under no circumstance should surface water be discharged into our existing sewer directly or indirectly.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels
For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage
United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances.

Existing Wastewater Assets Crossing the Site
According to our public sewer records there are public sewers located within your site boundary. We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.
Please be aware that any proposed diversion may require modelling. This process may take up to 6 months in order to reach an acceptable design.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:
https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:
https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/
We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.
If we can be of any further assistance please don't hesitate to contact us further.

Sewer Adoptions

You have indicated on your application form that you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer).
United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers for Adoption 6th Edition'.
We recommend that you submit a predesign assessment to the sewer adoption mailbox (SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title
Please refer to links below to obtain further guidance:
https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/
Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.
If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meet the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost-effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

SuDS

If your development proposal incorporates any SuDS component(s) which interact with a sewer network you plan on offering for adoption to United Utilities; contact should be made with our technical team at your earliest convenience, please complete the 'Section 104 pre-application form : ' and include as much relevant detail as you can. These discussions can help prevent delays later in the development process.
Section 104 Pre application form (1b)
As per the sewerage sector guidance, all SuDS should be designed in accordance with the standards within the Design & construction guidance & the CIRIA SuDS manual (C753)

Codes For Adoption

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:
https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/
A free copy of the new Design & Construction Guidance can be downloaded via the link below:
https://www.water.org.uk/sewerage-sector-guidance-approved-documents/

Many thanks and kind regards,

If you have received a great service today why not tell us?
Visit: http://unitedutilities.thewowawards.co.uk/nominate

Josephine Wong
Wastewater Developer Engineer
Developer Services & Metering
Customer Services
Tel: 01925 429089
unitedutilities.com

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at WastewaterDeveloperServices@uuplc.co.uk

---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 29/10/2024 11:35
To: jessica.stevenson-steels@eastwoodce.com
Subject: 06544237 - Pre Development - Longsight Road, Langho, BB6 8FB

Good Morning,

PRE DEVELOPMENT APPLICATION AT: Longsight Road, Langho, BB6 8FB – UU Ref 06544237

Please accept this email as receipt of your application received on 28/10/2024 for the above development. This has now been logged on our system and the job reference is 06544237, we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Gulshan Seetulparsad for technical assessment. You will receive their response on or before 11/11/2024.

Kind regards

Colleen Scott
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Tel: 0345 026 8989
unitedutilities.com

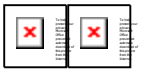
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Visit: unitedutilities.com/wow

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at WastewaterDeveloperServices@uuplc.co.uk

---------- Original Message ----------
From: [donotreply@uu-web.co.uk]
Sent: 28/10/2024 08:50
To: seweradoptions@uuplc.co.uk; webmaster@uuplc.co.uk
Subject: Wastewater Pre-Development Enquiry Submission

Question	Answer
Section 1 - Your Details	
Developer/Consultant/Land owner/Other	Consultant
Name	Jessica Stevenson-Steels
Company Name	Eastwood Consulting Engineers
Address	St Andrew's House, 23 Kingfield Road, Sheffield S11 9AS
Contact Number	01142554554
Email Address	jessica.stevenson-steels@eastwoodce.com
Section 2 - Development Details	
Do you intend to offer any of the sewers for adoption by United Utilities under S104?	Yes
Site Address	Longsight Road Langho BB6 8FB
Site Postcode	#Development postcode#
Site Name	Longsight Road, Langho
Grid Reference Number	370282E, 434509N
Development Type	Residential
Approx. Number Units	300
Total Site Area (hectares)	20.4
Does this site have planning permission?	No
Planning Reference Number	
Council Area	Ribble Valley Borough Council
Have you approached us about this site previously?	No
If yes, please provide reference number	
Is the development part of a larger site that will be developed in phases?	No
Location Plan	49343_Location Plan.pdf
Section 3: Previous Land Use	
Please confirm what the land was previously used for:	Greenfield
Brownfield evidence of positive drainage to the public sewer	
Section 4 - Drainage Strategy	
Foul connection: How are you proposing to drain foul flows from the site?	Via a new connection to the public sewer
Via an existing connection to the public sewer?	Yes

Question	Answer
Surface water connection: How are you proposing to drain your site, following the surface water hierarchy, as outlined in National Planning Policy Guidance?	Surface water body
SuDS: Have SuDS features been considered in the surface water drainage strategy?	Yes



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APPENDIX 5

The Lead Local Flood Authority expect the latest FEH rainfall data (FEH22) and ReFH2.3 methodology to be used. Evidence of this data should be included in your submission.

If you are unsure about the calculations of greenfield runoff rates, you can discuss this with the Lead Local Flood Authority through the Planning Advice Service.

What values do I use for Qbar?

Qbar is the peak rate of flow from a catchment for the mean annual flood, a return period of approximately 1:2.3 years. $Qbar_{rural}$ should be used for this value.

What about watercourses discharging to estuarial waters that are tidally affected?

Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards and volume control technical standards need not apply, in line with standard S1 of the Defra Technical Standards for Sustainable Drainage Systems.

If you are unsure about whether this applies to your site, you can discuss this with the Lead Local Flood Authority through the Planning Advice Service.

Which methodologies should be used to calculate discharge rates?

The Lead Local Flood Authority expect the latest FEH rainfall data (FEH22) and ReFH2.3 methodology to be used. Evidence of this data should be included in your submission.

What must I limit proposed post-development surface water discharge rates to?

This depends on the approach you take to limit the amount of surface water discharged from the site.

Approach 1 (Long Term Storage) controls the discharge rate and discharge volume by providing long-term storage, allowing an attenuated volume equivalent to the 1:100 year 6 hour greenfield event to be discharged at the greenfield 1:100 year rate for the 1 in 100 year 6 hour event (plus an allowance for climate change). Additional post-development runoff volume should be infiltrated into the ground or released at a rate of 2 l/s/ha or less.

Therefore, in accordance with Standards S2 and S3 of the Defra Technical Standards for Sustainable Drainage Systems, the following discharge rates from the development to any highway drain, sewer or surface water body must be achieved:

Greenfield Site: For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event **and** the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.

Previously Developed Site:

Section 4: Discharge Volume

What is 'discharge volume' and why must I consider it?

Discharge volume is the total volume of water leaving the development site for a particular rainfall event.

Introducing new impermeable surfaces increases surface water runoff and therefore can increase flood risk within and outside the development. By understanding the increase in surface water runoff volume measures can be taken to attenuate flows and mitigate any potential flood risk outside of the development.

The Defra Technical Standards for Sustainable Drainage Systems require runoff volume from development sites to be restricted in line with Technical Standards S4, S5 and/or S6, unless S1 applies.

What must the proposed post-development surface water discharge volume be limited to?

In line with Standards S4 and S5 of the Defra Technical Standards for Sustainable Drainage Systems, the following discharge volumes from the development to any highway drain, sewer or surface water body must be achieved:

Greenfield Site: For greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

Previously Developed Site: For developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.

Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with the above, the runoff volume must be discharged at a rate that does not adversely affect flood risk (usually Qbar). If you are unsure, you can discuss this with the Lead Local Flood Authority through our Planning Advice Service.

Why do I need to calculate the runoff volume for the 100 year 6 hour storm event?

This is a simple method of calculating the volume of surface water discharging from a development site to determine whether there will be an increase in runoff volume discharging to the downstream catchment and subsequently whether there will be an increase in flood risk

By using a single specific storm event such as the 100 year 6 hour storm event, you are able to compare the volumetric runoff response from the existing site and the developed site.

Jessica Stevenson-Steels

From: Daniel, Owen <Owen.Daniel@lancashire.gov.uk> on behalf of Daniel, Owen
Sent: 04 November 2024 14:32
To: jessica.stevenson-steels@eastwoodce.com
Subject: 613184 - Longsight Rd [Enquiry] [Filed 04 Nov 2024 15:06]

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Filed by Mail Manager

Good afternoon,

Thank you for your Ordinary Watercourse Consent enquiry. Depending on how you plan to connect to the existing watercourse you may require ordinary watercourse consent from ourselves. Usually the most common way to discharge into a watercourse is by a surface water outfall, depending on how these are designed within the bank profile of the existing watercourse they may or may not require consent.

We would strongly recommend to submit an application with us and provide the minimal required documents in order for us to make an assessment. We can get back to you if the works do/do not require consent, a fee will only be charged if consent is required.

Many thanks,

Owen Daniel (he/him)
Technical Support Officer
Highways and Transport
Lancashire County Council
T: 01772 534594
W: www.lancashire.gov.uk

****

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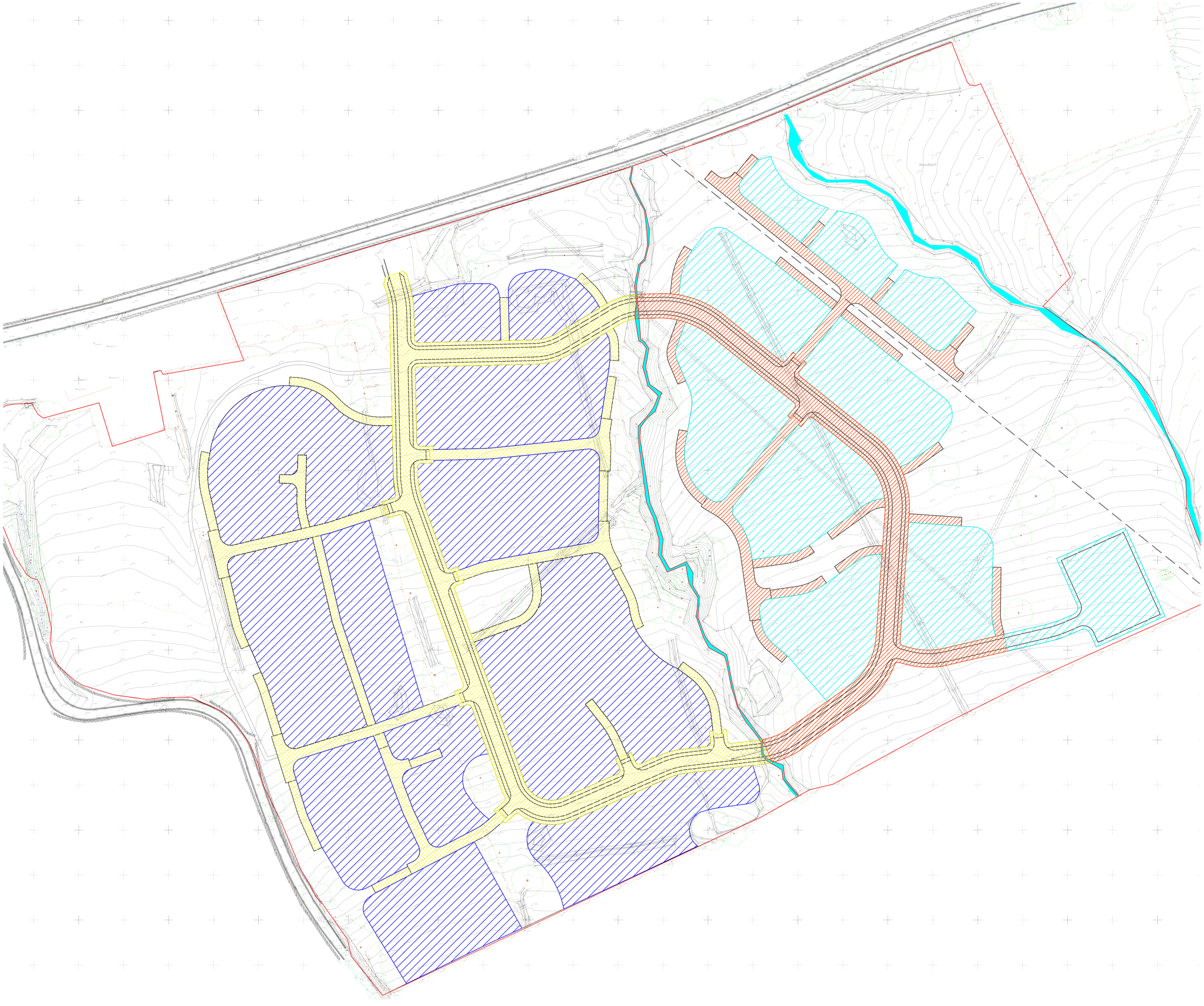
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APPENDIX 6



Developable areas:

Western catchment:

Roads: 1.53 ha

Additional developable areas: 5.33 ha

Total developable area: 6.86 ha

Proposed impermeable area: 3.06 (1.53 ha x 2, see note below)

Eastern catchment:

Roads: 1.03 ha

Additional developable areas: 2.70 ha

Total developable area: 3.73 ha

Proposed impermeable area: 2.06 (1.03 ha x 2, see note below)

Notes:

1. It can be assumed that the total proposed impermeable area of the site will be broadly equivalent to the proposed road area multiplied by 2. This is to be confirmed as the site layout develops.

REV	DESCRIPTION	SIG	CHK	DATE
P01	First Issue.	JSS	KBE	03.12.2024

HALLAM LAND MANAGEMENT LTD

LONGSIGHT ROAD, LANGHO

PROPOSED DEVELOPMENT AREAS

Eastwood
CONSULTING ENGINEERS

St Andrew's House
23 Kingfield Road
Sheffield, S11 9AS

T: 0114 255 4554
E: mail@eastwoodce.com
eastwoodce.com

ECE PROJECT No	SCALE AT A1	STATUS	SUITABLE FOR
49343	1:1000	S0	Initial

DRAWING NUMBER

Project	Originator	Zone	Level	Type	Role	Number	REV
49343	ECE	XX	XX	DR	C	0001	P01



Greenfield runoff catchments:

- Catchment 1
- Catchment 2
- Catchment 3
- Catchment 4
- General direction of greenfield runoff
- Watercourse

Developable area in greenfield runoff catchments for the proposed surface water outfall watercourses:

- Central western catchment: 7.11 ha
- Central eastern catchment: 2.35 ha

REV	DESCRIPTION	SIG	CHK	DATE
P02	Additional runoff arrows and text included.	JSS	KBE	29.01.2025
P01	First Issue.	JSS	KBE	03.12.2024

HALLAM LAND MANAGEMENT LTD

LONGSIGHT ROAD, LANGHO

GREENFIELD RUNOFF CATCHMENTS

Eastwood
CONSULTING ENGINEERS
St Andrew's House
23 Kingfield Road
Sheffield, S11 9AS
T: 0114 255 4554
E: mail@eastwoodce.com
eastwoodce.com

ECE PROJECT No	SCALE AT A1	STATUS	SUITABLE FOR
49343	1:1250	S0	Initial

DRAWING NUMBER

Project	Originator	Zone	Level	Type	Role	Number	REV
49343	ECE	XX	XX	DR	C	0002	P02

EASTWOOD & PARTNERS (Consulting Engineers) Ltd.

Project:	**49343**	Sheet	1.00
location	**Longsight Road**	Job No.	49343
town	**Langho**	Date	04/02/2025
Subject:		Designed	JSS
	Surface Water Drainage	Checked	KBE
	Storage Estimates	Revision	B

Site Details :

Location : Longsight Road, Langho, West
Grid Ref : 370282E, 434509N

Total Site Area	**8.665**	ha	
Deduct areas to soakaways	0.000	ha	
Effective Drainage Area	**8.665**	ha	
Total Impermeable	**2.052**	ha	24%
Allow for Urban Creep	**0.103**	ha	10% (10% of roof area only)
Total Impermeable	**2.154**	ha	
PIMP	24.9%		
PR	20.5	Equation 7.3	
Cv	0.82	Equation 7.21	
Default Cv	**1.00**	Designer to insert to override calculated Cv	

Information From Wallingford Maps :

M5-60	**20.0**	mm
r	**0.30**	
SAAR	**1148**	mm
UCWI	120	(Fig. 9.7)
Soil Type	**4**	
SOIL	0.45	(Section 7.4)

Design Return Period **100** **Years**

Max. Branch Length	**100**	metres
Approx. Time of Flow	**1.7**	mins

Percentage Increase For Climate Change: **50%**

Details of Restricted Discharge :

Maximum Permitted Rate of Flow from the System		Litres/sec.ha
	18.3	Litres/sec
Assumed Average Flow as a Proportion (Estimate)	**85**	%
Average Rate of Flow	**15.6**	Litres/sec

Calculation of Critical Duration and Storage Volume Required :

Trial Durations (mins)	**670**	**720**	**740**	**760**	**780**	**800**	**820**
Average Point Intensity (mm/hr)	7.4	7.0	6.9	6.7	6.6	6.5	6.4
Volume of Run-off for the period = Area x Cv x i x D (m3)	1775.8	1809.3	1822.1	1834.7	1847.0	1859.0	1870.8
With climate change	2663.7	2713.9	2733.2	2752.0	2770.5	2788.5	2806.3
Volume of Out-flow for the period = Ave. flow x (D+Tf)(m3)	626.9	673.5	692.2	710.9	729.5	748.2	766.9
Storage Volume for this Duration (m3)	**2037**	**2040**	**2041**	**2041**	**2041**	**2040**	**2039**

Storage Volume Reqired for

100 Year Return Period = 2041 m^3

Is this the worst case (ie. Critical Duration)? 1 (1 = Yes, 0 = No)

EASTWOOD & PARTNERS (Consulting Engineers) Ltd.

