FCC ENVIRONMENT LIMITED

DESIGN REPORT FOR THE SURFACE WATER SCHEME AT SKELBROOKE QUARRY AND LANDFILL SITE

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2	25/02/2021	Change of wording for Wetland Area	JD	AK
3	10/01/2025	Amendments in lieu of S5N	JD	DT

Purpose

This document was prepared as a design report for the Surface Water Management Scheme (SWMS) at Skelbrooke Quarry and Landfill Site for FCC Environment Limited (FCC) to support a planning application for the proposed restoration of the remaining quarry void in the eastern part of the wider site complex by infilling with restoration materials.

Sirius Environmental Limited (Sirius) accepts no responsibility or liability for any use that is made of this document other than by the Client, FCC Environment Limited, for the purposes of which it was originally commissioned and prepared.

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1 GENERAL REQUIREMENTS

1.1 Introduction

Sirius Environmental Limited (Sirius) were commissioned by FCC Environment Limited (FCC) to prepare a Surface Water Management Scheme (SWMS) design for Skelbrooke Quarry and Landfill Site to support a forthcoming planning application that is being prepared by Sirius Planning Limited, for the proposed restoration of the remaining water filled quarry void in the eastern part of the wider Skelbrooke complex. At present, the existing water filled quarry void is used to balance surface water run-off from the adjacent restored landfill. This surface water management scheme has been designed to focus on the existing site conditions, and the final restoration contours (as previously approved under planning permission 03/7149/P), to provide formal surface water run-off management and attenuation.

This report presents a SWMS for the development area, taking into account the wider site complex, and details the offsite flows as a result of these flows and the proposed infilling to the quarry. It features a range of sustainable urban drainage systems (SuDS) which control the flow and volume of run-off discharged from the site, and reduce the risks of surface water from the site flooding any receiving watercourse(s), in line with the SuDS Manual (CIRIA Report C753).

1.2 Site Information

Skelbrooke Quarry and Landfill Site is situated approximately 11 kilometres to the north west of the town of Doncaster, South Yorkshire. The site entrance is at Ordnance Survey (OS) National Grid Reference (NGR) **SE 507 117**. The site is address is:

Skelbrooke Landfill Site,

Straight Lane,

Skelbrooke,

South Yorkshire,

DN6 8LY.

The wider Skelbrooke complex covers an area of approximately **26Ha**, with the proposed development area, to be infilled to allow for restoration, covering **5Ha**. The site is surrounded in all directions by agricultural fields. The village of Skelbrooke is located approximately 500mm to the North East of the site entrance.

1.3 Report Aims

This design report aims to document the following:

- Document the surface water management for the whole site, once restoration has been undertaken;
- Ensure that no flooding occurs for return periods up to the **1 in 100 year storm event**, with a **40% allowance for climate change**;
- Ensure that discharge rates are in accordance with those agreed with the relevant organisations and the pollution prevention and control (PPC) permit;
- The existing site infrastructure and surface water features shall be utilised wherever possible; and
- The construction of new surface water features shall be kept to a minimum for areas already restored, to reduce the stripping of existing established vegetation (and resultant bare earth conditions) which would temporarily increase the rates of surface water run-off during a storm event.

2 EMISSIONS TO WATER

The site is subject to an official discharge consent from the Environment Agency dated 15th December 1998, for discharge of surface water from Skelbrooke Quarry and Landfill Site. The surface water generated from the landfill site shall be discharged into the River Skell via

a land drain. The discharge of surface water from the site shall be via a point at grid reference **SE 5111 1172**.

The discharge consent allows for a maximum discharge volume of **200m^3 per day** to be discharged from the site into the land drain.

A copy of the discharge consent for the site is presented in **Appendix 3**. All surface water calculations undertaken as part of this drainage assessment have restricted the discharge from site, to the volume stated above.

3 SITE PROFILE

The wider Skelbrooke Quarry and Landfill complex is a closed site, with the landfill areas fully capped and restored, where waste has been deposited in the cells. The wider site slopes from south west to north east, with a maximum elevation in the most westerly part of site of approximately **54.5mAOD**. Currently to the eastern part of the complex there is a remaining water filled quarry void, which as part of the proposed development shall be infilled with restoration material to bring this area up to the surrounding ground levels. Currently the levels within this area to be infilled, are approximately **18.5mAOD**, however maybe lower due to potential surveying issues with the water body.

Within the existing quarry void area, the proposed restoration contours shall slope gently into a depression in the middle, where a wetland area shall be formed to collect and attenuate any surface water generated from the slopes of the adjacent restored landfill site, prior to this being discharge via the consented discharge location. In the development area, the proposed restoration contours shall range from approximately **36mAOD** at the highest point on the northern and southernly areas to a lowest elevation of **25mAOD** within the wetland area.

4 EXISTING SURFACE WATER MANAGEMENT WITHIN DEVLEOPMENT AREA

Currently the quarry void within the proposed development area is currently water filled, as this void is utilised as a surface water lagoon for the storage of surface water run-off which is generated from the adjacent restored landfill.

This water is then pumped and discharged from the water filled quarry void regularly, to the approved discharge point for the Skelbrooke complex as stated in Section 2.

5 PROPOSED SURFACE WATER MANAGEMENT

5.1 General

As per the current conditions which exist on the proposed development (as per Section 4), surface water from the adjacent restored landfill site shall continue to flow into the proposed development area, therefore these flows have been taken into consideration and included when undertaking the surface water design for the proposed development.

It is proposed that the basic principles of the Surface Water Management Scheme (SWMS) for the site are:

a) Surface water ditches shall be constructed within the proposed development to allow for surface water from the adjacent restored landfill to drain freely into the newly constructed wetland area for attenuation, for discharge to the local river via the permitted discharge location noted in **Section 2** above;

b) New culverts shall be installed under the access road (where necessary) to allow for surface water to drain from the adjacent restored landfill, to the newly constructed surface water ditches within the proposed development to maintain access; and

c) To ensure that the discharge limit of **200m^3 per day** is met, a wetland area shall be constructed which shall attenuate the flows within the proposed development area to collect the surface water runoff generated from the adjacent landfill's capped slopes and discharge this into the land drain to the east of the site. Within the wetland area a flow control device shall be installed on the outfall pipework to ensure the permitted discharge rate (as stated above) is not exceeded, to ensure that the risk of flooding to the downstream environment is not increased.

The proposed surface water scheme is outlined on **Drawing WR7754/01/01** presented in **Appendix 4**.

The wetland area shall require maintenance (dredging, and removal of sludge/silt) to remove settled solids, so that the wetland area remains an effective method of controlling suspended solids within the discharge, and continue to provide the required attenuation volumes.

The proposed surface water management scheme has been analysed using the drainage suite ***Microdrainage 2020.1*** after an adjustment has been made by Microdrainage in accordance with the recommendations made by the 'Interim Code of Practice for Sustainable Drainage' for sites less than 50 hectares. The parameters used are more likely to be recognized, and approved, by the Environment Agency (EA), Lead Local Flood Authorities (LLFAs) and regional water (utility) companies (RWCs), in line with current guidance, and design standards. An outline of the methodology utilised in this surface water design is detailed below.

6 DESIGN METHODOLOGY

6.1 General

The sizing of the wetland area, and ditches, has been calculated using drainage design software ***Microdrainage 2020.1*****,** which is the industry standard software.

All modelling and calculations have been undertaken using the **1 in 100 Year** (**1% probability**) storm frequencies, with an additional 40% climate change allowance, which is required by the National Planning Policy Framework (NPPF) to model the long-term scenario for the site, to ensure that the discharge rate and the risk of flooding is not increased for the site as a result of greater rainfall intensity in the future.

Table 1 below shows the gross catchment sizes, along with maximum allowable discharge rate based on the greenfield run-off rate for each catchment.

Table 1. Catchment Area Information

Catchment Number	Gross Catchment Size (Ha)	Discharge Rate Limit (l/s)
1	5.48	See Table 2
2	5.32	See Table 3
3	9.81	See Table 4
4	4.55	See Table 5
Total	**25.16**	**2.31 l/s**

The catchment areas are shown on **Drawing WR7754/01/02** presented in **Appendix 4**. On the drawing Catchments 1,2 and 3 have been combined and are shown on the drawing as Landfill Catchment Area. Therefore Catchment 1,2 and 3 are sub-catchment of the landfill catchment shown on the drawing. These have been split down into the three catchments in the the modelling to ensure that accurate inflows to the eastern infill areas are determined and that the pipes under the road are of sufficient size to ensure surface water does not back up on the landfill side. These catchments and specific ditches are not shown as they are not necessary for the eastern infill void infill with the only import information being the inflow from the landfill catchment to the eastern infill area.

The site has been split into **4 main catchment areas** (which are subsequently split into smaller sub-catchments), due to the contours (falls) associated with the final landform for the

wider site complex. Each catchment area is designed to fall into a specific ditch, which then flows to the wetland area for attenuation (located within the development area, within the eastern part of the site) which subsequently eventually discharges to the local river system.

Not all of the areas can be captured on site, due to topography and ensuring that the correct falls can be achieved on the surface water ditches. The positions of the ditches have been chosen to ensure, that the greatest amount of the site can be captured to ensure maximum surface water control.

Modelling for this scheme has been undertaken using the Rainfall – Runoff method which utilises unit hydrographs for each pipe and associated ditch system which are calculated by the software using rainfall data for the site along with Standard Percentage Run-off (SPR) for the soil, area of sub catchment, length of sub catchment and levels at two points along the length of catchment to calculate the gradient.

The Rainfall – Runoff Method (RRM) has been chosen for this scheme over the Wallingford Rational Method (WRM) as it takes into account the fact that the run-off generated will be slower entering the system than if was falling onto a paved surface, meaning lower peak flows which are representative of site conditions. The rational method was <u>not</u> designed to be used where sites contain less paved (low permeability) areas. The Rainfall – Run-off Method has been designed for catchments which are sloped and are predominantly un-developed (rural) environments, with marginal urbanisation.

The values used within the Rainfall Run-off method have been derived from site conditions using the latest site survey and rainfall data contained within the *Microdrainage* software. The soils that have been (and will be) used as restoration material have been mainly ‘clayey’ material. An SPR value of 47 has been adopted, which correlates to a SOIL class of 0.45 to represent (as outlined in Wallingford/Flood Studies Report) a ‘clayey’ material over an

impermeable layer, which best reflects the restoration conditions (worst-case) at Skelbrooke Landfill Site.

7 GREENFIELD RUNOFF RATE

7.1 General

Discharge rates used within the surface water calculations from the discharge point have been fixed at **200m^3/day** (equivalent to **2.31l/s**) as this is the value stated within the consented discharge for the wider site. The following sections show the greenfield runoff rate for each catchment and illustrates that the discharge restriction of **200m^3/day** is well below that of the original greenfield runoff rate for the site prior to quarrying and landfilling.

7.2 Catchment 1 (Southern)

The ICP SUDS mean annual flood was estimated for the site's catchment using Microdrainage's greenfield runoff calculator (IoH124 method modified for catchments less than 50 hectares). The resultant 1 in 100 hundred year return period Peak Greenfield Run-off for the southern catchment considered was calculated to be **51.7l/s**. The greenfield run-off rates for Q_{Bar}, Q_1, Q_{30} and Q_{100} are presented in **Table 2**. The calculations presented in **Appendix 2** include rates for the 1 in 1, 1 in 30, and 1 in 100 year return periods for the southern catchment.

Table 2 – Greenfield Runoff Rates Catchment 1

Return Period	Greenfield Run-off Rate (l/s)
Q_{Bar}	**20.1**
Q_1	16.7
Q_{30}	39.4
Q_{100}	**51.7**

7.3 Catchment 2 (Central)

The ICP SUDS mean annual flood was estimated for the site's catchment using Microdrainage's greenfield run-off calculator. The resultant 1 in 100 year return period Peak Greenfield Runoff for the central catchment considered was calculated to be **50.2l/s**. The greenfield runoff rates for Q_{Bar}, Q_1, Q_{30}, and Q_{100} are presented in **Table 3**. The calculations presented in **Appendix 2** include rates for 1 in1 , 1 in 30 and 1 in 100 year return periods for the central catchment.

Table 3 – Greenfield Runoff Rates Catchment 2	
Return Period	**Greenfield Runoff Rate (l/s)**
Q_{Bar}	**19.5**
Q_1	16.2
Q_{30}	38.2
Q_{100}	**50.2**

7.4 Catchment 3 (Northern)

The ICP SUDS mean annual flood was estimated for the site's catchment using Microdrainage's Greenfield runoff calculator. The resultant 1 in 100 hundred year return period Peak Greenfield Runoff for the northern catchment considered was calculated to be **92.5l/s**. The greenfield runoff rates for Q_{Bar}, Q_1, Q_{30} and Q_{100} are presented in **Table 4**. The calculations presented in **Appendix 2** include rates for 1 in 1, 1 in 30 and 1 in 100 year return periods for the northern catchment.

Table 4 – Greenfield Runoff Rates Catchment 3	
Return Period	**Greenfield Runoff Rate (l/s)**
Q_{Bar}	**36.0**
Q_1	29.9
Q_{30}	70.5
Q_{100}	**92.5**

7.5 Catchment 4 (Eastern)

The ICP SUDS mean annual flood was estimated for the site's catchment using Microdrainage's Greenfield runoff calculator. The resultant 1 in 100 hundred year return period Peak Greenfield Runoff for the eastern catchment considered was calculated to be **42.9l/s**. The greenfield runoff rates for Q_{Bar}, Q_1, Q_{30} and Q_{100} are presented in **Table 5**. The calculations presented in **Appendix 2** include rates for 1 in 1, 1 in 30 and 1 in 100 year return periods for the eastern catchment.

Table 5 – Greenfield Runoff Rates Catchment 4

Return Period	Greenfield Runoff Rate (l/s)
Q_{Bar}	**16.7**
Q_1	13.9
Q_{30}	32.7
Q_{100}	**42.9**

8 SURFACE WATER DITCHES

New surface water ditches shall be constructed in the locations shown on **Drawing WR7754/01/01**. The newly constructed ditches shall be a minimum size of **500mm wide** by **500mm deep** (graded back to achieve a safe long-term side-slope, where necessary).

Ditches are to hydroseeded once completed to ensure that the flow rate is attenuated, and to reduce the risk of scouring and long-term erosion.

9 WETLAND AREA FOR SURFACE WATER ATTENUATION

Attenuation volumes for the wetland area have been sized based on limiting the outfall to the discharge rate contained within the discharge consent, to less than **200m^3 per day** which is equivalent to a uniform flow rate of **2.31l/s**. The wetland area that will provide the required attenuation volumes has been designed to be dry the majority of the time, and will only contain water after storm events.

9.1 Wetland Area Attenuation Sizing

The proposed wetland area in the development area has been modelled to be a minimum depth of **3m deep** with a top area of approximately **7,815m^2** and basal area of **3,885m^2** to give a minimum attenuation capacity of approximately **17,285m^3**. The high water level has been set at a maximum level of **27.700mAOD** to give a minimum free board of **300mm** with the low water level being set at **25.000mAOD**.

The summary produced by Microdrainage shows the 'critical' storms for the 100-year storm (1% probability), with a further allowance of 40% for climate change. No flooding is indicated and this indicates a required storage capacity of **17,285m^3** is sufficient. High water level reaches a level **of 2.455m** above the low water level indicating that there is a minimum freeboard of **545mm**.

9.2 Penstock Valves

A penstock valve shall be installed on the discharge from the wetland area, either on the precast concrete headwall on the exit from the wetland area or it shall be installed in the precast concrete manhole chamber, which shall house the flow control device.

The penstock valve shall be installed to allow for isolation of the surface water system, if for any reason the discharge from site needs to be shut off to prevent surface water entering the land drain to the eastern boundary.

10 FLOW CONTROLS

In order to control the discharge rate and volume from site to ensure that the discharge consent is met, a flow control device shall be installed on the outfall pipework. The low consented discharge rate increases the risk of blockages, due to the small aperture size needed for any flow control to meet the discharge rate. For this reason the flow control

device used in this surface water scheme shall consist of a Hydrobrake. The Hydrobrake shall be specified to minimise the risk of blockages and shall be **56mm** in size.

An orifice plate was considered as part of this assessment as the flow control, however this was discounted as in order to restrict to the consented discharge, an orifice plate of 28mm would have been required. An orifice plate of this size would be at an increased risk of regular blockages due to the aperture size, which could potentially result in flooding of the site, if this became blocked at any point as the water would back up in the wetland area and would not be able to leave the site via the discharge pipework.

11 PROPOSED FINAL SURFACE WATER SCHEME (DETAILED DESIGN)

The proposed final scheme shall comprise a series of perimeter ditches which fall towards the wetland area, where attenuation and settlement can occur, prior to being discharged to the land drain on the other side of Doncaster Lane via a surface water drainage pipe.

The detailed design of the surface water scheme shall be undertaken and shall be submitted to the Environment Agency (EA) for approval before work commence on site.

12 MAINTANENCE

To ensure that the surface water system employed on site, works to its full potential, the surface water features shall require maintenance from time to time, to ensure that the system is working as designed. The tables below document the maintenance requirements for each part of the system.

12.1 Surface Water Ditches

Surface water ditches employed around site as part of the surface water management plan are to be maintained regularly, to ensure that they are free of any debris that could impede the flow of water, reducing the capacity within the ditch network.

Table 6 below shows the maintenance requirements for the surface water ditches to ensure that the hydraulic performance is retained.

Table 6 – Maintenance Requirements for Ditches		
Maintenance Schedule	**Required Action**	**Typical Frequency**
Regular Maintenance	Remove litter and debris	As required
	Cut Grass	As required to ensure flow is unimpeded
	Manage other vegetation or trees	**Monthly** at the start, then as required
	Inspect vegetation coverage	Monthly for **6 months**, then quarterly for **2 years**, and then **half-yearly**
	Inspect inlet and outlet location to culverts for blockages and silt accumulations	**Monthly**
Occasional Maintenance	Re-seed areas of poor vegetation growth, or alter vegetation to better suit conditions	As required or if bare soil is exposed over 10% of the ditch profile
Remedial Actions	Repair erosion damage by reseeding.	As required
	Repair uneven surface where settlement of the ditch has occurred over capped areas, to ensure falls are as per design	As required
	Remove build-up of silts that have accumulated with the ditch, to ensure flow capacity	As required

12.2 Wetland Area

The proposed wetland area is an integral part of the surface water management system to ensure that permitted discharge rate for the site is met. Therefore to ensure these requirements are met, the wetland area need to be maintained to ensure that the capacity is achieved and the outlets are clear of blockages.

Table 7 below summarises the maintenance requirements for the wetland area to ensure that the hydraulic performance is retained.

Table 7 – Maintenance Requirements for Wetland Area

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	As Required
	Inspect inlet and outlet location to wetland area (Including orifice plates) for blockages and silt accumulations	**Monthly**
	Inspect isolation valves to ensure they are working	**Annually**
	Inspect banksides, structures and pipework for evidence of physical damage	**Monthly**
	Remove sediment from inlet and outlet	**Annually**
Occasional Maintenance	Remove build-up of silts that have accumulated with the wetland area, to ensure attenuation capacity	Every **5 years** or as required
Remedial Actions	Repair erosion damage	As required
	Repair damaged outlet features	As required

13 CONCLUSIONS

The proposed surface water management system comprises a networks of ditches, culverts, and a wetland area to provide the required attenuation prior to discharging from the site. See **Drawings WR7754/01/01, WR7754/01/02 and WR7754/01/03** for details, presented in **Appendix 4**.

The proposed wetland area is proposed to manage the surface water flows from the wider site complex prior to discharge from site. The attenuation structure has been designed to achieve sufficient capacity to contain the critical 1 in 100-year return period storm (including 40% increase for climate change) whilst restricting the discharge off-site to less than **2.31 l/s**.

The surface water management system is to be maintained with regular clearing of debris and de-silting when required, in accordance with the maintenance procedure listed above.

APPENDIX 1

MICRODRAINAGE CALCULATIONS

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	19.000	Add Flow / Climate Change (%)	0
Ratio R	0.391	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Inverts

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	173.600	7.000	24.8	0.000	5.00	0.0	0.030		\/	-77	Pipe/Conduit	
1.001	145.900	2.000	73.0	0.000	0.00	0.0	0.030		\/	-77	Pipe/Conduit	
1.002	138.300	1.250	110.6	0.000	0.00	0.0	0.030		\/	-77	Pipe/Conduit	
1.003	99.700	0.350	284.9	0.000	0.00	0.0	0.030		\/	-77	Pipe/Conduit	
1.004	183.600	4.900	37.5	0.000	0.00	0.0	0.030		\/	-77	Pipe/Conduit	
2.000	93.200	0.233	400.0	0.000	5.00	0.0	0.030		\/	-91	Pipe/Conduit	
2.001	33.000	0.330	100.0	0.000	0.00	0.0	0.030		\/	-91	Pipe/Conduit	
2.002	107.000	3.881	27.6	0.000	0.00	0.0	0.030		\/	-91	Pipe/Conduit	
3.000	168.600	2.500	67.4	0.000	5.00	0.0	0.030		o	160	Pipe/Conduit	
2.003	154.500	3.000	51.5	0.000	0.00	0.0	0.030		\/	-77	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	47.31	6.02	52.000	0.000	0.0	0.0	0.0	2.82	2116.4	0.0
1.001	42.52	7.50	45.000	0.000	0.0	0.0	0.0	1.65	1234.0	0.0
1.002	38.15	9.22	43.000	0.000	0.0	0.0	0.0	1.34	1002.0	0.0
1.003	34.32	11.22	41.750	0.000	0.0	0.0	0.0	0.83	624.5	0.0
1.004	32.27	12.55	41.400	0.000	0.0	0.0	0.0	2.30	1721.8	0.0
2.000	43.16	7.28	43.944	0.000	0.0	0.0	0.0	0.68	340.5	0.0
2.001	42.00	7.68	43.711	0.000	0.0	0.0	0.0	1.36	681.0	0.0
2.002	40.17	8.37	43.381	0.000	0.0	0.0	0.0	2.59	1297.0	0.0
3.000	34.83	10.92	42.000	0.000	0.0	0.0	0.0	0.47	9.5	0.0
2.003	32.73	12.23	39.500	0.000	0.0	0.0	0.0	1.96	1468.6	0.0

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.005	46.600	1.313	35.5	0.000	0.00	0.0		0.030	\/	-77	Pipe/Conduit	
1.006	20.000	0.162	123.5	0.000	0.00	0.0	0.600		oo	-123	Pipe/Conduit	
1.007	164.180	7.525	21.8	0.000	0.00	0.0		0.030	\/	-77	Pipe/Conduit	
4.000	269.700	3.250	83.0	0.000	5.00	0.0		0.030	\/	-77	Pipe/Conduit	
4.001	191.320	4.750	40.3	0.000	0.00	0.0		0.030	\/	-77	Pipe/Conduit	
4.002	128.900	2.500	51.6	0.000	0.00	0.0		0.030		-124	Pipe/Conduit	
4.003	178.890	8.250	21.7	0.000	0.00	0.0		0.030		-124	Pipe/Conduit	
5.000	176.000	2.250	78.2	0.000	5.00	0.0		0.030	\/	-77	Pipe/Conduit	
4.004	22.000	1.750	12.6	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.005	72.000	4.000	18.0	0.000	0.00	0.0		0.030	\/	-77	Pipe/Conduit	
1.008	50.000	0.500	100.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.005	31.81	12.88	36.500	0.000	0.0	0.0	0.0	2.36	1769.1	0.0
1.006	31.49	13.11	35.187	0.000	0.0	0.0	0.0	1.41	199.9	0.0
1.007	30.31	14.02	35.025	0.000	0.0	0.0	0.0	3.01	2256.4	0.0
4.000	41.37	7.91	52.000	0.000	0.0	0.0	0.0	1.54	1157.0	0.0
4.001	37.87	9.35	48.750	0.000	0.0	0.0	0.0	2.22	1660.7	0.0
4.002	33.82	11.53	44.000	0.000	0.0	0.0	0.0	0.99	311.6	0.0
4.003	31.00	13.49	41.500	0.000	0.0	0.0	0.0	1.52	480.5	0.0
5.000	44.50	6.84	35.500	0.000	0.0	0.0	0.0	1.59	1191.7	0.0
4.004	30.89	13.57	33.250	0.000	0.0	0.0	0.0	4.46	315.1	0.0
4.005	30.43	13.93	31.500	0.000	0.0	0.0	0.0	3.32	2484.2	0.0
1.008	29.55	14.66	25.000	0.000	0.0	0.0	0.0	1.31	52.0	0.0

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Conduit Sections for Storm

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \/ open channel, oo dual pipe, ooo triple pipe, O egg.

Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m^2)
-77	\/	500	500	26.6		1.097	0.749
-91	\/	500	500	45.0		1.045	0.500
-123	oo	600	300			0.300	0.141
-124		1510	346			0.392	0.316

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	\/	-77	1	52.500	52.000	0.000	Junction	
1.001	\/	-77	2	45.500	45.000	0.000	Junction	
1.002	\/	-77	3	43.500	43.000	0.000	Junction	
1.003	\/	-77	4	42.250	41.750	0.000	Junction	
1.004	\/	-77	5	41.900	41.400	0.000	Junction	
2.000	\/	-91	2	44.444	43.944	0.000	Junction	
2.001	\/	-91	2	44.211	43.711	0.000	Junction	
2.002	\/	-91	3	43.881	43.381	0.000	Junction	
3.000	o	160	9	42.500	42.000	0.340	Junction	
2.003	\/	-77	4	40.000	39.500	0.000	Junction	
1.005	\/	-77	6	37.000	36.500	0.000	Junction	
1.006	oo	-123	12	35.750	35.187	0.263	Junction	
1.007	\/	-77	13	35.525	35.025	0.000	Junction	
4.000	\/	-77	14	52.500	52.000	0.000	Junction	
4.001	\/	-77	15	49.250	48.750	0.000	Junction	
4.002		-124	16	44.500	44.000	0.154	Junction	

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	173.600	24.8	2	45.500	45.000	0.000	Junction	
1.001	145.900	73.0	3	43.500	43.000	0.000	Junction	
1.002	138.300	110.6	4	42.250	41.750	0.000	Junction	
1.003	99.700	284.9	5	41.900	41.400	0.000	Junction	
1.004	183.600	37.5	6	37.000	36.500	0.000	Junction	
2.000	93.200	400.0	2	44.211	43.711	0.000	Junction	
2.001	33.000	100.0	3	43.881	43.381	0.000	Junction	
2.002	107.000	27.6	4	40.000	39.500	0.000	Junction	
3.000	168.600	67.4	4	40.000	39.500	0.340	Junction	
2.003	154.500	51.5	6	37.000	36.500	0.000	Junction	
1.005	46.600	35.5	12	35.750	35.187	0.063	Junction	
1.006	20.000	123.5	13	35.525	35.025	0.200	Junction	
1.007	164.180	21.8	14	28.000	27.500	0.000	Junction	
4.000	269.700	83.0	15	49.250	48.750	0.000	Junction	
4.001	191.320	40.3	16	44.500	44.000	0.000	Junction	
4.002	128.900	51.6	17	41.846	41.500	0.000	Junction	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.003		-124	17	41.846	41.500	0.000	Junction	
5.000	\/	-77	18	36.000	35.500	0.000	Junction	
4.004	o	300	18	34.000	33.250	0.450	Open Manhole	3000
4.005	\/	-77	19	32.000	31.500	0.000	Open Manhole	10000
1.008	o	225	14	28.000	25.000	2.775	Junction	

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
4.003	178.890	21.7	18	34.000	33.250	0.404	Open Manhole	3000
5.000	176.000	78.2	18	34.000	33.250	0.250	Open Manhole	3000
4.004	22.000	12.6	19	32.000	31.500	0.200	Open Manhole	10000
4.005	72.000	18.0	14	28.000	27.500	0.000	Junction	
1.008	50.000	100.0		25.500	24.500	0.775	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.008		25.500	24.500	0.000	0	0

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: 14, DS/PN: 1.008, Volume (m³): 173.2

Unit Reference	MD-SCL-0056-2300-2500-2300
Design Head (m)	2.500
Design Flow (l/s)	2.3
Flush-Flo™	Calculated
Objective	Minimise blockage risk
Application	Surface
Sump Available	Yes
Diameter (mm)	56
Invert Level (m)	25.000
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.500	2.3
Flush-Flo™	0.228	1.4
Kick-Flo®	0.497	1.1
Mean Flow over Head Range	-	1.7

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.3	1.200	1.7	3.000	2.5	7.000	3.7
0.200	1.4	1.400	1.8	3.500	2.7	7.500	3.8
0.300	1.4	1.600	1.9	4.000	2.9	8.000	3.9
0.400	1.3	1.800	2.0	4.500	3.0	8.500	4.0
0.500	1.1	2.000	2.1	5.000	3.2	9.000	4.2
0.600	1.2	2.200	2.2	5.500	3.3	9.500	4.3
0.800	1.4	2.400	2.3	6.000	3.4		
1.000	1.5	2.600	2.3	6.500	3.6		

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Storage Structures for Storm

Tank or Pond Manhole: 14, DS/PN: 1.008

Invert Level (m) 25.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	3885.0	3.000	7815.0

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

Simulation Criteria

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

Number of Input Hydrographs	23	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.391
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	240 Summer	1	+0%					52.011
1.001	2	240 Summer	1	+0%					45.056
1.002	3	240 Summer	1	+0%					43.073
1.003	4	240 Summer	1	+0%					41.848
1.004	5	240 Summer	1	+0%					41.463
2.000	2	240 Summer	1	+0%					44.001
2.001	2	240 Summer	1	+0%					43.755
2.002	3	240 Summer	1	+0%					43.419
3.000	9	240 Summer	1	+0%					42.160
2.003	4	240 Summer	1	+0%					39.569
1.005	6	240 Summer	1	+0%					36.590
1.006	12	240 Summer	1	+0%	100/60 Summer				35.302
1.007	13	240 Summer	1	+0%					35.103
4.000	14	360 Summer	1	+0%					52.026
4.001	15	360 Summer	1	+0%					48.783
4.002	16	360 Summer	1	+0%					44.081
4.003	17	360 Summer	1	+0%					41.577
5.000	18	240 Summer	1	+0%					35.535
4.004	18	360 Summer	1	+0%					33.330
4.005	19	360 Summer	1	+0%					31.562
1.008	14	1440 Winter	1	+0%	1/60 Summer				25.685

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

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.489	0.000	0.00			5.5	OK	
1.001	2	-0.444	0.000	0.01			17.9	OK	
1.002	3	-0.427	0.000	0.03			25.1	OK	
1.003	4	-0.402	0.000	0.04			26.4	OK	
1.004	5	-0.437	0.000	0.02			32.1	OK	
2.000	2	-0.443	0.000	0.02			7.2	OK	
2.001	2	-0.456	0.000	0.01			9.8	OK	
2.002	3	-0.462	0.000	0.01			16.2	OK	
3.000	9	0.000	0.000	1.00			9.6	SURCHARGED*	
2.003	4	-0.431	0.000	0.02			32.6	OK	
1.005	6	-0.410	0.000	0.04			64.0	OK	
1.006	12	-0.185	0.000	0.32			64.0	OK*	
1.007	13	-0.422	0.000	0.03			64.0	OK	
4.000	14	-0.474	0.000	0.01			6.8	OK	
4.001	15	-0.467	0.000	0.01			12.7	OK	
4.002	16	-0.265	0.000	0.09			27.4	OK*	
4.003	17	-0.269	0.000	0.08			38.8	FLOOD RISK*	
5.000	18	-0.465	0.000	0.01			9.4	OK	
4.004	18	-0.220	0.000	0.16			44.5	OK	
4.005	19	-0.438	0.000	0.02			44.5	OK	
1.008	14	0.460	0.000	0.03			1.4	SURCHARGED*	

Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.914
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	232.500	SPR	47.000
H(85%) (m)	53.550	LAG (hrs)	0.000
H(10%) (m)	46.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	113	Q (l/s)	10.1	PR (%)	37.500
T (mins)	12	TB (mins)	300	S1085 (m/km)	40.430
TPt (mins)	119	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	0.5	164	3.2	244	5.5	324	3.4	404	0.8
8	0.1	88	0.6	168	3.4	248	5.4	328	3.3	408	0.7
12	0.1	92	0.6	172	3.6	252	5.4	332	3.1	412	0.7
16	0.1	96	0.7	176	3.7	256	5.3	336	3.0	416	0.6
20	0.1	100	0.8	180	3.9	260	5.2	340	2.9	420	0.5
24	0.1	104	0.9	184	4.1	264	5.1	344	2.7	424	0.5
28	0.1	108	1.0	188	4.2	268	5.1	348	2.6	428	0.4
32	0.1	112	1.1	192	4.4	272	5.0	352	2.4	432	0.4
36	0.1	116	1.2	196	4.6	276	4.9	356	2.3	436	0.4
40	0.2	120	1.4	200	4.7	280	4.8	360	2.2	440	0.3
44	0.2	124	1.5	204	4.8	284	4.6	364	2.0	444	0.3
48	0.2	128	1.7	208	5.0	288	4.5	368	1.9	448	0.3
52	0.2	132	1.8	212	5.1	292	4.4	372	1.8	452	0.2
56	0.2	136	2.0	216	5.2	296	4.3	376	1.6	456	0.2
60	0.3	140	2.2	220	5.3	300	4.2	380	1.5	460	0.2
64	0.3	144	2.3	224	5.4	304	4.0	384	1.4	464	0.2
68	0.3	148	2.5	228	5.4	308	3.9	388	1.3	468	0.2
72	0.4	152	2.7	232	5.5	312	3.8	392	1.1	472	0.2
76	0.4	156	2.9	236	5.5	316	3.7	396	1.0	476	0.1
80	0.5	160	3.0	240	5.5	320	3.5	400	0.9	480	0.1

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.214
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	292.190	SPR	47.000
H(85%) (m)	51.300	LAG (hrs)	0.000
H(10%) (m)	43.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	124	Q (l/s)	22.4	PR (%)	37.500
T (mins)	12	TB (mins)	329	S1085 (m/km)	35.593
TPt (mins)	130	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.1	164	6.7	244	12.4	324	9.0	404	3.3
8	0.1	88	1.2	168	7.1	248	12.5	328	8.7	408	3.1
12	0.2	92	1.3	172	7.4	252	12.5	332	8.4	412	2.8
16	0.2	96	1.4	176	7.8	256	12.4	336	8.1	416	2.6
20	0.2	100	1.6	180	8.2	260	12.3	340	7.9	420	2.4
24	0.2	104	1.8	184	8.5	264	12.2	344	7.6	424	2.1
28	0.2	108	2.0	188	8.9	268	12.1	348	7.3	428	1.9
32	0.3	112	2.2	192	9.2	272	11.9	352	7.0	432	1.7
36	0.3	116	2.5	196	9.6	276	11.7	356	6.7	436	1.6
40	0.3	120	2.8	200	9.9	280	11.5	360	6.4	440	1.4
44	0.4	124	3.1	204	10.3	284	11.4	364	6.1	444	1.3
48	0.4	128	3.4	208	10.6	288	11.1	368	5.8	448	1.1
52	0.5	132	3.8	212	10.9	292	10.9	372	5.5	452	1.0
56	0.5	136	4.1	216	11.2	296	10.7	376	5.3	456	0.9
60	0.6	140	4.5	220	11.5	300	10.5	380	5.0	460	0.8
64	0.6	144	4.9	224	11.7	304	10.2	384	4.7	464	0.8
68	0.7	148	5.2	228	11.9	308	10.0	388	4.4	468	0.7
72	0.8	152	5.6	232	12.1	312	9.7	392	4.1	472	0.6
76	0.9	156	6.0	236	12.3	316	9.5	396	3.9	476	0.6
80	1.0	160	6.3	240	12.4	320	9.2	400	3.6	480	0.6

Input Hydrograph Manhole 3, DS/PN 1.002 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.230
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	117.800	SPR	47.000
H(85%) (m)	45.450	LAG (hrs)	0.000
H(10%) (m)	43.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	118	Q (l/s)	13.1	PR (%)	37.500
T (mins)	12	TB (mins)	313	S1085 (m/km)	22.071
TPt (mins)	124	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 3, DS/PN 1.002 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	0.6	164	4.0	244	7.2	324	4.8	404	1.4
8	0.1	88	0.7	168	4.3	248	7.2	328	4.6	408	1.3
12	0.1	92	0.8	172	4.5	252	7.1	332	4.4	412	1.2
16	0.1	96	0.9	176	4.7	256	7.0	336	4.3	416	1.0
20	0.1	100	1.0	180	4.9	260	7.0	340	4.1	420	1.0
24	0.1	104	1.1	184	5.1	264	6.9	344	3.9	424	0.9
28	0.1	108	1.2	188	5.3	268	6.8	348	3.7	428	0.8
32	0.2	112	1.4	192	5.5	272	6.7	352	3.6	432	0.7
36	0.2	116	1.5	196	5.7	276	6.5	356	3.4	436	0.6
40	0.2	120	1.7	200	6.0	280	6.4	360	3.2	440	0.6
44	0.2	124	1.9	204	6.1	284	6.3	364	3.1	444	0.5
48	0.3	128	2.1	208	6.3	288	6.2	368	2.9	448	0.5
52	0.3	132	2.3	212	6.5	292	6.0	372	2.7	452	0.4
56	0.3	136	2.5	216	6.6	296	5.9	376	2.5	456	0.4
60	0.4	140	2.7	220	6.8	300	5.7	380	2.4	460	0.3
64	0.4	144	2.9	224	6.9	304	5.6	384	2.2	464	0.3
68	0.4	148	3.2	228	7.0	308	5.4	388	2.0	468	0.3
72	0.5	152	3.4	232	7.1	312	5.3	392	1.9	472	0.3
76	0.5	156	3.6	236	7.2	316	5.1	396	1.7	476	0.2
80	0.6	160	3.8	240	7.2	320	4.9	400	1.6	480	0.2

Input Hydrograph Manhole 4, DS/PN 1.003 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.218
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	38.360	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	42.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	76	Q (l/s)	3.6	PR (%)	37.500
T (mins)	8	TB (mins)	202	S1085 (m/km)	38.234
TPt (mins)	80	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 1.003 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.2	164	1.3	244	1.3	324	0.3	404	0.0
8	0.0	88	0.2	168	1.4	248	1.3	328	0.3	408	0.0
12	0.0	92	0.3	172	1.5	252	1.2	332	0.2	412	0.0
16	0.0	96	0.3	176	1.5	256	1.2	336	0.2	416	0.0
20	0.0	100	0.3	180	1.6	260	1.1	340	0.2	420	0.0
24	0.0	104	0.4	184	1.6	264	1.1	344	0.2	424	0.0
28	0.0	108	0.4	188	1.7	268	1.0	348	0.1	428	0.0
32	0.0	112	0.4	192	1.7	272	0.9	352	0.1	432	0.0
36	0.1	116	0.5	196	1.7	276	0.9	356	0.1	436	0.0
40	0.1	120	0.6	200	1.7	280	0.8	360	0.1	440	0.0
44	0.1	124	0.6	204	1.7	284	0.8	364	0.1	444	0.0
48	0.1	128	0.7	208	1.7	288	0.7	368	0.1	448	0.0
52	0.1	132	0.7	212	1.7	292	0.7	372	0.1	452	0.0
56	0.1	136	0.8	216	1.6	296	0.6	376	0.1	456	0.0
60	0.1	140	0.9	220	1.6	300	0.5	380	0.1	460	0.0
64	0.1	144	1.0	224	1.6	304	0.5	384	0.1	464	0.0
68	0.1	148	1.0	228	1.5	308	0.4	388	0.0	468	0.0
72	0.2	152	1.1	232	1.5	312	0.4	392	0.0	472	0.0
76	0.2	156	1.2	236	1.4	316	0.4	396	0.0	476	0.0
80	0.2	160	1.3	240	1.4	320	0.3	400	0.0	480	0.0

Input Hydrograph Manhole 5, DS/PN 1.004 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.926
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	145.680	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	39.100	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	102	Q (l/s)	11.3	PR (%)	37.500
T (mins)	12	TB (mins)	272	S1085 (m/km)	40.271
TPt (mins)	108	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 5, DS/PN 1.004 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	0.6	164	3.8	244	5.7	324	3.0	404	0.5
8	0.1	88	0.7	168	4.0	248	5.7	328	2.8	408	0.4
12	0.1	92	0.8	172	4.2	252	5.5	332	2.6	412	0.4
16	0.1	96	0.9	176	4.4	256	5.4	336	2.5	416	0.3
20	0.1	100	1.0	180	4.6	260	5.3	340	2.3	420	0.3
24	0.1	104	1.1	184	4.8	264	5.2	344	2.1	424	0.3
28	0.1	108	1.2	188	5.0	268	5.1	348	2.0	428	0.3
32	0.1	112	1.3	192	5.2	272	4.9	352	1.8	432	0.2
36	0.2	116	1.5	196	5.3	276	4.8	356	1.7	436	0.2
40	0.2	120	1.6	200	5.5	280	4.7	360	1.5	440	0.2
44	0.2	124	1.8	204	5.6	284	4.5	364	1.4	444	0.2
48	0.2	128	2.0	208	5.7	288	4.4	368	1.2	448	0.2
52	0.3	132	2.2	212	5.9	292	4.2	372	1.1	452	0.1
56	0.3	136	2.4	216	5.9	296	4.1	376	1.0	456	0.1
60	0.3	140	2.6	220	5.9	300	3.9	380	0.9	460	0.1
64	0.4	144	2.8	224	6.0	304	3.8	384	0.8	464	0.1
68	0.4	148	3.0	228	6.0	308	3.6	388	0.7	468	0.1
72	0.5	152	3.2	232	5.9	312	3.4	392	0.6	472	0.1
76	0.5	156	3.4	236	5.9	316	3.3	396	0.6	476	0.1
80	0.6	160	3.6	240	5.8	320	3.1	400	0.5	480	0.1

Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.198
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	51.700	SPR	47.000
H(85%) (m)	45.030	LAG (hrs)	0.000
H(10%) (m)	44.940	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	206	Q (l/s)	1.2	PR (%)	37.500
T (mins)	20	TB (mins)	543	S1085 (m/km)	2.321
TPt (mins)	216	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.0	164	0.3	244	0.6	324	0.7	404	0.6
8	0.0	88	0.1	168	0.3	248	0.6	328	0.7	408	0.6
12	0.0	92	0.1	172	0.3	252	0.6	332	0.7	412	0.6
16	0.0	96	0.1	176	0.3	256	0.6	336	0.7	416	0.6
20	0.0	100	0.1	180	0.3	260	0.6	340	0.7	420	0.6
24	0.0	104	0.1	184	0.3	264	0.6	344	0.7	424	0.6
28	0.0	108	0.1	188	0.4	268	0.6	348	0.7	428	0.6
32	0.0	112	0.1	192	0.4	272	0.6	352	0.7	432	0.6
36	0.0	116	0.1	196	0.4	276	0.7	356	0.7	436	0.6
40	0.0	120	0.1	200	0.4	280	0.7	360	0.7	440	0.5
44	0.0	124	0.1	204	0.4	284	0.7	364	0.7	444	0.5
48	0.0	128	0.1	208	0.4	288	0.7	368	0.7	448	0.5
52	0.0	132	0.2	212	0.4	292	0.7	372	0.7	452	0.5
56	0.0	136	0.2	216	0.5	296	0.7	376	0.7	456	0.5
60	0.0	140	0.2	220	0.5	300	0.7	380	0.7	460	0.5
64	0.0	144	0.2	224	0.5	304	0.7	384	0.7	464	0.5
68	0.0	148	0.2	228	0.5	308	0.7	388	0.7	468	0.5
72	0.0	152	0.2	232	0.5	312	0.7	392	0.7	472	0.5
76	0.0	156	0.2	236	0.5	316	0.7	396	0.6	476	0.5
80	0.0	160	0.2	240	0.5	320	0.7	400	0.6	480	0.5

Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.084
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	131.500	SPR	47.000
H(85%) (m)	50.430	LAG (hrs)	0.000
H(10%) (m)	47.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	110	Q (l/s)	12.3	PR (%)	37.500
T (mins)	12	TB (mins)	292	S1085 (m/km)	29.708
TPt (mins)	116	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	0.6	164	4.0	244	6.5	324	3.9	404	0.8
8	0.1	88	0.7	168	4.2	248	6.5	328	3.7	408	0.8
12	0.1	92	0.8	172	4.4	252	6.4	332	3.6	412	0.7
16	0.1	96	0.9	176	4.6	256	6.3	336	3.4	416	0.6
20	0.1	100	1.0	180	4.8	260	6.2	340	3.2	420	0.5
24	0.1	104	1.1	184	5.0	264	6.1	344	3.0	424	0.5
28	0.1	108	1.2	188	5.2	268	6.0	348	2.9	428	0.4
32	0.2	112	1.4	192	5.4	272	5.9	352	2.7	432	0.4
36	0.2	116	1.5	196	5.6	276	5.7	356	2.5	436	0.4
40	0.2	120	1.7	200	5.8	280	5.6	360	2.4	440	0.3
44	0.2	124	1.9	204	6.0	284	5.5	364	2.2	444	0.3
48	0.2	128	2.1	208	6.1	288	5.3	368	2.0	448	0.3
52	0.3	132	2.3	212	6.3	292	5.2	372	1.9	452	0.2
56	0.3	136	2.5	216	6.4	296	5.0	376	1.7	456	0.2
60	0.3	140	2.7	220	6.5	300	4.9	380	1.6	460	0.2
64	0.4	144	2.9	224	6.6	304	4.7	384	1.4	464	0.2
68	0.4	148	3.1	228	6.6	308	4.5	388	1.3	468	0.2
72	0.5	152	3.3	232	6.6	312	4.4	392	1.2	472	0.2
76	0.5	156	3.6	236	6.6	316	4.2	396	1.0	476	0.1
80	0.6	160	3.8	240	6.6	320	4.1	400	0.9	480	0.1

Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.108
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	78.800	SPR	47.000
H(85%) (m)	45.400	LAG (hrs)	0.000
H(10%) (m)	44.510	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	122	Q (l/s)	1.1	PR (%)	37.500
T (mins)	12	TB (mins)	323	S1085 (m/km)	15.059
TPt (mins)	128	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.1	164	0.3	244	0.6	324	0.4	404	0.2
8	0.0	88	0.1	168	0.4	248	0.6	328	0.4	408	0.1
12	0.0	92	0.1	172	0.4	252	0.6	332	0.4	412	0.1
16	0.0	96	0.1	176	0.4	256	0.6	336	0.4	416	0.1
20	0.0	100	0.1	180	0.4	260	0.6	340	0.4	420	0.1
24	0.0	104	0.1	184	0.4	264	0.6	344	0.4	424	0.1
28	0.0	108	0.1	188	0.4	268	0.6	348	0.3	428	0.1
32	0.0	112	0.1	192	0.5	272	0.6	352	0.3	432	0.1
36	0.0	116	0.1	196	0.5	276	0.6	356	0.3	436	0.1
40	0.0	120	0.1	200	0.5	280	0.6	360	0.3	440	0.1
44	0.0	124	0.2	204	0.5	284	0.6	364	0.3	444	0.1
48	0.0	128	0.2	208	0.5	288	0.5	368	0.3	448	0.0
52	0.0	132	0.2	212	0.5	292	0.5	372	0.3	452	0.0
56	0.0	136	0.2	216	0.6	296	0.5	376	0.2	456	0.0
60	0.0	140	0.2	220	0.6	300	0.5	380	0.2	460	0.0
64	0.0	144	0.2	224	0.6	304	0.5	384	0.2	464	0.0
68	0.0	148	0.3	228	0.6	308	0.5	388	0.2	468	0.0
72	0.0	152	0.3	232	0.6	312	0.5	392	0.2	472	0.0
76	0.0	156	0.3	236	0.6	316	0.5	396	0.2	476	0.0
80	0.0	160	0.3	240	0.6	320	0.4	400	0.2	480	0.0

Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.306
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	83.700	SPR	47.000
H(85%) (m)	49.800	LAG (hrs)	0.000
H(10%) (m)	46.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	78	Q (l/s)	4.9	PR (%)	37.500
T (mins)	8	TB (mins)	207	S1085 (m/km)	60.534
TPt (mins)	82	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.3	164	1.8	244	1.9	324	0.4	404	0.0
8	0.0	88	0.3	168	1.9	248	1.8	328	0.4	408	0.0
12	0.0	92	0.4	172	2.0	252	1.7	332	0.3	412	0.0
16	0.0	96	0.4	176	2.1	256	1.7	336	0.3	416	0.0
20	0.0	100	0.4	180	2.1	260	1.6	340	0.3	420	0.0
24	0.0	104	0.5	184	2.2	264	1.5	344	0.3	424	0.0
28	0.1	108	0.5	188	2.3	268	1.5	348	0.2	428	0.0
32	0.1	112	0.6	192	2.3	272	1.4	352	0.2	432	0.0
36	0.1	116	0.7	196	2.3	276	1.3	356	0.2	436	0.0
40	0.1	120	0.7	200	2.3	280	1.2	360	0.2	440	0.0
44	0.1	124	0.8	204	2.3	284	1.1	364	0.1	444	0.0
48	0.1	128	0.9	208	2.3	288	1.1	368	0.1	448	0.0
52	0.1	132	1.0	212	2.3	292	1.0	372	0.1	452	0.0
56	0.1	136	1.1	216	2.3	296	0.9	376	0.1	456	0.0
60	0.2	140	1.2	220	2.2	300	0.8	380	0.1	460	0.0
64	0.2	144	1.3	224	2.2	304	0.8	384	0.1	464	0.0
68	0.2	148	1.4	228	2.1	308	0.7	388	0.1	468	0.0
72	0.2	152	1.5	232	2.1	312	0.6	392	0.1	472	0.0
76	0.2	156	1.6	236	2.0	316	0.6	396	0.1	476	0.0
80	0.3	160	1.7	240	1.9	320	0.5	400	0.1	480	0.0

Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.538
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	97.700	SPR	47.000
H(85%) (m)	45.500	LAG (hrs)	0.000
H(10%) (m)	42.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	92	Q (l/s)	7.4	PR (%)	37.500
T (mins)	8	TB (mins)	243	S1085 (m/km)	40.942
TPt (mins)	96	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.4	164	2.5	244	3.4	324	1.4	404	0.2
8	0.0	88	0.4	168	2.7	248	3.3	328	1.3	408	0.2
12	0.0	92	0.5	172	2.8	252	3.3	332	1.2	412	0.1
16	0.0	96	0.5	176	2.9	256	3.2	336	1.1	416	0.1
20	0.1	100	0.6	180	3.1	260	3.1	340	1.0	420	0.1
24	0.1	104	0.7	184	3.2	264	3.0	344	0.9	424	0.1
28	0.1	108	0.7	188	3.3	268	2.9	348	0.8	428	0.1
32	0.1	112	0.8	192	3.4	272	2.8	352	0.7	432	0.1
36	0.1	116	0.9	196	3.5	276	2.7	356	0.6	436	0.1
40	0.1	120	1.0	200	3.6	280	2.6	360	0.6	440	0.1
44	0.1	124	1.1	204	3.6	284	2.5	364	0.5	444	0.1
48	0.1	128	1.3	208	3.7	288	2.4	368	0.4	448	0.1
52	0.2	132	1.4	212	3.7	292	2.3	372	0.4	452	0.0
56	0.2	136	1.5	216	3.7	296	2.2	376	0.4	456	0.0
60	0.2	140	1.7	220	3.7	300	2.1	380	0.3	460	0.0
64	0.2	144	1.8	224	3.7	304	2.0	384	0.3	464	0.0
68	0.3	148	2.0	228	3.7	308	1.8	388	0.3	468	0.0
72	0.3	152	2.1	232	3.6	312	1.7	392	0.2	472	0.0
76	0.3	156	2.2	236	3.6	316	1.6	396	0.2	476	0.0
80	0.4	160	2.4	240	3.5	320	1.5	400	0.2	480	0.0

Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.455
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	35.030	SPR	47.000
H(85%) (m)	48.500	LAG (hrs)	0.000
H(10%) (m)	44.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	47	Q (l/s)	12.3	PR (%)	37.500
T (mins)	4	TB (mins)	123	S1085 (m/km)	156.057
TPt (mins)	49	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.8	164	4.6	244	1.4	324	0.1	404	0.0
8	0.0	88	0.9	168	4.7	248	1.3	328	0.1	408	0.0
12	0.0	92	1.0	172	4.7	252	1.2	332	0.1	412	0.0
16	0.1	96	1.0	176	4.6	256	1.1	336	0.1	416	0.0
20	0.1	100	1.1	180	4.6	260	1.0	340	0.1	420	0.0
24	0.1	104	1.2	184	4.4	264	0.9	344	0.0	424	0.0
28	0.1	108	1.3	188	4.3	268	0.8	348	0.0	428	0.0
32	0.2	112	1.5	192	4.1	272	0.8	352	0.0	432	0.0
36	0.2	116	1.7	196	3.9	276	0.7	356	0.0	436	0.0
40	0.2	120	1.9	200	3.7	280	0.6	360	0.0	440	0.0
44	0.3	124	2.1	204	3.5	284	0.6	364	0.0	444	0.0
48	0.3	128	2.4	208	3.2	288	0.5	368	0.0	448	0.0
52	0.4	132	2.6	212	3.0	292	0.5	372	0.0	452	0.0
56	0.5	136	2.9	216	2.8	296	0.4	376	0.0	456	0.0
60	0.5	140	3.2	220	2.5	300	0.4	380	0.0	460	0.0
64	0.6	144	3.5	224	2.3	304	0.3	384	0.0	464	0.0
68	0.6	148	3.8	228	2.1	308	0.3	388	0.0	468	0.0
72	0.7	152	4.0	232	1.9	312	0.2	392	0.0	472	0.0
76	0.7	156	4.3	236	1.7	316	0.2	396	0.0	476	0.0
80	0.8	160	4.5	240	1.5	320	0.2	400	0.0	480	0.0

Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.524
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	46.720	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	42.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	83	Q (l/s)	8.0	PR (%)	37.500
T (mins)	8	TB (mins)	218	S1085 (m/km)	34.247
TPt (mins)	87	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.5	164	2.9	244	3.3	324	0.9	404	0.1
8	0.0	88	0.5	168	3.0	248	3.2	328	0.8	408	0.1
12	0.0	92	0.6	172	3.2	252	3.1	332	0.7	412	0.1
16	0.1	96	0.6	176	3.3	256	3.0	336	0.7	416	0.1
20	0.1	100	0.7	180	3.4	260	2.9	340	0.6	420	0.1
24	0.1	104	0.8	184	3.6	264	2.7	344	0.5	424	0.1
28	0.1	108	0.9	188	3.7	268	2.6	348	0.5	428	0.0
32	0.1	112	1.0	192	3.7	272	2.5	352	0.4	432	0.0
36	0.1	116	1.1	196	3.8	276	2.4	356	0.4	436	0.0
40	0.1	120	1.2	200	3.9	280	2.3	360	0.3	440	0.0
44	0.1	124	1.3	204	3.9	284	2.1	364	0.3	444	0.0
48	0.2	128	1.5	208	3.9	288	2.0	368	0.3	448	0.0
52	0.2	132	1.6	212	3.9	292	1.9	372	0.3	452	0.0
56	0.2	136	1.8	216	3.8	296	1.8	376	0.2	456	0.0
60	0.2	140	1.9	220	3.8	300	1.6	380	0.2	460	0.0
64	0.3	144	2.1	224	3.7	304	1.5	384	0.2	464	0.0
68	0.3	148	2.2	228	3.6	308	1.4	388	0.2	468	0.0
72	0.3	152	2.4	232	3.6	312	1.3	392	0.1	472	0.0
76	0.4	156	2.6	236	3.5	316	1.2	396	0.1	476	0.0
80	0.4	160	2.7	240	3.4	320	1.0	400	0.1	480	0.0

Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.761
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	79.370	SPR	47.000
H(85%) (m)	45.500	LAG (hrs)	0.000
H(10%) (m)	42.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	80	Q (l/s)	11.9	PR (%)	37.500
T (mins)	8	TB (mins)	213	S1085 (m/km)	53.757
TPt (mins)	84	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	0.7	164	4.3	244	4.7	324	1.2	404	0.1
8	0.1	88	0.8	168	4.5	248	4.6	328	1.1	408	0.1
12	0.1	92	0.9	172	4.8	252	4.4	332	1.0	412	0.1
16	0.1	96	1.0	176	5.0	256	4.2	336	0.9	416	0.1
20	0.1	100	1.1	180	5.1	260	4.1	340	0.8	420	0.1
24	0.1	104	1.2	184	5.3	264	3.9	344	0.7	424	0.1
28	0.1	108	1.3	188	5.5	268	3.7	348	0.6	428	0.1
32	0.1	112	1.4	192	5.6	272	3.5	352	0.6	432	0.1
36	0.2	116	1.6	196	5.7	276	3.3	356	0.5	436	0.0
40	0.2	120	1.8	200	5.7	280	3.2	360	0.5	440	0.0
44	0.2	124	2.0	204	5.7	284	3.0	364	0.4	444	0.0
48	0.3	128	2.2	208	5.7	288	2.8	368	0.4	448	0.0
52	0.3	132	2.4	212	5.7	292	2.6	372	0.3	452	0.0
56	0.3	136	2.6	216	5.6	296	2.4	376	0.3	456	0.0
60	0.4	140	2.9	220	5.5	300	2.2	380	0.3	460	0.0
64	0.4	144	3.1	224	5.4	304	2.0	384	0.2	464	0.0
68	0.5	148	3.4	228	5.3	308	1.9	388	0.2	468	0.0
72	0.5	152	3.6	232	5.2	312	1.7	392	0.2	472	0.0
76	0.6	156	3.8	236	5.0	316	1.5	396	0.2	476	0.0
80	0.7	160	4.1	240	4.9	320	1.4	400	0.1	480	0.0

Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.371
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	198.700	SPR	47.000
H(85%) (m)	43.600	LAG (hrs)	0.000
H(10%) (m)	41.800	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	163	Q (l/s)	2.9	PR (%)	37.500
T (mins)	16	TB (mins)	430	S1085 (m/km)	12.079
TPt (mins)	171	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.1	164	0.7	244	1.5	324	1.6	404	1.0
8	0.0	88	0.1	168	0.8	248	1.5	328	1.6	408	1.0
12	0.0	92	0.1	172	0.8	252	1.6	332	1.5	412	1.0
16	0.0	96	0.2	176	0.9	256	1.6	336	1.5	416	0.9
20	0.0	100	0.2	180	0.9	260	1.6	340	1.5	420	0.9
24	0.0	104	0.2	184	0.9	264	1.6	344	1.5	424	0.9
28	0.0	108	0.2	188	1.0	268	1.7	348	1.4	428	0.9
32	0.0	112	0.3	192	1.0	272	1.7	352	1.4	432	0.8
36	0.0	116	0.3	196	1.1	276	1.7	356	1.4	436	0.8
40	0.0	120	0.3	200	1.1	280	1.7	360	1.4	440	0.8
44	0.1	124	0.3	204	1.1	284	1.7	364	1.3	444	0.7
48	0.1	128	0.4	208	1.2	288	1.7	368	1.3	448	0.7
52	0.1	132	0.4	212	1.2	292	1.7	372	1.3	452	0.7
56	0.1	136	0.5	216	1.3	296	1.7	376	1.2	456	0.6
60	0.1	140	0.5	220	1.3	300	1.7	380	1.2	460	0.6
64	0.1	144	0.5	224	1.3	304	1.7	384	1.2	464	0.6
68	0.1	148	0.6	228	1.4	308	1.6	388	1.2	468	0.6
72	0.1	152	0.6	232	1.4	312	1.6	392	1.1	472	0.5
76	0.1	156	0.7	236	1.4	316	1.6	396	1.1	476	0.5
80	0.1	160	0.7	240	1.5	320	1.6	400	1.1	480	0.5

Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.851
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	173.800	SPR	47.000
H(85%) (m)	48.200	LAG (hrs)	0.000
H(10%) (m)	41.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	97	Q (l/s)	11.1	PR (%)	37.500
T (mins)	8	TB (mins)	255	S1085 (m/km)	52.167
TPt (mins)	101	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	0.6	164	3.7	244	5.4	324	2.5	404	0.4
8	0.1	88	0.6	168	3.9	248	5.3	328	2.4	408	0.3
12	0.1	92	0.7	172	4.1	252	5.2	332	2.2	412	0.3
16	0.1	96	0.8	176	4.3	256	5.1	336	2.0	416	0.3
20	0.1	100	0.9	180	4.5	260	5.0	340	1.9	420	0.2
24	0.1	104	1.0	184	4.7	264	4.8	344	1.7	424	0.2
28	0.1	108	1.1	188	4.8	268	4.7	348	1.6	428	0.2
32	0.1	112	1.2	192	5.0	272	4.6	352	1.4	432	0.2
36	0.1	116	1.4	196	5.2	276	4.4	356	1.3	436	0.2
40	0.2	120	1.5	200	5.3	280	4.3	360	1.1	440	0.1
44	0.2	124	1.7	204	5.4	284	4.1	364	1.0	444	0.1
48	0.2	128	1.9	208	5.5	288	4.0	368	0.9	448	0.1
52	0.2	132	2.0	212	5.6	292	3.8	372	0.8	452	0.1
56	0.3	136	2.2	216	5.7	296	3.7	376	0.7	456	0.1
60	0.3	140	2.4	220	5.7	300	3.5	380	0.7	460	0.1
64	0.3	144	2.6	224	5.7	304	3.3	384	0.6	464	0.1
68	0.4	148	2.8	228	5.7	308	3.2	388	0.5	468	0.1
72	0.4	152	3.1	232	5.6	312	3.0	392	0.5	472	0.1
76	0.5	156	3.3	236	5.6	316	2.9	396	0.4	476	0.1
80	0.5	160	3.5	240	5.5	320	2.7	400	0.4	480	0.0

Input Hydrograph Manhole 6, DS/PN 1.005 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.137
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	109.000	SPR	47.000
H(85%) (m)	45.750	LAG (hrs)	0.000
H(10%) (m)	36.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	67	Q (l/s)	2.5	PR (%)	37.500
T (mins)	8	TB (mins)	180	S1085 (m/km)	114.373
TPt (mins)	71	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 6, DS/PN 1.005 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.2	164	1.0	244	0.8	324	0.1	404	0.0
8	0.0	88	0.2	168	1.0	248	0.7	328	0.1	408	0.0
12	0.0	92	0.2	172	1.1	252	0.7	332	0.1	412	0.0
16	0.0	96	0.2	176	1.1	256	0.6	336	0.1	416	0.0
20	0.0	100	0.2	180	1.1	260	0.6	340	0.1	420	0.0
24	0.0	104	0.3	184	1.1	264	0.6	344	0.1	424	0.0
28	0.0	108	0.3	188	1.1	268	0.5	348	0.1	428	0.0
32	0.0	112	0.3	192	1.1	272	0.5	352	0.1	432	0.0
36	0.0	116	0.4	196	1.1	276	0.4	356	0.0	436	0.0
40	0.0	120	0.4	200	1.1	280	0.4	360	0.0	440	0.0
44	0.1	124	0.5	204	1.1	284	0.4	364	0.0	444	0.0
48	0.1	128	0.5	208	1.1	288	0.3	368	0.0	448	0.0
52	0.1	132	0.6	212	1.0	292	0.3	372	0.0	452	0.0
56	0.1	136	0.6	216	1.0	296	0.3	376	0.0	456	0.0
60	0.1	140	0.7	220	1.0	300	0.2	380	0.0	460	0.0
64	0.1	144	0.7	224	1.0	304	0.2	384	0.0	464	0.0
68	0.1	148	0.8	228	0.9	308	0.2	388	0.0	468	0.0
72	0.1	152	0.8	232	0.9	312	0.2	392	0.0	472	0.0
76	0.1	156	0.9	236	0.8	316	0.2	396	0.0	476	0.0
80	0.2	160	0.9	240	0.8	320	0.1	400	0.0	480	0.0

Input Hydrograph Manhole 14, DS/PN 4.000 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.323
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	256.190	SPR	47.000
H(85%) (m)	53.800	LAG (hrs)	0.000
H(10%) (m)	49.600	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	142	Q (l/s)	11.8	PR (%)	37.500
T (mins)	12	TB (mins)	372	S1085 (m/km)	21.859
TPt (mins)	148	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 4.000 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.1	126	0.7	246	4.5	366	6.3	486	2.8	606	0.4
12	0.1	132	0.8	252	4.8	372	6.2	492	2.6	612	0.3
18	0.1	138	0.9	258	5.0	378	6.1	498	2.4	618	0.3
24	0.1	144	1.0	264	5.2	384	5.9	504	2.2	624	0.3
30	0.1	150	1.1	270	5.5	390	5.8	510	2.0	630	0.3
36	0.1	156	1.2	276	5.7	396	5.6	516	1.8	636	0.2
42	0.2	162	1.3	282	5.9	402	5.4	522	1.6	642	0.2
48	0.2	168	1.5	288	6.1	408	5.3	528	1.5	648	0.2
54	0.2	174	1.7	294	6.3	414	5.1	534	1.3	654	0.2
60	0.2	180	1.9	300	6.4	420	4.9	540	1.2	660	0.2
66	0.2	186	2.1	306	6.6	426	4.7	546	1.0	666	0.1
72	0.3	192	2.3	312	6.7	432	4.5	552	0.9	672	0.1
78	0.3	198	2.5	318	6.8	438	4.3	558	0.8	678	0.1
84	0.4	204	2.7	324	6.8	444	4.2	564	0.8	684	0.1
90	0.4	210	3.0	330	6.8	450	4.0	570	0.7	690	0.1
96	0.4	216	3.2	336	6.8	456	3.8	576	0.6	696	0.1
102	0.5	222	3.5	342	6.7	462	3.6	582	0.6	702	0.1
108	0.5	228	3.7	348	6.7	468	3.4	588	0.5	708	0.1
114	0.6	234	4.0	354	6.6	474	3.2	594	0.5	714	0.1
120	0.7	240	4.3	360	6.5	480	3.0	600	0.4	720	0.1

Input Hydrograph Manhole 15, DS/PN 4.001 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.200
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	282.700	SPR	47.000
H(85%) (m)	50.900	LAG (hrs)	0.000
H(10%) (m)	46.900	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	152	Q (l/s)	9.8	PR (%)	37.500
T (mins)	18	TB (mins)	406	S1085 (m/km)	18.866
TPt (mins)	161	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 15, DS/PN 4.001 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.1	126	0.6	246	3.8	366	5.6	486	2.9	606	0.5
12	0.1	132	0.7	252	4.0	372	5.5	492	2.7	612	0.4
18	0.1	138	0.8	258	4.2	378	5.4	498	2.6	618	0.4
24	0.1	144	0.9	264	4.4	384	5.3	504	2.4	624	0.4
30	0.1	150	1.0	270	4.5	390	5.2	510	2.2	630	0.3
36	0.1	156	1.0	276	4.7	396	5.1	516	2.1	636	0.3
42	0.1	162	1.2	282	4.9	402	4.9	522	1.9	642	0.3
48	0.2	168	1.3	288	5.1	408	4.8	528	1.8	648	0.2
54	0.2	174	1.5	294	5.2	414	4.7	534	1.6	654	0.2
60	0.2	180	1.6	300	5.4	420	4.5	540	1.5	660	0.2
66	0.2	186	1.8	306	5.5	426	4.4	546	1.3	666	0.2
72	0.2	192	2.0	312	5.6	432	4.3	552	1.2	672	0.2
78	0.3	198	2.2	318	5.7	438	4.1	558	1.1	678	0.1
84	0.3	204	2.4	324	5.8	444	4.0	564	1.0	684	0.1
90	0.3	210	2.6	330	5.8	450	3.8	570	0.9	690	0.1
96	0.4	216	2.8	336	5.9	456	3.7	576	0.8	696	0.1
102	0.4	222	3.0	342	5.8	462	3.5	582	0.7	702	0.1
108	0.5	228	3.2	348	5.8	468	3.4	588	0.6	708	0.1
114	0.5	234	3.4	354	5.8	474	3.2	594	0.6	714	0.1
120	0.6	240	3.6	360	5.7	480	3.0	600	0.5	720	0.1

Input Hydrograph Manhole 16, DS/PN 4.002 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	3.240
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	432.700	SPR	47.000
H(85%) (m)	50.600	LAG (hrs)	0.000
H(10%) (m)	44.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	166	Q (l/s)	24.4	PR (%)	37.500
T (mins)	18	TB (mins)	442	S1085 (m/km)	19.413
TPt (mins)	175	Base Flow (l/s)	0.2		

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Input Hydrograph Manhole 16, DS/PN 4.002 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.2	126	1.5	246	8.9	366	14.7	486	8.9	606	2.0
12	0.2	132	1.6	252	9.4	372	14.6	492	8.5	612	1.8
18	0.2	138	1.8	258	9.8	378	14.4	498	8.1	618	1.6
24	0.3	144	2.0	264	10.3	384	14.2	504	7.8	624	1.5
30	0.3	150	2.2	270	10.8	390	14.0	510	7.4	630	1.3
36	0.3	156	2.4	276	11.2	396	13.8	516	7.0	636	1.2
42	0.3	162	2.7	282	11.7	402	13.5	522	6.6	642	1.1
48	0.4	168	3.1	288	12.1	408	13.2	528	6.2	648	1.0
54	0.4	174	3.4	294	12.5	414	12.9	534	5.8	654	0.9
60	0.5	180	3.8	300	12.9	420	12.6	540	5.5	660	0.8
66	0.5	186	4.2	306	13.3	426	12.3	546	5.1	666	0.8
72	0.6	192	4.6	312	13.6	432	12.0	552	4.7	672	0.7
78	0.7	198	5.1	318	14.0	438	11.7	558	4.4	678	0.6
84	0.7	204	5.6	324	14.2	444	11.4	564	4.1	684	0.6
90	0.8	210	6.0	330	14.5	450	11.0	570	3.7	690	0.5
96	0.9	216	6.5	336	14.7	456	10.7	576	3.4	696	0.5
102	1.0	222	7.0	342	14.8	462	10.3	582	3.1	702	0.4
108	1.1	228	7.5	348	14.8	468	10.0	588	2.8	708	0.4
114	1.2	234	7.9	354	14.9	474	9.6	594	2.5	714	0.4
120	1.3	240	8.4	360	14.8	480	9.2	600	2.3	720	0.4

Input Hydrograph Manhole 17, DS/PN 4.003 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.750
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	584.260	SPR	47.000
H(85%) (m)	51.450	LAG (hrs)	0.000
H(10%) (m)	44.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	186	Q (l/s)	18.6	PR (%)	37.500
T (mins)	18	TB (mins)	492	S1085 (m/km)	17.002
TPt (mins)	195	Base Flow (l/s)	0.2		

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Input Hydrograph Manhole 17, DS/PN 4.003 (Storm)
360 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.2	126	1.0	246	6.3	366	11.7	486	8.4	606	3.1
12	0.2	132	1.1	252	6.7	372	11.7	492	8.1	612	2.9
18	0.2	138	1.2	258	7.0	378	11.7	498	7.9	618	2.7
24	0.2	144	1.4	264	7.4	384	11.6	504	7.6	624	2.4
30	0.2	150	1.5	270	7.7	390	11.6	510	7.3	630	2.2
36	0.2	156	1.7	276	8.0	396	11.4	516	7.1	636	2.0
42	0.3	162	1.9	282	8.4	402	11.3	522	6.8	642	1.8
48	0.3	168	2.1	288	8.7	408	11.2	528	6.5	648	1.6
54	0.3	174	2.4	294	9.0	414	11.0	534	6.3	654	1.5
60	0.4	180	2.7	300	9.3	420	10.8	540	6.0	660	1.3
66	0.4	186	3.0	306	9.6	426	10.6	546	5.7	666	1.2
72	0.4	192	3.3	312	9.9	432	10.4	552	5.4	672	1.1
78	0.5	198	3.6	318	10.2	438	10.2	558	5.2	678	1.0
84	0.5	204	3.9	324	10.5	444	10.0	564	4.9	684	0.9
90	0.6	210	4.2	330	10.8	450	9.8	570	4.6	690	0.8
96	0.6	216	4.6	336	11.0	456	9.6	576	4.4	696	0.7
102	0.7	222	4.9	342	11.2	462	9.4	582	4.1	702	0.7
108	0.8	228	5.3	348	11.4	468	9.1	588	3.9	708	0.6
114	0.9	234	5.6	354	11.6	474	8.9	594	3.6	714	0.6
120	0.9	240	6.0	360	11.6	480	8.6	600	3.4	720	0.6

Input Hydrograph Manhole 18, DS/PN 5.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.290
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	179.600	SPR	47.000
H(85%) (m)	48.800	LAG (hrs)	0.000
H(10%) (m)	38.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	85	Q (l/s)	19.1	PR (%)	37.500
T (mins)	8	TB (mins)	225	S1085 (m/km)	80.178
TPt (mins)	89	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 18, DS/PN 5.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.1	164	6.8	244	8.1	324	2.6	404	0.3
8	0.1	88	1.2	168	7.1	248	7.9	328	2.3	408	0.3
12	0.1	92	1.4	172	7.5	252	7.7	332	2.1	412	0.2
16	0.1	96	1.5	176	7.8	256	7.4	336	1.8	416	0.2
20	0.1	100	1.7	180	8.2	260	7.1	340	1.6	420	0.2
24	0.2	104	1.8	184	8.4	264	6.9	344	1.5	424	0.2
28	0.2	108	2.0	188	8.7	268	6.6	348	1.3	428	0.1
32	0.2	112	2.3	192	8.9	272	6.3	352	1.2	432	0.1
36	0.3	116	2.5	196	9.1	276	6.1	356	1.0	436	0.1
40	0.3	120	2.8	200	9.3	280	5.8	360	0.9	440	0.1
44	0.3	124	3.1	204	9.4	284	5.5	364	0.9	444	0.1
48	0.4	128	3.4	208	9.4	288	5.2	368	0.8	448	0.1
52	0.5	132	3.8	212	9.4	292	4.9	372	0.7	452	0.1
56	0.5	136	4.1	216	9.3	296	4.6	376	0.6	456	0.1
60	0.6	140	4.5	220	9.2	300	4.3	380	0.6	460	0.1
64	0.6	144	4.9	224	9.1	304	4.0	384	0.5	464	0.1
68	0.7	148	5.3	228	8.9	308	3.7	388	0.5	468	0.1
72	0.8	152	5.7	232	8.8	312	3.4	392	0.4	472	0.1
76	0.9	156	6.0	236	8.6	316	3.1	396	0.4	476	0.1
80	1.0	160	6.4	240	8.4	320	2.8	400	0.3	480	0.1

Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 1 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.370
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	196.180	SPR	47.000
H(85%) (m)	34.650	LAG (hrs)	0.000
H(10%) (m)	27.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	102	Q (l/s)	27.3	PR (%)	37.500
T (mins)	24	TB (mins)	288	S1085 (m/km)	48.595
TPt (mins)	114	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 1 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
24	0.1	504	2.5	984	5.9	1464	1.2	1944	0.1	2424	0.1
48	0.2	528	2.8	1008	5.4	1488	1.0	1968	0.1	2448	0.1
72	0.2	552	3.1	1032	4.9	1512	0.8	1992	0.1	2472	0.1
96	0.3	576	3.5	1056	4.4	1536	0.7	2016	0.1	2496	0.1
120	0.5	600	3.9	1080	4.0	1560	0.5	2040	0.1	2520	0.1
144	0.7	624	4.4	1104	3.6	1584	0.4	2064	0.1	2544	0.1
168	0.8	648	4.8	1128	3.2	1608	0.3	2088	0.1	2568	0.1
192	1.0	672	5.3	1152	2.8	1632	0.2	2112	0.1	2592	0.1
216	1.2	696	5.8	1176	2.5	1656	0.2	2136	0.1	2616	0.1
240	1.3	720	6.2	1200	2.3	1680	0.1	2160	0.1	2640	0.1
264	1.4	744	6.7	1224	2.1	1704	0.1	2184	0.1	2664	0.1
288	1.5	768	7.0	1248	1.9	1728	0.1	2208	0.1	2688	0.1
312	1.5	792	7.3	1272	1.8	1752	0.1	2232	0.1	2712	0.1
336	1.5	816	7.5	1296	1.7	1776	0.1	2256	0.1	2736	0.1
360	1.6	840	7.6	1320	1.6	1800	0.1	2280	0.1	2760	0.1
384	1.6	864	7.5	1344	1.6	1824	0.1	2304	0.1	2784	0.1
408	1.7	888	7.3	1368	1.5	1848	0.1	2328	0.1	2808	0.1
432	1.9	912	7.1	1392	1.5	1872	0.1	2352	0.1	2832	0.1
456	2.0	936	6.7	1416	1.4	1896	0.1	2376	0.1	2856	0.1
480	2.2	960	6.3	1440	1.3	1920	0.1	2400	0.1	2880	0.1

Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 1 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.180
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	113.980	SPR	47.000
H(85%) (m)	31.100	LAG (hrs)	0.000
H(10%) (m)	26.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	84	Q (l/s)	29.8	PR (%)	37.500
T (mins)	24	TB (mins)	243	S1085 (m/km)	59.660
TPt (mins)	96	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 1 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
24	0.1	504	2.5	984	5.0	1464	1.0	1944	0.1	2424	0.1
48	0.2	528	2.8	1008	4.6	1488	0.8	1968	0.1	2448	0.1
72	0.3	552	3.1	1032	4.1	1512	0.6	1992	0.1	2472	0.1
96	0.4	576	3.5	1056	3.7	1536	0.4	2016	0.1	2496	0.1
120	0.6	600	4.0	1080	3.3	1560	0.3	2040	0.1	2520	0.1
144	0.8	624	4.4	1104	2.9	1584	0.2	2064	0.1	2544	0.1
168	0.9	648	4.8	1128	2.6	1608	0.2	2088	0.1	2568	0.1
192	1.1	672	5.3	1152	2.3	1632	0.1	2112	0.1	2592	0.1
216	1.2	696	5.7	1176	2.1	1656	0.1	2136	0.1	2616	0.1
240	1.3	720	6.2	1200	1.9	1680	0.1	2160	0.1	2640	0.1
264	1.4	744	6.5	1224	1.7	1704	0.1	2184	0.1	2664	0.1
288	1.4	768	6.8	1248	1.6	1728	0.1	2208	0.1	2688	0.1
312	1.4	792	7.0	1272	1.5	1752	0.1	2232	0.1	2712	0.1
336	1.5	816	7.1	1296	1.5	1776	0.1	2256	0.1	2736	0.1
360	1.5	840	7.1	1320	1.4	1800	0.1	2280	0.1	2760	0.1
384	1.6	864	6.9	1344	1.4	1824	0.1	2304	0.1	2784	0.1
408	1.7	888	6.7	1368	1.4	1848	0.1	2328	0.1	2808	0.1
432	1.8	912	6.3	1392	1.4	1872	0.1	2352	0.1	2832	0.1
456	2.0	936	5.9	1416	1.3	1896	0.1	2376	0.1	2856	0.1
480	2.2	960	5.5	1440	1.2	1920	0.1	2400	0.1	2880	0.1

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

Simulation Criteria

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

Number of Input Hydrographs	23	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.391
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	240 Summer	30	+0%					52.027
1.001	2	240 Summer	30	+0%					45.086
1.002	3	240 Summer	30	+0%					43.119
1.003	4	240 Summer	30	+0%					41.911
1.004	5	240 Summer	30	+0%					41.499
2.000	2	240 Summer	30	+0%					44.035
2.001	2	240 Summer	30	+0%					43.784
2.002	3	240 Summer	30	+0%					43.449
3.000	9	15 Summer	30	+0%					42.160
2.003	4	240 Summer	30	+0%					39.609
1.005	6	240 Summer	30	+0%					36.651
1.006	12	240 Summer	30	+0%	100/60 Summer				35.381
1.007	13	240 Summer	30	+0%					35.154
4.000	14	360 Summer	30	+0%					52.054
4.001	15	360 Summer	30	+0%					48.811
4.002	16	360 Summer	30	+0%					44.128
4.003	17	360 Summer	30	+0%					41.623
5.000	18	240 Summer	30	+0%					35.562
4.004	18	360 Summer	30	+0%					33.376
4.005	19	360 Summer	30	+0%					31.597
1.008	14	1440 Winter	30	+0%	1/60 Summer				26.409

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

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.473	0.000	0.01			12.7	OK	
1.001	2	-0.414	0.000	0.03			41.5	OK	
1.002	3	-0.381	0.000	0.06			58.0	OK	
1.003	4	-0.339	0.000	0.10			61.0	OK	
1.004	5	-0.401	0.000	0.04			74.3	OK	
2.000	2	-0.409	0.000	0.05			16.6	OK	
2.001	2	-0.427	0.000	0.03			22.7	OK	
2.002	3	-0.432	0.000	0.03			37.5	OK	
3.000	9	0.000	0.000	1.28			12.2	SURCHARGED*	
2.003	4	-0.391	0.000	0.05			74.3	OK	
1.005	6	-0.349	0.000	0.08			148.3	OK	
1.006	12	-0.106	0.000	0.74			148.3	OK*	
1.007	13	-0.371	0.000	0.07			148.3	OK	
4.000	14	-0.446	0.000	0.01			15.7	OK	
4.001	15	-0.439	0.000	0.02			29.1	OK	
4.002	16	-0.218	0.000	0.20			63.0	OK*	
4.003	17	-0.223	0.000	0.19			89.4	FLOOD RISK*	
5.000	18	-0.438	0.000	0.02			21.8	OK	
4.004	18	-0.174	0.000	0.37			102.4	OK	
4.005	19	-0.403	0.000	0.04			102.4	OK	
1.008	14	1.184	0.000	0.03			1.8	SURCHARGED*	

Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.914
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	232.500	SPR	47.000
H(85%) (m)	53.550	LAG (hrs)	0.000
H(10%) (m)	46.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	113	Q (l/s)	10.1	PR (%)	38.303
T (mins)	12	TB (mins)	300	S1085 (m/km)	40.430
TPt (mins)	119	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.1	164	7.4	244	12.6	324	7.8	404	1.9
8	0.1	88	1.3	168	7.8	248	12.6	328	7.5	408	1.7
12	0.1	92	1.4	172	8.2	252	12.4	332	7.2	412	1.5
16	0.1	96	1.6	176	8.6	256	12.3	336	6.9	416	1.3
20	0.1	100	1.8	180	9.0	260	12.1	340	6.6	420	1.2
24	0.2	104	1.9	184	9.4	264	11.9	344	6.2	424	1.1
28	0.2	108	2.2	188	9.8	268	11.7	348	5.9	428	0.9
32	0.2	112	2.5	192	10.2	272	11.5	352	5.6	432	0.9
36	0.3	116	2.8	196	10.5	276	11.2	356	5.3	436	0.8
40	0.3	120	3.1	200	10.9	280	11.0	360	5.0	440	0.7
44	0.3	124	3.5	204	11.2	284	10.7	364	4.6	444	0.6
48	0.4	128	3.8	208	11.5	288	10.5	368	4.3	448	0.6
52	0.5	132	4.2	212	11.8	292	10.2	372	4.0	452	0.5
56	0.5	136	4.6	216	12.1	296	9.9	376	3.7	456	0.5
60	0.6	140	5.0	220	12.3	300	9.6	380	3.4	460	0.4
64	0.7	144	5.4	224	12.5	304	9.3	384	3.1	464	0.4
68	0.7	148	5.8	228	12.6	308	9.1	388	2.9	468	0.3
72	0.8	152	6.2	232	12.7	312	8.8	392	2.6	472	0.3
76	0.9	156	6.6	236	12.8	316	8.5	396	2.3	476	0.2
80	1.0	160	7.0	240	12.7	320	8.1	400	2.1	480	0.2

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.214
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	292.190	SPR	47.000
H(85%) (m)	51.300	LAG (hrs)	0.000
H(10%) (m)	43.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	124	Q (l/s)	22.4	PR (%)	38.303
T (mins)	12	TB (mins)	329	S1085 (m/km)	35.593
TPt (mins)	130	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	84	2.3	164	15.5	244	28.8	324	20.7	404	7.6
8	0.2	88	2.6	168	16.3	248	28.9	328	20.0	408	7.0
12	0.2	92	2.8	172	17.2	252	28.8	332	19.4	412	6.4
16	0.3	96	3.2	176	18.0	256	28.7	336	18.8	416	5.8
20	0.3	100	3.6	180	18.9	260	28.5	340	18.1	420	5.3
24	0.4	104	3.9	184	19.7	264	28.2	344	17.5	424	4.8
28	0.4	108	4.5	188	20.5	268	27.9	348	16.8	428	4.3
32	0.5	112	5.1	192	21.3	272	27.6	352	16.1	432	3.9
36	0.6	116	5.6	196	22.1	276	27.1	356	15.4	436	3.5
40	0.6	120	6.3	200	23.0	280	26.7	360	14.8	440	3.1
44	0.7	124	7.1	204	23.7	284	26.3	364	14.1	444	2.8
48	0.8	128	7.8	208	24.5	288	25.8	368	13.4	448	2.5
52	0.9	132	8.6	212	25.2	292	25.3	372	12.7	452	2.2
56	1.1	136	9.5	216	25.8	296	24.8	376	12.1	456	2.0
60	1.2	140	10.3	220	26.5	300	24.2	380	11.4	460	1.8
64	1.3	144	11.1	224	27.1	304	23.7	384	10.7	464	1.6
68	1.5	148	12.0	228	27.6	308	23.1	388	10.1	468	1.4
72	1.7	152	12.9	232	28.0	312	22.5	392	9.5	472	1.3
76	1.9	156	13.7	236	28.5	316	21.9	396	8.8	476	1.2
80	2.1	160	14.6	240	28.6	320	21.3	400	8.2	480	1.2

Input Hydrograph Manhole 3, DS/PN 1.002 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.230
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	117.800	SPR	47.000
H(85%) (m)	45.450	LAG (hrs)	0.000
H(10%) (m)	43.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	118	Q (l/s)	13.1	PR (%)	38.303
T (mins)	12	TB (mins)	313	S1085 (m/km)	22.071
TPt (mins)	124	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 3, DS/PN 1.002 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.4	164	9.3	244	16.6	324	11.0	404	3.3
8	0.1	88	1.6	168	9.8	248	16.6	328	10.6	408	3.0
12	0.1	92	1.7	172	10.3	252	16.4	332	10.2	412	2.7
16	0.1	96	1.9	176	10.9	256	16.3	336	9.8	416	2.4
20	0.2	100	2.2	180	11.4	260	16.1	340	9.4	420	2.1
24	0.2	104	2.4	184	11.8	264	15.9	344	9.0	424	1.9
28	0.2	108	2.7	188	12.3	268	15.6	348	8.6	428	1.7
32	0.3	112	3.1	192	12.8	272	15.4	352	8.2	432	1.5
36	0.3	116	3.4	196	13.3	276	15.1	356	7.8	436	1.3
40	0.4	120	3.9	200	13.8	280	14.8	360	7.4	440	1.2
44	0.4	124	4.3	204	14.2	284	14.6	364	7.0	444	1.1
48	0.5	128	4.8	208	14.6	288	14.2	368	6.6	448	1.0
52	0.6	132	5.2	212	15.0	292	13.9	372	6.2	452	0.9
56	0.6	136	5.7	216	15.4	296	13.6	376	5.8	456	0.8
60	0.7	140	6.2	220	15.7	300	13.2	380	5.4	460	0.7
64	0.8	144	6.7	224	16.0	304	12.9	384	5.1	464	0.6
68	0.9	148	7.3	228	16.2	308	12.5	388	4.7	468	0.6
72	1.0	152	7.8	232	16.4	312	12.1	392	4.3	472	0.5
76	1.1	156	8.3	236	16.6	316	11.8	396	4.0	476	0.5
80	1.2	160	8.8	240	16.6	320	11.4	400	3.6	480	0.5

Input Hydrograph Manhole 4, DS/PN 1.003 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.218
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	38.360	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	42.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	76	Q (l/s)	3.6	PR (%)	38.303
T (mins)	8	TB (mins)	202	S1085 (m/km)	38.234
TPt (mins)	80	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 1.003 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.5	164	3.1	244	3.1	324	0.6	404	0.0
8	0.0	88	0.6	168	3.2	248	2.9	328	0.6	408	0.0
12	0.0	92	0.6	172	3.4	252	2.8	332	0.5	412	0.0
16	0.0	96	0.7	176	3.5	256	2.7	336	0.5	416	0.0
20	0.0	100	0.8	180	3.6	260	2.6	340	0.4	420	0.0
24	0.1	104	0.8	184	3.7	264	2.4	344	0.4	424	0.0
28	0.1	108	0.9	188	3.8	268	2.3	348	0.3	428	0.0
32	0.1	112	1.0	192	3.9	272	2.2	352	0.3	432	0.0
36	0.1	116	1.1	196	3.9	276	2.0	356	0.3	436	0.0
40	0.1	120	1.3	200	3.9	280	1.9	360	0.2	440	0.0
44	0.1	124	1.4	204	3.9	284	1.8	364	0.2	444	0.0
48	0.2	128	1.6	208	3.9	288	1.6	368	0.2	448	0.0
52	0.2	132	1.7	212	3.8	292	1.5	372	0.2	452	0.0
56	0.2	136	1.9	216	3.8	296	1.4	376	0.1	456	0.0
60	0.3	140	2.1	220	3.7	300	1.3	380	0.1	460	0.0
64	0.3	144	2.2	224	3.6	304	1.1	384	0.1	464	0.0
68	0.3	148	2.4	228	3.5	308	1.0	388	0.1	468	0.0
72	0.4	152	2.6	232	3.4	312	0.9	392	0.1	472	0.0
76	0.4	156	2.8	236	3.3	316	0.8	396	0.1	476	0.0
80	0.5	160	2.9	240	3.2	320	0.7	400	0.1	480	0.0

Input Hydrograph Manhole 5, DS/PN 1.004 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.926
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	145.680	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	39.100	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	102	Q (l/s)	11.3	PR (%)	38.303
T (mins)	12	TB (mins)	272	S1085 (m/km)	40.271
TPt (mins)	108	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 5, DS/PN 1.004 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.4	164	8.9	244	13.3	324	6.8	404	1.0
8	0.1	88	1.5	168	9.3	248	13.1	328	6.4	408	0.9
12	0.1	92	1.7	172	9.8	252	12.8	332	6.1	412	0.8
16	0.1	96	1.9	176	10.3	256	12.6	336	5.7	416	0.7
20	0.2	100	2.2	180	10.7	260	12.3	340	5.3	420	0.7
24	0.2	104	2.4	184	11.1	264	12.0	344	4.9	424	0.6
28	0.2	108	2.7	188	11.6	268	11.7	348	4.5	428	0.5
32	0.3	112	3.0	192	12.0	272	11.4	352	4.2	432	0.5
36	0.3	116	3.4	196	12.4	276	11.1	356	3.8	436	0.4
40	0.4	120	3.8	200	12.7	280	10.8	360	3.5	440	0.4
44	0.4	124	4.2	204	13.0	284	10.4	364	3.2	444	0.3
48	0.5	128	4.6	208	13.3	288	10.1	368	2.8	448	0.3
52	0.6	132	5.1	212	13.6	292	9.7	372	2.6	452	0.3
56	0.6	136	5.5	216	13.7	296	9.4	376	2.3	456	0.2
60	0.7	140	6.0	220	13.8	300	9.0	380	2.0	460	0.2
64	0.8	144	6.5	224	13.9	304	8.7	384	1.8	464	0.2
68	0.9	148	6.9	228	13.8	308	8.3	388	1.6	468	0.1
72	1.0	152	7.4	232	13.7	312	7.9	392	1.4	472	0.1
76	1.1	156	7.9	236	13.7	316	7.6	396	1.3	476	0.1
80	1.2	160	8.4	240	13.5	320	7.2	400	1.2	480	0.1

Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.198
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	51.700	SPR	47.000
H(85%) (m)	45.030	LAG (hrs)	0.000
H(10%) (m)	44.940	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	206	Q (l/s)	1.2	PR (%)	38.303
T (mins)	20	TB (mins)	543	S1085 (m/km)	2.321
TPt (mins)	216	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.1	164	0.6	244	1.3	324	1.7	404	1.4
8	0.0	88	0.1	168	0.6	248	1.3	328	1.7	408	1.4
12	0.0	92	0.1	172	0.7	252	1.3	332	1.7	412	1.4
16	0.0	96	0.1	176	0.7	256	1.4	336	1.7	416	1.4
20	0.0	100	0.2	180	0.7	260	1.4	340	1.7	420	1.4
24	0.0	104	0.2	184	0.8	264	1.4	344	1.7	424	1.3
28	0.0	108	0.2	188	0.8	268	1.5	348	1.7	428	1.3
32	0.0	112	0.2	192	0.8	272	1.5	352	1.7	432	1.3
36	0.0	116	0.2	196	0.9	276	1.5	356	1.7	436	1.3
40	0.0	120	0.3	200	0.9	280	1.5	360	1.6	440	1.2
44	0.0	124	0.3	204	0.9	284	1.6	364	1.6	444	1.2
48	0.0	128	0.3	208	1.0	288	1.6	368	1.6	448	1.2
52	0.0	132	0.3	212	1.0	292	1.6	372	1.6	452	1.2
56	0.1	136	0.4	216	1.0	296	1.6	376	1.6	456	1.1
60	0.1	140	0.4	220	1.1	300	1.7	380	1.6	460	1.1
64	0.1	144	0.4	224	1.1	304	1.7	384	1.5	464	1.1
68	0.1	148	0.5	228	1.1	308	1.7	388	1.5	468	1.1
72	0.1	152	0.5	232	1.2	312	1.7	392	1.5	472	1.0
76	0.1	156	0.5	236	1.2	316	1.7	396	1.5	476	1.0
80	0.1	160	0.6	240	1.2	320	1.7	400	1.5	480	1.0

Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.084
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	131.500	SPR	47.000
H(85%) (m)	50.430	LAG (hrs)	0.000
H(10%) (m)	47.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	110	Q (l/s)	12.3	PR (%)	38.303
T (mins)	12	TB (mins)	292	S1085 (m/km)	29.708
TPt (mins)	116	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.4	164	9.2	244	15.2	324	9.0	404	1.8
8	0.1	88	1.6	168	9.7	248	15.0	328	8.6	408	1.7
12	0.1	92	1.7	172	10.2	252	14.8	332	8.2	412	1.5
16	0.1	96	2.0	176	10.7	256	14.6	336	7.8	416	1.3
20	0.2	100	2.2	180	11.2	260	14.4	340	7.4	420	1.2
24	0.2	104	2.4	184	11.7	264	14.1	344	7.0	424	1.1
28	0.2	108	2.8	188	12.1	268	13.8	348	6.6	428	1.0
32	0.3	112	3.1	192	12.6	272	13.6	352	6.2	432	0.9
36	0.3	116	3.4	196	13.0	276	13.3	356	5.8	436	0.8
40	0.4	120	3.9	200	13.4	280	12.9	360	5.4	440	0.7
44	0.4	124	4.3	204	13.8	284	12.6	364	5.0	444	0.6
48	0.5	128	4.7	208	14.2	288	12.3	368	4.6	448	0.6
52	0.6	132	5.2	212	14.5	292	11.9	372	4.3	452	0.5
56	0.6	136	5.7	216	14.8	296	11.6	376	3.9	456	0.5
60	0.7	140	6.2	220	15.0	300	11.2	380	3.6	460	0.4
64	0.8	144	6.7	224	15.2	304	10.9	384	3.2	464	0.4
68	0.9	148	7.2	228	15.3	308	10.5	388	2.9	468	0.3
72	1.0	152	7.7	232	15.3	312	10.1	392	2.6	472	0.3
76	1.1	156	8.2	236	15.4	316	9.7	396	2.4	476	0.2
80	1.3	160	8.7	240	15.3	320	9.4	400	2.1	480	0.2

Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.108
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	78.800	SPR	47.000
H(85%) (m)	45.400	LAG (hrs)	0.000
H(10%) (m)	44.510	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	122	Q (l/s)	1.1	PR (%)	38.303
T (mins)	12	TB (mins)	323	S1085 (m/km)	15.059
TPt (mins)	128	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.1	164	0.8	244	1.4	324	1.0	404	0.3
8	0.0	88	0.1	168	0.8	248	1.4	328	1.0	408	0.3
12	0.0	92	0.1	172	0.9	252	1.4	332	0.9	412	0.3
16	0.0	96	0.2	176	0.9	256	1.4	336	0.9	416	0.3
20	0.0	100	0.2	180	0.9	260	1.4	340	0.9	420	0.2
24	0.0	104	0.2	184	1.0	264	1.4	344	0.8	424	0.2
28	0.0	108	0.2	188	1.0	268	1.4	348	0.8	428	0.2
32	0.0	112	0.3	192	1.1	272	1.3	352	0.8	432	0.2
36	0.0	116	0.3	196	1.1	276	1.3	356	0.7	436	0.1
40	0.0	120	0.3	200	1.1	280	1.3	360	0.7	440	0.1
44	0.0	124	0.4	204	1.2	284	1.3	364	0.7	444	0.1
48	0.0	128	0.4	208	1.2	288	1.3	368	0.6	448	0.1
52	0.0	132	0.4	212	1.3	292	1.2	372	0.6	452	0.1
56	0.1	136	0.5	216	1.3	296	1.2	376	0.6	456	0.1
60	0.1	140	0.5	220	1.3	300	1.2	380	0.5	460	0.1
64	0.1	144	0.6	224	1.4	304	1.1	384	0.5	464	0.1
68	0.1	148	0.6	228	1.4	308	1.1	388	0.5	468	0.1
72	0.1	152	0.6	232	1.4	312	1.1	392	0.4	472	0.1
76	0.1	156	0.7	236	1.4	316	1.1	396	0.4	476	0.1
80	0.1	160	0.7	240	1.4	320	1.0	400	0.4	480	0.1

Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.306
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	83.700	SPR	47.000
H(85%) (m)	49.800	LAG (hrs)	0.000
H(10%) (m)	46.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	78	Q (l/s)	4.9	PR (%)	38.303
T (mins)	8	TB (mins)	207	S1085 (m/km)	60.534
TPt (mins)	82	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.7	164	4.2	244	4.4	324	1.0	404	0.1
8	0.0	88	0.8	168	4.4	248	4.2	328	0.9	408	0.1
12	0.0	92	0.8	172	4.6	252	4.0	332	0.8	412	0.1
16	0.0	96	0.9	176	4.8	256	3.9	336	0.7	416	0.0
20	0.1	100	1.0	180	4.9	260	3.7	340	0.6	420	0.0
24	0.1	104	1.1	184	5.1	264	3.5	344	0.6	424	0.0
28	0.1	108	1.2	188	5.2	268	3.4	348	0.5	428	0.0
32	0.1	112	1.4	192	5.3	272	3.2	352	0.5	432	0.0
36	0.1	116	1.5	196	5.4	276	3.0	356	0.4	436	0.0
40	0.2	120	1.7	200	5.4	280	2.8	360	0.4	440	0.0
44	0.2	124	1.9	204	5.4	284	2.6	364	0.3	444	0.0
48	0.2	128	2.1	208	5.4	288	2.5	368	0.3	448	0.0
52	0.3	132	2.3	212	5.3	292	2.3	372	0.3	452	0.0
56	0.3	136	2.5	216	5.2	296	2.1	376	0.2	456	0.0
60	0.3	140	2.8	220	5.1	300	1.9	380	0.2	460	0.0
64	0.4	144	3.0	224	5.0	304	1.7	384	0.2	464	0.0
68	0.4	148	3.2	228	4.9	308	1.6	388	0.2	468	0.0
72	0.5	152	3.5	232	4.8	312	1.4	392	0.1	472	0.0
76	0.6	156	3.7	236	4.6	316	1.3	396	0.1	476	0.0
80	0.6	160	3.9	240	4.5	320	1.1	400	0.1	480	0.0

Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.538
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	97.700	SPR	47.000
H(85%) (m)	45.500	LAG (hrs)	0.000
H(10%) (m)	42.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	92	Q (l/s)	7.4	PR (%)	38.303
T (mins)	8	TB (mins)	243	S1085 (m/km)	40.942
TPt (mins)	96	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.9	164	5.8	244	7.9	324	3.2	404	0.4
8	0.0	88	1.0	168	6.1	248	7.8	328	3.0	408	0.3
12	0.1	92	1.1	172	6.5	252	7.6	332	2.7	412	0.3
16	0.1	96	1.2	176	6.8	256	7.4	336	2.5	416	0.3
20	0.1	100	1.4	180	7.1	260	7.1	340	2.2	420	0.2
24	0.1	104	1.5	184	7.3	264	6.9	344	2.0	424	0.2
28	0.1	108	1.7	188	7.6	268	6.7	348	1.8	428	0.2
32	0.2	112	1.9	192	7.9	272	6.5	352	1.6	432	0.2
36	0.2	116	2.1	196	8.1	276	6.3	356	1.4	436	0.1
40	0.2	120	2.4	200	8.3	280	6.0	360	1.3	440	0.1
44	0.3	124	2.6	204	8.4	284	5.8	364	1.1	444	0.1
48	0.3	128	2.9	208	8.6	288	5.5	368	1.0	448	0.1
52	0.3	132	3.2	212	8.6	292	5.3	372	0.9	452	0.1
56	0.4	136	3.5	216	8.7	296	5.0	376	0.8	456	0.1
60	0.4	140	3.8	220	8.6	300	4.8	380	0.7	460	0.0
64	0.5	144	4.2	224	8.6	304	4.5	384	0.6	464	0.0
68	0.6	148	4.5	228	8.5	308	4.3	388	0.6	468	0.0
72	0.6	152	4.8	232	8.4	312	4.0	392	0.5	472	0.0
76	0.7	156	5.2	236	8.3	316	3.7	396	0.5	476	0.0
80	0.8	160	5.5	240	8.1	320	3.5	400	0.4	480	0.0

Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.455
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	35.030	SPR	47.000
H(85%) (m)	48.500	LAG (hrs)	0.000
H(10%) (m)	44.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	47	Q (l/s)	12.3	PR (%)	38.303
T (mins)	4	TB (mins)	123	S1085 (m/km)	156.057
TPt (mins)	49	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	1.9	164	10.7	244	3.2	324	0.3	404	0.0
8	0.1	88	2.0	168	10.8	248	2.9	328	0.2	408	0.0
12	0.1	92	2.2	172	10.9	252	2.7	332	0.2	412	0.0
16	0.1	96	2.4	176	10.8	256	2.4	336	0.1	416	0.0
20	0.2	100	2.6	180	10.6	260	2.2	340	0.1	420	0.0
24	0.2	104	2.8	184	10.3	264	2.1	344	0.1	424	0.0
28	0.3	108	3.1	188	9.9	268	1.9	348	0.1	428	0.0
32	0.4	112	3.4	192	9.5	272	1.7	352	0.0	432	0.0
36	0.4	116	3.8	196	9.0	276	1.6	356	0.0	436	0.0
40	0.5	120	4.3	200	8.5	280	1.5	360	0.0	440	0.0
44	0.7	124	4.8	204	8.0	284	1.3	364	0.0	444	0.0
48	0.8	128	5.4	208	7.5	288	1.2	368	0.0	448	0.0
52	0.9	132	6.1	212	6.9	292	1.0	372	0.0	452	0.0
56	1.0	136	6.8	216	6.4	296	0.9	376	0.0	456	0.0
60	1.1	140	7.5	220	5.8	300	0.8	380	0.0	460	0.0
64	1.3	144	8.1	224	5.3	304	0.7	384	0.0	464	0.0
68	1.4	148	8.8	228	4.8	308	0.6	388	0.0	468	0.0
72	1.5	152	9.4	232	4.3	312	0.5	392	0.0	472	0.0
76	1.6	156	9.9	236	3.9	316	0.4	396	0.0	476	0.0
80	1.8	160	10.3	240	3.5	320	0.4	400	0.0	480	0.0

Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.524
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	46.720	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	42.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	83	Q (l/s)	8.0	PR (%)	37.500
T (mins)	8	TB (mins)	218	S1085 (m/km)	34.247
TPt (mins)	87	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
1	0.3	49	3.1	97	4.9	145	3.0	193	1.0	241	0.0
2	0.3	50	3.1	98	4.9	146	2.9	194	1.0	242	0.0
3	0.3	51	3.2	99	4.9	147	2.9	195	1.0	243	0.0
4	0.3	52	3.3	100	4.8	148	2.9	196	0.9	244	0.0
5	0.4	53	3.3	101	4.8	149	2.8	197	0.9	245	0.0
6	0.4	54	3.4	102	4.7	150	2.8	198	0.8	246	0.0
7	0.5	55	3.4	103	4.7	151	2.7	199	0.8	247	0.0
8	0.5	56	3.5	104	4.7	152	2.7	200	0.8	248	0.0
9	0.6	57	3.6	105	4.6	153	2.7	201	0.7	249	0.0
10	0.7	58	3.6	106	4.6	154	2.6	202	0.7	250	0.0
11	0.7	59	3.7	107	4.5	155	2.6	203	0.6	251	0.0
12	0.8	60	3.8	108	4.5	156	2.5	204	0.6	252	0.0
13	0.9	61	3.8	109	4.5	157	2.5	205	0.6	253	0.0
14	0.9	62	3.9	110	4.4	158	2.5	206	0.5	254	0.0
15	1.0	63	3.9	111	4.4	159	2.4	207	0.5	255	0.0
16	1.0	64	4.0	112	4.3	160	2.4	208	0.4	256	0.0
17	1.1	65	4.1	113	4.3	161	2.3	209	0.4	257	0.0
18	1.2	66	4.1	114	4.2	162	2.3	210	0.4	258	0.0
19	1.2	67	4.2	115	4.2	163	2.3	211	0.3	259	0.0
20	1.3	68	4.3	116	4.2	164	2.2	212	0.3	260	0.0
21	1.4	69	4.3	117	4.1	165	2.2	213	0.2	261	0.0
22	1.4	70	4.4	118	4.1	166	2.1	214	0.2	262	0.0
23	1.5	71	4.4	119	4.0	167	2.1	215	0.2	263	0.0
24	1.5	72	4.5	120	4.0	168	2.1	216	0.2	264	0.0
25	1.6	73	4.6	121	4.0	169	2.0	217	0.1	265	0.0
26	1.7	74	4.6	122	3.9	170	2.0	218	0.1	266	0.0
27	1.7	75	4.7	123	3.9	171	1.9	219	0.1	267	0.0
28	1.8	76	4.7	124	3.8	172	1.9	220	0.1	268	0.0
29	1.8	77	4.8	125	3.8	173	1.9	221	0.1	269	0.0
30	1.9	78	4.9	126	3.8	174	1.8	222	0.1	270	0.0
31	2.0	79	4.9	127	3.7	175	1.8	223	0.1	271	0.0
32	2.0	80	5.0	128	3.7	176	1.7	224	0.0	272	0.0
33	2.1	81	5.0	129	3.6	177	1.7	225	0.0	273	0.0
34	2.2	82	5.1	130	3.6	178	1.7	226	0.0	274	0.0
35	2.2	83	5.1	131	3.6	179	1.6	227	0.0	275	0.0
36	2.3	84	5.2	132	3.5	180	1.6	228	0.0	276	0.0
37	2.3	85	5.2	133	3.5	181	1.5	229	0.0	277	0.0
38	2.4	86	5.2	134	3.4	182	1.5	230	0.0	278	0.0
39	2.5	87	5.2	135	3.4	183	1.4	231	0.0	279	0.0
40	2.5	88	5.2	136	3.4	184	1.4	232	0.0	280	0.0
41	2.6	89	5.1	137	3.3	185	1.4	233	0.0	281	0.0
42	2.6	90	5.1	138	3.3	186	1.3	234	0.0	282	0.0
43	2.7	91	5.1	139	3.2	187	1.3	235	0.0	283	0.0
44	2.8	92	5.1	140	3.2	188	1.2	236	0.0	284	0.0
45	2.8	93	5.1	141	3.2	189	1.2	237	0.0	285	0.0
46	2.9	94	5.1	142	3.1	190	1.2	238	0.0	286	0.0
47	3.0	95	5.0	143	3.1	191	1.1	239	0.0	287	0.0
48	3.0	96	5.0	144	3.0	192	1.1	240	0.0	288	0.0