Project:	**49343**	Sheet	1.00
location	**Longsight Road**	Job No.	49343
town	**Langho**	Date	04/02/2025
Subject:		Designed	JSS
	Surface Water Drainage	Checked	KBE
	Storage Estimates	Revision	B

Site Details :

Location : Longsight Road, Langho, West
Grid Ref : 370282E, 434509N

Total Site Area	**11.434**	ha
Deduct areas to soakaways	0.000	ha
Effective Drainage Area	**11.434**	ha

Total Impermeable	**3.064**	ha	27%
Allow for Urban Creep	**0.153**	ha	10% (10% of roof area only)
Total Impermeable	**3.217**	ha	

PIMP	28.1%	
PR	23.2	Equation 7.3
Cv	0.83	Equation 7.21
Default Cv	**1.00**	Designer to insert to override calculated Cv

Information From Wallingford Maps :

M5-60	**20.0**	mm
r	**0.30**	
SAAR	**1148**	mm
UCWI	120	(Fig. 9.7)
Soil Type	**4**	
SOIL	0.45	(Section 7.4)

Design Return Period **100** **Years**

Max. Branch Length	**543**	metres
Approx. Time of Flow	**9.1**	mins

Percentage Increase For Climate Change: **50%**

Details of Restricted Discharge :

Maximum Permitted Rate of Flow from the System		Litres/sec.ha
	33.7	Litres/sec
Assumed Average Flow as a Proportion (Estimate)	**85**	%
Average Rate of Flow	**28.6**	Litres/sec

Calculation of Critical Duration and Storage Volume Required :

Trial Durations (mins)	**540**	**560**	**580**	**600**	**620**	**640**	**660**
Average Point Intensity (mm/hr)	8.7	8.4	8.2	8.0	7.8	7.6	7.5
Volume of Run-off for the period = Area x Cv x i x D (m3)	2506.6	2530.8	2554.2	2577.0	2599.2	2620.9	2641.9
With climate change	3760.0	3796.2	3831.3	3865.5	3898.8	3931.3	3962.9
Volume of Out-flow for the period = Ave. flow x (D+Tf)(m3)	943.7	978.0	1012.4	1046.8	1081.1	1115.5	1149.9
Storage Volume for this Duration (m3)	**2816**	**2818**	**2819**	**2819**	**2818**	**2816**	**2813**

Storage Volume Reqired for

100 Year Return Period = 2819 m^3

Is this the worst case (ie. Critical Duration)? 1 (1 = Yes, 0 = No)

UK Design Flood Estimation

Generated on 08 November 2024 11:40:10 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 99C7-7073

Site name: FEH_Point_Descriptors_370146_434443_v5_0_1

Easting: 370146

Northing: 434443

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.07 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 1 year

Summary of results

Rainfall - FEH22 (mm):	14.97	Total runoff (ML):	0.34
Total Rainfall (mm):	11.00	Total flow (ML):	0.78
Peak Rainfall (mm):	1.36	Peak flow (m³/s):	0.05

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	111.55	No
Cmax (mm)	271.03	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	27.7 [23.89]	Yes
BR	1.32	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.1109	0.0000	0.0457	0.0000	0.0041	0.0041
00:06:00	0.1455	0.0000	0.0600	0.0000	0.00408	0.00411
00:12:00	0.1907	0.0000	0.0787	0.0001	0.00407	0.00419
00:18:00	0.2495	0.0000	0.1032	0.0003	0.00405	0.00437
00:24:00	0.3261	0.0000	0.1352	0.0006	0.00404	0.00466
00:30:00	0.4252	0.0000	0.1769	0.0011	0.00403	0.0051
00:36:00	0.5531	0.0000	0.2312	0.0017	0.00402	0.00575
00:42:00	0.7170	0.0000	0.3013	0.0026	0.00402	0.00666
00:48:00	0.9242	0.0000	0.3912	0.0039	0.00402	0.00793
00:54:00	1.1770	0.0000	0.5028	0.0056	0.00403	0.00964
01:00:00	1.3625	0.0000	0.5884	0.0079	0.00404	0.0119
01:06:00	1.1770	0.0000	0.5138	0.0108	0.00407	0.0149
01:12:00	0.9242	0.0000	0.4071	0.0144	0.00412	0.0185
01:18:00	0.7170	0.0000	0.3180	0.0183	0.00418	0.0225
01:24:00	0.5531	0.0000	0.2466	0.0226	0.00426	0.0269
01:30:00	0.4252	0.0000	0.1903	0.0270	0.00437	0.0313
01:36:00	0.3261	0.0000	0.1464	0.0313	0.00449	0.0358
01:42:00	0.2495	0.0000	0.1123	0.0355	0.00463	0.0401
01:48:00	0.1907	0.0000	0.0860	0.0392	0.00479	0.044
01:54:00	0.1455	0.0000	0.0657	0.0424	0.00497	0.0474
02:00:00	0.1109	0.0000	0.0501	0.0448	0.00516	0.05
02:06:00	0.0000	0.0000	0.0000	0.0462	0.00535	0.0515
02:12:00	0.0000	0.0000	0.0000	0.0465	0.00555	0.052
02:18:00	0.0000	0.0000	0.0000	0.0458	0.00575	0.0516
02:24:00	0.0000	0.0000	0.0000	0.0445	0.00595	0.0505
02:30:00	0.0000	0.0000	0.0000	0.0427	0.00613	0.0488
02:36:00	0.0000	0.0000	0.0000	0.0404	0.00631	0.0468
02:42:00	0.0000	0.0000	0.0000	0.0380	0.00647	0.0444
02:48:00	0.0000	0.0000	0.0000	0.0353	0.00662	0.042
02:54:00	0.0000	0.0000	0.0000	0.0326	0.00676	0.0394
03:00:00	0.0000	0.0000	0.0000	0.0300	0.00688	0.0369
03:06:00	0.0000	0.0000	0.0000	0.0274	0.00699	0.0344
03:12:00	0.0000	0.0000	0.0000	0.0251	0.00709	0.0322
03:18:00	0.0000	0.0000	0.0000	0.0229	0.00718	0.0301
03:24:00	0.0000	0.0000	0.0000	0.0209	0.00726	0.0281

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Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.1283	0.0000	0.0528	0.0000	0.0041	0.0041
00:06:00	0.1683	0.0000	0.0694	0.0000	0.00408	0.00411
00:12:00	0.2205	0.0000	0.0911	0.0001	0.00407	0.00421
00:18:00	0.2886	0.0000	0.1195	0.0004	0.00405	0.00441
00:24:00	0.3771	0.0000	0.1566	0.0007	0.00404	0.00475
00:30:00	0.4917	0.0000	0.2050	0.0012	0.00403	0.00527
00:36:00	0.6397	0.0000	0.2680	0.0020	0.00402	0.00602
00:42:00	0.8292	0.0000	0.3496	0.0031	0.00402	0.00708
00:48:00	1.0688	0.0000	0.4544	0.0045	0.00402	0.00855
00:54:00	1.3612	0.0000	0.5848	0.0065	0.00404	0.0105
01:00:00	1.5757	0.0000	0.6855	0.0091	0.00406	0.0132
01:06:00	1.3612	0.0000	0.5996	0.0125	0.00409	0.0166
01:12:00	1.0688	0.0000	0.4756	0.0167	0.00415	0.0208
01:18:00	0.8292	0.0000	0.3719	0.0213	0.00422	0.0255
01:24:00	0.6397	0.0000	0.2886	0.0262	0.00432	0.0306
01:30:00	0.4917	0.0000	0.2229	0.0314	0.00444	0.0358
01:36:00	0.3771	0.0000	0.1715	0.0364	0.00458	0.041
01:42:00	0.2886	0.0000	0.1316	0.0413	0.00474	0.046
01:48:00	0.2205	0.0000	0.1008	0.0457	0.00493	0.0506
01:54:00	0.1683	0.0000	0.0770	0.0494	0.00514	0.0545
02:00:00	0.1283	0.0000	0.0588	0.0522	0.00535	0.0575
02:06:00	0.0000	0.0000	0.0000	0.0538	0.00558	0.0594
02:12:00	0.0000	0.0000	0.0000	0.0541	0.00582	0.0599
02:18:00	0.0000	0.0000	0.0000	0.0534	0.00605	0.0595
02:24:00	0.0000	0.0000	0.0000	0.0519	0.00627	0.0582
02:30:00	0.0000	0.0000	0.0000	0.0498	0.00649	0.0562
02:36:00	0.0000	0.0000	0.0000	0.0472	0.00669	0.0539
02:42:00	0.0000	0.0000	0.0000	0.0443	0.00688	0.0512
02:48:00	0.0000	0.0000	0.0000	0.0412	0.00705	0.0483
02:54:00	0.0000	0.0000	0.0000	0.0381	0.00721	0.0453
03:00:00	0.0000	0.0000	0.0000	0.0350	0.00736	0.0423
03:06:00	0.0000	0.0000	0.0000	0.0320	0.00749	0.0395
03:12:00	0.0000	0.0000	0.0000	0.0292	0.00761	0.0368
03:18:00	0.0000	0.0000	0.0000	0.0267	0.00771	0.0344
03:24:00	0.0000	0.0000	0.0000	0.0243	0.0078	0.0321

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0221	0.00788	0.03
03:36:00	0.0000	0.0000	0.0000	0.0200	0.00795	0.0279
03:42:00	0.0000	0.0000	0.0000	0.0180	0.00801	0.026
03:48:00	0.0000	0.0000	0.0000	0.0160	0.00806	0.0241
03:54:00	0.0000	0.0000	0.0000	0.0142	0.0081	0.0223
04:00:00	0.0000	0.0000	0.0000	0.0124	0.00814	0.0205
04:06:00	0.0000	0.0000	0.0000	0.0106	0.00816	0.0188
04:12:00	0.0000	0.0000	0.0000	0.0090	0.00818	0.0172
04:18:00	0.0000	0.0000	0.0000	0.0074	0.00819	0.0156
04:24:00	0.0000	0.0000	0.0000	0.0060	0.00819	0.0142
04:30:00	0.0000	0.0000	0.0000	0.0046	0.00818	0.0128
04:36:00	0.0000	0.0000	0.0000	0.0035	0.00817	0.0117
04:42:00	0.0000	0.0000	0.0000	0.0025	0.00816	0.0107
04:48:00	0.0000	0.0000	0.0000	0.0018	0.00814	0.00996
04:54:00	0.0000	0.0000	0.0000	0.0013	0.00812	0.00939
05:00:00	0.0000	0.0000	0.0000	0.0009	0.00809	0.00896
05:06:00	0.0000	0.0000	0.0000	0.0006	0.00807	0.00863
05:12:00	0.0000	0.0000	0.0000	0.0003	0.00804	0.00839
05:18:00	0.0000	0.0000	0.0000	0.0002	0.00801	0.00821
05:24:00	0.0000	0.0000	0.0000	0.0001	0.00798	0.00809
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00796	0.008
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00793	0.00794
05:42:00	0.0000	0.0000	0.0000	0.0000	0.0079	0.0079
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00787	0.00787
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00784	0.00784
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00781	0.00781
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00778	0.00778
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00776	0.00776
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00773	0.00773
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00767	0.00767
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00765	0.00765
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00762	0.00762
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00759	0.00759
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00756	0.00756
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00754	0.00754

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00751	0.00751
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00748	0.00748
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00745	0.00745
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00743	0.00743
07:30:00	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00737	0.00737
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00735	0.00735
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00732	0.00732
07:54:00	0.0000	0.0000	0.0000	0.0000	0.0073	0.0073
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00727	0.00727
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00724	0.00724
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00722	0.00722
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00719	0.00719
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00716	0.00716
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00714	0.00714
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00711	0.00711
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00709	0.00709
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00706	0.00706
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00704	0.00704
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00701	0.00701
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00699	0.00699
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00696	0.00696
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00694	0.00694
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00691	0.00691
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00689	0.00689
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00686	0.00686
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00684	0.00684
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00681	0.00681
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00679	0.00679
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00676	0.00676
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00674	0.00674
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00671	0.00671
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00669	0.00669
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00667	0.00667
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00664	0.00664
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00662	0.00662

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00659	0.00659
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00657	0.00657
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00655	0.00655
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00652	0.00652
11:06:00	0.0000	0.0000	0.0000	0.0000	0.0065	0.0065
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00648	0.00648
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00645	0.00645
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00643	0.00643
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00641	0.00641
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00638	0.00638
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00636	0.00636
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00634	0.00634
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00631	0.00631
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00629	0.00629
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00627	0.00627
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00625	0.00625
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00622	0.00622
12:24:00	0.0000	0.0000	0.0000	0.0000	0.0062	0.0062
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00618	0.00618
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00616	0.00616
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00613	0.00613
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00611	0.00611
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00609	0.00609
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00607	0.00607
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00605	0.00605
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00602	0.00602
13:18:00	0.0000	0.0000	0.0000	0.0000	0.006	0.006
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00598	0.00598
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00596	0.00596
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00594	0.00594
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00592	0.00592
13:48:00	0.0000	0.0000	0.0000	0.0000	0.0059	0.0059
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00587	0.00587
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00585	0.00585
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00583	0.00583
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00581	0.00581

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00579	0.00579
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00577	0.00577
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00575	0.00575
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00573	0.00573
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00571	0.00571
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00569	0.00569
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00567	0.00567
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00565	0.00565
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00563	0.00563
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00561	0.00561
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00558	0.00558
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00556	0.00556
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00554	0.00554
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00552	0.00552
15:42:00	0.0000	0.0000	0.0000	0.0000	0.0055	0.0055
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00548	0.00548
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00547	0.00547
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00545	0.00545
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00543	0.00543
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00541	0.00541
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00539	0.00539
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00537	0.00537
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00535	0.00535
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00533	0.00533
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00531	0.00531
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00529	0.00529
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00527	0.00527
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00525	0.00525
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00523	0.00523
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00521	0.00521
17:18:00	0.0000	0.0000	0.0000	0.0000	0.0052	0.0052
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00518	0.00518
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00516	0.00516
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00514	0.00514
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00512	0.00512
17:48:00	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00508	0.00508
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00507	0.00507
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00505	0.00505
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00503	0.00503
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00501	0.00501
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00499	0.00499
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00498	0.00498
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00496	0.00496
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00494	0.00494
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00492	0.00492
18:54:00	0.0000	0.0000	0.0000	0.0000	0.0049	0.0049
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00489	0.00489
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00487	0.00487
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00485	0.00485
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00483	0.00483
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00482	0.00482
19:30:00	0.0000	0.0000	0.0000	0.0000	0.0048	0.0048
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00478	0.00478
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00476	0.00476
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00475	0.00475
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00473	0.00473
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00471	0.00471
20:06:00	0.0000	0.0000	0.0000	0.0000	0.0047	0.0047
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00468	0.00468
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00466	0.00466
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00465	0.00465
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00463	0.00463
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00461	0.00461
20:42:00	0.0000	0.0000	0.0000	0.0000	0.0046	0.0046
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00458	0.00458
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00456	0.00456
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00455	0.00455
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00453	0.00453
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00451	0.00451
21:18:00	0.0000	0.0000	0.0000	0.0000	0.0045	0.0045
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00448	0.00448

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00446	0.00446
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00445	0.00445
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00443	0.00443
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00442	0.00442
21:54:00	0.0000	0.0000	0.0000	0.0000	0.0044	0.0044
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00438	0.00438
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00437	0.00437
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00435	0.00435
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00434	0.00434
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00432	0.00432
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00431	0.00431
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00429	0.00429
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00428	0.00428
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00426	0.00426
22:54:00	0.0000	0.0000	0.0000	0.0000	0.00424	0.00424
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00423	0.00423
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00421	0.00421
23:12:00	0.0000	0.0000	0.0000	0.0000	0.0042	0.0042
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00418	0.00418
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00417	0.00417
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00415	0.00415
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00414	0.00414
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00412	0.00412

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.36	No
BFIHOST19	0.38	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:40:32 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 99C7-7073

Site name: FEH_Point_Descriptors_370146_434443_v5_0_1

Easting: 370146

Northing: 434443

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.07 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 10 year

Summary of results

Rainfall - FEH22 (mm):	29.94	Total runoff (ML):	0.71
Total Rainfall (mm):	22.01	Total flow (ML):	1.56
Peak Rainfall (mm):	2.73	Peak flow (m³/s):	0.10

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	111.55	No
Cmax (mm)	271.03	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	27.7 [23.89]	Yes
BR	1.21	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.2219	0.0000	0.0914	0.0000	0.0041	0.0041
00:06:00	0.2911	0.0000	0.1202	0.0001	0.00408	0.00414
00:12:00	0.3815	0.0000	0.1580	0.0003	0.00407	0.00432
00:18:00	0.4992	0.0000	0.2076	0.0006	0.00405	0.00468
00:24:00	0.6523	0.0000	0.2726	0.0012	0.00404	0.00528
00:30:00	0.8506	0.0000	0.3579	0.0022	0.00404	0.00619
00:36:00	1.1065	0.0000	0.4695	0.0035	0.00403	0.0075
00:42:00	1.4343	0.0000	0.6153	0.0053	0.00404	0.00936
00:48:00	1.8489	0.0000	0.8044	0.0079	0.00405	0.0119
00:54:00	2.3546	0.0000	1.0426	0.0113	0.00408	0.0154
01:00:00	2.7257	0.0000	1.2325	0.0160	0.00412	0.0201
01:06:00	2.3546	0.0000	1.0868	0.0220	0.00419	0.0262
01:12:00	1.8489	0.0000	0.8677	0.0293	0.00429	0.0336
01:18:00	1.4343	0.0000	0.6818	0.0375	0.00442	0.0419
01:24:00	1.1065	0.0000	0.5312	0.0464	0.00459	0.051
01:30:00	0.8506	0.0000	0.4114	0.0556	0.00479	0.0604
01:36:00	0.6523	0.0000	0.3173	0.0647	0.00504	0.0698
01:42:00	0.4992	0.0000	0.2439	0.0735	0.00532	0.0788
01:48:00	0.3815	0.0000	0.1870	0.0815	0.00564	0.0871
01:54:00	0.2911	0.0000	0.1431	0.0883	0.00599	0.0943
02:00:00	0.2219	0.0000	0.1093	0.0935	0.00637	0.0999
02:06:00	0.0000	0.0000	0.0000	0.0966	0.00676	0.103
02:12:00	0.0000	0.0000	0.0000	0.0974	0.00716	0.105
02:18:00	0.0000	0.0000	0.0000	0.0962	0.00755	0.104
02:24:00	0.0000	0.0000	0.0000	0.0936	0.00794	0.102
02:30:00	0.0000	0.0000	0.0000	0.0898	0.00831	0.0982
02:36:00	0.0000	0.0000	0.0000	0.0852	0.00867	0.0939
02:42:00	0.0000	0.0000	0.0000	0.0801	0.009	0.0891
02:48:00	0.0000	0.0000	0.0000	0.0746	0.0093	0.0839
02:54:00	0.0000	0.0000	0.0000	0.0689	0.00958	0.0785
03:00:00	0.0000	0.0000	0.0000	0.0633	0.00983	0.0732
03:06:00	0.0000	0.0000	0.0000	0.0580	0.0101	0.068
03:12:00	0.0000	0.0000	0.0000	0.0530	0.0103	0.0632
03:18:00	0.0000	0.0000	0.0000	0.0484	0.0105	0.0588
03:24:00	0.0000	0.0000	0.0000	0.0441	0.0106	0.0547

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0401	0.0108	0.0508
03:36:00	0.0000	0.0000	0.0000	0.0362	0.0109	0.0471
03:42:00	0.0000	0.0000	0.0000	0.0326	0.011	0.0436
03:48:00	0.0000	0.0000	0.0000	0.0291	0.0111	0.0402
03:54:00	0.0000	0.0000	0.0000	0.0257	0.0112	0.0369
04:00:00	0.0000	0.0000	0.0000	0.0225	0.0112	0.0337
04:06:00	0.0000	0.0000	0.0000	0.0194	0.0113	0.0307
04:12:00	0.0000	0.0000	0.0000	0.0164	0.0113	0.0277
04:18:00	0.0000	0.0000	0.0000	0.0136	0.0114	0.0249
04:24:00	0.0000	0.0000	0.0000	0.0109	0.0114	0.0223
04:30:00	0.0000	0.0000	0.0000	0.0085	0.0114	0.0199
04:36:00	0.0000	0.0000	0.0000	0.0064	0.0114	0.0178
04:42:00	0.0000	0.0000	0.0000	0.0047	0.0113	0.016
04:48:00	0.0000	0.0000	0.0000	0.0034	0.0113	0.0147
04:54:00	0.0000	0.0000	0.0000	0.0024	0.0113	0.0136
05:00:00	0.0000	0.0000	0.0000	0.0016	0.0113	0.0129
05:06:00	0.0000	0.0000	0.0000	0.0010	0.0112	0.0123
05:12:00	0.0000	0.0000	0.0000	0.0006	0.0112	0.0118
05:18:00	0.0000	0.0000	0.0000	0.0004	0.0112	0.0115
05:24:00	0.0000	0.0000	0.0000	0.0002	0.0111	0.0113
05:30:00	0.0000	0.0000	0.0000	0.0001	0.0111	0.0111
05:36:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
05:42:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
05:48:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
05:54:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
06:00:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
06:06:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
06:12:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
06:18:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
06:30:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
06:36:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
06:42:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
06:48:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
06:54:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
07:00:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
07:12:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
07:18:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
07:24:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
07:30:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
07:36:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
07:42:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
07:48:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
07:54:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
08:00:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
08:06:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
08:12:00	0.0000	0.0000	0.0000	0.0000	0.01	0.01
08:18:00	0.0000	0.0000	0.0000	0.0000	0.01	0.01
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00997	0.00997
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00994	0.00994
08:36:00	0.0000	0.0000	0.0000	0.0000	0.0099	0.0099
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00986	0.00986
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00983	0.00983
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00979	0.00979
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00976	0.00976
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00972	0.00972
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00969	0.00969
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00965	0.00965
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00962	0.00962
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00958	0.00958
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00955	0.00955
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00951	0.00951
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00948	0.00948
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00945	0.00945
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00941	0.00941
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00938	0.00938
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00934	0.00934
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00931	0.00931
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00928	0.00928
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00924	0.00924
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00921	0.00921

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00918	0.00918
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00914	0.00914
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00911	0.00911
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00908	0.00908
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00905	0.00905
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00901	0.00901
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00898	0.00898
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00895	0.00895
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00892	0.00892
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00888	0.00888
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00885	0.00885
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00882	0.00882
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00879	0.00879
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00876	0.00876
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00872	0.00872
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00869	0.00869
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00866	0.00866
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00863	0.00863
12:30:00	0.0000	0.0000	0.0000	0.0000	0.0086	0.0086
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00857	0.00857
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00854	0.00854
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00851	0.00851
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00848	0.00848
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00845	0.00845
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00842	0.00842
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00838	0.00838
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00835	0.00835
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00832	0.00832
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00829	0.00829
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00826	0.00826
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00823	0.00823
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00821	0.00821
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00818	0.00818
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00815	0.00815
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00812	0.00812
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00809	0.00809

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00806	0.00806
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00803	0.00803
14:30:00	0.0000	0.0000	0.0000	0.0000	0.008	0.008
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00797	0.00797
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00794	0.00794
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00791	0.00791
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00789	0.00789
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00786	0.00786
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00783	0.00783
15:12:00	0.0000	0.0000	0.0000	0.0000	0.0078	0.0078
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00777	0.00777
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00774	0.00774
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00772	0.00772
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00769	0.00769
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00766	0.00766
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00763	0.00763
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00761	0.00761
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00758	0.00758
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00755	0.00755
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00752	0.00752
16:18:00	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00747	0.00747
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00744	0.00744
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00742	0.00742
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00739	0.00739
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00736	0.00736
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00734	0.00734
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00731	0.00731
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00728	0.00728
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00726	0.00726
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00723	0.00723
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00721	0.00721
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00718	0.00718
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00715	0.00715
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00713	0.00713
17:48:00	0.0000	0.0000	0.0000	0.0000	0.0071	0.0071

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00708	0.00708
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00705	0.00705
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00703	0.00703
18:12:00	0.0000	0.0000	0.0000	0.0000	0.007	0.007
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00697	0.00697
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00695	0.00695
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00692	0.00692
18:36:00	0.0000	0.0000	0.0000	0.0000	0.0069	0.0069
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00687	0.00687
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00685	0.00685
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00683	0.00683
19:00:00	0.0000	0.0000	0.0000	0.0000	0.0068	0.0068
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00678	0.00678
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00675	0.00675
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00673	0.00673
19:24:00	0.0000	0.0000	0.0000	0.0000	0.0067	0.0067
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00668	0.00668
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00666	0.00666
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00663	0.00663
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00661	0.00661
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00658	0.00658
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00656	0.00656
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00654	0.00654
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00651	0.00651
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00649	0.00649
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00647	0.00647
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00644	0.00644
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00642	0.00642
20:42:00	0.0000	0.0000	0.0000	0.0000	0.0064	0.0064
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00637	0.00637
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00635	0.00635
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00633	0.00633
21:06:00	0.0000	0.0000	0.0000	0.0000	0.0063	0.0063
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00628	0.00628
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00626	0.00626
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00624	0.00624

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00621	0.00621
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00619	0.00619
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00617	0.00617
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00615	0.00615
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00612	0.00612
22:00:00	0.0000	0.0000	0.0000	0.0000	0.0061	0.0061
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00608	0.00608
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00606	0.00606
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00604	0.00604
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00602	0.00602
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00599	0.00599
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00597	0.00597
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00595	0.00595
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00593	0.00593
22:54:00	0.0000	0.0000	0.0000	0.0000	0.00591	0.00591
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00589	0.00589
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00587	0.00587
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00584	0.00584
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00582	0.00582
23:24:00	0.0000	0.0000	0.0000	0.0000	0.0058	0.0058
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00578	0.00578
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00576	0.00576
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00574	0.00574
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00572	0.00572
23:54:00	0.0000	0.0000	0.0000	0.0000	0.0057	0.0057
24:00:00	0.0000	0.0000	0.0000	0.0000	0.00568	0.00568
24:06:00	0.0000	0.0000	0.0000	0.0000	0.00566	0.00566
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00564	0.00564
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00562	0.00562
24:24:00	0.0000	0.0000	0.0000	0.0000	0.0056	0.0056
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00558	0.00558
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00556	0.00556
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00554	0.00554
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00552	0.00552
24:54:00	0.0000	0.0000	0.0000	0.0000	0.0055	0.0055
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00548	0.00548

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00546	0.00546
25:12:00	0.0000	0.0000	0.0000	0.0000	0.00544	0.00544
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00542	0.00542
25:24:00	0.0000	0.0000	0.0000	0.0000	0.0054	0.0054
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00538	0.00538
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00536	0.00536
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00534	0.00534
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00532	0.00532
25:54:00	0.0000	0.0000	0.0000	0.0000	0.0053	0.0053
26:00:00	0.0000	0.0000	0.0000	0.0000	0.00528	0.00528
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00526	0.00526
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00524	0.00524
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00523	0.00523
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00521	0.00521
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00519	0.00519
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00517	0.00517
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00515	0.00515
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00513	0.00513
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00511	0.00511
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00509	0.00509
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00508	0.00508
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00506	0.00506
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00504	0.00504
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00502	0.00502
27:30:00	0.0000	0.0000	0.0000	0.0000	0.005	0.005
27:36:00	0.0000	0.0000	0.0000	0.0000	0.00499	0.00499
27:42:00	0.0000	0.0000	0.0000	0.0000	0.00497	0.00497
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00495	0.00495
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00493	0.00493
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00491	0.00491
28:06:00	0.0000	0.0000	0.0000	0.0000	0.0049	0.0049
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00488	0.00488
28:18:00	0.0000	0.0000	0.0000	0.0000	0.00486	0.00486
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00484	0.00484
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00483	0.00483
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00481	0.00481

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00479	0.00479
28:48:00	0.0000	0.0000	0.0000	0.0000	0.00477	0.00477
28:54:00	0.0000	0.0000	0.0000	0.0000	0.00476	0.00476
29:00:00	0.0000	0.0000	0.0000	0.0000	0.00474	0.00474
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00472	0.00472
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00471	0.00471
29:18:00	0.0000	0.0000	0.0000	0.0000	0.00469	0.00469
29:24:00	0.0000	0.0000	0.0000	0.0000	0.00467	0.00467
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00466	0.00466
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00464	0.00464
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00462	0.00462
29:48:00	0.0000	0.0000	0.0000	0.0000	0.00461	0.00461
29:54:00	0.0000	0.0000	0.0000	0.0000	0.00459	0.00459
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00457	0.00457
30:06:00	0.0000	0.0000	0.0000	0.0000	0.00456	0.00456
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00454	0.00454
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00452	0.00452
30:24:00	0.0000	0.0000	0.0000	0.0000	0.00451	0.00451
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00449	0.00449
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00447	0.00447
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00446	0.00446
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00444	0.00444
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00443	0.00443
31:00:00	0.0000	0.0000	0.0000	0.0000	0.00441	0.00441
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00439	0.00439
31:12:00	0.0000	0.0000	0.0000	0.0000	0.00438	0.00438
31:18:00	0.0000	0.0000	0.0000	0.0000	0.00436	0.00436
31:24:00	0.0000	0.0000	0.0000	0.0000	0.00435	0.00435
31:30:00	0.0000	0.0000	0.0000	0.0000	0.00433	0.00433
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00432	0.00432
31:42:00	0.0000	0.0000	0.0000	0.0000	0.0043	0.0043
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00428	0.00428
31:54:00	0.0000	0.0000	0.0000	0.0000	0.00427	0.00427
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00425	0.00425
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00424	0.00424
32:12:00	0.0000	0.0000	0.0000	0.0000	0.00422	0.00422

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.00421	0.00421
32:24:00	0.0000	0.0000	0.0000	0.0000	0.00419	0.00419
32:30:00	0.0000	0.0000	0.0000	0.0000	0.00418	0.00418
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00416	0.00416
32:42:00	0.0000	0.0000	0.0000	0.0000	0.00415	0.00415
32:48:00	0.0000	0.0000	0.0000	0.0000	0.00413	0.00413
32:54:00	0.0000	0.0000	0.0000	0.0000	0.00412	0.00412

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.36	No
BFIHOST19	0.38	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:40:42 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 99C7-7073

Site name: FEH_Point_Descriptors_370146_434443_v5_0_1

Easting: 370146

Northing: 434443

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.07 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 30 year

Summary of results

Rainfall - FEH22 (mm):	38.14	Total runoff (ML):	0.92
Total Rainfall (mm):	28.04	Total flow (ML):	1.99
Peak Rainfall (mm):	3.47	Peak flow (m³/s):	0.14

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	111.55	No
Cmax (mm)	271.03	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	27.7 [23.89]	Yes
BR	1.16	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.2827	0.0000	0.1165	0.0000	0.0041	0.0041
00:06:00	0.3709	0.0000	0.1533	0.0001	0.00408	0.00416
00:12:00	0.4860	0.0000	0.2016	0.0003	0.00407	0.00439
00:18:00	0.6360	0.0000	0.2652	0.0008	0.00405	0.00485
00:24:00	0.8310	0.0000	0.3487	0.0016	0.00404	0.00562
00:30:00	1.0837	0.0000	0.4586	0.0027	0.00404	0.00678
00:36:00	1.4097	0.0000	0.6031	0.0044	0.00404	0.00847
00:42:00	1.8273	0.0000	0.7926	0.0068	0.00405	0.0108
00:48:00	2.3555	0.0000	1.0399	0.0101	0.00407	0.0141
00:54:00	2.9997	0.0000	1.3540	0.0145	0.00411	0.0186
01:00:00	3.4725	0.0000	1.6088	0.0205	0.00416	0.0246
01:06:00	2.9997	0.0000	1.4256	0.0282	0.00425	0.0325
01:12:00	2.3555	0.0000	1.1427	0.0377	0.00437	0.0421
01:18:00	1.8273	0.0000	0.9006	0.0484	0.00454	0.0529
01:24:00	1.4097	0.0000	0.7032	0.0600	0.00475	0.0647
01:30:00	1.0837	0.0000	0.5455	0.0719	0.005	0.0769
01:36:00	0.8310	0.0000	0.4213	0.0839	0.00531	0.0892
01:42:00	0.6360	0.0000	0.3241	0.0953	0.00567	0.101
01:48:00	0.4860	0.0000	0.2487	0.1059	0.00607	0.112
01:54:00	0.3709	0.0000	0.1904	0.1149	0.00651	0.121
02:00:00	0.2827	0.0000	0.1455	0.1218	0.00698	0.129
02:06:00	0.0000	0.0000	0.0000	0.1259	0.00747	0.133
02:12:00	0.0000	0.0000	0.0000	0.1271	0.00797	0.135
02:18:00	0.0000	0.0000	0.0000	0.1258	0.00847	0.134
02:24:00	0.0000	0.0000	0.0000	0.1224	0.00896	0.131
02:30:00	0.0000	0.0000	0.0000	0.1176	0.00942	0.127
02:36:00	0.0000	0.0000	0.0000	0.1116	0.00987	0.121
02:42:00	0.0000	0.0000	0.0000	0.1049	0.0103	0.115
02:48:00	0.0000	0.0000	0.0000	0.0977	0.0107	0.108
02:54:00	0.0000	0.0000	0.0000	0.0904	0.011	0.101
03:00:00	0.0000	0.0000	0.0000	0.0830	0.0113	0.0944
03:06:00	0.0000	0.0000	0.0000	0.0760	0.0116	0.0876
03:12:00	0.0000	0.0000	0.0000	0.0694	0.0119	0.0813
03:18:00	0.0000	0.0000	0.0000	0.0634	0.0121	0.0755
03:24:00	0.0000	0.0000	0.0000	0.0578	0.0123	0.0701

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0525	0.0125	0.0651
03:36:00	0.0000	0.0000	0.0000	0.0475	0.0127	0.0602
03:42:00	0.0000	0.0000	0.0000	0.0428	0.0128	0.0556
03:48:00	0.0000	0.0000	0.0000	0.0382	0.013	0.0511
03:54:00	0.0000	0.0000	0.0000	0.0338	0.0131	0.0468
04:00:00	0.0000	0.0000	0.0000	0.0295	0.0131	0.0427
04:06:00	0.0000	0.0000	0.0000	0.0255	0.0132	0.0387
04:12:00	0.0000	0.0000	0.0000	0.0216	0.0133	0.0349
04:18:00	0.0000	0.0000	0.0000	0.0179	0.0133	0.0312
04:24:00	0.0000	0.0000	0.0000	0.0144	0.0133	0.0277
04:30:00	0.0000	0.0000	0.0000	0.0113	0.0133	0.0246
04:36:00	0.0000	0.0000	0.0000	0.0085	0.0133	0.0218
04:42:00	0.0000	0.0000	0.0000	0.0062	0.0133	0.0195
04:48:00	0.0000	0.0000	0.0000	0.0045	0.0133	0.0177
04:54:00	0.0000	0.0000	0.0000	0.0031	0.0132	0.0164
05:00:00	0.0000	0.0000	0.0000	0.0021	0.0132	0.0153
05:06:00	0.0000	0.0000	0.0000	0.0014	0.0132	0.0146
05:12:00	0.0000	0.0000	0.0000	0.0009	0.0131	0.014
05:18:00	0.0000	0.0000	0.0000	0.0005	0.0131	0.0136
05:24:00	0.0000	0.0000	0.0000	0.0003	0.013	0.0133
05:30:00	0.0000	0.0000	0.0000	0.0001	0.013	0.0131
05:36:00	0.0000	0.0000	0.0000	0.0000	0.0129	0.013
05:42:00	0.0000	0.0000	0.0000	0.0000	0.0129	0.0129
05:48:00	0.0000	0.0000	0.0000	0.0000	0.0128	0.0128
05:54:00	0.0000	0.0000	0.0000	0.0000	0.0128	0.0128
06:00:00	0.0000	0.0000	0.0000	0.0000	0.0128	0.0128
06:06:00	0.0000	0.0000	0.0000	0.0000	0.0127	0.0127
06:12:00	0.0000	0.0000	0.0000	0.0000	0.0127	0.0127
06:18:00	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126
06:30:00	0.0000	0.0000	0.0000	0.0000	0.0125	0.0125
06:36:00	0.0000	0.0000	0.0000	0.0000	0.0125	0.0125
06:42:00	0.0000	0.0000	0.0000	0.0000	0.0124	0.0124
06:48:00	0.0000	0.0000	0.0000	0.0000	0.0124	0.0124
06:54:00	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123
07:00:00	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123
07:12:00	0.0000	0.0000	0.0000	0.0000	0.0122	0.0122
07:18:00	0.0000	0.0000	0.0000	0.0000	0.0122	0.0122
07:24:00	0.0000	0.0000	0.0000	0.0000	0.0121	0.0121
07:30:00	0.0000	0.0000	0.0000	0.0000	0.0121	0.0121
07:36:00	0.0000	0.0000	0.0000	0.0000	0.012	0.012
07:42:00	0.0000	0.0000	0.0000	0.0000	0.012	0.012
07:48:00	0.0000	0.0000	0.0000	0.0000	0.012	0.012
07:54:00	0.0000	0.0000	0.0000	0.0000	0.0119	0.0119
08:00:00	0.0000	0.0000	0.0000	0.0000	0.0119	0.0119
08:06:00	0.0000	0.0000	0.0000	0.0000	0.0118	0.0118
08:12:00	0.0000	0.0000	0.0000	0.0000	0.0118	0.0118
08:18:00	0.0000	0.0000	0.0000	0.0000	0.0117	0.0117
08:24:00	0.0000	0.0000	0.0000	0.0000	0.0117	0.0117
08:30:00	0.0000	0.0000	0.0000	0.0000	0.0117	0.0117
08:36:00	0.0000	0.0000	0.0000	0.0000	0.0116	0.0116
08:42:00	0.0000	0.0000	0.0000	0.0000	0.0116	0.0116
08:48:00	0.0000	0.0000	0.0000	0.0000	0.0115	0.0115
08:54:00	0.0000	0.0000	0.0000	0.0000	0.0115	0.0115
09:00:00	0.0000	0.0000	0.0000	0.0000	0.0114	0.0114
09:06:00	0.0000	0.0000	0.0000	0.0000	0.0114	0.0114
09:12:00	0.0000	0.0000	0.0000	0.0000	0.0114	0.0114
09:18:00	0.0000	0.0000	0.0000	0.0000	0.0113	0.0113
09:24:00	0.0000	0.0000	0.0000	0.0000	0.0113	0.0113
09:30:00	0.0000	0.0000	0.0000	0.0000	0.0112	0.0112
09:36:00	0.0000	0.0000	0.0000	0.0000	0.0112	0.0112
09:42:00	0.0000	0.0000	0.0000	0.0000	0.0112	0.0112
09:48:00	0.0000	0.0000	0.0000	0.0000	0.0111	0.0111
09:54:00	0.0000	0.0000	0.0000	0.0000	0.0111	0.0111
10:00:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
10:06:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
10:12:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
10:18:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
10:24:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
10:30:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
10:36:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
10:48:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
10:54:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
11:00:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
11:06:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
11:12:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
11:18:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
11:24:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
11:30:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
11:36:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
11:42:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
11:48:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
11:54:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
12:00:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
12:06:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
12:12:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
12:18:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
12:24:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
12:30:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
12:36:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
12:42:00	0.0000	0.0000	0.0000	0.0000	0.01	0.01
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00998	0.00998
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00994	0.00994
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00991	0.00991
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00987	0.00987
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00984	0.00984
13:18:00	0.0000	0.0000	0.0000	0.0000	0.0098	0.0098
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00976	0.00976
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00973	0.00973
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00969	0.00969
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00966	0.00966
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00962	0.00962
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00959	0.00959
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00956	0.00956
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00952	0.00952
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00949	0.00949

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00945	0.00945
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00942	0.00942
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00938	0.00938
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00935	0.00935
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00932	0.00932
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00928	0.00928
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00925	0.00925
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00922	0.00922
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00918	0.00918
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00915	0.00915
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00912	0.00912
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00908	0.00908
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00905	0.00905
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00902	0.00902
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00899	0.00899
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00895	0.00895
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00892	0.00892
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00889	0.00889
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00886	0.00886
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00883	0.00883
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00879	0.00879
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00876	0.00876
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00873	0.00873
16:36:00	0.0000	0.0000	0.0000	0.0000	0.0087	0.0087
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00867	0.00867
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00864	0.00864
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00861	0.00861
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00857	0.00857
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00854	0.00854
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00851	0.00851
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00848	0.00848
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00845	0.00845
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00842	0.00842
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00839	0.00839
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00836	0.00836
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00833	0.00833

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.0083	0.0083
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00827	0.00827
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00824	0.00824
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00821	0.00821
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00818	0.00818
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00815	0.00815
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00812	0.00812
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00809	0.00809
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00806	0.00806
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00804	0.00804
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00801	0.00801
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00798	0.00798
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00795	0.00795
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00792	0.00792
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00789	0.00789
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00786	0.00786
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00783	0.00783
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00781	0.00781
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00778	0.00778
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00775	0.00775
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00772	0.00772
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00769	0.00769
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00767	0.00767
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00764	0.00764
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00761	0.00761
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00758	0.00758
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00756	0.00756
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00753	0.00753
20:42:00	0.0000	0.0000	0.0000	0.0000	0.0075	0.0075
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00748	0.00748
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00745	0.00745
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00742	0.00742
21:06:00	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00737	0.00737
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00734	0.00734
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00732	0.00732

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00729	0.00729
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00726	0.00726
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00724	0.00724
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00721	0.00721
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00718	0.00718
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00716	0.00716
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00713	0.00713
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00711	0.00711
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00708	0.00708
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00706	0.00706
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00703	0.00703
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00701	0.00701
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00698	0.00698
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00695	0.00695
22:54:00	0.0000	0.0000	0.0000	0.0000	0.00693	0.00693
23:00:00	0.0000	0.0000	0.0000	0.0000	0.0069	0.0069
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00688	0.00688
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00686	0.00686
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00683	0.00683
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00681	0.00681
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00678	0.00678
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00676	0.00676
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00673	0.00673
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00671	0.00671
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00668	0.00668
24:00:00	0.0000	0.0000	0.0000	0.0000	0.00666	0.00666
24:06:00	0.0000	0.0000	0.0000	0.0000	0.00664	0.00664
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00661	0.00661
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00659	0.00659
24:24:00	0.0000	0.0000	0.0000	0.0000	0.00656	0.00656
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00654	0.00654
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00652	0.00652
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00649	0.00649
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00647	0.00647
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00645	0.00645
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00642	0.00642