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
289	0.0	310	0.0	331	0.0	352	0.0	373	0.0	394	0.0
290	0.0	311	0.0	332	0.0	353	0.0	374	0.0	395	0.0
291	0.0	312	0.0	333	0.0	354	0.0	375	0.0	396	0.0
292	0.0	313	0.0	334	0.0	355	0.0	376	0.0	397	0.0
293	0.0	314	0.0	335	0.0	356	0.0	377	0.0	398	0.0
294	0.0	315	0.0	336	0.0	357	0.0	378	0.0	399	0.0
295	0.0	316	0.0	337	0.0	358	0.0	379	0.0	400	0.0
296	0.0	317	0.0	338	0.0	359	0.0	380	0.0	401	0.0
297	0.0	318	0.0	339	0.0	360	0.0	381	0.0	402	0.0
298	0.0	319	0.0	340	0.0	361	0.0	382	0.0	403	0.0
299	0.0	320	0.0	341	0.0	362	0.0	383	0.0	404	0.0
300	0.0	321	0.0	342	0.0	363	0.0	384	0.0	405	0.0
301	0.0	322	0.0	343	0.0	364	0.0	385	0.0	406	0.0
302	0.0	323	0.0	344	0.0	365	0.0	386	0.0	407	0.0
303	0.0	324	0.0	345	0.0	366	0.0	387	0.0	408	0.0
304	0.0	325	0.0	346	0.0	367	0.0	388	0.0	409	0.0
305	0.0	326	0.0	347	0.0	368	0.0	389	0.0	410	0.0
306	0.0	327	0.0	348	0.0	369	0.0	390	0.0	411	0.0
307	0.0	328	0.0	349	0.0	370	0.0	391	0.0	412	0.0
308	0.0	329	0.0	350	0.0	371	0.0	392	0.0		
309	0.0	330	0.0	351	0.0	372	0.0	393	0.0		

Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.761
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	79.370	SPR	47.000
H(85%) (m)	45.500	LAG (hrs)	0.000
H(10%) (m)	42.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	80	Q (l/s)	11.9	PR (%)	37.500
T (mins)	8	TB (mins)	213	S1085 (m/km)	53.757
TPt (mins)	84	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
1	0.5	49	4.7	97	7.2	145	4.2	193	1.2	241	0.0
2	0.5	50	4.8	98	7.1	146	4.2	194	1.2	242	0.0
3	0.5	51	4.9	99	7.1	147	4.1	195	1.1	243	0.0
4	0.5	52	5.0	100	7.0	148	4.0	196	1.1	244	0.0
5	0.6	53	5.1	101	7.0	149	4.0	197	1.0	245	0.0
6	0.6	54	5.2	102	6.9	150	3.9	198	0.9	246	0.0
7	0.7	55	5.3	103	6.8	151	3.9	199	0.9	247	0.0
8	0.8	56	5.4	104	6.8	152	3.8	200	0.8	248	0.0
9	0.9	57	5.5	105	6.7	153	3.7	201	0.8	249	0.0
10	1.0	58	5.6	106	6.6	154	3.7	202	0.7	250	0.0
11	1.1	59	5.6	107	6.6	155	3.6	203	0.6	251	0.0
12	1.2	60	5.7	108	6.5	156	3.5	204	0.6	252	0.0
13	1.3	61	5.8	109	6.5	157	3.5	205	0.5	253	0.0
14	1.4	62	5.9	110	6.4	158	3.4	206	0.5	254	0.0
15	1.5	63	6.0	111	6.3	159	3.4	207	0.4	255	0.0
16	1.6	64	6.1	112	6.3	160	3.3	208	0.4	256	0.0
17	1.7	65	6.2	113	6.2	161	3.2	209	0.3	257	0.0
18	1.8	66	6.3	114	6.1	162	3.2	210	0.3	258	0.0
19	1.9	67	6.4	115	6.1	163	3.1	211	0.2	259	0.0
20	2.0	68	6.5	116	6.0	164	3.0	212	0.2	260	0.0
21	2.1	69	6.6	117	6.0	165	3.0	213	0.1	261	0.0
22	2.2	70	6.7	118	5.9	166	2.9	214	0.1	262	0.0
23	2.3	71	6.8	119	5.8	167	2.9	215	0.1	263	0.0
24	2.3	72	6.9	120	5.8	168	2.8	216	0.1	264	0.0
25	2.4	73	7.0	121	5.7	169	2.7	217	0.1	265	0.0
26	2.5	74	7.1	122	5.7	170	2.7	218	0.1	266	0.0
27	2.6	75	7.2	123	5.6	171	2.6	219	0.1	267	0.0
28	2.7	76	7.3	124	5.5	172	2.5	220	0.0	268	0.0
29	2.8	77	7.3	125	5.5	173	2.5	221	0.0	269	0.0
30	2.9	78	7.4	126	5.4	174	2.4	222	0.0	270	0.0
31	3.0	79	7.4	127	5.3	175	2.4	223	0.0	271	0.0
32	3.1	80	7.5	128	5.3	176	2.3	224	0.0	272	0.0
33	3.2	81	7.5	129	5.2	177	2.2	225	0.0	273	0.0
34	3.3	82	7.6	130	5.2	178	2.2	226	0.0	274	0.0
35	3.4	83	7.6	131	5.1	179	2.1	227	0.0	275	0.0
36	3.5	84	7.7	132	5.0	180	2.1	228	0.0	276	0.0
37	3.6	85	7.7	133	5.0	181	2.0	229	0.0	277	0.0
38	3.7	86	7.7	134	4.9	182	1.9	230	0.0	278	0.0
39	3.8	87	7.6	135	4.8	183	1.9	231	0.0	279	0.0
40	3.9	88	7.6	136	4.8	184	1.8	232	0.0	280	0.0
41	4.0	89	7.6	137	4.7	185	1.7	233	0.0	281	0.0
42	4.0	90	7.6	138	4.7	186	1.7	234	0.0	282	0.0
43	4.1	91	7.5	139	4.6	187	1.6	235	0.0	283	0.0
44	4.2	92	7.5	140	4.5	188	1.6	236	0.0	284	0.0
45	4.3	93	7.5	141	4.5	189	1.5	237	0.0	285	0.0
46	4.4	94	7.4	142	4.4	190	1.4	238	0.0	286	0.0
47	4.5	95	7.3	143	4.3	191	1.4	239	0.0	287	0.0
48	4.6	96	7.3	144	4.3	192	1.3	240	0.0	288	0.0

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
289	0.0	310	0.0	331	0.0	352	0.0	373	0.0	394	0.0
290	0.0	311	0.0	332	0.0	353	0.0	374	0.0	395	0.0
291	0.0	312	0.0	333	0.0	354	0.0	375	0.0	396	0.0
292	0.0	313	0.0	334	0.0	355	0.0	376	0.0	397	0.0
293	0.0	314	0.0	335	0.0	356	0.0	377	0.0	398	0.0
294	0.0	315	0.0	336	0.0	357	0.0	378	0.0	399	0.0
295	0.0	316	0.0	337	0.0	358	0.0	379	0.0	400	0.0
296	0.0	317	0.0	338	0.0	359	0.0	380	0.0	401	0.0
297	0.0	318	0.0	339	0.0	360	0.0	381	0.0	402	0.0
298	0.0	319	0.0	340	0.0	361	0.0	382	0.0	403	0.0
299	0.0	320	0.0	341	0.0	362	0.0	383	0.0	404	0.0
300	0.0	321	0.0	342	0.0	363	0.0	384	0.0	405	0.0
301	0.0	322	0.0	343	0.0	364	0.0	385	0.0	406	0.0
302	0.0	323	0.0	344	0.0	365	0.0	386	0.0	407	0.0
303	0.0	324	0.0	345	0.0	366	0.0	387	0.0	408	0.0
304	0.0	325	0.0	346	0.0	367	0.0	388	0.0	409	0.0
305	0.0	326	0.0	347	0.0	368	0.0	389	0.0	410	0.0
306	0.0	327	0.0	348	0.0	369	0.0	390	0.0	411	0.0
307	0.0	328	0.0	349	0.0	370	0.0	391	0.0	412	0.0
308	0.0	329	0.0	350	0.0	371	0.0	392	0.0		
309	0.0	330	0.0	351	0.0	372	0.0	393	0.0		

Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.371
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	198.700	SPR	47.000
H(85%) (m)	43.600	LAG (hrs)	0.000
H(10%) (m)	41.800	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	163	Q (l/s)	2.9	PR (%)	38.303
T (mins)	16	TB (mins)	430	S1085 (m/km)	12.079
TPt (mins)	171	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.3	164	1.7	244	3.5	324	3.6	404	2.4
8	0.0	88	0.3	168	1.8	248	3.6	328	3.6	408	2.3
12	0.0	92	0.3	172	1.9	252	3.6	332	3.5	412	2.2
16	0.0	96	0.4	176	2.0	256	3.7	336	3.5	416	2.2
20	0.0	100	0.4	180	2.1	260	3.7	340	3.4	420	2.1
24	0.0	104	0.4	184	2.2	264	3.8	344	3.4	424	2.0
28	0.1	108	0.5	188	2.2	268	3.8	348	3.3	428	2.0
32	0.1	112	0.6	192	2.3	272	3.9	352	3.2	432	1.9
36	0.1	116	0.6	196	2.4	276	3.9	356	3.2	436	1.8
40	0.1	120	0.7	200	2.5	280	3.9	360	3.1	440	1.7
44	0.1	124	0.8	204	2.6	284	3.9	364	3.1	444	1.7
48	0.1	128	0.9	208	2.7	288	3.9	368	3.0	448	1.6
52	0.1	132	0.9	212	2.8	292	3.9	372	2.9	452	1.5
56	0.1	136	1.0	216	2.9	296	3.9	376	2.9	456	1.5
60	0.1	140	1.1	220	3.0	300	3.9	380	2.8	460	1.4
64	0.2	144	1.2	224	3.1	304	3.8	384	2.7	464	1.3
68	0.2	148	1.3	228	3.2	308	3.8	388	2.7	468	1.3
72	0.2	152	1.4	232	3.2	312	3.8	392	2.6	472	1.2
76	0.2	156	1.5	236	3.3	316	3.7	396	2.5	476	1.1
80	0.2	160	1.6	240	3.4	320	3.7	400	2.5	480	1.1

Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.851
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	173.800	SPR	47.000
H(85%) (m)	48.200	LAG (hrs)	0.000
H(10%) (m)	41.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	97	Q (l/s)	11.1	PR (%)	38.303
T (mins)	8	TB (mins)	255	S1085 (m/km)	52.167
TPt (mins)	101	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.3	164	8.5	244	12.5	324	5.8	404	0.8
8	0.1	88	1.4	168	9.0	248	12.3	328	5.4	408	0.7
12	0.1	92	1.6	172	9.4	252	12.0	332	5.1	412	0.6
16	0.1	96	1.8	176	9.9	256	11.7	336	4.7	416	0.5
20	0.1	100	2.0	180	10.4	260	11.5	340	4.3	420	0.5
24	0.2	104	2.2	184	10.8	264	11.2	344	3.9	424	0.4
28	0.2	108	2.5	188	11.2	268	10.8	348	3.6	428	0.4
32	0.2	112	2.8	192	11.6	272	10.5	352	3.2	432	0.3
36	0.3	116	3.1	196	12.0	276	10.2	356	2.9	436	0.3
40	0.3	120	3.4	200	12.3	280	9.9	360	2.6	440	0.3
44	0.4	124	3.8	204	12.6	284	9.5	364	2.3	444	0.2
48	0.4	128	4.2	208	12.8	288	9.2	368	2.1	448	0.2
52	0.5	132	4.7	212	13.0	292	8.8	372	1.8	452	0.2
56	0.6	136	5.1	216	13.2	296	8.5	376	1.6	456	0.1
60	0.6	140	5.6	220	13.2	300	8.1	380	1.5	460	0.1
64	0.7	144	6.1	224	13.2	304	7.7	384	1.3	464	0.1
68	0.8	148	6.6	228	13.2	308	7.3	388	1.2	468	0.1
72	0.9	152	7.0	232	13.1	312	7.0	392	1.0	472	0.1
76	1.0	156	7.5	236	12.9	316	6.6	396	0.9	476	0.1
80	1.2	160	8.0	240	12.7	320	6.2	400	0.8	480	0.1

Input Hydrograph Manhole 6, DS/PN 1.005 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.137
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	109.000	SPR	47.000
H(85%) (m)	45.750	LAG (hrs)	0.000
H(10%) (m)	36.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	67	Q (l/s)	2.5	PR (%)	38.303
T (mins)	8	TB (mins)	180	S1085 (m/km)	114.373
TPt (mins)	71	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 6, DS/PN 1.005 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.4	164	2.3	244	1.8	324	0.3	404	0.0
8	0.0	88	0.4	168	2.4	248	1.7	328	0.2	408	0.0
12	0.0	92	0.5	172	2.4	252	1.6	332	0.2	412	0.0
16	0.0	96	0.5	176	2.5	256	1.5	336	0.2	416	0.0
20	0.0	100	0.6	180	2.6	260	1.4	340	0.2	420	0.0
24	0.0	104	0.6	184	2.6	264	1.3	344	0.2	424	0.0
28	0.1	108	0.7	188	2.6	268	1.2	348	0.1	428	0.0
32	0.1	112	0.8	192	2.6	272	1.1	352	0.1	432	0.0
36	0.1	116	0.8	196	2.6	276	1.0	356	0.1	436	0.0
40	0.1	120	0.9	200	2.6	280	0.9	360	0.1	440	0.0
44	0.1	124	1.0	204	2.5	284	0.8	364	0.1	444	0.0
48	0.1	128	1.2	208	2.5	288	0.7	368	0.1	448	0.0
52	0.2	132	1.3	212	2.4	292	0.7	372	0.1	452	0.0
56	0.2	136	1.4	216	2.4	296	0.6	376	0.0	456	0.0
60	0.2	140	1.5	220	2.3	300	0.5	380	0.0	460	0.0
64	0.2	144	1.6	224	2.2	304	0.5	384	0.0	464	0.0
68	0.3	148	1.8	228	2.1	308	0.4	388	0.0	468	0.0
72	0.3	152	1.9	232	2.0	312	0.4	392	0.0	472	0.0
76	0.3	156	2.0	236	1.9	316	0.3	396	0.0	476	0.0
80	0.4	160	2.1	240	1.9	320	0.3	400	0.0	480	0.0

Input Hydrograph Manhole 14, DS/PN 4.000 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.323
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	256.190	SPR	47.000
H(85%) (m)	53.800	LAG (hrs)	0.000
H(10%) (m)	49.600	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	142	Q (l/s)	11.8	PR (%)	39.156
T (mins)	12	TB (mins)	372	S1085 (m/km)	21.859
TPt (mins)	148	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 4.000 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.1	126	1.6	246	10.3	366	14.6	486	6.3	606	0.8
12	0.1	132	1.8	252	10.9	372	14.3	492	5.9	612	0.7
18	0.1	138	2.0	258	11.5	378	14.0	498	5.4	618	0.6
24	0.1	144	2.2	264	12.0	384	13.6	504	5.0	624	0.6
30	0.2	150	2.4	270	12.6	390	13.3	510	4.5	630	0.5
36	0.2	156	2.7	276	13.1	396	12.9	516	4.1	636	0.4
42	0.3	162	3.0	282	13.6	402	12.5	522	3.7	642	0.4
48	0.3	168	3.4	288	14.0	408	12.1	528	3.3	648	0.3
54	0.4	174	3.8	294	14.5	414	11.7	534	2.9	654	0.3
60	0.4	180	4.2	300	14.8	420	11.3	540	2.6	660	0.3
66	0.5	186	4.7	306	15.2	426	10.9	546	2.3	666	0.2
72	0.6	192	5.2	312	15.4	432	10.4	552	2.1	672	0.2
78	0.6	198	5.7	318	15.6	438	10.0	558	1.9	678	0.2
84	0.7	204	6.3	324	15.7	444	9.5	564	1.7	684	0.1
90	0.8	210	6.8	330	15.7	450	9.1	570	1.5	690	0.1
96	0.9	216	7.4	336	15.6	456	8.6	576	1.3	696	0.1
102	1.0	222	8.0	342	15.5	462	8.2	582	1.2	702	0.1
108	1.2	228	8.6	348	15.4	468	7.7	588	1.1	708	0.1
114	1.3	234	9.2	354	15.1	474	7.3	594	1.0	714	0.1
120	1.4	240	9.8	360	14.9	480	6.8	600	0.9	720	0.1

Input Hydrograph Manhole 15, DS/PN 4.001 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.200
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	282.700	SPR	47.000
H(85%) (m)	50.900	LAG (hrs)	0.000
H(10%) (m)	46.900	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	152	Q (l/s)	9.8	PR (%)	39.156
T (mins)	18	TB (mins)	406	S1085 (m/km)	18.866
TPt (mins)	161	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 15, DS/PN 4.001 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.1	126	1.4	246	8.7	366	12.9	486	6.6	606	1.0
12	0.1	132	1.5	252	9.1	372	12.7	492	6.2	612	0.9
18	0.1	138	1.7	258	9.6	378	12.5	498	5.9	618	0.8
24	0.1	144	1.9	264	10.0	384	12.2	504	5.5	624	0.7
30	0.2	150	2.1	270	10.4	390	11.9	510	5.1	630	0.7
36	0.2	156	2.3	276	10.9	396	11.7	516	4.7	636	0.6
42	0.2	162	2.7	282	11.3	402	11.4	522	4.4	642	0.5
48	0.3	168	3.0	288	11.7	408	11.1	528	4.0	648	0.5
54	0.3	174	3.3	294	12.0	414	10.8	534	3.7	654	0.4
60	0.4	180	3.7	300	12.4	420	10.4	540	3.4	660	0.4
66	0.4	186	4.1	306	12.7	426	10.1	546	3.0	666	0.3
72	0.5	192	4.5	312	12.9	432	9.8	552	2.7	672	0.3
78	0.6	198	4.9	318	13.2	438	9.4	558	2.5	678	0.3
84	0.6	204	5.4	324	13.3	444	9.1	564	2.2	684	0.2
90	0.7	210	5.8	330	13.4	450	8.8	570	1.9	690	0.2
96	0.8	216	6.3	336	13.5	456	8.4	576	1.8	696	0.2
102	0.9	222	6.8	342	13.4	462	8.1	582	1.6	702	0.2
108	1.0	228	7.3	348	13.3	468	7.7	588	1.4	708	0.1
114	1.1	234	7.7	354	13.3	474	7.3	594	1.3	714	0.1
120	1.2	240	8.2	360	13.1	480	7.0	600	1.1	720	0.1

Input Hydrograph Manhole 16, DS/PN 4.002 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	3.240
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	432.700	SPR	47.000
H(85%) (m)	50.600	LAG (hrs)	0.000
H(10%) (m)	44.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	166	Q (l/s)	24.4	PR (%)	39.156
T (mins)	18	TB (mins)	442	S1085 (m/km)	19.413
TPt (mins)	175	Base Flow (l/s)	0.2		

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Input Hydrograph Manhole 16, DS/PN 4.002 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.3	126	3.2	246	20.4	366	33.8	486	20.3	606	4.4
12	0.3	132	3.5	252	21.5	372	33.6	492	19.5	612	4.0
18	0.3	138	3.9	258	22.6	378	33.2	498	18.6	618	3.6
24	0.4	144	4.4	264	23.7	384	32.7	504	17.7	624	3.1
30	0.4	150	4.9	270	24.7	390	32.2	510	16.9	630	2.9
36	0.5	156	5.4	276	25.8	396	31.6	516	16.0	636	2.6
42	0.6	162	6.1	282	26.8	402	31.0	522	15.1	642	2.3
48	0.7	168	6.9	288	27.8	408	30.4	528	14.2	648	2.1
54	0.8	174	7.6	294	28.8	414	29.7	534	13.3	654	1.9
60	0.9	180	8.6	300	29.8	420	29.0	540	12.5	660	1.7
66	1.0	186	9.5	306	30.6	426	28.4	546	11.6	666	1.5
72	1.1	192	10.5	312	31.4	432	27.6	552	10.8	672	1.4
78	1.3	198	11.6	318	32.2	438	26.8	558	10.0	678	1.2
84	1.5	204	12.6	324	32.7	444	26.1	564	9.2	684	1.1
90	1.6	210	13.7	330	33.3	450	25.3	570	8.4	690	1.0
96	1.8	216	14.8	336	33.8	456	24.5	576	7.6	696	0.9
102	2.0	222	15.9	342	34.0	462	23.7	582	6.9	702	0.8
108	2.3	228	17.0	348	34.1	468	22.9	588	6.2	708	0.7
114	2.6	234	18.2	354	34.3	474	22.0	594	5.6	714	0.6
120	2.8	240	19.3	360	34.1	480	21.2	600	5.0	720	0.6

Input Hydrograph Manhole 17, DS/PN 4.003 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.750
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	584.260	SPR	47.000
H(85%) (m)	51.450	LAG (hrs)	0.000
H(10%) (m)	44.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	186	Q (l/s)	18.6	PR (%)	39.156
T (mins)	18	TB (mins)	492	S1085 (m/km)	17.002
TPt (mins)	195	Base Flow (l/s)	0.2		

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Input Hydrograph Manhole 17, DS/PN 4.003 (Storm)
360 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.2	126	2.2	246	14.5	366	26.8	486	19.2	606	7.0
12	0.2	132	2.4	252	15.3	372	27.0	492	18.6	612	6.5
18	0.2	138	2.7	258	16.1	378	26.8	498	18.0	618	5.9
24	0.3	144	3.0	264	16.8	384	26.7	504	17.4	624	5.4
30	0.3	150	3.4	270	17.6	390	26.6	510	16.8	630	4.9
36	0.4	156	3.7	276	18.4	396	26.3	516	16.2	636	4.4
42	0.4	162	4.2	282	19.2	402	26.0	522	15.6	642	4.0
48	0.5	168	4.8	288	19.9	408	25.7	528	15.0	648	3.6
54	0.6	174	5.3	294	20.7	414	25.3	534	14.3	654	3.2
60	0.6	180	6.0	300	21.4	420	24.9	540	13.7	660	2.8
66	0.7	186	6.6	306	22.1	426	24.5	546	13.1	666	2.6
72	0.8	192	7.3	312	22.8	432	24.0	552	12.4	672	2.3
78	0.9	198	8.1	318	23.5	438	23.5	558	11.8	678	2.0
84	1.0	204	8.9	324	24.1	444	23.0	564	11.2	684	1.9
90	1.2	210	9.6	330	24.7	450	22.5	570	10.6	690	1.7
96	1.3	216	10.4	336	25.3	456	22.0	576	10.0	696	1.5
102	1.4	222	11.2	342	25.7	462	21.5	582	9.4	702	1.4
108	1.6	228	12.0	348	26.2	468	20.9	588	8.8	708	1.2
114	1.8	234	12.8	354	26.6	474	20.4	594	8.2	714	1.1
120	2.0	240	13.6	360	26.7	480	19.8	600	7.6	720	1.1

Input Hydrograph Manhole 18, DS/PN 5.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.290
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	179.600	SPR	47.000
H(85%) (m)	48.800	LAG (hrs)	0.000
H(10%) (m)	38.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	85	Q (l/s)	19.1	PR (%)	38.303
T (mins)	8	TB (mins)	225	S1085 (m/km)	80.178
TPt (mins)	89	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 18, DS/PN 5.000 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	2.5	164	15.7	244	18.8	324	5.9	404	0.6
8	0.1	88	2.8	168	16.5	248	18.3	328	5.3	408	0.5
12	0.1	92	3.1	172	17.3	252	17.7	332	4.7	412	0.4
16	0.2	96	3.4	176	18.1	256	17.1	336	4.2	416	0.4
20	0.2	100	3.8	180	18.9	260	16.5	340	3.7	420	0.3
24	0.3	104	4.2	184	19.6	264	15.9	344	3.3	424	0.3
28	0.4	108	4.6	188	20.2	268	15.3	348	2.9	428	0.2
32	0.4	112	5.2	192	20.7	272	14.6	352	2.6	432	0.2
36	0.5	116	5.7	196	21.2	276	14.0	356	2.3	436	0.2
40	0.6	120	6.4	200	21.5	280	13.3	360	2.1	440	0.1
44	0.7	124	7.1	204	21.7	284	12.7	364	1.9	444	0.1
48	0.8	128	7.9	208	21.8	288	12.0	368	1.7	448	0.1
52	1.0	132	8.7	212	21.8	292	11.3	372	1.5	452	0.1
56	1.1	136	9.5	216	21.6	296	10.6	376	1.4	456	0.1
60	1.2	140	10.4	220	21.4	300	9.9	380	1.2	460	0.1
64	1.4	144	11.3	224	21.1	304	9.2	384	1.1	464	0.1
68	1.6	148	12.2	228	20.7	308	8.5	388	1.0	468	0.1
72	1.8	152	13.1	232	20.3	312	7.8	392	0.9	472	0.1
76	2.0	156	13.9	236	19.8	316	7.2	396	0.8	476	0.1
80	2.2	160	14.8	240	19.4	320	6.5	400	0.7	480	0.1

Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 30 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.370
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	196.180	SPR	47.000
H(85%) (m)	34.650	LAG (hrs)	0.000
H(10%) (m)	27.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	102	Q (l/s)	27.3	PR (%)	41.600
T (mins)	24	TB (mins)	288	S1085 (m/km)	48.595
TPt (mins)	114	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 30 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
24	0.1	504	5.5	984	13.3	1464	2.6	1944	0.1	2424	0.1
48	0.2	528	6.2	1008	12.2	1488	2.2	1968	0.1	2448	0.1
72	0.4	552	7.0	1032	11.1	1512	1.8	1992	0.1	2472	0.1
96	0.6	576	7.8	1056	10.0	1536	1.3	2016	0.1	2496	0.1
120	0.9	600	8.8	1080	9.0	1560	1.0	2040	0.1	2520	0.1
144	1.3	624	9.8	1104	8.0	1584	0.7	2064	0.1	2544	0.1
168	1.8	648	10.9	1128	7.1	1608	0.4	2088	0.1	2568	0.1
192	2.2	672	12.0	1152	6.3	1632	0.3	2112	0.1	2592	0.1
216	2.5	696	13.1	1176	5.6	1656	0.2	2136	0.1	2616	0.1
240	2.8	720	14.2	1200	5.0	1680	0.1	2160	0.1	2640	0.1
264	3.0	744	15.1	1224	4.5	1704	0.1	2184	0.1	2664	0.1
288	3.2	768	16.0	1248	4.2	1728	0.1	2208	0.1	2688	0.1
312	3.3	792	16.6	1272	3.9	1752	0.1	2232	0.1	2712	0.1
336	3.4	816	17.0	1296	3.7	1776	0.1	2256	0.1	2736	0.1
360	3.5	840	17.2	1320	3.5	1800	0.1	2280	0.1	2760	0.1
384	3.6	864	17.1	1344	3.4	1824	0.1	2304	0.1	2784	0.1
408	3.8	888	16.7	1368	3.3	1848	0.1	2328	0.1	2808	0.1
432	4.1	912	16.1	1392	3.2	1872	0.1	2352	0.1	2832	0.1
456	4.5	936	15.3	1416	3.1	1896	0.1	2376	0.1	2856	0.1
480	4.9	960	14.3	1440	2.9	1920	0.1	2400	0.1	2880	0.1

Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 30 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.180
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	113.980	SPR	47.000
H(85%) (m)	31.100	LAG (hrs)	0.000
H(10%) (m)	26.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	84	Q (l/s)	29.8	PR (%)	41.600
T (mins)	24	TB (mins)	243	S1085 (m/km)	59.660
TPt (mins)	96	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 30 year Winter I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
24	0.1	504	5.5	984	11.4	1464	2.2	1944	0.1	2424	0.1
48	0.2	528	6.3	1008	10.4	1488	1.7	1968	0.1	2448	0.1
72	0.4	552	7.1	1032	9.4	1512	1.3	1992	0.1	2472	0.1
96	0.7	576	8.0	1056	8.4	1536	0.9	2016	0.1	2496	0.1
120	1.1	600	8.9	1080	7.5	1560	0.6	2040	0.1	2520	0.1
144	1.6	624	9.9	1104	6.6	1584	0.3	2064	0.1	2544	0.1
168	2.0	648	11.0	1128	5.9	1608	0.2	2088	0.1	2568	0.1
192	2.4	672	12.0	1152	5.2	1632	0.1	2112	0.1	2592	0.1
216	2.7	696	13.0	1176	4.6	1656	0.1	2136	0.1	2616	0.1
240	2.9	720	14.0	1200	4.2	1680	0.1	2160	0.1	2640	0.1
264	3.0	744	14.8	1224	3.8	1704	0.1	2184	0.1	2664	0.1
288	3.1	768	15.5	1248	3.5	1728	0.1	2208	0.1	2688	0.1
312	3.1	792	16.0	1272	3.4	1752	0.1	2232	0.1	2712	0.1
336	3.2	816	16.1	1296	3.2	1776	0.1	2256	0.1	2736	0.1
360	3.3	840	16.0	1320	3.2	1800	0.1	2280	0.1	2760	0.1
384	3.4	864	15.7	1344	3.1	1824	0.1	2304	0.1	2784	0.1
408	3.7	888	15.1	1368	3.0	1848	0.1	2328	0.1	2808	0.1
432	4.0	912	14.3	1392	2.9	1872	0.1	2352	0.1	2832	0.1
456	4.4	936	13.4	1416	2.8	1896	0.1	2376	0.1	2856	0.1
480	4.9	960	12.5	1440	2.5	1920	0.1	2400	0.1	2880	0.1

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

Simulation Criteria

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

Number of Input Hydrographs	23	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.391
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	19.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	240 Summer	100	+40%					52.052
1.001	2	240 Summer	100	+40%					45.133
1.002	3	240 Summer	100	+40%					43.177
1.003	4	240 Summer	100	+40%					41.983
1.004	5	240 Summer	100	+40%					41.555
2.000	2	240 Summer	100	+40%					44.088
2.001	2	240 Summer	100	+40%					43.824
2.002	3	240 Summer	100	+40%					43.484
3.000	9	15 Summer	100	+40%					42.160
2.003	4	240 Summer	100	+40%					39.664
1.005	6	240 Summer	100	+40%					36.713
1.006	12	240 Summer	100	+40%	100/60 Summer				35.682
1.007	13	240 Summer	100	+40%					35.213
4.000	14	360 Summer	100	+40%					52.077
4.001	15	240 Summer	100	+40%					48.839
4.002	16	360 Summer	100	+40%					44.185
4.003	17	360 Summer	100	+40%					41.678
5.000	18	240 Summer	100	+40%					35.592
4.004	18	360 Summer	100	+40%					33.445
4.005	19	360 Summer	100	+40%					31.651
1.008	14	1440 Summer	100	+40%	1/60 Summer				27.455

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

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	-0.448	0.000	0.01			26.3	OK	
1.001	2	-0.367	0.000	0.07			85.5	OK	
1.002	3	-0.323	0.000	0.12			119.5	OK	
1.003	4	-0.267	0.000	0.20			125.6	FLOOD RISK*	
1.004	5	-0.345	0.000	0.09			153.0	OK	
2.000	2	-0.356	0.000	0.10			34.1	OK	
2.001	2	-0.387	0.000	0.07			46.6	OK	
2.002	3	-0.397	0.000	0.06			77.2	OK	
3.000	9	0.000	0.000	2.22			21.2	SURCHARGED*	
2.003	4	-0.336	0.000	0.10			149.6	OK	
1.005	6	-0.287	0.000	0.17			302.8	FLOOD RISK*	
1.006	12	0.195	0.000	1.52			302.8	FLOOD RISK*	
1.007	13	-0.312	0.000	0.13			302.8	OK	
4.000	14	-0.423	0.000	0.03			31.9	OK	
4.001	15	-0.411	0.000	0.04			59.3	OK	
4.002	16	-0.161	0.000	0.41			128.2	OK*	
4.003	17	-0.168	0.000	0.38			181.8	FLOOD RISK*	
5.000	18	-0.408	0.000	0.04			44.9	OK	
4.004	18	-0.105	0.000	0.75			208.3	OK	
4.005	19	-0.349	0.000	0.09			208.4	OK	
1.008	14	2.230	0.000	0.04			2.3	SURCHARGED*	

Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.914
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	232.500	SPR	47.000
H(85%) (m)	53.550	LAG (hrs)	0.000
H(10%) (m)	46.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	113	Q (l/s)	10.1	PR (%)	43.181
T (mins)	12	TB (mins)	300	S1085 (m/km)	40.430
TPt (mins)	119	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	2.3	164	15.3	244	26.0	324	16.1	404	3.8
8	0.1	88	2.5	168	16.1	248	25.9	328	15.5	408	3.4
12	0.1	92	2.8	172	16.9	252	25.6	332	14.8	412	3.0
16	0.2	96	3.2	176	17.8	256	25.3	336	14.2	416	2.6
20	0.2	100	3.6	180	18.6	260	24.9	340	13.5	420	2.4
24	0.3	104	3.9	184	19.4	264	24.5	344	12.8	424	2.1
28	0.3	108	4.5	188	20.2	268	24.1	348	12.2	428	1.9
32	0.4	112	5.1	192	20.9	272	23.6	352	11.5	432	1.7
36	0.5	116	5.6	196	21.7	276	23.1	356	10.8	436	1.5
40	0.6	120	6.4	200	22.4	280	22.6	360	10.2	440	1.4
44	0.7	124	7.1	204	23.1	284	22.1	364	9.5	444	1.2
48	0.8	128	7.8	208	23.7	288	21.6	368	8.9	448	1.1
52	0.9	132	8.6	212	24.4	292	21.0	372	8.2	452	1.0
56	1.0	136	9.4	216	24.8	296	20.4	376	7.6	456	0.9
60	1.2	140	10.2	220	25.3	300	19.8	380	7.0	460	0.8
64	1.3	144	11.1	224	25.8	304	19.2	384	6.4	464	0.7
68	1.4	148	11.9	228	25.9	308	18.6	388	5.9	468	0.6
72	1.6	152	12.7	232	26.1	312	18.0	392	5.3	472	0.5
76	1.8	156	13.6	236	26.3	316	17.4	396	4.8	476	0.5
80	2.0	160	14.4	240	26.2	320	16.8	400	4.3	480	0.5

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.214
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	292.190	SPR	47.000
H(85%) (m)	51.300	LAG (hrs)	0.000
H(10%) (m)	43.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	124	Q (l/s)	22.4	PR (%)	43.181
T (mins)	12	TB (mins)	329	S1085 (m/km)	35.593
TPt (mins)	130	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	84	4.6	164	31.8	244	59.3	324	42.5	404	15.5
8	0.2	88	5.2	168	33.5	248	59.6	328	41.2	408	14.3
12	0.3	92	5.7	172	35.3	252	59.3	332	39.9	412	13.1
16	0.4	96	6.5	176	37.1	256	59.0	336	38.6	416	11.9
20	0.5	100	7.2	180	38.8	260	58.8	340	37.3	420	10.9
24	0.6	104	8.0	184	40.5	264	58.1	344	35.9	424	9.8
28	0.7	108	9.1	188	42.3	268	57.4	348	34.5	428	8.7
32	0.8	112	10.3	192	43.9	272	56.8	352	33.1	432	7.9
36	1.0	116	11.4	196	45.6	276	55.9	356	31.7	436	7.0
40	1.2	120	13.0	200	47.3	280	55.0	360	30.3	440	6.2
44	1.4	124	14.5	204	48.8	284	54.1	364	28.9	444	5.6
48	1.6	128	16.0	208	50.3	288	53.1	368	27.5	448	5.0
52	1.8	132	17.7	212	51.9	292	52.0	372	26.1	452	4.4
56	2.1	136	19.4	216	53.2	296	51.0	376	24.8	456	4.0
60	2.3	140	21.1	220	54.5	300	49.8	380	23.4	460	3.6
64	2.6	144	22.9	224	55.9	304	48.7	384	22.1	464	3.1
68	2.9	148	24.6	228	56.8	308	47.6	388	20.7	468	2.9
72	3.3	152	26.4	232	57.8	312	46.3	392	19.4	472	2.6
76	3.7	156	28.2	236	58.7	316	45.1	396	18.1	476	2.3
80	4.1	160	30.0	240	59.0	320	43.9	400	16.8	480	2.3

Input Hydrograph Manhole 3, DS/PN 1.002 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.230
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	117.800	SPR	47.000
H(85%) (m)	45.450	LAG (hrs)	0.000
H(10%) (m)	43.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	118	Q (l/s)	13.1	PR (%)	43.181
T (mins)	12	TB (mins)	313	S1085 (m/km)	22.071
TPt (mins)	124	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 3, DS/PN 1.002 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	2.8	164	19.2	244	34.1	324	22.7	404	6.7
8	0.1	88	3.2	168	20.2	248	34.1	328	21.9	408	6.0
12	0.2	92	3.5	172	21.3	252	33.8	332	21.1	412	5.4
16	0.2	96	3.9	176	22.3	256	33.5	336	20.2	416	4.8
20	0.3	100	4.4	180	23.4	260	33.2	340	19.4	420	4.3
24	0.4	104	4.9	184	24.4	264	32.7	344	18.6	424	3.8
28	0.4	108	5.6	188	25.4	268	32.2	348	17.7	428	3.4
32	0.5	112	6.3	192	26.4	272	31.7	352	16.9	432	3.0
36	0.6	116	7.0	196	27.4	276	31.2	356	16.1	436	2.7
40	0.7	120	7.9	200	28.3	280	30.6	360	15.2	440	2.4
44	0.8	124	8.8	204	29.2	284	30.0	364	14.4	444	2.2
48	1.0	128	9.7	208	30.1	288	29.3	368	13.6	448	1.9
52	1.1	132	10.8	212	30.9	292	28.6	372	12.7	452	1.7
56	1.2	136	11.8	216	31.6	296	28.0	376	11.9	456	1.6
60	1.4	140	12.8	220	32.3	300	27.2	380	11.1	460	1.4
64	1.6	144	13.9	224	33.0	304	26.5	384	10.4	464	1.2
68	1.8	148	14.9	228	33.4	308	25.8	388	9.6	468	1.1
72	2.0	152	16.0	232	33.8	312	25.0	392	8.8	472	1.0
76	2.3	156	17.0	236	34.1	316	24.2	396	8.1	476	0.9
80	2.5	160	18.1	240	34.1	320	23.5	400	7.4	480	0.9

Input Hydrograph Manhole 4, DS/PN 1.003 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.218
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	38.360	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	42.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	76	Q (l/s)	3.6	PR (%)	43.181
T (mins)	8	TB (mins)	202	S1085 (m/km)	38.234
TPt (mins)	80	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 1.003 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	1.0	164	6.3	244	6.3	324	1.3	404	0.1
8	0.0	88	1.1	168	6.7	248	6.1	328	1.2	408	0.1
12	0.0	92	1.3	172	7.0	252	5.8	332	1.0	412	0.1
16	0.1	96	1.4	176	7.3	256	5.6	336	0.9	416	0.0
20	0.1	100	1.5	180	7.5	260	5.3	340	0.8	420	0.0
24	0.1	104	1.7	184	7.7	264	5.0	344	0.7	424	0.0
28	0.1	108	1.9	188	7.9	268	4.8	348	0.7	428	0.0
32	0.2	112	2.1	192	8.0	272	4.5	352	0.6	432	0.0
36	0.2	116	2.3	196	8.1	276	4.2	356	0.5	436	0.0
40	0.2	120	2.6	200	8.1	280	3.9	360	0.5	440	0.0
44	0.3	124	2.9	204	8.1	284	3.7	364	0.4	444	0.0
48	0.3	128	3.2	208	8.0	288	3.4	368	0.4	448	0.0
52	0.4	132	3.5	212	7.9	292	3.1	372	0.3	452	0.0
56	0.5	136	3.9	216	7.7	296	2.8	376	0.3	456	0.0
60	0.5	140	4.2	220	7.6	300	2.6	380	0.2	460	0.0
64	0.6	144	4.6	224	7.4	304	2.3	384	0.2	464	0.0
68	0.7	148	5.0	228	7.2	308	2.1	388	0.2	468	0.0
72	0.8	152	5.3	232	7.0	312	1.9	392	0.2	472	0.0
76	0.8	156	5.7	236	6.8	316	1.7	396	0.1	476	0.0
80	0.9	160	6.0	240	6.5	320	1.5	400	0.1	480	0.0

Input Hydrograph Manhole 5, DS/PN 1.004 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.926
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	145.680	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	39.100	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	102	Q (l/s)	11.3	PR (%)	43.181
T (mins)	12	TB (mins)	272	S1085 (m/km)	40.271
TPt (mins)	108	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 5, DS/PN 1.004 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	2.8	164	18.3	244	27.3	324	14.0	404	2.1
8	0.1	88	3.1	168	19.2	248	27.0	328	13.2	408	1.9
12	0.2	92	3.5	172	20.2	252	26.4	332	12.4	412	1.7
16	0.2	96	3.9	176	21.1	256	25.9	336	11.6	416	1.5
20	0.3	100	4.4	180	22.1	260	25.4	340	10.9	420	1.3
24	0.3	104	4.9	184	23.0	264	24.7	344	10.1	424	1.2
28	0.4	108	5.5	188	23.9	268	24.1	348	9.3	428	1.1
32	0.5	112	6.2	192	24.7	272	23.5	352	8.6	432	0.9
36	0.6	116	6.9	196	25.4	276	22.8	356	7.8	436	0.8
40	0.7	120	7.7	200	26.2	280	22.1	360	7.1	440	0.7
44	0.8	124	8.6	204	26.8	284	21.5	364	6.5	444	0.6
48	1.0	128	9.4	208	27.4	288	20.8	368	5.8	448	0.6
52	1.1	132	10.4	212	27.9	292	20.0	372	5.2	452	0.5
56	1.2	136	11.3	216	28.2	296	19.3	376	4.7	456	0.4
60	1.4	140	12.3	220	28.4	300	18.6	380	4.1	460	0.3
64	1.6	144	13.3	224	28.6	304	17.8	384	3.7	464	0.3
68	1.8	148	14.3	228	28.4	308	17.1	388	3.3	468	0.2
72	2.0	152	15.3	232	28.3	312	16.3	392	2.9	472	0.2
76	2.3	156	16.3	236	28.1	316	15.6	396	2.6	476	0.2
80	2.5	160	17.3	240	27.7	320	14.8	400	2.3	480	0.2

Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.198
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	51.700	SPR	47.000
H(85%) (m)	45.030	LAG (hrs)	0.000
H(10%) (m)	44.940	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	206	Q (l/s)	1.2	PR (%)	43.181
T (mins)	20	TB (mins)	543	S1085 (m/km)	2.321
TPt (mins)	216	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.2	164	1.2	244	2.6	324	3.5	404	3.0
8	0.0	88	0.2	168	1.3	248	2.7	328	3.5	408	2.9
12	0.0	92	0.2	172	1.4	252	2.8	332	3.5	412	2.9
16	0.0	96	0.3	176	1.4	256	2.8	336	3.5	416	2.8
20	0.0	100	0.3	180	1.5	260	2.9	340	3.5	420	2.8
24	0.0	104	0.4	184	1.6	264	2.9	344	3.5	424	2.7
28	0.0	108	0.4	188	1.6	268	3.0	348	3.5	428	2.7
32	0.0	112	0.4	192	1.7	272	3.1	352	3.4	432	2.6
36	0.1	116	0.5	196	1.8	276	3.1	356	3.4	436	2.6
40	0.1	120	0.5	200	1.9	280	3.2	360	3.4	440	2.6
44	0.1	124	0.6	204	1.9	284	3.2	364	3.4	444	2.5
48	0.1	128	0.6	208	2.0	288	3.3	368	3.3	448	2.5
52	0.1	132	0.7	212	2.1	292	3.3	372	3.3	452	2.4
56	0.1	136	0.8	216	2.1	296	3.4	376	3.2	456	2.4
60	0.1	140	0.8	220	2.2	300	3.4	380	3.2	460	2.3
64	0.1	144	0.9	224	2.3	304	3.4	384	3.2	464	2.3
68	0.1	148	1.0	228	2.4	308	3.5	388	3.1	468	2.2
72	0.1	152	1.0	232	2.4	312	3.5	392	3.1	472	2.2
76	0.2	156	1.1	236	2.5	316	3.5	396	3.1	476	2.2
80	0.2	160	1.2	240	2.6	320	3.5	400	3.0	480	2.2

Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.084
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	131.500	SPR	47.000
H(85%) (m)	50.430	LAG (hrs)	0.000
H(10%) (m)	47.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	110	Q (l/s)	12.3	PR (%)	43.181
T (mins)	12	TB (mins)	292	S1085 (m/km)	29.708
TPt (mins)	116	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 2, DS/PN 2.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	2.9	164	19.0	244	31.2	324	18.5	404	3.8
8	0.1	88	3.2	168	20.0	248	31.0	328	17.6	408	3.4
12	0.2	92	3.5	172	21.0	252	30.6	332	16.8	412	3.0
16	0.2	96	4.0	176	22.0	256	30.1	336	16.0	416	2.7
20	0.3	100	4.5	180	23.0	260	29.7	340	15.2	420	2.4
24	0.4	104	4.9	184	24.0	264	29.1	344	14.4	424	2.2
28	0.4	108	5.6	188	25.0	268	28.5	348	13.5	428	1.9
32	0.5	112	6.3	192	25.9	272	28.0	352	12.7	432	1.7
36	0.6	116	7.0	196	26.8	276	27.3	356	11.9	436	1.5
40	0.7	120	7.9	200	27.7	280	26.6	360	11.1	440	1.4
44	0.8	124	8.8	204	28.4	284	26.0	364	10.3	444	1.2
48	1.0	128	9.7	208	29.2	288	25.3	368	9.5	448	1.1
52	1.1	132	10.7	212	29.9	292	24.6	372	8.8	452	1.0
56	1.3	136	11.7	216	30.4	296	23.9	376	8.0	456	0.9
60	1.4	140	12.7	220	30.9	300	23.1	380	7.3	460	0.8
64	1.6	144	13.8	224	31.4	304	22.4	384	6.6	464	0.7
68	1.8	148	14.8	228	31.5	308	21.6	388	6.0	468	0.6
72	2.0	152	15.8	232	31.6	312	20.8	392	5.3	472	0.5
76	2.3	156	16.9	236	31.7	316	20.0	396	4.8	476	0.4
80	2.5	160	17.9	240	31.5	320	19.3	400	4.3	480	0.4

Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.108
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	78.800	SPR	47.000
H(85%) (m)	45.400	LAG (hrs)	0.000
H(10%) (m)	44.510	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	122	Q (l/s)	1.1	PR (%)	43.181
T (mins)	12	TB (mins)	323	S1085 (m/km)	15.059
TPt (mins)	128	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.2	164	1.6	244	2.9	324	2.0	404	0.7
8	0.0	88	0.3	168	1.7	248	2.9	328	2.0	408	0.6
12	0.0	92	0.3	172	1.8	252	2.9	332	1.9	412	0.6
16	0.0	96	0.3	176	1.9	256	2.9	336	1.8	416	0.5
20	0.0	100	0.4	180	1.9	260	2.9	340	1.8	420	0.5
24	0.0	104	0.4	184	2.0	264	2.8	344	1.7	424	0.4
28	0.0	108	0.5	188	2.1	268	2.8	348	1.6	428	0.4
32	0.0	112	0.5	192	2.2	272	2.8	352	1.6	432	0.3
36	0.1	116	0.6	196	2.3	276	2.7	356	1.5	436	0.3
40	0.1	120	0.7	200	2.4	280	2.7	360	1.4	440	0.3
44	0.1	124	0.7	204	2.4	284	2.6	364	1.4	444	0.2
48	0.1	128	0.8	208	2.5	288	2.6	368	1.3	448	0.2
52	0.1	132	0.9	212	2.6	292	2.5	372	1.2	452	0.2
56	0.1	136	1.0	216	2.7	296	2.5	376	1.2	456	0.2
60	0.1	140	1.1	220	2.7	300	2.4	380	1.1	460	0.2
64	0.1	144	1.1	224	2.8	304	2.4	384	1.0	464	0.1
68	0.1	148	1.2	228	2.8	308	2.3	388	1.0	468	0.1
72	0.2	152	1.3	232	2.9	312	2.2	392	0.9	472	0.1
76	0.2	156	1.4	236	2.9	316	2.2	396	0.8	476	0.1
80	0.2	160	1.5	240	2.9	320	2.1	400	0.8	480	0.1

Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.306
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	83.700	SPR	47.000
H(85%) (m)	49.800	LAG (hrs)	0.000
H(10%) (m)	46.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	78	Q (l/s)	4.9	PR (%)	43.181
T (mins)	8	TB (mins)	207	S1085 (m/km)	60.534
TPt (mins)	82	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 2, DS/PN 2.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	1.4	164	8.6	244	9.0	324	2.0	404	0.1
8	0.0	88	1.5	168	9.0	248	8.6	328	1.8	408	0.1
12	0.1	92	1.7	172	9.4	252	8.3	332	1.6	412	0.1
16	0.1	96	1.9	176	9.8	256	8.0	336	1.4	416	0.1
20	0.1	100	2.1	180	10.2	260	7.6	340	1.3	420	0.1
24	0.1	104	2.3	184	10.5	264	7.3	344	1.1	424	0.0
28	0.2	108	2.5	188	10.8	268	6.9	348	1.0	428	0.0
32	0.2	112	2.8	192	11.0	272	6.5	352	0.9	432	0.0
36	0.3	116	3.1	196	11.1	276	6.2	356	0.8	436	0.0
40	0.3	120	3.5	200	11.2	280	5.8	360	0.7	440	0.0
44	0.4	124	3.9	204	11.2	284	5.4	364	0.7	444	0.0
48	0.5	128	4.3	208	11.1	288	5.0	368	0.6	448	0.0
52	0.5	132	4.8	212	11.0	292	4.7	372	0.5	452	0.0
56	0.6	136	5.2	216	10.8	296	4.3	376	0.5	456	0.0
60	0.7	140	5.7	220	10.6	300	3.9	380	0.4	460	0.0
64	0.8	144	6.2	224	10.4	304	3.6	384	0.3	464	0.0
68	0.9	148	6.7	228	10.1	308	3.2	388	0.3	468	0.0
72	1.0	152	7.2	232	9.9	312	2.9	392	0.3	472	0.0
76	1.1	156	7.6	236	9.6	316	2.6	396	0.2	476	0.0
80	1.3	160	8.1	240	9.3	320	2.3	400	0.2	480	0.0

Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.538
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	97.700	SPR	47.000
H(85%) (m)	45.500	LAG (hrs)	0.000
H(10%) (m)	42.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	92	Q (l/s)	7.4	PR (%)	43.181
T (mins)	8	TB (mins)	243	S1085 (m/km)	40.942
TPt (mins)	96	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.8	164	12.0	244	16.3	324	6.6	404	0.7
8	0.1	88	2.0	168	12.6	248	16.0	328	6.1	408	0.7
12	0.1	92	2.3	172	13.3	252	15.6	332	5.6	412	0.6
16	0.1	96	2.5	176	13.9	256	15.2	336	5.1	416	0.5
20	0.2	100	2.8	180	14.5	260	14.7	340	4.6	420	0.4
24	0.2	104	3.1	184	15.1	264	14.3	344	4.1	424	0.4
28	0.2	108	3.5	188	15.7	268	13.8	348	3.7	428	0.3
32	0.3	112	3.9	192	16.2	272	13.4	352	3.3	432	0.3
36	0.4	116	4.3	196	16.7	276	12.9	356	2.9	436	0.2
40	0.4	120	4.8	200	17.1	280	12.4	360	2.6	440	0.2
44	0.5	124	5.4	204	17.4	284	11.9	364	2.3	444	0.2
48	0.6	128	6.0	208	17.6	288	11.4	368	2.0	448	0.1
52	0.7	132	6.6	212	17.8	292	10.9	372	1.8	452	0.1
56	0.8	136	7.2	216	17.8	296	10.4	376	1.6	456	0.1
60	0.9	140	7.9	220	17.8	300	9.8	380	1.5	460	0.1
64	1.0	144	8.6	224	17.7	304	9.3	384	1.3	464	0.0
68	1.2	148	9.3	228	17.5	308	8.8	388	1.2	468	0.0
72	1.3	152	9.9	232	17.3	312	8.2	392	1.0	472	0.0
76	1.5	156	10.6	236	17.0	316	7.7	396	0.9	476	0.0
80	1.6	160	11.3	240	16.7	320	7.2	400	0.8	480	0.0

Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.455
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	35.030	SPR	47.000
H(85%) (m)	48.500	LAG (hrs)	0.000
H(10%) (m)	44.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	47	Q (l/s)	12.3	PR (%)	43.181
T (mins)	4	TB (mins)	123	S1085 (m/km)	156.057
TPt (mins)	49	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 3, DS/PN 2.002 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	3.9	164	22.0	244	6.6	324	0.6	404	0.0
8	0.1	88	4.2	168	22.3	248	6.0	328	0.5	408	0.0
12	0.1	92	4.5	172	22.4	252	5.4	332	0.4	412	0.0
16	0.2	96	4.9	176	22.2	256	5.0	336	0.3	416	0.0
20	0.3	100	5.3	180	21.8	260	4.6	340	0.2	420	0.0
24	0.4	104	5.8	184	21.2	264	4.2	344	0.1	424	0.0
28	0.6	108	6.4	188	20.4	268	3.9	348	0.1	428	0.0
32	0.7	112	7.0	192	19.6	272	3.6	352	0.1	432	0.0
36	0.9	116	7.9	196	18.6	276	3.3	356	0.0	436	0.0
40	1.1	120	8.8	200	17.6	280	3.0	360	0.0	440	0.0
44	1.3	124	10.0	204	16.5	284	2.7	364	0.0	444	0.0
48	1.6	128	11.2	208	15.4	288	2.4	368	0.0	448	0.0
52	1.8	132	12.5	212	14.2	292	2.1	372	0.0	452	0.0
56	2.1	136	13.9	216	13.1	296	1.8	376	0.0	456	0.0
60	2.3	140	15.4	220	12.0	300	1.6	380	0.0	460	0.0
64	2.6	144	16.8	224	10.9	304	1.4	384	0.0	464	0.0
68	2.8	148	18.1	228	9.9	308	1.2	388	0.0	468	0.0
72	3.1	152	19.3	232	8.9	312	1.0	392	0.0	472	0.0
76	3.3	156	20.4	236	8.0	316	0.9	396	0.0	476	0.0
80	3.6	160	21.3	240	7.3	320	0.7	400	0.0	480	0.0

Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.524
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	46.720	SPR	47.000
H(85%) (m)	43.500	LAG (hrs)	0.000
H(10%) (m)	42.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	83	Q (l/s)	8.0	PR (%)	37.500
T (mins)	8	TB (mins)	218	S1085 (m/km)	34.247
TPt (mins)	87	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
1	0.6	49	5.6	97	8.9	145	5.4	193	1.9	241	0.0
2	0.6	50	5.7	98	8.9	146	5.3	194	1.8	242	0.0
3	0.6	51	5.8	99	8.8	147	5.3	195	1.7	243	0.0
4	0.6	52	5.9	100	8.7	148	5.2	196	1.6	244	0.0
5	0.6	53	6.0	101	8.6	149	5.1	197	1.6	245	0.0
6	0.7	54	6.1	102	8.6	150	5.0	198	1.5	246	0.0
7	0.9	55	6.2	103	8.5	151	5.0	199	1.4	247	0.0
8	1.0	56	6.3	104	8.4	152	4.9	200	1.3	248	0.0
9	1.1	57	6.5	105	8.3	153	4.8	201	1.3	249	0.0
10	1.2	58	6.6	106	8.3	154	4.7	202	1.2	250	0.0
11	1.3	59	6.7	107	8.2	155	4.7	203	1.1	251	0.0
12	1.4	60	6.8	108	8.1	156	4.6	204	1.1	252	0.0
13	1.5	61	6.9	109	8.0	157	4.5	205	1.0	253	0.0
14	1.6	62	7.0	110	8.0	158	4.4	206	0.9	254	0.0
15	1.8	63	7.1	111	7.9	159	4.4	207	0.8	255	0.0
16	1.9	64	7.2	112	7.8	160	4.3	208	0.8	256	0.0
17	2.0	65	7.3	113	7.8	161	4.2	209	0.7	257	0.0
18	2.1	66	7.5	114	7.7	162	4.1	210	0.6	258	0.0
19	2.2	67	7.6	115	7.6	163	4.1	211	0.5	259	0.0
20	2.3	68	7.7	116	7.5	164	4.0	212	0.5	260	0.0
21	2.4	69	7.8	117	7.5	165	3.9	213	0.4	261	0.0
22	2.5	70	7.9	118	7.4	166	3.9	214	0.4	262	0.0
23	2.7	71	8.0	119	7.3	167	3.8	215	0.3	263	0.0
24	2.8	72	8.1	120	7.2	168	3.7	216	0.3	264	0.0
25	2.9	73	8.2	121	7.2	169	3.6	217	0.2	265	0.0
26	3.0	74	8.4	122	7.1	170	3.6	218	0.2	266	0.0
27	3.1	75	8.5	123	7.0	171	3.5	219	0.2	267	0.0
28	3.2	76	8.6	124	6.9	172	3.4	220	0.1	268	0.0
29	3.3	77	8.7	125	6.9	173	3.3	221	0.1	269	0.0
30	3.4	78	8.8	126	6.8	174	3.3	222	0.1	270	0.0
31	3.5	79	8.9	127	6.7	175	3.2	223	0.1	271	0.0
32	3.7	80	9.0	128	6.6	176	3.1	224	0.1	272	0.0
33	3.8	81	9.1	129	6.6	177	3.0	225	0.1	273	0.0
34	3.9	82	9.1	130	6.5	178	3.0	226	0.0	274	0.0
35	4.0	83	9.2	131	6.4	179	2.9	227	0.0	275	0.0
36	4.1	84	9.3	132	6.4	180	2.8	228	0.0	276	0.0
37	4.2	85	9.4	133	6.3	181	2.7	229	0.0	277	0.0
38	4.3	86	9.4	134	6.2	182	2.7	230	0.0	278	0.0
39	4.4	87	9.3	135	6.1	183	2.6	231	0.0	279	0.0
40	4.6	88	9.3	136	6.1	184	2.5	232	0.0	280	0.0
41	4.7	89	9.3	137	6.0	185	2.5	233	0.0	281	0.0
42	4.8	90	9.3	138	5.9	186	2.4	234	0.0	282	0.0
43	4.9	91	9.3	139	5.8	187	2.3	235	0.0	283	0.0
44	5.0	92	9.3	140	5.8	188	2.2	236	0.0	284	0.0
45	5.1	93	9.2	141	5.7	189	2.2	237	0.0	285	0.0
46	5.2	94	9.2	142	5.6	190	2.1	238	0.0	286	0.0
47	5.3	95	9.1	143	5.5	191	2.0	239	0.0	287	0.0
48	5.4	96	9.0	144	5.5	192	1.9	240	0.0	288	0.0

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
289	0.0	310	0.0	331	0.0	352	0.0	373	0.0	394	0.0
290	0.0	311	0.0	332	0.0	353	0.0	374	0.0	395	0.0
291	0.0	312	0.0	333	0.0	354	0.0	375	0.0	396	0.0
292	0.0	313	0.0	334	0.0	355	0.0	376	0.0	397	0.0
293	0.0	314	0.0	335	0.0	356	0.0	377	0.0	398	0.0
294	0.0	315	0.0	336	0.0	357	0.0	378	0.0	399	0.0
295	0.0	316	0.0	337	0.0	358	0.0	379	0.0	400	0.0
296	0.0	317	0.0	338	0.0	359	0.0	380	0.0	401	0.0
297	0.0	318	0.0	339	0.0	360	0.0	381	0.0	402	0.0
298	0.0	319	0.0	340	0.0	361	0.0	382	0.0	403	0.0
299	0.0	320	0.0	341	0.0	362	0.0	383	0.0	404	0.0
300	0.0	321	0.0	342	0.0	363	0.0	384	0.0	405	0.0
301	0.0	322	0.0	343	0.0	364	0.0	385	0.0	406	0.0
302	0.0	323	0.0	344	0.0	365	0.0	386	0.0	407	0.0
303	0.0	324	0.0	345	0.0	366	0.0	387	0.0	408	0.0
304	0.0	325	0.0	346	0.0	367	0.0	388	0.0	409	0.0
305	0.0	326	0.0	347	0.0	368	0.0	389	0.0	410	0.0
306	0.0	327	0.0	348	0.0	369	0.0	390	0.0	411	0.0
307	0.0	328	0.0	349	0.0	370	0.0	391	0.0	412	0.0
308	0.0	329	0.0	350	0.0	371	0.0	392	0.0		
309	0.0	330	0.0	351	0.0	372	0.0	393	0.0		

Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.761
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	79.370	SPR	47.000
H(85%) (m)	45.500	LAG (hrs)	0.000
H(10%) (m)	42.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	80	Q (l/s)	11.9	PR (%)	37.500
T (mins)	8	TB (mins)	213	S1085 (m/km)	53.757
TPt (mins)	84	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
1	0.9	49	8.5	97	13.0	145	7.6	193	2.2	241	0.0
2	0.9	50	8.7	98	12.9	146	7.5	194	2.1	242	0.0
3	0.9	51	8.8	99	12.8	147	7.4	195	2.0	243	0.0
4	0.9	52	9.0	100	12.7	148	7.3	196	1.9	244	0.0
5	1.0	53	9.2	101	12.6	149	7.2	197	1.8	245	0.0
6	1.1	54	9.4	102	12.5	150	7.1	198	1.7	246	0.0
7	1.3	55	9.5	103	12.4	151	7.0	199	1.6	247	0.0
8	1.5	56	9.7	104	12.2	152	6.8	200	1.4	248	0.0
9	1.7	57	9.9	105	12.1	153	6.7	201	1.3	249	0.0
10	1.8	58	10.0	106	12.0	154	6.6	202	1.2	250	0.0
11	2.0	59	10.2	107	11.9	155	6.5	203	1.1	251	0.0
12	2.2	60	10.4	108	11.8	156	6.4	204	1.0	252	0.0
13	2.3	61	10.5	109	11.7	157	6.3	205	0.9	253	0.0
14	2.5	62	10.7	110	11.6	158	6.2	206	0.8	254	0.0
15	2.7	63	10.9	111	11.5	159	6.1	207	0.7	255	0.0
16	2.9	64	11.1	112	11.3	160	5.9	208	0.6	256	0.0
17	3.0	65	11.2	113	11.2	161	5.8	209	0.5	257	0.0
18	3.2	66	11.4	114	11.1	162	5.7	210	0.5	258	0.0
19	3.4	67	11.6	115	11.0	163	5.6	211	0.4	259	0.0
20	3.5	68	11.7	116	10.9	164	5.5	212	0.3	260	0.0
21	3.7	69	11.9	117	10.8	165	5.4	213	0.2	261	0.0
22	3.9	70	12.1	118	10.7	166	5.3	214	0.2	262	0.0
23	4.1	71	12.3	119	10.6	167	5.2	215	0.2	263	0.0
24	4.2	72	12.4	120	10.4	168	5.0	216	0.2	264	0.0
25	4.4	73	12.6	121	10.3	169	4.9	217	0.1	265	0.0
26	4.6	74	12.8	122	10.2	170	4.8	218	0.1	266	0.0
27	4.7	75	12.9	123	10.1	171	4.7	219	0.1	267	0.0
28	4.9	76	13.1	124	10.0	172	4.6	220	0.1	268	0.0
29	5.1	77	13.2	125	9.9	173	4.5	221	0.0	269	0.0
30	5.2	78	13.3	126	9.8	174	4.4	222	0.0	270	0.0
31	5.4	79	13.4	127	9.7	175	4.3	223	0.0	271	0.0
32	5.6	80	13.5	128	9.5	176	4.1	224	0.0	272	0.0
33	5.8	81	13.6	129	9.4	177	4.0	225	0.0	273	0.0
34	5.9	82	13.7	130	9.3	178	3.9	226	0.0	274	0.0
35	6.1	83	13.8	131	9.2	179	3.8	227	0.0	275	0.0
36	6.3	84	13.9	132	9.1	180	3.7	228	0.0	276	0.0
37	6.4	85	13.9	133	9.0	181	3.6	229	0.0	277	0.0
38	6.6	86	13.9	134	8.9	182	3.5	230	0.0	278	0.0
39	6.8	87	13.8	135	8.8	183	3.4	231	0.0	279	0.0
40	7.0	88	13.8	136	8.6	184	3.2	232	0.0	280	0.0
41	7.1	89	13.7	137	8.5	185	3.1	233	0.0	281	0.0
42	7.3	90	13.7	138	8.4	186	3.0	234	0.0	282	0.0
43	7.5	91	13.6	139	8.3	187	2.9	235	0.0	283	0.0
44	7.6	92	13.6	140	8.2	188	2.8	236	0.0	284	0.0
45	7.8	93	13.5	141	8.1	189	2.7	237	0.0	285	0.0
46	8.0	94	13.4	142	8.0	190	2.6	238	0.0	286	0.0
47	8.2	95	13.3	143	7.9	191	2.5	239	0.0	287	0.0
48	8.3	96	13.1	144	7.7	192	2.3	240	0.0	288	0.0

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Input Hydrograph Manhole 9, DS/PN 3.000 (Storm)
15 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
289	0.0	310	0.0	331	0.0	352	0.0	373	0.0	394	0.0
290	0.0	311	0.0	332	0.0	353	0.0	374	0.0	395	0.0
291	0.0	312	0.0	333	0.0	354	0.0	375	0.0	396	0.0
292	0.0	313	0.0	334	0.0	355	0.0	376	0.0	397	0.0
293	0.0	314	0.0	335	0.0	356	0.0	377	0.0	398	0.0
294	0.0	315	0.0	336	0.0	357	0.0	378	0.0	399	0.0
295	0.0	316	0.0	337	0.0	358	0.0	379	0.0	400	0.0
296	0.0	317	0.0	338	0.0	359	0.0	380	0.0	401	0.0
297	0.0	318	0.0	339	0.0	360	0.0	381	0.0	402	0.0
298	0.0	319	0.0	340	0.0	361	0.0	382	0.0	403	0.0
299	0.0	320	0.0	341	0.0	362	0.0	383	0.0	404	0.0
300	0.0	321	0.0	342	0.0	363	0.0	384	0.0	405	0.0
301	0.0	322	0.0	343	0.0	364	0.0	385	0.0	406	0.0
302	0.0	323	0.0	344	0.0	365	0.0	386	0.0	407	0.0
303	0.0	324	0.0	345	0.0	366	0.0	387	0.0	408	0.0
304	0.0	325	0.0	346	0.0	367	0.0	388	0.0	409	0.0
305	0.0	326	0.0	347	0.0	368	0.0	389	0.0	410	0.0
306	0.0	327	0.0	348	0.0	369	0.0	390	0.0	411	0.0
307	0.0	328	0.0	349	0.0	370	0.0	391	0.0	412	0.0
308	0.0	329	0.0	350	0.0	371	0.0	392	0.0		
309	0.0	330	0.0	351	0.0	372	0.0	393	0.0		

Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.371
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	198.700	SPR	47.000
H(85%) (m)	43.600	LAG (hrs)	0.000
H(10%) (m)	41.800	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	163	Q (l/s)	2.9	PR (%)	43.181
T (mins)	16	TB (mins)	430	S1085 (m/km)	12.079
TPt (mins)	171	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.5	164	3.4	244	7.2	324	7.5	404	4.9
8	0.0	88	0.6	168	3.6	248	7.3	328	7.4	408	4.8
12	0.0	92	0.6	172	3.8	252	7.5	332	7.3	412	4.6
16	0.1	96	0.7	176	4.0	256	7.6	336	7.2	416	4.5
20	0.1	100	0.8	180	4.2	260	7.7	340	7.0	420	4.3
24	0.1	104	0.9	184	4.4	264	7.8	344	6.9	424	4.2
28	0.1	108	1.0	188	4.6	268	7.9	348	6.8	428	4.0
32	0.1	112	1.1	192	4.8	272	8.0	352	6.7	432	3.9
36	0.1	116	1.3	196	5.0	276	8.0	356	6.6	436	3.7
40	0.1	120	1.4	200	5.2	280	8.1	360	6.4	440	3.6
44	0.2	124	1.6	204	5.4	284	8.1	364	6.3	444	3.4
48	0.2	128	1.8	208	5.6	288	8.1	368	6.2	448	3.3
52	0.2	132	1.9	212	5.8	292	8.0	372	6.0	452	3.2
56	0.2	136	2.1	216	6.0	296	8.0	376	5.9	456	3.0
60	0.3	140	2.3	220	6.1	300	8.0	380	5.8	460	2.9
64	0.3	144	2.5	224	6.3	304	7.9	384	5.6	464	2.7
68	0.3	148	2.7	228	6.5	308	7.8	388	5.5	468	2.6
72	0.4	152	2.9	232	6.7	312	7.7	392	5.3	472	2.5
76	0.4	156	3.0	236	6.8	316	7.7	396	5.2	476	2.3
80	0.5	160	3.2	240	7.0	320	7.6	400	5.1	480	2.2

Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.851
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	173.800	SPR	47.000
H(85%) (m)	48.200	LAG (hrs)	0.000
H(10%) (m)	41.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	97	Q (l/s)	11.1	PR (%)	43.181
T (mins)	8	TB (mins)	255	S1085 (m/km)	52.167
TPt (mins)	101	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 4, DS/PN 2.003 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	2.6	164	17.5	244	25.8	324	12.0	404	1.5
8	0.1	88	2.9	168	18.5	248	25.3	328	11.2	408	1.4
12	0.1	92	3.2	172	19.4	252	24.8	332	10.4	412	1.2
16	0.2	96	3.6	176	20.4	256	24.2	336	9.6	416	1.1
20	0.2	100	4.0	180	21.3	260	23.6	340	8.8	420	1.0
24	0.3	104	4.5	184	22.2	264	23.0	344	8.1	424	0.8
28	0.3	108	5.0	188	23.1	268	22.3	348	7.3	428	0.7
32	0.4	112	5.6	192	23.9	272	21.7	352	6.6	432	0.6
36	0.5	116	6.3	196	24.7	276	21.0	356	6.0	436	0.6
40	0.6	120	7.0	200	25.4	280	20.3	360	5.3	440	0.5
44	0.7	124	7.9	204	26.0	284	19.6	364	4.7	444	0.4
48	0.8	128	8.7	208	26.5	288	18.9	368	4.2	448	0.3
52	1.0	132	9.6	212	26.9	292	18.1	372	3.7	452	0.3
56	1.1	136	10.6	216	27.1	296	17.4	376	3.3	456	0.2
60	1.3	140	11.5	220	27.2	300	16.6	380	3.0	460	0.2
64	1.5	144	12.5	224	27.2	304	15.9	384	2.6	464	0.2
68	1.7	148	13.5	228	27.1	308	15.1	388	2.4	468	0.1
72	1.9	152	14.5	232	26.9	312	14.3	392	2.1	472	0.1
76	2.1	156	15.5	236	26.6	316	13.6	396	1.9	476	0.1
80	2.3	160	16.5	240	26.2	320	12.8	400	1.7	480	0.1

Input Hydrograph Manhole 6, DS/PN 1.005 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.137
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	109.000	SPR	47.000
H(85%) (m)	45.750	LAG (hrs)	0.000
H(10%) (m)	36.400	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	67	Q (l/s)	2.5	PR (%)	43.181
T (mins)	8	TB (mins)	180	S1085 (m/km)	114.373
TPt (mins)	71	Base Flow (l/s)	0.0		

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Input Hydrograph Manhole 6, DS/PN 1.005 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.0	84	0.8	164	4.6	244	3.6	324	0.6	404	0.0
8	0.0	88	0.9	168	4.8	248	3.4	328	0.5	408	0.0
12	0.0	92	0.9	172	5.0	252	3.3	332	0.4	412	0.0
16	0.0	96	1.0	176	5.2	256	3.1	336	0.4	416	0.0
20	0.1	100	1.1	180	5.3	260	2.9	340	0.4	420	0.0
24	0.1	104	1.3	184	5.4	264	2.7	344	0.3	424	0.0
28	0.1	108	1.4	188	5.4	268	2.5	348	0.3	428	0.0
32	0.1	112	1.5	192	5.4	272	2.3	352	0.2	432	0.0
36	0.2	116	1.7	196	5.4	276	2.1	356	0.2	436	0.0
40	0.2	120	1.9	200	5.3	280	1.9	360	0.2	440	0.0
44	0.2	124	2.1	204	5.3	284	1.7	364	0.2	444	0.0
48	0.3	128	2.4	208	5.1	288	1.5	368	0.1	448	0.0
52	0.3	132	2.6	212	5.0	292	1.4	372	0.1	452	0.0
56	0.4	136	2.9	216	4.9	296	1.2	376	0.1	456	0.0
60	0.4	140	3.1	220	4.7	300	1.1	380	0.1	460	0.0
64	0.5	144	3.4	224	4.5	304	1.0	384	0.1	464	0.0
68	0.5	148	3.7	228	4.4	308	0.9	388	0.0	468	0.0
72	0.6	152	3.9	232	4.2	312	0.8	392	0.0	472	0.0
76	0.7	156	4.2	236	4.0	316	0.7	396	0.0	476	0.0
80	0.7	160	4.4	240	3.8	320	0.6	400	0.0	480	0.0

Input Hydrograph Manhole 14, DS/PN 4.000 (Storm)
360 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.323
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	256.190	SPR	47.000
H(85%) (m)	53.800	LAG (hrs)	0.000
H(10%) (m)	49.600	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	142	Q (l/s)	11.8	PR (%)	43.911
T (mins)	12	TB (mins)	372	S1085 (m/km)	21.859
TPt (mins)	148	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 4.000 (Storm)
360 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.1	126	3.2	246	21.0	366	29.7	486	12.9	606	1.5
12	0.1	132	3.6	252	22.2	372	29.1	492	11.9	612	1.4
18	0.2	138	4.0	258	23.4	378	28.4	498	11.0	618	1.2
24	0.2	144	4.4	264	24.5	384	27.7	504	10.0	624	1.1
30	0.3	150	4.9	270	25.6	390	27.0	510	9.1	630	0.9
36	0.4	156	5.5	276	26.6	396	26.2	516	8.3	636	0.8
42	0.4	162	6.1	282	27.7	402	25.4	522	7.4	642	0.7
48	0.5	168	6.8	288	28.6	408	24.6	528	6.7	648	0.6
54	0.6	174	7.6	294	29.5	414	23.8	534	5.9	654	0.5
60	0.8	180	8.5	300	30.2	420	22.9	540	5.3	660	0.5
66	0.9	186	9.5	306	30.9	426	22.1	546	4.7	666	0.4
72	1.0	192	10.5	312	31.4	432	21.2	552	4.2	672	0.3
78	1.2	198	11.6	318	31.7	438	20.3	558	3.7	678	0.3
84	1.4	204	12.7	324	31.9	444	19.4	564	3.3	684	0.2
90	1.6	210	13.9	330	31.9	450	18.5	570	3.0	690	0.2
96	1.8	216	15.1	336	31.8	456	17.6	576	2.7	696	0.1
102	2.0	222	16.3	342	31.6	462	16.6	582	2.4	702	0.1
108	2.3	228	17.5	348	31.2	468	15.7	588	2.1	708	0.1
114	2.5	234	18.7	354	30.8	474	14.7	594	1.9	714	0.1
120	2.8	240	19.9	360	30.3	480	13.8	600	1.7	720	0.1

Input Hydrograph Manhole 15, DS/PN 4.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.200
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	282.700	SPR	47.000
H(85%) (m)	50.900	LAG (hrs)	0.000
H(10%) (m)	46.900	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	152	Q (l/s)	9.9	PR (%)	43.181
T (mins)	16	TB (mins)	404	S1085 (m/km)	18.866
TPt (mins)	160	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 15, DS/PN 4.001 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	1.9	164	12.6	244	25.5	324	24.3	404	14.4
8	0.1	88	2.1	168	13.3	248	26.0	328	23.9	408	13.9
12	0.2	92	2.3	172	14.0	252	26.4	332	23.4	412	13.4
16	0.2	96	2.6	176	14.7	256	26.8	336	23.0	416	12.9
20	0.2	100	3.0	180	15.4	260	27.1	340	22.6	420	12.3
24	0.3	104	3.3	184	16.1	264	27.4	344	22.1	424	11.8
28	0.3	108	3.7	188	16.8	268	27.5	348	21.7	428	11.3
32	0.4	112	4.2	192	17.4	272	27.5	352	21.2	432	10.8
36	0.5	116	4.7	196	18.1	276	27.5	356	20.7	436	10.3
40	0.5	120	5.2	200	18.8	280	27.5	360	20.2	440	9.8
44	0.6	124	5.8	204	19.5	284	27.3	364	19.7	444	9.3
48	0.7	128	6.4	208	20.1	288	27.1	368	19.2	448	8.8
52	0.8	132	7.1	212	20.8	292	26.9	372	18.7	452	8.3
56	0.9	136	7.7	216	21.5	296	26.7	376	18.2	456	7.8
60	1.0	140	8.4	220	22.1	300	26.4	380	17.7	460	7.4
64	1.1	144	9.1	224	22.7	304	26.1	384	17.1	464	6.9
68	1.2	148	9.8	228	23.3	308	25.7	388	16.6	468	6.4
72	1.3	152	10.5	232	23.9	312	25.4	392	16.1	472	6.0
76	1.5	156	11.2	236	24.5	316	25.0	396	15.5	476	5.5
80	1.7	160	11.9	240	25.0	320	24.6	400	15.0	480	5.1

Input Hydrograph Manhole 16, DS/PN 4.002 (Storm)
360 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	3.240
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	432.700	SPR	47.000
H(85%) (m)	50.600	LAG (hrs)	0.000
H(10%) (m)	44.300	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	166	Q (l/s)	24.4	PR (%)	43.911
T (mins)	18	TB (mins)	442	S1085 (m/km)	19.413
TPt (mins)	175	Base Flow (l/s)	0.2		

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Input Hydrograph Manhole 16, DS/PN 4.002 (Storm)
360 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.3	126	6.3	246	41.4	366	68.8	486	41.3	606	8.8
12	0.3	132	7.0	252	43.6	372	68.4	492	39.5	612	8.0
18	0.4	138	7.7	258	45.9	378	67.5	498	37.8	618	7.1
24	0.5	144	8.7	264	48.1	384	66.5	504	36.0	624	6.2
30	0.7	150	9.8	270	50.3	390	65.6	510	34.2	630	5.6
36	0.8	156	10.8	276	52.4	396	64.4	516	32.4	636	5.1
42	1.0	162	12.3	282	54.6	402	63.1	522	30.6	642	4.5
48	1.2	168	13.8	288	56.5	408	61.9	528	28.8	648	4.1
54	1.4	174	15.4	294	58.5	414	60.5	534	27.0	654	3.7
60	1.6	180	17.3	300	60.5	420	59.1	540	25.2	660	3.2
66	1.9	186	19.3	306	62.2	426	57.7	546	23.5	666	2.9
72	2.2	192	21.2	312	63.8	432	56.1	552	21.8	672	2.6
78	2.5	198	23.4	318	65.5	438	54.6	558	20.1	678	2.3
84	2.8	204	25.6	324	66.6	444	53.0	564	18.5	684	2.1
90	3.2	210	27.8	330	67.7	450	51.4	570	16.9	690	1.8
96	3.6	216	30.0	336	68.8	456	49.8	576	15.4	696	1.6
102	4.0	222	32.3	342	69.1	462	48.2	582	13.9	702	1.4
108	4.5	228	34.6	348	69.5	468	46.5	588	12.4	708	1.3
114	5.0	234	36.9	354	69.8	474	44.8	594	11.2	714	1.1
120	5.5	240	39.1	360	69.3	480	43.1	600	10.0	720	1.1

Input Hydrograph Manhole 17, DS/PN 4.003 (Storm)
360 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.750
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	584.260	SPR	47.000
H(85%) (m)	51.450	LAG (hrs)	0.000
H(10%) (m)	44.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	186	Q (l/s)	18.6	PR (%)	43.911
T (mins)	18	TB (mins)	492	S1085 (m/km)	17.002
TPt (mins)	195	Base Flow (l/s)	0.2		

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Input Hydrograph Manhole 17, DS/PN 4.003 (Storm)
360 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
6	0.3	126	4.3	246	29.3	366	54.6	486	39.1	606	14.2
12	0.3	132	4.8	252	31.0	372	54.9	492	37.9	612	13.1
18	0.3	138	5.3	258	32.6	378	54.6	498	36.7	618	12.0
24	0.4	144	6.0	264	34.2	384	54.3	504	35.4	624	10.9
30	0.5	150	6.7	270	35.8	390	54.1	510	34.2	630	9.9
36	0.6	156	7.4	276	37.4	396	53.4	516	32.9	636	8.9
42	0.7	162	8.5	282	39.0	402	52.8	522	31.7	642	7.9
48	0.8	168	9.5	288	40.5	408	52.2	528	30.4	648	7.2
54	1.0	174	10.6	294	42.1	414	51.4	534	29.1	654	6.4
60	1.1	180	12.0	300	43.6	420	50.6	540	27.8	660	5.6
66	1.3	186	13.4	306	45.0	426	49.7	546	26.5	666	5.1
72	1.5	192	14.8	312	46.4	432	48.8	552	25.2	672	4.5
78	1.7	198	16.4	318	47.9	438	47.8	558	23.9	678	4.0
84	1.9	204	17.9	324	49.1	444	46.9	564	22.7	684	3.6
90	2.2	210	19.5	330	50.3	450	45.8	570	21.4	690	3.3
96	2.5	216	21.1	336	51.5	456	44.8	576	20.2	696	2.9
102	2.8	222	22.8	342	52.4	462	43.7	582	18.9	702	2.6
108	3.1	228	24.4	348	53.2	468	42.6	588	17.7	708	2.4
114	3.5	234	26.0	354	54.1	474	41.4	594	16.5	714	2.1
120	3.8	240	27.7	360	54.3	480	40.3	600	15.4	720	2.1