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.0064	0.0064
25:12:00	0.0000	0.0000	0.0000	0.0000	0.00638	0.00638
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00635	0.00635
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00633	0.00633
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00631	0.00631
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00629	0.00629
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00626	0.00626
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00624	0.00624
25:54:00	0.0000	0.0000	0.0000	0.0000	0.00622	0.00622
26:00:00	0.0000	0.0000	0.0000	0.0000	0.0062	0.0062
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00617	0.00617
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00615	0.00615
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00613	0.00613
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00611	0.00611
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00609	0.00609
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00606	0.00606
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00604	0.00604
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00602	0.00602
26:54:00	0.0000	0.0000	0.0000	0.0000	0.006	0.006
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00598	0.00598
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00595	0.00595
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00593	0.00593
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00591	0.00591
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00589	0.00589
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00587	0.00587
27:36:00	0.0000	0.0000	0.0000	0.0000	0.00585	0.00585
27:42:00	0.0000	0.0000	0.0000	0.0000	0.00583	0.00583
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00581	0.00581
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00579	0.00579
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00576	0.00576
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00574	0.00574
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00572	0.00572
28:18:00	0.0000	0.0000	0.0000	0.0000	0.0057	0.0057
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00568	0.00568
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00566	0.00566
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00564	0.00564

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00562	0.00562
28:48:00	0.0000	0.0000	0.0000	0.0000	0.0056	0.0056
28:54:00	0.0000	0.0000	0.0000	0.0000	0.00558	0.00558
29:00:00	0.0000	0.0000	0.0000	0.0000	0.00556	0.00556
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00554	0.00554
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00552	0.00552
29:18:00	0.0000	0.0000	0.0000	0.0000	0.0055	0.0055
29:24:00	0.0000	0.0000	0.0000	0.0000	0.00548	0.00548
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00546	0.00546
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00544	0.00544
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00542	0.00542
29:48:00	0.0000	0.0000	0.0000	0.0000	0.0054	0.0054
29:54:00	0.0000	0.0000	0.0000	0.0000	0.00538	0.00538
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00536	0.00536
30:06:00	0.0000	0.0000	0.0000	0.0000	0.00534	0.00534
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00532	0.00532
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00531	0.00531
30:24:00	0.0000	0.0000	0.0000	0.0000	0.00529	0.00529
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00527	0.00527
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00525	0.00525
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00523	0.00523
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00521	0.00521
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00519	0.00519
31:00:00	0.0000	0.0000	0.0000	0.0000	0.00517	0.00517
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00515	0.00515
31:12:00	0.0000	0.0000	0.0000	0.0000	0.00514	0.00514
31:18:00	0.0000	0.0000	0.0000	0.0000	0.00512	0.00512
31:24:00	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051
31:30:00	0.0000	0.0000	0.0000	0.0000	0.00508	0.00508
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00506	0.00506
31:42:00	0.0000	0.0000	0.0000	0.0000	0.00504	0.00504
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00503	0.00503
31:54:00	0.0000	0.0000	0.0000	0.0000	0.00501	0.00501
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00499	0.00499
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00497	0.00497
32:12:00	0.0000	0.0000	0.0000	0.0000	0.00495	0.00495

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.00494	0.00494
32:24:00	0.0000	0.0000	0.0000	0.0000	0.00492	0.00492
32:30:00	0.0000	0.0000	0.0000	0.0000	0.0049	0.0049
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00488	0.00488
32:42:00	0.0000	0.0000	0.0000	0.0000	0.00486	0.00486
32:48:00	0.0000	0.0000	0.0000	0.0000	0.00485	0.00485
32:54:00	0.0000	0.0000	0.0000	0.0000	0.00483	0.00483
33:00:00	0.0000	0.0000	0.0000	0.0000	0.00481	0.00481
33:06:00	0.0000	0.0000	0.0000	0.0000	0.0048	0.0048
33:12:00	0.0000	0.0000	0.0000	0.0000	0.00478	0.00478
33:18:00	0.0000	0.0000	0.0000	0.0000	0.00476	0.00476
33:24:00	0.0000	0.0000	0.0000	0.0000	0.00474	0.00474
33:30:00	0.0000	0.0000	0.0000	0.0000	0.00473	0.00473
33:36:00	0.0000	0.0000	0.0000	0.0000	0.00471	0.00471
33:42:00	0.0000	0.0000	0.0000	0.0000	0.00469	0.00469
33:48:00	0.0000	0.0000	0.0000	0.0000	0.00468	0.00468
33:54:00	0.0000	0.0000	0.0000	0.0000	0.00466	0.00466
34:00:00	0.0000	0.0000	0.0000	0.0000	0.00464	0.00464
34:06:00	0.0000	0.0000	0.0000	0.0000	0.00463	0.00463
34:12:00	0.0000	0.0000	0.0000	0.0000	0.00461	0.00461
34:18:00	0.0000	0.0000	0.0000	0.0000	0.00459	0.00459
34:24:00	0.0000	0.0000	0.0000	0.0000	0.00458	0.00458
34:30:00	0.0000	0.0000	0.0000	0.0000	0.00456	0.00456
34:36:00	0.0000	0.0000	0.0000	0.0000	0.00454	0.00454
34:42:00	0.0000	0.0000	0.0000	0.0000	0.00453	0.00453
34:48:00	0.0000	0.0000	0.0000	0.0000	0.00451	0.00451
34:54:00	0.0000	0.0000	0.0000	0.0000	0.00449	0.00449
35:00:00	0.0000	0.0000	0.0000	0.0000	0.00448	0.00448
35:06:00	0.0000	0.0000	0.0000	0.0000	0.00446	0.00446
35:12:00	0.0000	0.0000	0.0000	0.0000	0.00445	0.00445
35:18:00	0.0000	0.0000	0.0000	0.0000	0.00443	0.00443
35:24:00	0.0000	0.0000	0.0000	0.0000	0.00441	0.00441
35:30:00	0.0000	0.0000	0.0000	0.0000	0.0044	0.0044
35:36:00	0.0000	0.0000	0.0000	0.0000	0.00438	0.00438
35:42:00	0.0000	0.0000	0.0000	0.0000	0.00437	0.00437
35:48:00	0.0000	0.0000	0.0000	0.0000	0.00435	0.00435

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
35:54:00	0.0000	0.0000	0.0000	0.0000	0.00433	0.00433
36:00:00	0.0000	0.0000	0.0000	0.0000	0.00432	0.00432
36:06:00	0.0000	0.0000	0.0000	0.0000	0.0043	0.0043
36:12:00	0.0000	0.0000	0.0000	0.0000	0.00429	0.00429
36:18:00	0.0000	0.0000	0.0000	0.0000	0.00427	0.00427
36:24:00	0.0000	0.0000	0.0000	0.0000	0.00426	0.00426
36:30:00	0.0000	0.0000	0.0000	0.0000	0.00424	0.00424
36:36:00	0.0000	0.0000	0.0000	0.0000	0.00423	0.00423
36:42:00	0.0000	0.0000	0.0000	0.0000	0.00421	0.00421
36:48:00	0.0000	0.0000	0.0000	0.0000	0.0042	0.0042
36:54:00	0.0000	0.0000	0.0000	0.0000	0.00418	0.00418
37:00:00	0.0000	0.0000	0.0000	0.0000	0.00417	0.00417
37:06:00	0.0000	0.0000	0.0000	0.0000	0.00415	0.00415
37:12:00	0.0000	0.0000	0.0000	0.0000	0.00414	0.00414
37:18:00	0.0000	0.0000	0.0000	0.0000	0.00412	0.00412

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.36	No
BFIHOST19	0.38	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:40:51 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 99C7-7073

Site name: FEH_Point_Descriptors_370146_434443_v5_0_1

Easting: 370146

Northing: 434443

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.07 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 100 year

Summary of results

Rainfall - FEH22 (mm):	47.52	Total runoff (ML):	1.18
Total Rainfall (mm):	34.93	Total flow (ML):	2.48
Peak Rainfall (mm):	4.33	Peak flow (m³/s):	0.17

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	111.55	No
Cmax (mm)	271.03	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	27.7 [23.89]	Yes
BR	1.1	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.3522	0.0000	0.1452	0.0000	0.0041	0.0041
00:06:00	0.4621	0.0000	0.1912	0.0001	0.00408	0.00417
00:12:00	0.6055	0.0000	0.2517	0.0004	0.00407	0.00447
00:18:00	0.7924	0.0000	0.3314	0.0010	0.00405	0.00505
00:24:00	1.0353	0.0000	0.4366	0.0020	0.00405	0.00601
00:30:00	1.3502	0.0000	0.5752	0.0034	0.00404	0.00747
00:36:00	1.7563	0.0000	0.7584	0.0055	0.00405	0.00958
00:42:00	2.2767	0.0000	1.0000	0.0085	0.00406	0.0126
00:48:00	2.9348	0.0000	1.3172	0.0126	0.00409	0.0167
00:54:00	3.7374	0.0000	1.7235	0.0182	0.00413	0.0223
01:00:00	4.3265	0.0000	2.0595	0.0257	0.0042	0.0299
01:06:00	3.7374	0.0000	1.8347	0.0355	0.00431	0.0398
01:12:00	2.9348	0.0000	1.4768	0.0475	0.00446	0.052
01:18:00	2.2767	0.0000	1.1676	0.0611	0.00466	0.0658
01:24:00	1.7563	0.0000	0.9138	0.0759	0.00491	0.0808
01:30:00	1.3502	0.0000	0.7102	0.0912	0.00523	0.0964
01:36:00	1.0353	0.0000	0.5491	0.1065	0.0056	0.112
01:42:00	0.7924	0.0000	0.4229	0.1213	0.00603	0.127
01:48:00	0.6055	0.0000	0.3248	0.1349	0.00652	0.141
01:54:00	0.4621	0.0000	0.2487	0.1466	0.00705	0.154
02:00:00	0.3522	0.0000	0.1901	0.1556	0.00763	0.163
02:06:00	0.0000	0.0000	0.0000	0.1611	0.00823	0.169
02:12:00	0.0000	0.0000	0.0000	0.1628	0.00884	0.172
02:18:00	0.0000	0.0000	0.0000	0.1612	0.00945	0.171
02:24:00	0.0000	0.0000	0.0000	0.1570	0.01	0.167
02:30:00	0.0000	0.0000	0.0000	0.1509	0.0106	0.162
02:36:00	0.0000	0.0000	0.0000	0.1434	0.0112	0.155
02:42:00	0.0000	0.0000	0.0000	0.1348	0.0117	0.147
02:48:00	0.0000	0.0000	0.0000	0.1257	0.0122	0.138
02:54:00	0.0000	0.0000	0.0000	0.1162	0.0126	0.129
03:00:00	0.0000	0.0000	0.0000	0.1068	0.013	0.12
03:06:00	0.0000	0.0000	0.0000	0.0977	0.0133	0.111
03:12:00	0.0000	0.0000	0.0000	0.0893	0.0137	0.103
03:18:00	0.0000	0.0000	0.0000	0.0816	0.014	0.0955
03:24:00	0.0000	0.0000	0.0000	0.0744	0.0142	0.0886

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0676	0.0144	0.082
03:36:00	0.0000	0.0000	0.0000	0.0612	0.0147	0.0758
03:42:00	0.0000	0.0000	0.0000	0.0550	0.0148	0.0699
03:48:00	0.0000	0.0000	0.0000	0.0492	0.015	0.0642
03:54:00	0.0000	0.0000	0.0000	0.0435	0.0151	0.0586
04:00:00	0.0000	0.0000	0.0000	0.0381	0.0152	0.0533
04:06:00	0.0000	0.0000	0.0000	0.0329	0.0153	0.0482
04:12:00	0.0000	0.0000	0.0000	0.0279	0.0154	0.0433
04:18:00	0.0000	0.0000	0.0000	0.0231	0.0154	0.0386
04:24:00	0.0000	0.0000	0.0000	0.0187	0.0154	0.0341
04:30:00	0.0000	0.0000	0.0000	0.0146	0.0155	0.0301
04:36:00	0.0000	0.0000	0.0000	0.0110	0.0155	0.0265
04:42:00	0.0000	0.0000	0.0000	0.0081	0.0154	0.0235
04:48:00	0.0000	0.0000	0.0000	0.0058	0.0154	0.0212
04:54:00	0.0000	0.0000	0.0000	0.0041	0.0154	0.0194
05:00:00	0.0000	0.0000	0.0000	0.0028	0.0153	0.0181
05:06:00	0.0000	0.0000	0.0000	0.0018	0.0153	0.0171
05:12:00	0.0000	0.0000	0.0000	0.0011	0.0152	0.0164
05:18:00	0.0000	0.0000	0.0000	0.0006	0.0152	0.0158
05:24:00	0.0000	0.0000	0.0000	0.0003	0.0151	0.0155
05:30:00	0.0000	0.0000	0.0000	0.0001	0.0151	0.0152
05:36:00	0.0000	0.0000	0.0000	0.0000	0.015	0.015
05:42:00	0.0000	0.0000	0.0000	0.0000	0.015	0.015
05:48:00	0.0000	0.0000	0.0000	0.0000	0.0149	0.0149
05:54:00	0.0000	0.0000	0.0000	0.0000	0.0149	0.0149
06:00:00	0.0000	0.0000	0.0000	0.0000	0.0148	0.0148
06:06:00	0.0000	0.0000	0.0000	0.0000	0.0148	0.0148
06:12:00	0.0000	0.0000	0.0000	0.0000	0.0147	0.0147
06:18:00	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0146	0.0146
06:30:00	0.0000	0.0000	0.0000	0.0000	0.0145	0.0145
06:36:00	0.0000	0.0000	0.0000	0.0000	0.0145	0.0145
06:42:00	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
06:48:00	0.0000	0.0000	0.0000	0.0000	0.0144	0.0144
06:54:00	0.0000	0.0000	0.0000	0.0000	0.0143	0.0143
07:00:00	0.0000	0.0000	0.0000	0.0000	0.0143	0.0143

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.0142	0.0142
07:12:00	0.0000	0.0000	0.0000	0.0000	0.0142	0.0142
07:18:00	0.0000	0.0000	0.0000	0.0000	0.0141	0.0141
07:24:00	0.0000	0.0000	0.0000	0.0000	0.0141	0.0141
07:30:00	0.0000	0.0000	0.0000	0.0000	0.014	0.014
07:36:00	0.0000	0.0000	0.0000	0.0000	0.014	0.014
07:42:00	0.0000	0.0000	0.0000	0.0000	0.0139	0.0139
07:48:00	0.0000	0.0000	0.0000	0.0000	0.0139	0.0139
07:54:00	0.0000	0.0000	0.0000	0.0000	0.0138	0.0138
08:00:00	0.0000	0.0000	0.0000	0.0000	0.0138	0.0138
08:06:00	0.0000	0.0000	0.0000	0.0000	0.0137	0.0137
08:12:00	0.0000	0.0000	0.0000	0.0000	0.0137	0.0137
08:18:00	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136
08:24:00	0.0000	0.0000	0.0000	0.0000	0.0136	0.0136
08:30:00	0.0000	0.0000	0.0000	0.0000	0.0135	0.0135
08:36:00	0.0000	0.0000	0.0000	0.0000	0.0135	0.0135
08:42:00	0.0000	0.0000	0.0000	0.0000	0.0134	0.0134
08:48:00	0.0000	0.0000	0.0000	0.0000	0.0134	0.0134
08:54:00	0.0000	0.0000	0.0000	0.0000	0.0133	0.0133
09:00:00	0.0000	0.0000	0.0000	0.0000	0.0133	0.0133
09:06:00	0.0000	0.0000	0.0000	0.0000	0.0132	0.0132
09:12:00	0.0000	0.0000	0.0000	0.0000	0.0132	0.0132
09:18:00	0.0000	0.0000	0.0000	0.0000	0.0131	0.0131
09:24:00	0.0000	0.0000	0.0000	0.0000	0.0131	0.0131
09:30:00	0.0000	0.0000	0.0000	0.0000	0.013	0.013
09:36:00	0.0000	0.0000	0.0000	0.0000	0.013	0.013
09:42:00	0.0000	0.0000	0.0000	0.0000	0.013	0.013
09:48:00	0.0000	0.0000	0.0000	0.0000	0.0129	0.0129
09:54:00	0.0000	0.0000	0.0000	0.0000	0.0129	0.0129
10:00:00	0.0000	0.0000	0.0000	0.0000	0.0128	0.0128
10:06:00	0.0000	0.0000	0.0000	0.0000	0.0128	0.0128
10:12:00	0.0000	0.0000	0.0000	0.0000	0.0127	0.0127
10:18:00	0.0000	0.0000	0.0000	0.0000	0.0127	0.0127
10:24:00	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126
10:30:00	0.0000	0.0000	0.0000	0.0000	0.0126	0.0126
10:36:00	0.0000	0.0000	0.0000	0.0000	0.0125	0.0125

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.0125	0.0125
10:48:00	0.0000	0.0000	0.0000	0.0000	0.0124	0.0124
10:54:00	0.0000	0.0000	0.0000	0.0000	0.0124	0.0124
11:00:00	0.0000	0.0000	0.0000	0.0000	0.0124	0.0124
11:06:00	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123
11:12:00	0.0000	0.0000	0.0000	0.0000	0.0123	0.0123
11:18:00	0.0000	0.0000	0.0000	0.0000	0.0122	0.0122
11:24:00	0.0000	0.0000	0.0000	0.0000	0.0122	0.0122
11:30:00	0.0000	0.0000	0.0000	0.0000	0.0121	0.0121
11:36:00	0.0000	0.0000	0.0000	0.0000	0.0121	0.0121
11:42:00	0.0000	0.0000	0.0000	0.0000	0.0121	0.0121
11:48:00	0.0000	0.0000	0.0000	0.0000	0.012	0.012
11:54:00	0.0000	0.0000	0.0000	0.0000	0.012	0.012
12:00:00	0.0000	0.0000	0.0000	0.0000	0.0119	0.0119
12:06:00	0.0000	0.0000	0.0000	0.0000	0.0119	0.0119
12:12:00	0.0000	0.0000	0.0000	0.0000	0.0118	0.0118
12:18:00	0.0000	0.0000	0.0000	0.0000	0.0118	0.0118
12:24:00	0.0000	0.0000	0.0000	0.0000	0.0118	0.0118
12:30:00	0.0000	0.0000	0.0000	0.0000	0.0117	0.0117
12:36:00	0.0000	0.0000	0.0000	0.0000	0.0117	0.0117
12:42:00	0.0000	0.0000	0.0000	0.0000	0.0116	0.0116
12:48:00	0.0000	0.0000	0.0000	0.0000	0.0116	0.0116
12:54:00	0.0000	0.0000	0.0000	0.0000	0.0115	0.0115
13:00:00	0.0000	0.0000	0.0000	0.0000	0.0115	0.0115
13:06:00	0.0000	0.0000	0.0000	0.0000	0.0115	0.0115
13:12:00	0.0000	0.0000	0.0000	0.0000	0.0114	0.0114
13:18:00	0.0000	0.0000	0.0000	0.0000	0.0114	0.0114
13:24:00	0.0000	0.0000	0.0000	0.0000	0.0113	0.0113
13:30:00	0.0000	0.0000	0.0000	0.0000	0.0113	0.0113
13:36:00	0.0000	0.0000	0.0000	0.0000	0.0113	0.0113
13:42:00	0.0000	0.0000	0.0000	0.0000	0.0112	0.0112
13:48:00	0.0000	0.0000	0.0000	0.0000	0.0112	0.0112
13:54:00	0.0000	0.0000	0.0000	0.0000	0.0111	0.0111
14:00:00	0.0000	0.0000	0.0000	0.0000	0.0111	0.0111
14:06:00	0.0000	0.0000	0.0000	0.0000	0.0111	0.0111
14:12:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.011	0.011
14:24:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
14:30:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
14:36:00	0.0000	0.0000	0.0000	0.0000	0.0109	0.0109
14:42:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
14:48:00	0.0000	0.0000	0.0000	0.0000	0.0108	0.0108
14:54:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
15:00:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
15:06:00	0.0000	0.0000	0.0000	0.0000	0.0107	0.0107
15:12:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
15:18:00	0.0000	0.0000	0.0000	0.0000	0.0106	0.0106
15:24:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
15:30:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
15:36:00	0.0000	0.0000	0.0000	0.0000	0.0105	0.0105
15:42:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
15:48:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
15:54:00	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104
16:00:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
16:06:00	0.0000	0.0000	0.0000	0.0000	0.0103	0.0103
16:12:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
16:18:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
16:24:00	0.0000	0.0000	0.0000	0.0000	0.0102	0.0102
16:30:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
16:36:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
16:42:00	0.0000	0.0000	0.0000	0.0000	0.0101	0.0101
16:48:00	0.0000	0.0000	0.0000	0.0000	0.01	0.01
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00999	0.00999
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00995	0.00995
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00992	0.00992
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00988	0.00988
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00985	0.00985
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00981	0.00981
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00977	0.00977
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00974	0.00974
17:42:00	0.0000	0.0000	0.0000	0.0000	0.0097	0.0097
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00967	0.00967

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00963	0.00963
18:00:00	0.0000	0.0000	0.0000	0.0000	0.0096	0.0096
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00956	0.00956
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00953	0.00953
18:18:00	0.0000	0.0000	0.0000	0.0000	0.0095	0.0095
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00946	0.00946
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00943	0.00943
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00939	0.00939
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00936	0.00936
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00933	0.00933
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00929	0.00929
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00926	0.00926
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00923	0.00923
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00919	0.00919
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00916	0.00916
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00913	0.00913
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00909	0.00909
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00906	0.00906
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00903	0.00903
19:48:00	0.0000	0.0000	0.0000	0.0000	0.009	0.009
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00896	0.00896
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00893	0.00893
20:06:00	0.0000	0.0000	0.0000	0.0000	0.0089	0.0089
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00887	0.00887
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00883	0.00883
20:24:00	0.0000	0.0000	0.0000	0.0000	0.0088	0.0088
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00877	0.00877
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00874	0.00874
20:42:00	0.0000	0.0000	0.0000	0.0000	0.00871	0.00871
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00868	0.00868
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00865	0.00865
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00861	0.00861
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00858	0.00858
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00855	0.00855
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00852	0.00852
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00849	0.00849

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00846	0.00846
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00843	0.00843
21:42:00	0.0000	0.0000	0.0000	0.0000	0.0084	0.0084
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00837	0.00837
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00834	0.00834
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00831	0.00831
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00828	0.00828
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00825	0.00825
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00822	0.00822
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00819	0.00819
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00816	0.00816
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00813	0.00813
22:42:00	0.0000	0.0000	0.0000	0.0000	0.0081	0.0081
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00807	0.00807
22:54:00	0.0000	0.0000	0.0000	0.0000	0.00804	0.00804
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00801	0.00801
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00799	0.00799
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00796	0.00796
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00793	0.00793
23:24:00	0.0000	0.0000	0.0000	0.0000	0.0079	0.0079
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00787	0.00787
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00784	0.00784
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00781	0.00781
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00779	0.00779
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00776	0.00776
24:00:00	0.0000	0.0000	0.0000	0.0000	0.00773	0.00773
24:06:00	0.0000	0.0000	0.0000	0.0000	0.0077	0.0077
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00767	0.00767
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00765	0.00765
24:24:00	0.0000	0.0000	0.0000	0.0000	0.00762	0.00762
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00759	0.00759
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00756	0.00756
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00754	0.00754
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00751	0.00751
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00748	0.00748
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00746	0.00746

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00743	0.00743
25:12:00	0.0000	0.0000	0.0000	0.0000	0.0074	0.0074
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00738	0.00738
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00735	0.00735
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00732	0.00732
25:36:00	0.0000	0.0000	0.0000	0.0000	0.0073	0.0073
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00727	0.00727
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00724	0.00724
25:54:00	0.0000	0.0000	0.0000	0.0000	0.00722	0.00722
26:00:00	0.0000	0.0000	0.0000	0.0000	0.00719	0.00719
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00717	0.00717
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00714	0.00714
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00711	0.00711
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00709	0.00709
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00706	0.00706
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00704	0.00704
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00701	0.00701
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00699	0.00699
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00696	0.00696
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00694	0.00694
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00691	0.00691
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00689	0.00689
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00686	0.00686
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00684	0.00684
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00681	0.00681
27:36:00	0.0000	0.0000	0.0000	0.0000	0.00679	0.00679
27:42:00	0.0000	0.0000	0.0000	0.0000	0.00676	0.00676
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00674	0.00674
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00671	0.00671
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00669	0.00669
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00667	0.00667
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00664	0.00664
28:18:00	0.0000	0.0000	0.0000	0.0000	0.00662	0.00662
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00659	0.00659
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00657	0.00657
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00655	0.00655

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00652	0.00652
28:48:00	0.0000	0.0000	0.0000	0.0000	0.0065	0.0065
28:54:00	0.0000	0.0000	0.0000	0.0000	0.00648	0.00648
29:00:00	0.0000	0.0000	0.0000	0.0000	0.00645	0.00645
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00643	0.00643
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00641	0.00641
29:18:00	0.0000	0.0000	0.0000	0.0000	0.00638	0.00638
29:24:00	0.0000	0.0000	0.0000	0.0000	0.00636	0.00636
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00634	0.00634
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00631	0.00631
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00629	0.00629
29:48:00	0.0000	0.0000	0.0000	0.0000	0.00627	0.00627
29:54:00	0.0000	0.0000	0.0000	0.0000	0.00625	0.00625
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00622	0.00622
30:06:00	0.0000	0.0000	0.0000	0.0000	0.0062	0.0062
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00618	0.00618
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00616	0.00616
30:24:00	0.0000	0.0000	0.0000	0.0000	0.00614	0.00614
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00611	0.00611
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00609	0.00609
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00607	0.00607
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00605	0.00605
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00603	0.00603
31:00:00	0.0000	0.0000	0.0000	0.0000	0.006	0.006
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00598	0.00598
31:12:00	0.0000	0.0000	0.0000	0.0000	0.00596	0.00596
31:18:00	0.0000	0.0000	0.0000	0.0000	0.00594	0.00594
31:24:00	0.0000	0.0000	0.0000	0.0000	0.00592	0.00592
31:30:00	0.0000	0.0000	0.0000	0.0000	0.0059	0.0059
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00588	0.00588
31:42:00	0.0000	0.0000	0.0000	0.0000	0.00585	0.00585
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00583	0.00583
31:54:00	0.0000	0.0000	0.0000	0.0000	0.00581	0.00581
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00579	0.00579
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00577	0.00577
32:12:00	0.0000	0.0000	0.0000	0.0000	0.00575	0.00575

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.00573	0.00573
32:24:00	0.0000	0.0000	0.0000	0.0000	0.00571	0.00571
32:30:00	0.0000	0.0000	0.0000	0.0000	0.00569	0.00569
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00567	0.00567
32:42:00	0.0000	0.0000	0.0000	0.0000	0.00565	0.00565
32:48:00	0.0000	0.0000	0.0000	0.0000	0.00563	0.00563
32:54:00	0.0000	0.0000	0.0000	0.0000	0.00561	0.00561
33:00:00	0.0000	0.0000	0.0000	0.0000	0.00559	0.00559
33:06:00	0.0000	0.0000	0.0000	0.0000	0.00557	0.00557
33:12:00	0.0000	0.0000	0.0000	0.0000	0.00555	0.00555
33:18:00	0.0000	0.0000	0.0000	0.0000	0.00553	0.00553
33:24:00	0.0000	0.0000	0.0000	0.0000	0.00551	0.00551
33:30:00	0.0000	0.0000	0.0000	0.0000	0.00549	0.00549
33:36:00	0.0000	0.0000	0.0000	0.0000	0.00547	0.00547
33:42:00	0.0000	0.0000	0.0000	0.0000	0.00545	0.00545
33:48:00	0.0000	0.0000	0.0000	0.0000	0.00543	0.00543
33:54:00	0.0000	0.0000	0.0000	0.0000	0.00541	0.00541
34:00:00	0.0000	0.0000	0.0000	0.0000	0.00539	0.00539
34:06:00	0.0000	0.0000	0.0000	0.0000	0.00537	0.00537
34:12:00	0.0000	0.0000	0.0000	0.0000	0.00535	0.00535
34:18:00	0.0000	0.0000	0.0000	0.0000	0.00533	0.00533
34:24:00	0.0000	0.0000	0.0000	0.0000	0.00531	0.00531
34:30:00	0.0000	0.0000	0.0000	0.0000	0.00529	0.00529
34:36:00	0.0000	0.0000	0.0000	0.0000	0.00527	0.00527
34:42:00	0.0000	0.0000	0.0000	0.0000	0.00525	0.00525
34:48:00	0.0000	0.0000	0.0000	0.0000	0.00523	0.00523
34:54:00	0.0000	0.0000	0.0000	0.0000	0.00522	0.00522
35:00:00	0.0000	0.0000	0.0000	0.0000	0.0052	0.0052
35:06:00	0.0000	0.0000	0.0000	0.0000	0.00518	0.00518
35:12:00	0.0000	0.0000	0.0000	0.0000	0.00516	0.00516
35:18:00	0.0000	0.0000	0.0000	0.0000	0.00514	0.00514
35:24:00	0.0000	0.0000	0.0000	0.0000	0.00512	0.00512
35:30:00	0.0000	0.0000	0.0000	0.0000	0.0051	0.0051
35:36:00	0.0000	0.0000	0.0000	0.0000	0.00509	0.00509
35:42:00	0.0000	0.0000	0.0000	0.0000	0.00507	0.00507
35:48:00	0.0000	0.0000	0.0000	0.0000	0.00505	0.00505

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
35:54:00	0.0000	0.0000	0.0000	0.0000	0.00503	0.00503
36:00:00	0.0000	0.0000	0.0000	0.0000	0.00501	0.00501
36:06:00	0.0000	0.0000	0.0000	0.0000	0.00499	0.00499
36:12:00	0.0000	0.0000	0.0000	0.0000	0.00498	0.00498
36:18:00	0.0000	0.0000	0.0000	0.0000	0.00496	0.00496
36:24:00	0.0000	0.0000	0.0000	0.0000	0.00494	0.00494
36:30:00	0.0000	0.0000	0.0000	0.0000	0.00492	0.00492
36:36:00	0.0000	0.0000	0.0000	0.0000	0.0049	0.0049
36:42:00	0.0000	0.0000	0.0000	0.0000	0.00489	0.00489
36:48:00	0.0000	0.0000	0.0000	0.0000	0.00487	0.00487
36:54:00	0.0000	0.0000	0.0000	0.0000	0.00485	0.00485
37:00:00	0.0000	0.0000	0.0000	0.0000	0.00483	0.00483
37:06:00	0.0000	0.0000	0.0000	0.0000	0.00482	0.00482
37:12:00	0.0000	0.0000	0.0000	0.0000	0.0048	0.0048
37:18:00	0.0000	0.0000	0.0000	0.0000	0.00478	0.00478
37:24:00	0.0000	0.0000	0.0000	0.0000	0.00477	0.00477
37:30:00	0.0000	0.0000	0.0000	0.0000	0.00475	0.00475
37:36:00	0.0000	0.0000	0.0000	0.0000	0.00473	0.00473
37:42:00	0.0000	0.0000	0.0000	0.0000	0.00471	0.00471
37:48:00	0.0000	0.0000	0.0000	0.0000	0.0047	0.0047
37:54:00	0.0000	0.0000	0.0000	0.0000	0.00468	0.00468
38:00:00	0.0000	0.0000	0.0000	0.0000	0.00466	0.00466
38:06:00	0.0000	0.0000	0.0000	0.0000	0.00465	0.00465
38:12:00	0.0000	0.0000	0.0000	0.0000	0.00463	0.00463
38:18:00	0.0000	0.0000	0.0000	0.0000	0.00461	0.00461
38:24:00	0.0000	0.0000	0.0000	0.0000	0.0046	0.0046
38:30:00	0.0000	0.0000	0.0000	0.0000	0.00458	0.00458
38:36:00	0.0000	0.0000	0.0000	0.0000	0.00456	0.00456
38:42:00	0.0000	0.0000	0.0000	0.0000	0.00455	0.00455
38:48:00	0.0000	0.0000	0.0000	0.0000	0.00453	0.00453
38:54:00	0.0000	0.0000	0.0000	0.0000	0.00451	0.00451
39:00:00	0.0000	0.0000	0.0000	0.0000	0.0045	0.0045
39:06:00	0.0000	0.0000	0.0000	0.0000	0.00448	0.00448
39:12:00	0.0000	0.0000	0.0000	0.0000	0.00447	0.00447
39:18:00	0.0000	0.0000	0.0000	0.0000	0.00445	0.00445
39:24:00	0.0000	0.0000	0.0000	0.0000	0.00443	0.00443

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
39:30:00	0.0000	0.0000	0.0000	0.0000	0.00442	0.00442
39:36:00	0.0000	0.0000	0.0000	0.0000	0.0044	0.0044
39:42:00	0.0000	0.0000	0.0000	0.0000	0.00439	0.00439
39:48:00	0.0000	0.0000	0.0000	0.0000	0.00437	0.00437
39:54:00	0.0000	0.0000	0.0000	0.0000	0.00435	0.00435
40:00:00	0.0000	0.0000	0.0000	0.0000	0.00434	0.00434
40:06:00	0.0000	0.0000	0.0000	0.0000	0.00432	0.00432
40:12:00	0.0000	0.0000	0.0000	0.0000	0.00431	0.00431
40:18:00	0.0000	0.0000	0.0000	0.0000	0.00429	0.00429
40:24:00	0.0000	0.0000	0.0000	0.0000	0.00428	0.00428
40:30:00	0.0000	0.0000	0.0000	0.0000	0.00426	0.00426
40:36:00	0.0000	0.0000	0.0000	0.0000	0.00425	0.00425
40:42:00	0.0000	0.0000	0.0000	0.0000	0.00423	0.00423
40:48:00	0.0000	0.0000	0.0000	0.0000	0.00421	0.00421
40:54:00	0.0000	0.0000	0.0000	0.0000	0.0042	0.0042
41:00:00	0.0000	0.0000	0.0000	0.0000	0.00418	0.00418
41:06:00	0.0000	0.0000	0.0000	0.0000	0.00417	0.00417
41:12:00	0.0000	0.0000	0.0000	0.0000	0.00415	0.00415
41:18:00	0.0000	0.0000	0.0000	0.0000	0.00414	0.00414
41:24:00	0.0000	0.0000	0.0000	0.0000	0.00412	0.00412

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.36	No
BFIHOST19	0.38	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:56:16 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 3486-B186

Site name: FEH_Point_Descriptors_370282_434529_v5_0_1

Easting: 370282

Northing: 434529

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 1 year

Summary of results

Rainfall - FEH22 (mm):	14.97	Total runoff (ML):	0.13
Total Rainfall (mm):	11.01	Total flow (ML):	0.26
Peak Rainfall (mm):	1.36	Peak flow (m³/s):	0.02

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	118.59	No
Cmax (mm)	246.84	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	25.98 [20.6]	Yes
BR	0.99	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.1110	0.0000	0.0533	0.0000	0.00146	0.00146
00:06:00	0.1456	0.0000	0.0701	0.0000	0.00145	0.00146
00:12:00	0.1908	0.0000	0.0919	0.0000	0.00145	0.0015
00:18:00	0.2497	0.0000	0.1205	0.0001	0.00144	0.00156
00:24:00	0.3262	0.0000	0.1579	0.0002	0.00144	0.00168
00:30:00	0.4254	0.0000	0.2065	0.0004	0.00143	0.00185
00:36:00	0.5534	0.0000	0.2697	0.0007	0.00143	0.0021
00:42:00	0.7173	0.0000	0.3515	0.0010	0.00143	0.00245
00:48:00	0.9247	0.0000	0.4562	0.0015	0.00143	0.00293
00:54:00	1.1776	0.0000	0.5859	0.0022	0.00143	0.00359
01:00:00	1.3632	0.0000	0.6853	0.0030	0.00143	0.00448
01:06:00	1.1776	0.0000	0.5981	0.0042	0.00144	0.00561
01:12:00	0.9247	0.0000	0.4736	0.0055	0.00145	0.00699
01:18:00	0.7173	0.0000	0.3698	0.0071	0.00147	0.00854
01:24:00	0.5534	0.0000	0.2867	0.0087	0.0015	0.0102
01:30:00	0.4254	0.0000	0.2212	0.0104	0.00153	0.0119
01:36:00	0.3262	0.0000	0.1701	0.0121	0.00156	0.0136
01:42:00	0.2497	0.0000	0.1305	0.0137	0.00161	0.0153
01:48:00	0.1908	0.0000	0.0999	0.0151	0.00166	0.0168
01:54:00	0.1456	0.0000	0.0763	0.0163	0.00171	0.0181
02:00:00	0.1110	0.0000	0.0582	0.0173	0.00177	0.019
02:06:00	0.0000	0.0000	0.0000	0.0178	0.00183	0.0196
02:12:00	0.0000	0.0000	0.0000	0.0179	0.00189	0.0198
02:18:00	0.0000	0.0000	0.0000	0.0176	0.00195	0.0196
02:24:00	0.0000	0.0000	0.0000	0.0171	0.00201	0.0191
02:30:00	0.0000	0.0000	0.0000	0.0164	0.00206	0.0185
02:36:00	0.0000	0.0000	0.0000	0.0156	0.00211	0.0177
02:42:00	0.0000	0.0000	0.0000	0.0146	0.00216	0.0168
02:48:00	0.0000	0.0000	0.0000	0.0136	0.00221	0.0158
02:54:00	0.0000	0.0000	0.0000	0.0126	0.00225	0.0148
03:00:00	0.0000	0.0000	0.0000	0.0115	0.00229	0.0138
03:06:00	0.0000	0.0000	0.0000	0.0106	0.00232	0.0129
03:12:00	0.0000	0.0000	0.0000	0.0096	0.00235	0.012
03:18:00	0.0000	0.0000	0.0000	0.0088	0.00238	0.0112
03:24:00	0.0000	0.0000	0.0000	0.0080	0.0024	0.0104

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0073	0.00242	0.00971
03:36:00	0.0000	0.0000	0.0000	0.0066	0.00244	0.00903
03:42:00	0.0000	0.0000	0.0000	0.0059	0.00245	0.00837
03:48:00	0.0000	0.0000	0.0000	0.0053	0.00246	0.00774
03:54:00	0.0000	0.0000	0.0000	0.0047	0.00247	0.00714
04:00:00	0.0000	0.0000	0.0000	0.0041	0.00248	0.00655
04:06:00	0.0000	0.0000	0.0000	0.0035	0.00248	0.00599
04:12:00	0.0000	0.0000	0.0000	0.0030	0.00249	0.00545
04:18:00	0.0000	0.0000	0.0000	0.0024	0.00249	0.00493
04:24:00	0.0000	0.0000	0.0000	0.0020	0.00249	0.00445
04:30:00	0.0000	0.0000	0.0000	0.0015	0.00248	0.00401
04:36:00	0.0000	0.0000	0.0000	0.0011	0.00248	0.00362
04:42:00	0.0000	0.0000	0.0000	0.0008	0.00247	0.00331
04:48:00	0.0000	0.0000	0.0000	0.0006	0.00247	0.00306
04:54:00	0.0000	0.0000	0.0000	0.0004	0.00246	0.00287
05:00:00	0.0000	0.0000	0.0000	0.0003	0.00245	0.00273
05:06:00	0.0000	0.0000	0.0000	0.0002	0.00244	0.00263
05:12:00	0.0000	0.0000	0.0000	0.0001	0.00243	0.00255
05:18:00	0.0000	0.0000	0.0000	0.0001	0.00242	0.00249
05:24:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00245
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00242
05:36:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
06:24:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
06:42:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
07:30:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
07:48:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
09:00:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
10:18:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
11:36:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
13:00:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
13:06:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
14:30:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
16:06:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
17:42:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
17:48:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.32	No
BFIHOST19	0.34	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:56:28 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 3486-B186

Site name: FEH_Point_Descriptors_370282_434529_v5_0_1

Easting: 370282

Northing: 434529

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 2 year

Summary of results

Rainfall - FEH22 (mm):	17.31	Total runoff (ML):	0.15
Total Rainfall (mm):	12.72	Total flow (ML):	0.30
Peak Rainfall (mm):	1.58	Peak flow (m³/s):	0.02

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	118.59	No
Cmax (mm)	246.84	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	25.98 [20.6]	Yes
BR	0.98	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.1283	0.0000	0.0617	0.0000	0.00146	0.00146
00:06:00	0.1683	0.0000	0.0810	0.0000	0.00145	0.00147
00:12:00	0.2205	0.0000	0.1063	0.0001	0.00145	0.0015
00:18:00	0.2886	0.0000	0.1394	0.0001	0.00144	0.00158
00:24:00	0.3771	0.0000	0.1827	0.0003	0.00144	0.00171
00:30:00	0.4917	0.0000	0.2391	0.0005	0.00143	0.00191
00:36:00	0.6397	0.0000	0.3125	0.0008	0.00143	0.0022
00:42:00	0.8292	0.0000	0.4075	0.0012	0.00143	0.00261
00:48:00	1.0689	0.0000	0.5294	0.0017	0.00143	0.00317
00:54:00	1.3612	0.0000	0.6809	0.0025	0.00143	0.00394
01:00:00	1.5757	0.0000	0.7976	0.0035	0.00144	0.00496
01:06:00	1.3612	0.0000	0.6971	0.0048	0.00145	0.00628
01:12:00	1.0689	0.0000	0.5527	0.0064	0.00146	0.00788
01:18:00	0.8292	0.0000	0.4319	0.0082	0.00148	0.00968
01:24:00	0.6397	0.0000	0.3351	0.0101	0.00151	0.0116
01:30:00	0.4917	0.0000	0.2587	0.0121	0.00155	0.0136
01:36:00	0.3771	0.0000	0.1991	0.0140	0.00159	0.0156
01:42:00	0.2886	0.0000	0.1527	0.0159	0.00164	0.0175
01:48:00	0.2205	0.0000	0.1169	0.0176	0.0017	0.0193
01:54:00	0.1683	0.0000	0.0894	0.0190	0.00176	0.0208
02:00:00	0.1283	0.0000	0.0682	0.0201	0.00183	0.0219
02:06:00	0.0000	0.0000	0.0000	0.0207	0.0019	0.0226
02:12:00	0.0000	0.0000	0.0000	0.0208	0.00197	0.0228
02:18:00	0.0000	0.0000	0.0000	0.0205	0.00204	0.0226
02:24:00	0.0000	0.0000	0.0000	0.0200	0.0021	0.0221
02:30:00	0.0000	0.0000	0.0000	0.0191	0.00217	0.0213
02:36:00	0.0000	0.0000	0.0000	0.0181	0.00223	0.0204
02:42:00	0.0000	0.0000	0.0000	0.0170	0.00229	0.0193
02:48:00	0.0000	0.0000	0.0000	0.0158	0.00234	0.0182
02:54:00	0.0000	0.0000	0.0000	0.0146	0.00239	0.017
03:00:00	0.0000	0.0000	0.0000	0.0134	0.00243	0.0159
03:06:00	0.0000	0.0000	0.0000	0.0123	0.00247	0.0148
03:12:00	0.0000	0.0000	0.0000	0.0112	0.00251	0.0137
03:18:00	0.0000	0.0000	0.0000	0.0103	0.00254	0.0128
03:24:00	0.0000	0.0000	0.0000	0.0094	0.00256	0.0119

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0085	0.00259	0.0111
03:36:00	0.0000	0.0000	0.0000	0.0077	0.00261	0.0103
03:42:00	0.0000	0.0000	0.0000	0.0069	0.00263	0.00953
03:48:00	0.0000	0.0000	0.0000	0.0062	0.00264	0.0088
03:54:00	0.0000	0.0000	0.0000	0.0054	0.00265	0.00809
04:00:00	0.0000	0.0000	0.0000	0.0047	0.00266	0.00741
04:06:00	0.0000	0.0000	0.0000	0.0041	0.00267	0.00675
04:12:00	0.0000	0.0000	0.0000	0.0035	0.00267	0.00612
04:18:00	0.0000	0.0000	0.0000	0.0029	0.00267	0.00552
04:24:00	0.0000	0.0000	0.0000	0.0023	0.00267	0.00496
04:30:00	0.0000	0.0000	0.0000	0.0018	0.00267	0.00445
04:36:00	0.0000	0.0000	0.0000	0.0013	0.00266	0.004
04:42:00	0.0000	0.0000	0.0000	0.0010	0.00266	0.00363
04:48:00	0.0000	0.0000	0.0000	0.0007	0.00265	0.00335
04:54:00	0.0000	0.0000	0.0000	0.0005	0.00264	0.00313
05:00:00	0.0000	0.0000	0.0000	0.0003	0.00263	0.00297
05:06:00	0.0000	0.0000	0.0000	0.0002	0.00263	0.00284
05:12:00	0.0000	0.0000	0.0000	0.0001	0.00262	0.00275
05:18:00	0.0000	0.0000	0.0000	0.0001	0.00261	0.00268
05:24:00	0.0000	0.0000	0.0000	0.0000	0.0026	0.00264
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.0026
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00258	0.00258
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00256	0.00256
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00254	0.00254
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00249	0.00249
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00246	0.00246
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00243	0.00243
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
07:24:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
07:30:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
08:30:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
08:36:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
09:42:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
10:54:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
12:12:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
13:30:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
14:54:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
16:24:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
18:00:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
19:36:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
19:42:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.32	No
BFIHOST19	0.34	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:58:07 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 3486-B186

Site name: FEH_Point_Descriptors_370282_434529_v5_0_1

Easting: 370282

Northing: 434529

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 10 year

Summary of results

Rainfall - FEH22 (mm):	29.94	Total runoff (ML):	0.27
Total Rainfall (mm):	22.01	Total flow (ML):	0.52
Peak Rainfall (mm):	2.73	Peak flow (m³/s):	0.04

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	118.59	No
Cmax (mm)	246.84	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	25.98 [20.6]	Yes
BR	0.9	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.2220	0.0000	0.1067	0.0000	0.00146	0.00146
00:06:00	0.2912	0.0000	0.1403	0.0000	0.00145	0.00148
00:12:00	0.3815	0.0000	0.1844	0.0001	0.00145	0.00155
00:18:00	0.4993	0.0000	0.2422	0.0002	0.00144	0.00168
00:24:00	0.6524	0.0000	0.3180	0.0005	0.00144	0.00191
00:30:00	0.8508	0.0000	0.4172	0.0008	0.00144	0.00226
00:36:00	1.1067	0.0000	0.5472	0.0013	0.00143	0.00277
00:42:00	1.4346	0.0000	0.7167	0.0021	0.00143	0.00349
00:48:00	1.8492	0.0000	0.9361	0.0030	0.00144	0.00447
00:54:00	2.3550	0.0000	1.2122	0.0044	0.00144	0.00581
01:00:00	2.7262	0.0000	1.4313	0.0062	0.00146	0.00761
01:06:00	2.3550	0.0000	1.2607	0.0085	0.00148	0.00995
01:12:00	1.8492	0.0000	1.0057	0.0113	0.00151	0.0128
01:18:00	1.4346	0.0000	0.7897	0.0144	0.00154	0.016
01:24:00	1.1067	0.0000	0.6149	0.0179	0.0016	0.0194
01:30:00	0.8508	0.0000	0.4761	0.0214	0.00166	0.023
01:36:00	0.6524	0.0000	0.3670	0.0249	0.00173	0.0266
01:42:00	0.4993	0.0000	0.2821	0.0282	0.00182	0.0301
01:48:00	0.3815	0.0000	0.2162	0.0313	0.00191	0.0332
01:54:00	0.2912	0.0000	0.1654	0.0339	0.00202	0.0359
02:00:00	0.2220	0.0000	0.1263	0.0359	0.00213	0.038
02:06:00	0.0000	0.0000	0.0000	0.0371	0.00225	0.0393
02:12:00	0.0000	0.0000	0.0000	0.0374	0.00237	0.0397
02:18:00	0.0000	0.0000	0.0000	0.0369	0.00249	0.0394
02:24:00	0.0000	0.0000	0.0000	0.0359	0.00261	0.0385
02:30:00	0.0000	0.0000	0.0000	0.0345	0.00272	0.0372
02:36:00	0.0000	0.0000	0.0000	0.0327	0.00283	0.0355
02:42:00	0.0000	0.0000	0.0000	0.0307	0.00293	0.0336
02:48:00	0.0000	0.0000	0.0000	0.0286	0.00302	0.0316
02:54:00	0.0000	0.0000	0.0000	0.0264	0.0031	0.0295
03:00:00	0.0000	0.0000	0.0000	0.0243	0.00318	0.0275
03:06:00	0.0000	0.0000	0.0000	0.0222	0.00325	0.0255
03:12:00	0.0000	0.0000	0.0000	0.0203	0.00331	0.0236
03:18:00	0.0000	0.0000	0.0000	0.0185	0.00336	0.0219
03:24:00	0.0000	0.0000	0.0000	0.0169	0.00341	0.0203

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0154	0.00346	0.0188
03:36:00	0.0000	0.0000	0.0000	0.0139	0.00349	0.0174
03:42:00	0.0000	0.0000	0.0000	0.0125	0.00353	0.016
03:48:00	0.0000	0.0000	0.0000	0.0111	0.00355	0.0147
03:54:00	0.0000	0.0000	0.0000	0.0099	0.00358	0.0134
04:00:00	0.0000	0.0000	0.0000	0.0086	0.00359	0.0122
04:06:00	0.0000	0.0000	0.0000	0.0074	0.00361	0.011
04:12:00	0.0000	0.0000	0.0000	0.0063	0.00362	0.0099
04:18:00	0.0000	0.0000	0.0000	0.0052	0.00362	0.00882
04:24:00	0.0000	0.0000	0.0000	0.0042	0.00363	0.00781
04:30:00	0.0000	0.0000	0.0000	0.0033	0.00363	0.00688
04:36:00	0.0000	0.0000	0.0000	0.0025	0.00362	0.00608
04:42:00	0.0000	0.0000	0.0000	0.0018	0.00362	0.00541
04:48:00	0.0000	0.0000	0.0000	0.0013	0.00361	0.00489
04:54:00	0.0000	0.0000	0.0000	0.0009	0.0036	0.0045
05:00:00	0.0000	0.0000	0.0000	0.0006	0.00359	0.0042
05:06:00	0.0000	0.0000	0.0000	0.0004	0.00357	0.00397
05:12:00	0.0000	0.0000	0.0000	0.0002	0.00356	0.00381
05:18:00	0.0000	0.0000	0.0000	0.0001	0.00355	0.00369
05:24:00	0.0000	0.0000	0.0000	0.0001	0.00353	0.00361
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00352	0.00355
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00351	0.00351
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00349	0.00349
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00348	0.00348
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00347	0.00347
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00345	0.00345
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00344	0.00344
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00343	0.00343
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00341	0.00341
06:24:00	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00339	0.00339
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00338	0.00338
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00336	0.00336
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00335	0.00335
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00334	0.00334
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00332	0.00332

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00331	0.00331
07:12:00	0.0000	0.0000	0.0000	0.0000	0.0033	0.0033
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00329	0.00329
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00327	0.00327
07:30:00	0.0000	0.0000	0.0000	0.0000	0.00326	0.00326
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00325	0.00325
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00324	0.00324
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00322	0.00322
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00321	0.00321
08:00:00	0.0000	0.0000	0.0000	0.0000	0.0032	0.0032
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00319	0.00319
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00317	0.00317
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00316	0.00316
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00315	0.00315
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00314	0.00314
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00313	0.00313
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00311	0.00311
08:48:00	0.0000	0.0000	0.0000	0.0000	0.0031	0.0031
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00309	0.00309
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00308	0.00308
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00307	0.00307
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00305	0.00305
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00304	0.00304
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00303	0.00303
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00302	0.00302
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00301	0.00301
09:42:00	0.0000	0.0000	0.0000	0.0000	0.003	0.003
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00298	0.00298
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00297	0.00297
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00296	0.00296
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00295	0.00295
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00294	0.00294
10:18:00	0.0000	0.0000	0.0000	0.0000	0.00293	0.00293
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00292	0.00292
10:30:00	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00289	0.00289

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00288	0.00288
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00287	0.00287
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00286	0.00286
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00285	0.00285
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00284	0.00284
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00283	0.00283
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00282	0.00282
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00281	0.00281
11:30:00	0.0000	0.0000	0.0000	0.0000	0.0028	0.0028
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00278	0.00278
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00277	0.00277
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00276	0.00276
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00275	0.00275
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00274	0.00274
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00273	0.00273
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00272	0.00272
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00271	0.00271
12:24:00	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00269	0.00269
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00268	0.00268
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00267	0.00267
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00266	0.00266
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00265	0.00265
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00264	0.00264
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00263	0.00263
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00262	0.00262
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00261	0.00261
13:24:00	0.0000	0.0000	0.0000	0.0000	0.0026	0.0026
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.00259
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00258	0.00258
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00256	0.00256
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00254	0.00254
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
14:24:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00249	0.00249
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00246	0.00246
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00243	0.00243
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
15:30:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
16:18:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
16:36:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
17:42:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
18:54:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
20:12:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
20:42:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
22:54:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
23:00:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
24:00:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
24:06:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
24:24:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
25:12:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
25:54:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
26:00:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
27:36:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
27:42:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147

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Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.32	No
BFIHOST19	0.34	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:58:18 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 3486-B186

Site name: FEH_Point_Descriptors_370282_434529_v5_0_1

Easting: 370282

Northing: 434529

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 30 year

Summary of results

Rainfall - FEH22 (mm):	38.15	Total runoff (ML):	0.35
Total Rainfall (mm):	28.04	Total flow (ML):	0.66
Peak Rainfall (mm):	3.47	Peak flow (m³/s):	0.05

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	118.59	No
Cmax (mm)	246.84	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	25.98 [20.6]	Yes
BR	0.86	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.2827	0.0000	0.1360	0.0000	0.00146	0.00146
00:06:00	0.3709	0.0000	0.1789	0.0000	0.00145	0.00148
00:12:00	0.4860	0.0000	0.2353	0.0001	0.00145	0.00157
00:18:00	0.6361	0.0000	0.3093	0.0003	0.00144	0.00175
00:24:00	0.8311	0.0000	0.4066	0.0006	0.00144	0.00205
00:30:00	1.0838	0.0000	0.5345	0.0011	0.00144	0.00249
00:36:00	1.4098	0.0000	0.7024	0.0017	0.00144	0.00314
00:42:00	1.8275	0.0000	0.9225	0.0026	0.00144	0.00406
00:48:00	2.3558	0.0000	1.2091	0.0039	0.00144	0.00532
00:54:00	3.0001	0.0000	1.5724	0.0056	0.00145	0.00704
01:00:00	3.4729	0.0000	1.8658	0.0079	0.00147	0.00936
01:06:00	3.0001	0.0000	1.6511	0.0109	0.00149	0.0124
01:12:00	2.3558	0.0000	1.3220	0.0145	0.00153	0.016
01:18:00	1.8275	0.0000	1.0411	0.0186	0.00158	0.0202
01:24:00	1.4098	0.0000	0.8124	0.0230	0.00164	0.0247
01:30:00	1.0838	0.0000	0.6300	0.0276	0.00172	0.0294
01:36:00	0.8311	0.0000	0.4863	0.0322	0.00181	0.034
01:42:00	0.6361	0.0000	0.3741	0.0366	0.00192	0.0385
01:48:00	0.4860	0.0000	0.2870	0.0406	0.00204	0.0427
01:54:00	0.3709	0.0000	0.2196	0.0441	0.00217	0.0463
02:00:00	0.2827	0.0000	0.1678	0.0467	0.00231	0.049
02:06:00	0.0000	0.0000	0.0000	0.0483	0.00246	0.0507
02:12:00	0.0000	0.0000	0.0000	0.0487	0.00261	0.0513
02:18:00	0.0000	0.0000	0.0000	0.0482	0.00276	0.051
02:24:00	0.0000	0.0000	0.0000	0.0469	0.00291	0.0498
02:30:00	0.0000	0.0000	0.0000	0.0450	0.00305	0.0481
02:36:00	0.0000	0.0000	0.0000	0.0427	0.00319	0.0459
02:42:00	0.0000	0.0000	0.0000	0.0402	0.00331	0.0435
02:48:00	0.0000	0.0000	0.0000	0.0374	0.00343	0.0408
02:54:00	0.0000	0.0000	0.0000	0.0346	0.00353	0.0381
03:00:00	0.0000	0.0000	0.0000	0.0318	0.00363	0.0354
03:06:00	0.0000	0.0000	0.0000	0.0291	0.00371	0.0328
03:12:00	0.0000	0.0000	0.0000	0.0266	0.00379	0.0304
03:18:00	0.0000	0.0000	0.0000	0.0243	0.00386	0.0281
03:24:00	0.0000	0.0000	0.0000	0.0221	0.00392	0.0261

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0201	0.00398	0.0241
03:36:00	0.0000	0.0000	0.0000	0.0182	0.00403	0.0222
03:42:00	0.0000	0.0000	0.0000	0.0164	0.00407	0.0204
03:48:00	0.0000	0.0000	0.0000	0.0146	0.0041	0.0187
03:54:00	0.0000	0.0000	0.0000	0.0129	0.00413	0.0171
04:00:00	0.0000	0.0000	0.0000	0.0113	0.00416	0.0155
04:06:00	0.0000	0.0000	0.0000	0.0098	0.00418	0.0139
04:12:00	0.0000	0.0000	0.0000	0.0083	0.00419	0.0125
04:18:00	0.0000	0.0000	0.0000	0.0068	0.0042	0.011
04:24:00	0.0000	0.0000	0.0000	0.0055	0.0042	0.00971
04:30:00	0.0000	0.0000	0.0000	0.0043	0.0042	0.0085
04:36:00	0.0000	0.0000	0.0000	0.0032	0.0042	0.00744
04:42:00	0.0000	0.0000	0.0000	0.0024	0.00419	0.00657
04:48:00	0.0000	0.0000	0.0000	0.0017	0.00418	0.00589
04:54:00	0.0000	0.0000	0.0000	0.0012	0.00417	0.00537
05:00:00	0.0000	0.0000	0.0000	0.0008	0.00416	0.00497
05:06:00	0.0000	0.0000	0.0000	0.0005	0.00415	0.00468
05:12:00	0.0000	0.0000	0.0000	0.0003	0.00413	0.00446
05:18:00	0.0000	0.0000	0.0000	0.0002	0.00412	0.00431
05:24:00	0.0000	0.0000	0.0000	0.0001	0.0041	0.0042
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00409	0.00412
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00407	0.00408
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00405	0.00405
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00404	0.00404
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00402	0.00402
06:00:00	0.0000	0.0000	0.0000	0.0000	0.00401	0.00401
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00399	0.00399
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00398	0.00398
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00396	0.00396
06:24:00	0.0000	0.0000	0.0000	0.0000	0.00395	0.00395
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00393	0.00393
06:36:00	0.0000	0.0000	0.0000	0.0000	0.00392	0.00392
06:42:00	0.0000	0.0000	0.0000	0.0000	0.0039	0.0039
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00389	0.00389
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00387	0.00387
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00386	0.00386

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00384	0.00384
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00383	0.00383
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00381	0.00381
07:24:00	0.0000	0.0000	0.0000	0.0000	0.0038	0.0038
07:30:00	0.0000	0.0000	0.0000	0.0000	0.00378	0.00378
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00377	0.00377
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00375	0.00375
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00374	0.00374
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00373	0.00373
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00371	0.00371
08:06:00	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00368	0.00368
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00367	0.00367
08:24:00	0.0000	0.0000	0.0000	0.0000	0.00365	0.00365
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00364	0.00364
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00363	0.00363
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00361	0.00361
08:48:00	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00359	0.00359
09:00:00	0.0000	0.0000	0.0000	0.0000	0.00357	0.00357
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00356	0.00356
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00354	0.00354
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00353	0.00353
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00352	0.00352
09:30:00	0.0000	0.0000	0.0000	0.0000	0.0035	0.0035
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00349	0.00349
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00348	0.00348
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00346	0.00346
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00345	0.00345
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00344	0.00344
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00342	0.00342
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00341	0.00341
10:18:00	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00338	0.00338
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00337	0.00337
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00336	0.00336

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00335	0.00335
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00333	0.00333
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00332	0.00332
11:00:00	0.0000	0.0000	0.0000	0.0000	0.00331	0.00331
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00329	0.00329
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00328	0.00328
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00327	0.00327
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00326	0.00326
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00324	0.00324
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00323	0.00323
11:42:00	0.0000	0.0000	0.0000	0.0000	0.00322	0.00322
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00321	0.00321
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00319	0.00319
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00318	0.00318
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00317	0.00317
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00316	0.00316
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00315	0.00315
12:24:00	0.0000	0.0000	0.0000	0.0000	0.00313	0.00313
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00312	0.00312
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00311	0.00311
12:42:00	0.0000	0.0000	0.0000	0.0000	0.0031	0.0031
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00309	0.00309
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00307	0.00307
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00306	0.00306
13:06:00	0.0000	0.0000	0.0000	0.0000	0.00305	0.00305
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00304	0.00304
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00303	0.00303
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00301	0.00301
13:30:00	0.0000	0.0000	0.0000	0.0000	0.003	0.003
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00299	0.00299
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00298	0.00298
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00297	0.00297
13:54:00	0.0000	0.0000	0.0000	0.0000	0.00296	0.00296
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00295	0.00295
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00293	0.00293
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00292	0.00292

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00291	0.00291
14:24:00	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00289	0.00289
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00288	0.00288
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00287	0.00287
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00286	0.00286
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00285	0.00285
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00283	0.00283
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00282	0.00282
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00281	0.00281
15:18:00	0.0000	0.0000	0.0000	0.0000	0.0028	0.0028
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00279	0.00279
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00278	0.00278
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00277	0.00277
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00276	0.00276
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00275	0.00275
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00274	0.00274
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00273	0.00273
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00272	0.00272
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00271	0.00271
16:18:00	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00269	0.00269
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00268	0.00268
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00267	0.00267
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00266	0.00266
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00265	0.00265
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00263	0.00263
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00262	0.00262
17:06:00	0.0000	0.0000	0.0000	0.0000	0.00261	0.00261
17:12:00	0.0000	0.0000	0.0000	0.0000	0.0026	0.0026
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.00259
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00258	0.00258
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00256	0.00256
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00254	0.00254
18:00:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
18:18:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00249	0.00249
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00246	0.00246
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
18:54:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00243	0.00243
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
19:18:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
19:54:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
20:24:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
20:42:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
20:48:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
21:36:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
21:54:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
22:48:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
22:54:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
24:00:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
24:06:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
24:24:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
25:12:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
25:24:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
25:54:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
26:00:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
26:24:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
26:48:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
27:36:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
27:42:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
28:18:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168

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Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
28:48:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
28:54:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
29:00:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
29:18:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
29:24:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
29:48:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
29:54:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
30:06:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
30:24:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
31:00:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
31:12:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
31:18:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
31:24:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
31:30:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
31:36:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
31:42:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
31:54:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.32	No
BFIHOST19	0.34	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

UK Design Flood Estimation

Generated on 08 November 2024 11:58:27 by ihopkinson
Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH2)

Site details Checksum: 3486-B186

Site name: FEH_Point_Descriptors_370282_434529_v5_0_1

Easting: 370282

Northing: 434529

Country: England, Wales or Northern Ireland

Catchment Area (km²): 0.02 [0.5]*

Using plot scale calculations: Yes

Model: 2.3

Site description: None

Model run: 100 year

Summary of results

Rainfall - FEH22 (mm):	47.52	Total runoff (ML):	0.45
Total Rainfall (mm):	34.93	Total flow (ML):	0.82
Peak Rainfall (mm):	4.33	Peak flow (m³/s):	0.07

Parameters

Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.
** Indicates that the user locked the duration/timestep*

Rainfall parameters (Rainfall - FEH22)

Name	Value	User-defined?
Duration (hh:mm:ss)	02:06:00	No
Timestep (hh:mm:ss)	00:06:00	No
SCF (Seasonal correction factor)	0.74	No
ARF (Areal reduction factor)	1 [0.99]	Yes
Seasonality	Winter	No

Loss model parameters

Name	Value	User-defined?
Cini (mm)	118.59	No
Cmax (mm)	246.84	No
Use alpha correction factor	No	No
Alpha correction factor	n/a	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	1	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0	No
BL (hr)	25.98 [20.6]	Yes
BR	0.81	No

Urbanisation parameters

Name	Value	User-defined?
Sewer capacity (m^3/s)	0	No
Exporting drained area (km^2)	0	No
Urban area (km^2)	0	No
Urbext 2000	0	No
Impervious runoff factor	0.7	No
Imperviousness factor	0.4	No
Tp scaling factor	0.75	No
Depression storage depth (mm)	0.5	No

Time series data

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00:00	0.3523	0.0000	0.1695	0.0000	0.00146	0.00146
00:06:00	0.4621	0.0000	0.2231	0.0000	0.00145	0.00149
00:12:00	0.6055	0.0000	0.2937	0.0002	0.00145	0.0016
00:18:00	0.7924	0.0000	0.3865	0.0004	0.00144	0.00183
00:24:00	1.0354	0.0000	0.5089	0.0008	0.00144	0.0022
00:30:00	1.3503	0.0000	0.6702	0.0013	0.00144	0.00276
00:36:00	1.7565	0.0000	0.8828	0.0021	0.00144	0.00357
00:42:00	2.2769	0.0000	1.1630	0.0033	0.00144	0.00472
00:48:00	2.9350	0.0000	1.5301	0.0049	0.00145	0.0063
00:54:00	3.7377	0.0000	1.9991	0.0070	0.00146	0.00846
01:00:00	4.3268	0.0000	2.3849	0.0099	0.00148	0.0114
01:06:00	3.7377	0.0000	2.1213	0.0137	0.00151	0.0152
01:12:00	2.9350	0.0000	1.7054	0.0183	0.00156	0.0198
01:18:00	2.2769	0.0000	1.3470	0.0235	0.00162	0.0251
01:24:00	1.7565	0.0000	1.0535	0.0291	0.00169	0.0308
01:30:00	1.3503	0.0000	0.8184	0.0350	0.00179	0.0368
01:36:00	1.0354	0.0000	0.6325	0.0409	0.0019	0.0428
01:42:00	0.7924	0.0000	0.4870	0.0465	0.00203	0.0485
01:48:00	0.6055	0.0000	0.3739	0.0517	0.00217	0.0539
01:54:00	0.4621	0.0000	0.2863	0.0562	0.00233	0.0585
02:00:00	0.3523	0.0000	0.2188	0.0596	0.00251	0.0621
02:06:00	0.0000	0.0000	0.0000	0.0617	0.00269	0.0644
02:12:00	0.0000	0.0000	0.0000	0.0623	0.00287	0.0652
02:18:00	0.0000	0.0000	0.0000	0.0617	0.00305	0.0647
02:24:00	0.0000	0.0000	0.0000	0.0601	0.00323	0.0633
02:30:00	0.0000	0.0000	0.0000	0.0577	0.0034	0.0611
02:36:00	0.0000	0.0000	0.0000	0.0548	0.00357	0.0584
02:42:00	0.0000	0.0000	0.0000	0.0515	0.00372	0.0553
02:48:00	0.0000	0.0000	0.0000	0.0480	0.00386	0.0519
02:54:00	0.0000	0.0000	0.0000	0.0444	0.00399	0.0484
03:00:00	0.0000	0.0000	0.0000	0.0408	0.00411	0.0449
03:06:00	0.0000	0.0000	0.0000	0.0374	0.00421	0.0416
03:12:00	0.0000	0.0000	0.0000	0.0341	0.00431	0.0384
03:18:00	0.0000	0.0000	0.0000	0.0312	0.00439	0.0356
03:24:00	0.0000	0.0000	0.0000	0.0284	0.00447	0.0329

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
03:30:00	0.0000	0.0000	0.0000	0.0258	0.00454	0.0304
03:36:00	0.0000	0.0000	0.0000	0.0234	0.0046	0.028
03:42:00	0.0000	0.0000	0.0000	0.0210	0.00465	0.0257
03:48:00	0.0000	0.0000	0.0000	0.0188	0.00469	0.0235
03:54:00	0.0000	0.0000	0.0000	0.0166	0.00473	0.0214
04:00:00	0.0000	0.0000	0.0000	0.0146	0.00476	0.0193
04:06:00	0.0000	0.0000	0.0000	0.0126	0.00479	0.0174
04:12:00	0.0000	0.0000	0.0000	0.0107	0.0048	0.0155
04:18:00	0.0000	0.0000	0.0000	0.0088	0.00482	0.0136
04:24:00	0.0000	0.0000	0.0000	0.0071	0.00482	0.0119
04:30:00	0.0000	0.0000	0.0000	0.0056	0.00482	0.0104
04:36:00	0.0000	0.0000	0.0000	0.0042	0.00482	0.00902
04:42:00	0.0000	0.0000	0.0000	0.0031	0.00481	0.0079
04:48:00	0.0000	0.0000	0.0000	0.0022	0.0048	0.00702
04:54:00	0.0000	0.0000	0.0000	0.0016	0.00479	0.00634
05:00:00	0.0000	0.0000	0.0000	0.0011	0.00478	0.00583
05:06:00	0.0000	0.0000	0.0000	0.0007	0.00476	0.00545
05:12:00	0.0000	0.0000	0.0000	0.0004	0.00474	0.00517
05:18:00	0.0000	0.0000	0.0000	0.0002	0.00473	0.00497
05:24:00	0.0000	0.0000	0.0000	0.0001	0.00471	0.00483
05:30:00	0.0000	0.0000	0.0000	0.0000	0.00469	0.00474
05:36:00	0.0000	0.0000	0.0000	0.0000	0.00467	0.00469
05:42:00	0.0000	0.0000	0.0000	0.0000	0.00466	0.00466
05:48:00	0.0000	0.0000	0.0000	0.0000	0.00464	0.00464
05:54:00	0.0000	0.0000	0.0000	0.0000	0.00462	0.00462
06:00:00	0.0000	0.0000	0.0000	0.0000	0.0046	0.0046
06:06:00	0.0000	0.0000	0.0000	0.0000	0.00459	0.00459
06:12:00	0.0000	0.0000	0.0000	0.0000	0.00457	0.00457
06:18:00	0.0000	0.0000	0.0000	0.0000	0.00455	0.00455
06:24:00	0.0000	0.0000	0.0000	0.0000	0.00453	0.00453
06:30:00	0.0000	0.0000	0.0000	0.0000	0.00451	0.00451
06:36:00	0.0000	0.0000	0.0000	0.0000	0.0045	0.0045
06:42:00	0.0000	0.0000	0.0000	0.0000	0.00448	0.00448
06:48:00	0.0000	0.0000	0.0000	0.0000	0.00446	0.00446
06:54:00	0.0000	0.0000	0.0000	0.0000	0.00445	0.00445
07:00:00	0.0000	0.0000	0.0000	0.0000	0.00443	0.00443

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
07:06:00	0.0000	0.0000	0.0000	0.0000	0.00441	0.00441
07:12:00	0.0000	0.0000	0.0000	0.0000	0.00439	0.00439
07:18:00	0.0000	0.0000	0.0000	0.0000	0.00438	0.00438
07:24:00	0.0000	0.0000	0.0000	0.0000	0.00436	0.00436
07:30:00	0.0000	0.0000	0.0000	0.0000	0.00434	0.00434
07:36:00	0.0000	0.0000	0.0000	0.0000	0.00433	0.00433
07:42:00	0.0000	0.0000	0.0000	0.0000	0.00431	0.00431
07:48:00	0.0000	0.0000	0.0000	0.0000	0.00429	0.00429
07:54:00	0.0000	0.0000	0.0000	0.0000	0.00428	0.00428
08:00:00	0.0000	0.0000	0.0000	0.0000	0.00426	0.00426
08:06:00	0.0000	0.0000	0.0000	0.0000	0.00425	0.00425
08:12:00	0.0000	0.0000	0.0000	0.0000	0.00423	0.00423
08:18:00	0.0000	0.0000	0.0000	0.0000	0.00421	0.00421
08:24:00	0.0000	0.0000	0.0000	0.0000	0.0042	0.0042
08:30:00	0.0000	0.0000	0.0000	0.0000	0.00418	0.00418
08:36:00	0.0000	0.0000	0.0000	0.0000	0.00416	0.00416
08:42:00	0.0000	0.0000	0.0000	0.0000	0.00415	0.00415
08:48:00	0.0000	0.0000	0.0000	0.0000	0.00413	0.00413
08:54:00	0.0000	0.0000	0.0000	0.0000	0.00412	0.00412
09:00:00	0.0000	0.0000	0.0000	0.0000	0.0041	0.0041
09:06:00	0.0000	0.0000	0.0000	0.0000	0.00409	0.00409
09:12:00	0.0000	0.0000	0.0000	0.0000	0.00407	0.00407
09:18:00	0.0000	0.0000	0.0000	0.0000	0.00405	0.00405
09:24:00	0.0000	0.0000	0.0000	0.0000	0.00404	0.00404
09:30:00	0.0000	0.0000	0.0000	0.0000	0.00402	0.00402
09:36:00	0.0000	0.0000	0.0000	0.0000	0.00401	0.00401
09:42:00	0.0000	0.0000	0.0000	0.0000	0.00399	0.00399
09:48:00	0.0000	0.0000	0.0000	0.0000	0.00398	0.00398
09:54:00	0.0000	0.0000	0.0000	0.0000	0.00396	0.00396
10:00:00	0.0000	0.0000	0.0000	0.0000	0.00395	0.00395
10:06:00	0.0000	0.0000	0.0000	0.0000	0.00393	0.00393
10:12:00	0.0000	0.0000	0.0000	0.0000	0.00392	0.00392
10:18:00	0.0000	0.0000	0.0000	0.0000	0.0039	0.0039
10:24:00	0.0000	0.0000	0.0000	0.0000	0.00389	0.00389
10:30:00	0.0000	0.0000	0.0000	0.0000	0.00387	0.00387
10:36:00	0.0000	0.0000	0.0000	0.0000	0.00386	0.00386

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
10:42:00	0.0000	0.0000	0.0000	0.0000	0.00384	0.00384
10:48:00	0.0000	0.0000	0.0000	0.0000	0.00383	0.00383
10:54:00	0.0000	0.0000	0.0000	0.0000	0.00381	0.00381
11:00:00	0.0000	0.0000	0.0000	0.0000	0.0038	0.0038
11:06:00	0.0000	0.0000	0.0000	0.0000	0.00378	0.00378
11:12:00	0.0000	0.0000	0.0000	0.0000	0.00377	0.00377
11:18:00	0.0000	0.0000	0.0000	0.0000	0.00375	0.00375
11:24:00	0.0000	0.0000	0.0000	0.0000	0.00374	0.00374
11:30:00	0.0000	0.0000	0.0000	0.0000	0.00372	0.00372
11:36:00	0.0000	0.0000	0.0000	0.0000	0.00371	0.00371
11:42:00	0.0000	0.0000	0.0000	0.0000	0.0037	0.0037
11:48:00	0.0000	0.0000	0.0000	0.0000	0.00368	0.00368
11:54:00	0.0000	0.0000	0.0000	0.0000	0.00367	0.00367
12:00:00	0.0000	0.0000	0.0000	0.0000	0.00365	0.00365
12:06:00	0.0000	0.0000	0.0000	0.0000	0.00364	0.00364
12:12:00	0.0000	0.0000	0.0000	0.0000	0.00363	0.00363
12:18:00	0.0000	0.0000	0.0000	0.0000	0.00361	0.00361
12:24:00	0.0000	0.0000	0.0000	0.0000	0.0036	0.0036
12:30:00	0.0000	0.0000	0.0000	0.0000	0.00358	0.00358
12:36:00	0.0000	0.0000	0.0000	0.0000	0.00357	0.00357
12:42:00	0.0000	0.0000	0.0000	0.0000	0.00356	0.00356
12:48:00	0.0000	0.0000	0.0000	0.0000	0.00354	0.00354
12:54:00	0.0000	0.0000	0.0000	0.0000	0.00353	0.00353
13:00:00	0.0000	0.0000	0.0000	0.0000	0.00352	0.00352
13:06:00	0.0000	0.0000	0.0000	0.0000	0.0035	0.0035
13:12:00	0.0000	0.0000	0.0000	0.0000	0.00349	0.00349
13:18:00	0.0000	0.0000	0.0000	0.0000	0.00348	0.00348
13:24:00	0.0000	0.0000	0.0000	0.0000	0.00346	0.00346
13:30:00	0.0000	0.0000	0.0000	0.0000	0.00345	0.00345
13:36:00	0.0000	0.0000	0.0000	0.0000	0.00344	0.00344
13:42:00	0.0000	0.0000	0.0000	0.0000	0.00342	0.00342
13:48:00	0.0000	0.0000	0.0000	0.0000	0.00341	0.00341
13:54:00	0.0000	0.0000	0.0000	0.0000	0.0034	0.0034
14:00:00	0.0000	0.0000	0.0000	0.0000	0.00338	0.00338
14:06:00	0.0000	0.0000	0.0000	0.0000	0.00337	0.00337
14:12:00	0.0000	0.0000	0.0000	0.0000	0.00336	0.00336

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
14:18:00	0.0000	0.0000	0.0000	0.0000	0.00334	0.00334
14:24:00	0.0000	0.0000	0.0000	0.0000	0.00333	0.00333
14:30:00	0.0000	0.0000	0.0000	0.0000	0.00332	0.00332
14:36:00	0.0000	0.0000	0.0000	0.0000	0.00331	0.00331
14:42:00	0.0000	0.0000	0.0000	0.0000	0.00329	0.00329
14:48:00	0.0000	0.0000	0.0000	0.0000	0.00328	0.00328
14:54:00	0.0000	0.0000	0.0000	0.0000	0.00327	0.00327
15:00:00	0.0000	0.0000	0.0000	0.0000	0.00326	0.00326
15:06:00	0.0000	0.0000	0.0000	0.0000	0.00324	0.00324
15:12:00	0.0000	0.0000	0.0000	0.0000	0.00323	0.00323
15:18:00	0.0000	0.0000	0.0000	0.0000	0.00322	0.00322
15:24:00	0.0000	0.0000	0.0000	0.0000	0.00321	0.00321
15:30:00	0.0000	0.0000	0.0000	0.0000	0.00319	0.00319
15:36:00	0.0000	0.0000	0.0000	0.0000	0.00318	0.00318
15:42:00	0.0000	0.0000	0.0000	0.0000	0.00317	0.00317
15:48:00	0.0000	0.0000	0.0000	0.0000	0.00316	0.00316
15:54:00	0.0000	0.0000	0.0000	0.0000	0.00314	0.00314
16:00:00	0.0000	0.0000	0.0000	0.0000	0.00313	0.00313
16:06:00	0.0000	0.0000	0.0000	0.0000	0.00312	0.00312
16:12:00	0.0000	0.0000	0.0000	0.0000	0.00311	0.00311
16:18:00	0.0000	0.0000	0.0000	0.0000	0.0031	0.0031
16:24:00	0.0000	0.0000	0.0000	0.0000	0.00308	0.00308
16:30:00	0.0000	0.0000	0.0000	0.0000	0.00307	0.00307
16:36:00	0.0000	0.0000	0.0000	0.0000	0.00306	0.00306
16:42:00	0.0000	0.0000	0.0000	0.0000	0.00305	0.00305
16:48:00	0.0000	0.0000	0.0000	0.0000	0.00304	0.00304
16:54:00	0.0000	0.0000	0.0000	0.0000	0.00303	0.00303
17:00:00	0.0000	0.0000	0.0000	0.0000	0.00301	0.00301
17:06:00	0.0000	0.0000	0.0000	0.0000	0.003	0.003
17:12:00	0.0000	0.0000	0.0000	0.0000	0.00299	0.00299
17:18:00	0.0000	0.0000	0.0000	0.0000	0.00298	0.00298
17:24:00	0.0000	0.0000	0.0000	0.0000	0.00297	0.00297
17:30:00	0.0000	0.0000	0.0000	0.0000	0.00296	0.00296
17:36:00	0.0000	0.0000	0.0000	0.0000	0.00295	0.00295
17:42:00	0.0000	0.0000	0.0000	0.0000	0.00293	0.00293
17:48:00	0.0000	0.0000	0.0000	0.0000	0.00292	0.00292

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
17:54:00	0.0000	0.0000	0.0000	0.0000	0.00291	0.00291
18:00:00	0.0000	0.0000	0.0000	0.0000	0.0029	0.0029
18:06:00	0.0000	0.0000	0.0000	0.0000	0.00289	0.00289
18:12:00	0.0000	0.0000	0.0000	0.0000	0.00288	0.00288
18:18:00	0.0000	0.0000	0.0000	0.0000	0.00287	0.00287
18:24:00	0.0000	0.0000	0.0000	0.0000	0.00286	0.00286
18:30:00	0.0000	0.0000	0.0000	0.0000	0.00284	0.00284
18:36:00	0.0000	0.0000	0.0000	0.0000	0.00283	0.00283
18:42:00	0.0000	0.0000	0.0000	0.0000	0.00282	0.00282
18:48:00	0.0000	0.0000	0.0000	0.0000	0.00281	0.00281
18:54:00	0.0000	0.0000	0.0000	0.0000	0.0028	0.0028
19:00:00	0.0000	0.0000	0.0000	0.0000	0.00279	0.00279
19:06:00	0.0000	0.0000	0.0000	0.0000	0.00278	0.00278
19:12:00	0.0000	0.0000	0.0000	0.0000	0.00277	0.00277
19:18:00	0.0000	0.0000	0.0000	0.0000	0.00276	0.00276
19:24:00	0.0000	0.0000	0.0000	0.0000	0.00275	0.00275
19:30:00	0.0000	0.0000	0.0000	0.0000	0.00274	0.00274
19:36:00	0.0000	0.0000	0.0000	0.0000	0.00273	0.00273
19:42:00	0.0000	0.0000	0.0000	0.0000	0.00272	0.00272
19:48:00	0.0000	0.0000	0.0000	0.0000	0.00271	0.00271
19:54:00	0.0000	0.0000	0.0000	0.0000	0.0027	0.0027
20:00:00	0.0000	0.0000	0.0000	0.0000	0.00269	0.00269
20:06:00	0.0000	0.0000	0.0000	0.0000	0.00267	0.00267
20:12:00	0.0000	0.0000	0.0000	0.0000	0.00266	0.00266
20:18:00	0.0000	0.0000	0.0000	0.0000	0.00265	0.00265
20:24:00	0.0000	0.0000	0.0000	0.0000	0.00264	0.00264
20:30:00	0.0000	0.0000	0.0000	0.0000	0.00263	0.00263
20:36:00	0.0000	0.0000	0.0000	0.0000	0.00262	0.00262
20:42:00	0.0000	0.0000	0.0000	0.0000	0.00261	0.00261
20:48:00	0.0000	0.0000	0.0000	0.0000	0.0026	0.0026
20:54:00	0.0000	0.0000	0.0000	0.0000	0.00259	0.00259
21:00:00	0.0000	0.0000	0.0000	0.0000	0.00258	0.00258
21:06:00	0.0000	0.0000	0.0000	0.0000	0.00257	0.00257
21:12:00	0.0000	0.0000	0.0000	0.0000	0.00256	0.00256
21:18:00	0.0000	0.0000	0.0000	0.0000	0.00255	0.00255
21:24:00	0.0000	0.0000	0.0000	0.0000	0.00254	0.00254

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
21:30:00	0.0000	0.0000	0.0000	0.0000	0.00253	0.00253
21:36:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252
21:42:00	0.0000	0.0000	0.0000	0.0000	0.00252	0.00252
21:48:00	0.0000	0.0000	0.0000	0.0000	0.00251	0.00251
21:54:00	0.0000	0.0000	0.0000	0.0000	0.0025	0.0025
22:00:00	0.0000	0.0000	0.0000	0.0000	0.00249	0.00249
22:06:00	0.0000	0.0000	0.0000	0.0000	0.00248	0.00248
22:12:00	0.0000	0.0000	0.0000	0.0000	0.00247	0.00247
22:18:00	0.0000	0.0000	0.0000	0.0000	0.00246	0.00246
22:24:00	0.0000	0.0000	0.0000	0.0000	0.00245	0.00245
22:30:00	0.0000	0.0000	0.0000	0.0000	0.00244	0.00244
22:36:00	0.0000	0.0000	0.0000	0.0000	0.00243	0.00243
22:42:00	0.0000	0.0000	0.0000	0.0000	0.00242	0.00242
22:48:00	0.0000	0.0000	0.0000	0.0000	0.00241	0.00241
22:54:00	0.0000	0.0000	0.0000	0.0000	0.0024	0.0024
23:00:00	0.0000	0.0000	0.0000	0.0000	0.00239	0.00239
23:06:00	0.0000	0.0000	0.0000	0.0000	0.00238	0.00238
23:12:00	0.0000	0.0000	0.0000	0.0000	0.00237	0.00237
23:18:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
23:24:00	0.0000	0.0000	0.0000	0.0000	0.00236	0.00236
23:30:00	0.0000	0.0000	0.0000	0.0000	0.00235	0.00235
23:36:00	0.0000	0.0000	0.0000	0.0000	0.00234	0.00234
23:42:00	0.0000	0.0000	0.0000	0.0000	0.00233	0.00233
23:48:00	0.0000	0.0000	0.0000	0.0000	0.00232	0.00232
23:54:00	0.0000	0.0000	0.0000	0.0000	0.00231	0.00231
24:00:00	0.0000	0.0000	0.0000	0.0000	0.0023	0.0023
24:06:00	0.0000	0.0000	0.0000	0.0000	0.00229	0.00229
24:12:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
24:18:00	0.0000	0.0000	0.0000	0.0000	0.00228	0.00228
24:24:00	0.0000	0.0000	0.0000	0.0000	0.00227	0.00227
24:30:00	0.0000	0.0000	0.0000	0.0000	0.00226	0.00226
24:36:00	0.0000	0.0000	0.0000	0.0000	0.00225	0.00225
24:42:00	0.0000	0.0000	0.0000	0.0000	0.00224	0.00224
24:48:00	0.0000	0.0000	0.0000	0.0000	0.00223	0.00223
24:54:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222
25:00:00	0.0000	0.0000	0.0000	0.0000	0.00222	0.00222

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
25:06:00	0.0000	0.0000	0.0000	0.0000	0.00221	0.00221
25:12:00	0.0000	0.0000	0.0000	0.0000	0.0022	0.0022
25:18:00	0.0000	0.0000	0.0000	0.0000	0.00219	0.00219
25:24:00	0.0000	0.0000	0.0000	0.0000	0.00218	0.00218
25:30:00	0.0000	0.0000	0.0000	0.0000	0.00217	0.00217
25:36:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
25:42:00	0.0000	0.0000	0.0000	0.0000	0.00216	0.00216
25:48:00	0.0000	0.0000	0.0000	0.0000	0.00215	0.00215
25:54:00	0.0000	0.0000	0.0000	0.0000	0.00214	0.00214
26:00:00	0.0000	0.0000	0.0000	0.0000	0.00213	0.00213
26:06:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
26:12:00	0.0000	0.0000	0.0000	0.0000	0.00212	0.00212
26:18:00	0.0000	0.0000	0.0000	0.0000	0.00211	0.00211
26:24:00	0.0000	0.0000	0.0000	0.0000	0.0021	0.0021
26:30:00	0.0000	0.0000	0.0000	0.0000	0.00209	0.00209
26:36:00	0.0000	0.0000	0.0000	0.0000	0.00208	0.00208
26:42:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
26:48:00	0.0000	0.0000	0.0000	0.0000	0.00207	0.00207
26:54:00	0.0000	0.0000	0.0000	0.0000	0.00206	0.00206
27:00:00	0.0000	0.0000	0.0000	0.0000	0.00205	0.00205
27:06:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
27:12:00	0.0000	0.0000	0.0000	0.0000	0.00204	0.00204
27:18:00	0.0000	0.0000	0.0000	0.0000	0.00203	0.00203
27:24:00	0.0000	0.0000	0.0000	0.0000	0.00202	0.00202
27:30:00	0.0000	0.0000	0.0000	0.0000	0.00201	0.00201
27:36:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
27:42:00	0.0000	0.0000	0.0000	0.0000	0.002	0.002
27:48:00	0.0000	0.0000	0.0000	0.0000	0.00199	0.00199
27:54:00	0.0000	0.0000	0.0000	0.0000	0.00198	0.00198
28:00:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
28:06:00	0.0000	0.0000	0.0000	0.0000	0.00197	0.00197
28:12:00	0.0000	0.0000	0.0000	0.0000	0.00196	0.00196
28:18:00	0.0000	0.0000	0.0000	0.0000	0.00195	0.00195
28:24:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
28:30:00	0.0000	0.0000	0.0000	0.0000	0.00194	0.00194
28:36:00	0.0000	0.0000	0.0000	0.0000	0.00193	0.00193

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
28:42:00	0.0000	0.0000	0.0000	0.0000	0.00192	0.00192
28:48:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
28:54:00	0.0000	0.0000	0.0000	0.0000	0.00191	0.00191
29:00:00	0.0000	0.0000	0.0000	0.0000	0.0019	0.0019
29:06:00	0.0000	0.0000	0.0000	0.0000	0.00189	0.00189
29:12:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
29:18:00	0.0000	0.0000	0.0000	0.0000	0.00188	0.00188
29:24:00	0.0000	0.0000	0.0000	0.0000	0.00187	0.00187
29:30:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
29:36:00	0.0000	0.0000	0.0000	0.0000	0.00186	0.00186
29:42:00	0.0000	0.0000	0.0000	0.0000	0.00185	0.00185
29:48:00	0.0000	0.0000	0.0000	0.0000	0.00184	0.00184
29:54:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
30:00:00	0.0000	0.0000	0.0000	0.0000	0.00183	0.00183
30:06:00	0.0000	0.0000	0.0000	0.0000	0.00182	0.00182
30:12:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
30:18:00	0.0000	0.0000	0.0000	0.0000	0.00181	0.00181
30:24:00	0.0000	0.0000	0.0000	0.0000	0.0018	0.0018
30:30:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
30:36:00	0.0000	0.0000	0.0000	0.0000	0.00179	0.00179
30:42:00	0.0000	0.0000	0.0000	0.0000	0.00178	0.00178
30:48:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
30:54:00	0.0000	0.0000	0.0000	0.0000	0.00177	0.00177
31:00:00	0.0000	0.0000	0.0000	0.0000	0.00176	0.00176
31:06:00	0.0000	0.0000	0.0000	0.0000	0.00175	0.00175
31:12:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
31:18:00	0.0000	0.0000	0.0000	0.0000	0.00174	0.00174
31:24:00	0.0000	0.0000	0.0000	0.0000	0.00173	0.00173
31:30:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
31:36:00	0.0000	0.0000	0.0000	0.0000	0.00172	0.00172
31:42:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
31:48:00	0.0000	0.0000	0.0000	0.0000	0.00171	0.00171
31:54:00	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017
32:00:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
32:06:00	0.0000	0.0000	0.0000	0.0000	0.00169	0.00169
32:12:00	0.0000	0.0000	0.0000	0.0000	0.00168	0.00168

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Time (hh:mm:ss)	Rain (mm)	Sewer Loss (m^3/s)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
32:18:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
32:24:00	0.0000	0.0000	0.0000	0.0000	0.00167	0.00167
32:30:00	0.0000	0.0000	0.0000	0.0000	0.00166	0.00166
32:36:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
32:42:00	0.0000	0.0000	0.0000	0.0000	0.00165	0.00165
32:48:00	0.0000	0.0000	0.0000	0.0000	0.00164	0.00164
32:54:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
33:00:00	0.0000	0.0000	0.0000	0.0000	0.00163	0.00163
33:06:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
33:12:00	0.0000	0.0000	0.0000	0.0000	0.00162	0.00162
33:18:00	0.0000	0.0000	0.0000	0.0000	0.00161	0.00161
33:24:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
33:30:00	0.0000	0.0000	0.0000	0.0000	0.0016	0.0016
33:36:00	0.0000	0.0000	0.0000	0.0000	0.00159	0.00159
33:42:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
33:48:00	0.0000	0.0000	0.0000	0.0000	0.00158	0.00158
33:54:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
34:00:00	0.0000	0.0000	0.0000	0.0000	0.00157	0.00157
34:06:00	0.0000	0.0000	0.0000	0.0000	0.00156	0.00156
34:12:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
34:18:00	0.0000	0.0000	0.0000	0.0000	0.00155	0.00155
34:24:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
34:30:00	0.0000	0.0000	0.0000	0.0000	0.00154	0.00154
34:36:00	0.0000	0.0000	0.0000	0.0000	0.00153	0.00153
34:42:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
34:48:00	0.0000	0.0000	0.0000	0.0000	0.00152	0.00152
34:54:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
35:00:00	0.0000	0.0000	0.0000	0.0000	0.00151	0.00151
35:06:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
35:12:00	0.0000	0.0000	0.0000	0.0000	0.0015	0.0015
35:18:00	0.0000	0.0000	0.0000	0.0000	0.00149	0.00149
35:24:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
35:30:00	0.0000	0.0000	0.0000	0.0000	0.00148	0.00148
35:36:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147
35:42:00	0.0000	0.0000	0.0000	0.0000	0.00147	0.00147

Printed from the ReFH2 Flood Modelling software package, version 4.0.8560.23190

Appendix

Catchment descriptors *

Name	Value	User-defined value used?
BFIHOST	0.32	No
BFIHOST19	0.34	No
PROPWET	0.51	No
SAAR (mm)	1146	No

Values in square brackets are the original values loaded from the FEH Web Service or FEH CD-ROM

SUDS Type	SUDS Technique	Description	Suitable	Comments
Source Control	Green roof	Vegetated roof that reduces runoff volume and rate	No	Expected planning requirement for traditional pitched roofs to match neighbouring housing.
	Rainwater harvesting/rainwater butts	Rainwater is stored and re-used	Possible	Individual water butts can be used for garden watering.
	Permeable paving	Paving which allows inflow of rainwater into underlying construction/soil	Possible	Permeable paving (Type C) may be suitable for private drives.
Infiltration	Soakaway	Pit or trench which stores and disposes of water to the ground	No	Presence of impermeable ground (clay and silt). Soakaway testing was conducted by Lithos Consulting (Ref: 008/5200/REG/dw) and infiltration rates were not calculated as the water level did not fall to the 25% effective depth.
	Filter Drain	Trench which conveys and/or disposes of water to the ground.	No	
	Infiltration Basin	Shallow basin which stores and disposes of water to the ground	No	Lack of suitable open space.
Conveyance	Swale	Shallow vegetated depression which conducts and retains water	No	Unsuitable for sites with steep topography.
Detention	Subsurface storage	Traditional underground pipes, tank storage, or modular systems	Yes	Area available on the site for an attenuation tank/ crates.
	Detention Basin	Normally dry but may have small permanent water pools at the inlet and outlet. They can function as POS	Yes	Area available on the site for an attenuation basin.
	Pond	Permanent body of water	No	Lack of suitable public open space.
	Wetland	Permanent body of shallow water or marsh	No	

General Information			
Site ID			
Site Location and co-ordinates			
Elements forming the SUDs scheme		Approved drawing reference	
Inspection Frequency		Approved specification reference	
Type of Development		Specific purpose of any parts of the scheme (eg biodiversity, wildlife and visual aspects)	

Inspection Date								
	Details	**Y/N**	**Action Required**	**Date Completed**	**Details**	**Y/N**	**Action Required**	**Date Completed**
General Inspection Items								
Evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance								
Evidence of poor water quality								

Inspection Date								
	Details	**Y/N**	**Action Required**	**Date Completed**	**Details**	**Y/N**	**Action Required**	**Date Completed**
Silt/Sediment Accumulation								
Id there any sediment accumulation at inlets/outlets								
If yes, state the depth in mm								
Removal required? State waste disposal requirements have been compiled with environmental regulator								
Is surface clogging visible								

Inspection Date								
	Details	**Y/N**	**Action Required**	**Date Completed**	**Details**	**Y/N**	**Action Required**	**Date Completed**
Blockages/Litter Build up								
Is there evidence of litter build up (if yes, has this been removed)								
Is there evidence of clogging or blockages (if yes, has this been removed)								
Vegetation								
Is vegetation in the basin/swales satisfactory (density, weed growth, coverage)								
Does any area need weeding, mowing or pruning (if yes, has this been undertaken)								
Is there evidence of invasive species becoming established (state action required								

Inspection Date								
	Details	**Y/N**	**Action Required**	**Date Completed**	**Details**	**Y/N**	**Action Required**	**Date Completed**
Infrastructure								
Is the flow control in good condition (silt, damages, evidence of tampering) – if yes, please provide details								
Is there evidence of unauthorised inflows?								
Is the inflow/outflow structures in a suitable condition – please provide information								
Are there any other matters that could affect the performance of the system – if yes give details								

Inspection Date								
	Details	**Y/N**	**Action Required**	**Date Completed**	**Details**	**Y/N**	**Action Required**	**Date Completed**
Other Observations								
Information appended (photos etc)								
Suitability of current maintenance regime								
Continue as current Increase maintenance Decrease maintenance								
Next Inspection								
Proposed date for next inspection								

Further Comments	



Key:

- Attenuation basin
- Attenuation crates/ tank
- Surface water sewer
- Existing public surface water sewer (United Utilities)
- Linear drainage channel
- Vortex flow control
- Headwall
- Foul water sewer
- Foul water backdrop
- Existing public foul water sewer (United Utilities)
- Pump station (with 15 m offset from foul wet well)
- Watercourse

Notes:

1. This drawing is to be read in conjunction with all relevant planning layouts and planning documents and is subject to detailed design.
2. All manhole and pipe locations are indicative. Final locations to be confirmed at the detailed design stage. Pipe sizes, cover and invert levels to be provided at detailed design and are subject to hydraulic modelling.
3. All pipe connections to be level soffit unless noted otherwise.
4. Root guard for all pipework/drainage in close proximity to proposed and existing trees to prevent structural damage.
5. All pipework with less than 1.2 m cover in trafficked areas to have a Class Z concrete bed and surround or concrete slab protection.
6. All outfall locations and discharge rates to be agreed with United Utilities and the Lead Local Flood Authority.
7. Surface water discharge will likely be restricted to the greenfield runoff rate of the developable catchment area of the outfall watercourse, subject to approval from the Lead Local Flood Authority.
8. The greenfield runoff rate for the central watercourse has been proportionally split for the proposed western and eastern development areas to determine the proposed discharge rates.
9. Outfalls to the watercourse to be located above water level during normal fluvial flow conditions. The viability of gravity connections to the watercourse is subject to confirmation of the watercourse invert level and normal water level.
10. Attenuation volumes are based on the Stantec Design Framework (Ref: 333101612-010). Attenuation basin volumes and locations are indicative and subject to change at detailed design stage, confirmation of groundwater levels and modelling of the drainage network.
11. Maximum attenuation basin water depths assumed to be 1 m with maximum 1 in 3 side slopes. Final basin locations are subject to change at detailed design.
12. Existing field drains (not watercourse or overland flow paths) to be abandoned. Site runoff to be accommodated within proposed drainage network.
13. Exact location of existing foul water sewer to be confirmed to ensure no clashes with the proposed drainage network.
14. Any work in proximity to watercourses is subject to approval from the LLFA and may require a watercourse consent application and easement restrictions.
15. Discharge rate and location of foul water pump station to be confirmed at detailed design stage.

REV	DESCRIPTION	SIG	CHK	DATE
P03	Updated to suit latest layout.	JSS	KBE	26.02.2025
P02	Updated to suit latest layout. Basin location adjusted and pump station updated.	JSS	KBE	14.02.2025
P01	First Issue.	JSS	KBE	03.12.2024

HALLAM LAND MANAGEMENT LTD

LONGSIGHT ROAD, LANGHO

DRAINAGE STRATEGY

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ECE PROJECT No	SCALE AT A1	STATUS	SUITABLE FOR
49343	1:1000	S0	Initial

DRAWING NUMBER: 49343 - ECE - XX - XX - DR - C - 0003 (Project - Originator - Zone - Level - Type - Role - Number) REV: P03



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