Input Hydrograph Manhole 18, DS/PN 5.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.290
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	179.600	SPR	47.000
H(85%) (m)	48.800	LAG (hrs)	0.000
H(10%) (m)	38.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	85	Q (l/s)	19.1	PR (%)	43.181
T (mins)	8	TB (mins)	225	S1085 (m/km)	80.178
TPt (mins)	89	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 18, DS/PN 5.000 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.1	84	5.1	164	32.3	244	38.8	324	12.0	404	1.1
8	0.2	88	5.7	168	34.0	248	37.7	328	10.8	408	1.0
12	0.2	92	6.3	172	35.7	252	36.5	332	9.6	412	0.8
16	0.3	96	7.0	176	37.3	256	35.3	336	8.5	416	0.7
20	0.4	100	7.7	180	38.9	260	34.1	340	7.6	420	0.6
24	0.5	104	8.5	184	40.3	264	32.8	344	6.7	424	0.5
28	0.7	108	9.5	188	41.6	268	31.5	348	6.0	428	0.4
32	0.8	112	10.6	192	42.7	272	30.2	352	5.3	432	0.3
36	1.0	116	11.8	196	43.6	276	28.8	356	4.8	436	0.2
40	1.2	120	13.1	200	44.3	280	27.4	360	4.3	440	0.2
44	1.4	124	14.6	204	44.8	284	26.0	364	3.8	444	0.1
48	1.6	128	16.2	208	44.9	288	24.6	368	3.4	448	0.1
52	1.9	132	17.9	212	44.8	292	23.2	372	3.1	452	0.1
56	2.2	136	19.6	216	44.5	296	21.8	376	2.7	456	0.1
60	2.5	140	21.4	220	44.0	300	20.4	380	2.4	460	0.1
64	2.8	144	23.2	224	43.4	304	19.0	384	2.2	464	0.1
68	3.2	148	25.0	228	42.7	308	17.5	388	1.9	468	0.1
72	3.6	152	26.9	232	41.8	312	16.1	392	1.7	472	0.1
76	4.1	156	28.7	236	40.9	316	14.7	396	1.5	476	0.1
80	4.5	160	30.5	240	39.9	320	13.4	400	1.3	480	0.1

Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.370
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	196.180	SPR	47.000
H(85%) (m)	34.650	LAG (hrs)	0.000
H(10%) (m)	27.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	102	Q (l/s)	27.3	PR (%)	46.575
T (mins)	24	TB (mins)	288	S1085 (m/km)	48.595
TPt (mins)	114	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
24	0.3	504	8.5	984	25.3	1464	5.1	1944	0.1	2424	0.1
48	0.6	528	9.3	1008	21.6	1488	4.6	1968	0.1	2448	0.1
72	1.1	552	10.3	1032	18.4	1512	4.0	1992	0.1	2472	0.1
96	1.8	576	11.5	1056	15.7	1536	3.3	2016	0.1	2496	0.1
120	2.6	600	13.1	1080	13.6	1560	2.5	2040	0.1	2520	0.1
144	3.3	624	15.2	1104	11.9	1584	1.8	2064	0.1	2544	0.1
168	3.9	648	17.8	1128	10.6	1608	1.2	2088	0.1	2568	0.1
192	4.4	672	20.9	1152	9.5	1632	0.8	2112	0.1	2592	0.1
216	4.9	696	24.5	1176	8.7	1656	0.5	2136	0.1	2616	0.1
240	5.2	720	28.8	1200	8.1	1680	0.2	2160	0.1	2640	0.1
264	5.5	744	33.4	1224	7.6	1704	0.1	2184	0.1	2664	0.1
288	5.6	768	37.8	1248	7.2	1728	0.1	2208	0.1	2688	0.1
312	5.8	792	41.4	1272	6.8	1752	0.1	2232	0.1	2712	0.1
336	6.0	816	43.8	1296	6.5	1776	0.1	2256	0.1	2736	0.1
360	6.2	840	44.5	1320	6.3	1800	0.1	2280	0.1	2760	0.1
384	6.5	864	43.5	1344	6.0	1824	0.1	2304	0.1	2784	0.1
408	6.8	888	41.1	1368	5.8	1848	0.1	2328	0.1	2808	0.1
432	7.1	912	37.8	1392	5.7	1872	0.1	2352	0.1	2832	0.1
456	7.5	936	33.8	1416	5.5	1896	0.1	2376	0.1	2856	0.1
480	8.0	960	29.5	1440	5.4	1920	0.1	2400	0.1	2880	0.1

Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.180
M5-60 (mm)	19.000	SAAR (mm)	600
Ratio R	0.391	CWI	87.000
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	113.980	SPR	47.000
H(85%) (m)	31.100	LAG (hrs)	0.000
H(10%) (m)	26.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	84	Q (l/s)	29.8	PR (%)	46.575
T (mins)	24	TB (mins)	243	S1085 (m/km)	59.660
TPt (mins)	96	Base Flow (l/s)	0.1		

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Input Hydrograph Manhole 14, DS/PN 1.008 (Storm)
1440 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
24	0.3	504	8.3	984	19.9	1464	4.5	1944	0.1	2424	0.1
48	0.8	528	9.2	1008	16.9	1488	4.0	1968	0.1	2448	0.1
72	1.4	552	10.2	1032	14.4	1512	3.3	1992	0.1	2472	0.1
96	2.3	576	11.6	1056	12.4	1536	2.4	2016	0.1	2496	0.1
120	3.0	600	13.4	1080	10.9	1560	1.6	2040	0.1	2520	0.1
144	3.7	624	15.7	1104	9.7	1584	1.0	2064	0.1	2544	0.1
168	4.2	648	18.5	1128	8.7	1608	0.6	2088	0.1	2568	0.1
192	4.6	672	21.8	1152	8.0	1632	0.3	2112	0.1	2592	0.1
216	4.9	696	25.6	1176	7.5	1656	0.1	2136	0.1	2616	0.1
240	5.0	720	30.0	1200	7.0	1680	0.1	2160	0.1	2640	0.1
264	5.2	744	34.7	1224	6.6	1704	0.1	2184	0.1	2664	0.1
288	5.3	768	38.8	1248	6.3	1728	0.1	2208	0.1	2688	0.1
312	5.5	792	41.8	1272	6.1	1752	0.1	2232	0.1	2712	0.1
336	5.7	816	42.9	1296	5.8	1776	0.1	2256	0.1	2736	0.1
360	5.9	840	42.0	1320	5.6	1800	0.1	2280	0.1	2760	0.1
384	6.2	864	39.6	1344	5.4	1824	0.1	2304	0.1	2784	0.1
408	6.5	888	36.1	1368	5.2	1848	0.1	2328	0.1	2808	0.1
432	6.8	912	31.9	1392	5.1	1872	0.1	2352	0.1	2832	0.1
456	7.2	936	27.6	1416	5.0	1896	0.1	2376	0.1	2856	0.1
480	7.7	960	23.5	1440	4.8	1920	0.1	2400	0.1	2880	0.1

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APPENDIX 2

GREENFIELD RUNOFF CALCULATIONS

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	28.900	Urban	0.000
SAAR (mm)	600	Region Number	Region 4

Results l/s

QBAR Rural	106.0
QBAR Urban	106.0
Q100 years	272.4
Q1 year	88.0
Q30 years	207.7
Q100 years	272.4

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APPENDIX 3

COPY OF DISCHARGE CONSENT

Our ref: wqc/r4535/wra7479
Your ref:

Date: 15 December 1998

ENVIRONMENT AGENCY

David Harper
DARRINGTON QUARRIES LTD
Darrington Leys
Cridling Stubbs
Knottingley
West Yorkshire
WF11 0AH

Dear Sir

WATER RESOURCES ACT 1991 (AS AMENDED BY THE ENVIRONMENT ACT 1995) CONSENT TO DISCHARGE AT SKELBROOKE QUARRY, DONCASTER. CONSENT NUMBER: WRA7479.

Further to our letter dated 18th August 1998 the Agency has decided that consent should be given subject to conditions.

If you consider that the conditions imposed by the consent are unreasonable you have the right of appeal to the Secretary of State. Appeals should be sent to: Planning Inspectorate, Room 1202E Tollgate House, Houlton Street, Bristol BS1 9DJ. Notice of an appeal must be given within 3 months of this notification and must be accompanied by a statement of the grounds of appeal.

The granting of the consent does not alter the need to obtain any other consents or approvals which might be required in connection with your proposals under other legislation.

As a registered consent holder you are legally responsible for complying with the conditions of the consent(s), and for informing the Agency should you need to transfer the consent to another person who proposes to carry on the discharge(s). The enclosed "Notification of Transfer of Consent to Discharge" form T/T/0 must be used to inform the Agency when the holder of the consent changes.

Should you wish in the future to apply to revoke your consent, please contact this office. I would be grateful if you could acknowledge receipt of this letter and consent.

If you require any further information or clarification please contact me.

Yours sincerely

J. C.

JENNY GOOD
Water Quality Consents Officer

RECEIVED
16 DEC 1998

The Environment Agency
Phoenix House, Global Avenue, LEEDS, LS11 8PG
Tel: 0113 2440191 Fax: 0113 2134871

Water Resources Act 1991
as amended by the Environment Act 1995
Consent to Discharge
Certificate of Holder

ENVIRONMENT AGENCY

Part A

To: DARRINGTON QUARRIES LTD
Darrington Leys
Cridling Stubbs
Knottingley
West Yorkshire
WF11 0AH

The **Environment Agency** ("the Agency") hereby confirm that the above named person is a/the registered holder of consent WRA7479

Nature of Discharge(s); Surface Water
at Skelbrooke Quarry, Straight Lane, Skelbrooke, Doncaster

Note: This certificate should be kept with the consent document for future reference. If you transfer responsibility for the discharge to somebody else you must pass the consent to them and tell the Agency within 21 days. **Responsibility for the consent cannot be disclaimed by the holder but the registration of holder may be transferred to a successor.** To do this please complete the form below, then tear it off and return it to the address shown. If you fail to transfer the consent, even though you are no longer on the site, you may still be liable for prosecution for pollution. If you transfer the consent but do not tell us, you will be committing an offence. In case of any queries please contact your local Environment Agency office.

Part B **Please complete in block capitals or type.**

To:

Water Resources Act 1991: Notice of transfer of consent to discharge

Consent: WRA7479 **Name:** DARRINGTON QUARRIES LTD
Address: Darrington Leys
Cridling Stubbs
Knottingley
West Yorkshire
WF11 0AH

I/We hereby serve notice on the Agency that I/we am/are no longer a/the holder of the above consent which will be/was transferred to: *(delete as appropriate)*

Name(s) of new holder(s):
Address:

Post Code:

Date of transfer to new holder(s):

Signed: Dated:

Name (block capitals): Position:

To be completed when signing

Consent No: WRA7479

WATER RESOURCES ACT 1991 - SECTION 88 - SCHEDULE 10

(AS AMENDED BY THE ENVIRONMENT ACT 1995)

CONSENT TO DISCHARGE

To: DARRINGTON QUARRIES LTD
Darrington Leys
Cridling Stubbs
Knottingley
West Yorkshire
WF11 0AH

The **ENVIRONMENT AGENCY** in pursuance of its powers under the Water Resources Act 1991 (as amended by the Environment Act 1995) **HEREBY CONSENTS** to the making of a discharge, as follows:

Surface Water

From: SKELBROOKE QUARRY

At: Straight Lane, Skelbrooke, Doncaster

To: River Skell

SUBJECT TO the conditions set out in the following schedules:

Schedule 1 – Surface Water

Subject to the provisions of Paragraphs 6 and 7 of Schedule 10 of the Water Resources Act 1991 (as amended by the Environment Act 1995), no notice shall be served by the Agency, altering this consent without the agreement in writing of the discharger, during a period of 4 years from the date this consent takes effect or such later date as may be specified in an endorsement to this document.

This consent is issued and takes effect on the 15 day of December 1998

Signed .....
D Toothill, Environment Planning Manager

Consent No: WRA7479	Schedule No. 1	Date issued: 15 December 1998

CONDITIONS OF CONSENT TO DISCHARGE

Nature of effluent: Surface Water

From: Skelbrooke Quarry, Doncaster

To: River Skell

NGR: SE 5111 1172

CONDITIONS 1 - 8

KINNERSLEY RUBRIC

1. a) The Discharge shall not contain any poisonous, noxious, or polluting matter or solid waste matter.

   b) Provided that the Discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition (a) above by reason of containing substances or having properties identified in and controlled by these conditions.

NATURE OF THE DISCHARGE

2. The Discharge shall consist solely of surface water.

PLACE OF THE DISCHARGE

3. The Discharge shall be made via a land drain in the River Skell at National Grid Reference SE 5111 1172 as shown on the attached plan.

SAMPLE POINT

4. The outlet to the watercourse shall be constructed, maintained and clearly labelled so that a representative sample of the Discharge may be obtained at National Grid Reference SE 5111 1172.

VOLUME

5. a) The volume of the Discharge shall not exceed 200 cubic metres per day

   b) The rate of the Discharge shall not exceed 20 cubic metres per hour

COMPOSITION

6. The Discharge shall not contain more than:

   a) 60 milligrams per litre of suspended solids measured after drying at 105°C).

   b) 5 milligrams per litre of ammoniacal nitrogen (expressed as N).

7. The Discharge shall have a pH value of not less than 6 nor greater than 9.

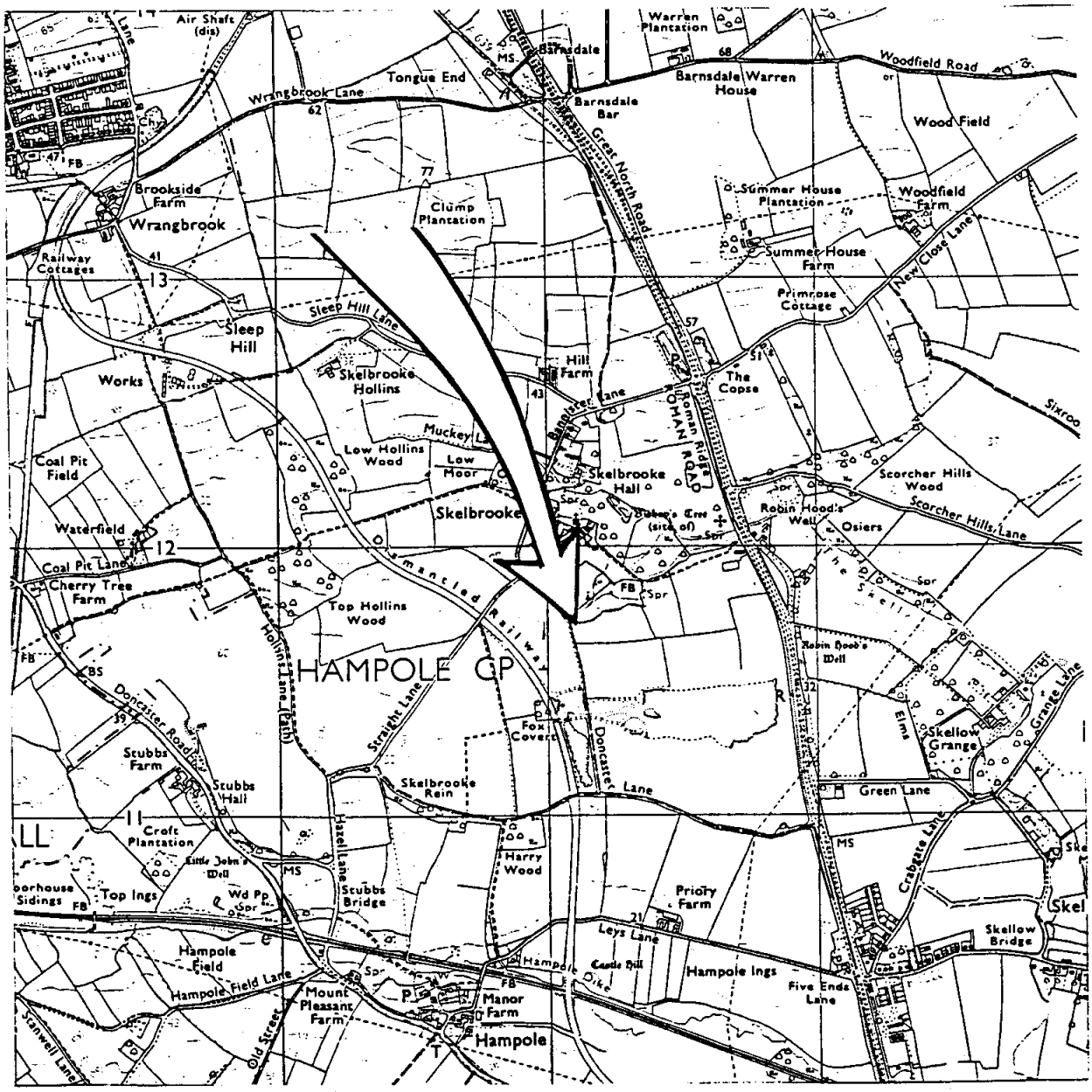
MAINTENANCE

8. As far as is reasonably practicable, the site shall be operated so as to prevent;

   a) any matter being present in the Discharge, other than matter specifically covered by numerical conditions in this consent, to such an extent as to cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters; and

   b) the Discharge from having any other adverse environmental impact.

Consent No: WRA7479	Schedule No: 1	Date issued: 15 December 1998



LOCATION OF: SKELBROOKE QUARRY, STRAIGHT LANE, SKELBROOKE
DISCHARGE OF: SURFACE WATER
NATIONAL GRID REFERENCE: SE 5111 1172

45111C 41120

BASED UPON THE ORDNANCE SURVEY MAP
WITH SANCTION OF THE CONTROLLER
OF H.M.S.O. CROWN COPYRIGHT RESERVED
LICENCE NO.03177G0000

Consent No: WRA7479	Schedule No. 1	Date issued: 15 December 1998

CONDITIONS OF CONSENT TO DISCHARGE

Nature of effluent: Surface Water

From: Skelbrooke Quarry, Doncaster

To: River Skell

NGR: SE 5111 1172

CONDITIONS 1 - 8

KINNERSLEY RUBRIC

1. a) The Discharge shall not contain any poisonous, noxious, or polluting matter or solid waste matter.

   b) Provided that the Discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition (a) above by reason of containing substances or having properties identified in and controlled by these conditions.

NATURE OF THE DISCHARGE

2. The Discharge shall consist solely of surface water.

PLACE OF THE DISCHARGE

3. The Discharge shall be made via a land drain in the River Skell at National Grid Reference SE 5111 1172 as shown on the attached plan.

SAMPLE POINT

4. The outlet to the watercourse shall be constructed, maintained and clearly labelled so that a representative sample of the Discharge may be obtained at National Grid Reference SE 5111 1172.

VOLUME

5. a) The volume of the Discharge shall not exceed 200 cubic metres per day

b) The rate of the Discharge shall not exceed 20 cubic metres per hour

COMPOSITION

6. The Discharge shall not contain more than:

a) 60 milligrams per litre of suspended solids measured after drying at 105°C).

b) 5 milligrams per litre of ammoniacal nitrogen (expressed as N).

7. The Discharge shall have a pH value of not less than 6 nor greater than 9.

MAINTENANCE

8. As far as is reasonably practicable, the site shall be operated so as to prevent;

a) any matter being present in the Discharge, other than matter specifically covered by numerical conditions in this consent, to such an extent as to cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters; and

b) the Discharge from having any other adverse environmental impact.

Consent No: WRA7479	Schedule No: 1	Date issued: 15 December 1998

LOCATION OF: SKELBROOKE QUARRY, STRAIGHT LANE, SKELBROOKE
DISCHARGE OF: SURFACE WATER
NATIONAL GRID REFERENCE: SE 5111 1172

BASED UPON THE ORDNANCE SURVEY MAP
WITH SANCTION OF THE CONTROLLER
OF H.M.S.O. CROWN COPYRIGHT RESERVED
LICENCE NO.03177G0000

3DA INP

FILE REF:

Consent No: WRA7479

WATER RESOURCES ACT 1991 - SECTION 88 - SCHEDULE 10

(AS AMENDED BY THE ENVIRONMENT ACT 1995)

CONSENT TO DISCHARGE

COPY

To: DARRINGTON QUARRIES LTD
Darrington Leys
Cridling Stubbs
Knottingley
West Yorkshire
WF11 0AH

The **ENVIRONMENT AGENCY** in pursuance of its powers under the Water Resources Act 1991 (as amended by the Environment Act 1995) **HEREBY CONSENTS** to the making of a discharge, as follows:

Surface Water

From: SKELBROOKE QUARRY

At: Straight Lane, Skelbrooke, Doncaster

To: River Skell

SUBJECT TO the conditions set out in the following schedules:

Schedule 1 – Surface Water

Subject to the provisions of Paragraphs 6 and 7 of Schedule 10 of the Water Resources Act 1991 (as amended by the Environment Act 1995), no notice shall be served by the Agency, altering this consent without the agreement in writing of the discharger, during a period of 4 years from the date this consent takes effect or such later date as may be specified in an endorsement to this document.

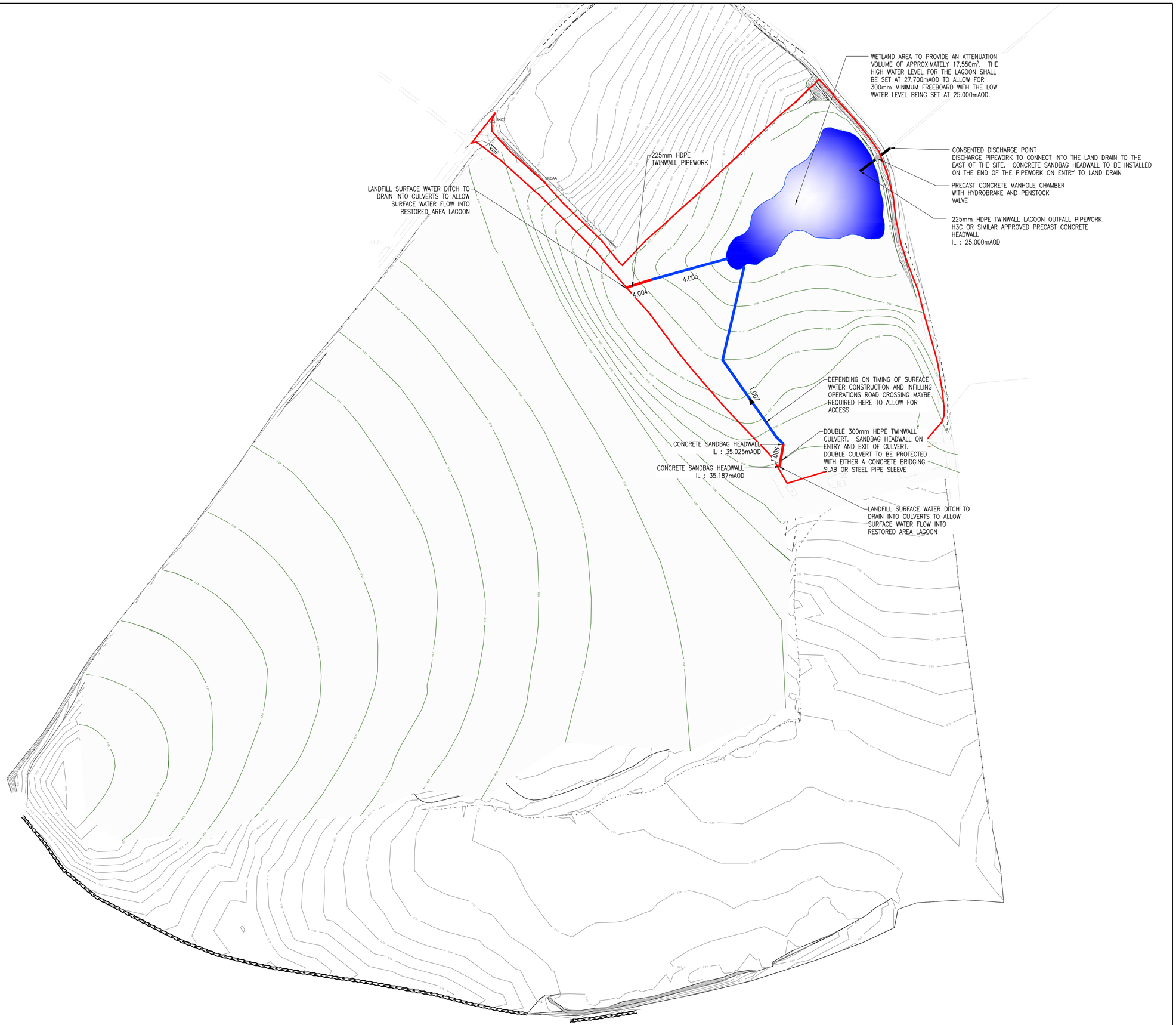
This consent is issued and takes effect on the 15 day of December 1998

Signed D Toothill

D Toothill, Environment Planning Manager

APPENDIX 4

DRAWINGS



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NOTES

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2. DO NOT SCALE FROM THIS DRAWING.

3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF SIRIUS ENVIRONMENTAL PRIOR TO CONSTRUCTION WORKS COMMENCING.

4. ALL INVERT LEVELS ARE TO BE CONFIRMED BY SIRIUS PRIOR TO CONSTRUCTION ONCE A FULL UP TO DATE SURVEY OF NORTHERN LAGOON AREA HAS BEEN UNDERTAKEN AND RECEIVED.

5. GATE POSITIONS TO BE CONFIRMED ON SITE WITH FCC DURING CONSTRUCTION WORKS.

KEY

- 18.5 — SITE SURVEY
- 19.5 — FINAL RESTORATION CONTOURS
- DEVELOPMENT BOUNDARY
- SURFACE WATER DITCH (500mm WIDE x 500mm DEEP)
- SURFACE WATER DITCH (350mm WIDE x 350mm DEEP)
- PROPOSED ROAD CROSSING / CULVERT
- FLOW DIRECTION
- EXISTING DITCHES
- PROPOSED MANHOLE CHAMBER
- PROPOSED PRECAST CONCRETE HEADWALL
- PROPOSED CONCRETE SANDBAG HEADWALL
- PROPOSED WETLAND AREA TO PROVIDE SW ATTENUATION VOLUME FOR STORM EVENTS

REV	DESCRIPTION	DATE	BY
1	Development boundary amended	24.02.21	MCC

CLIENT

FCC Environment

FCC Environment (UK) Limited
Ground Floor West, 900 Pavilion Drive, Northampton Business Park, Northampton, NN4 7RG

Sirius Environmental
4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

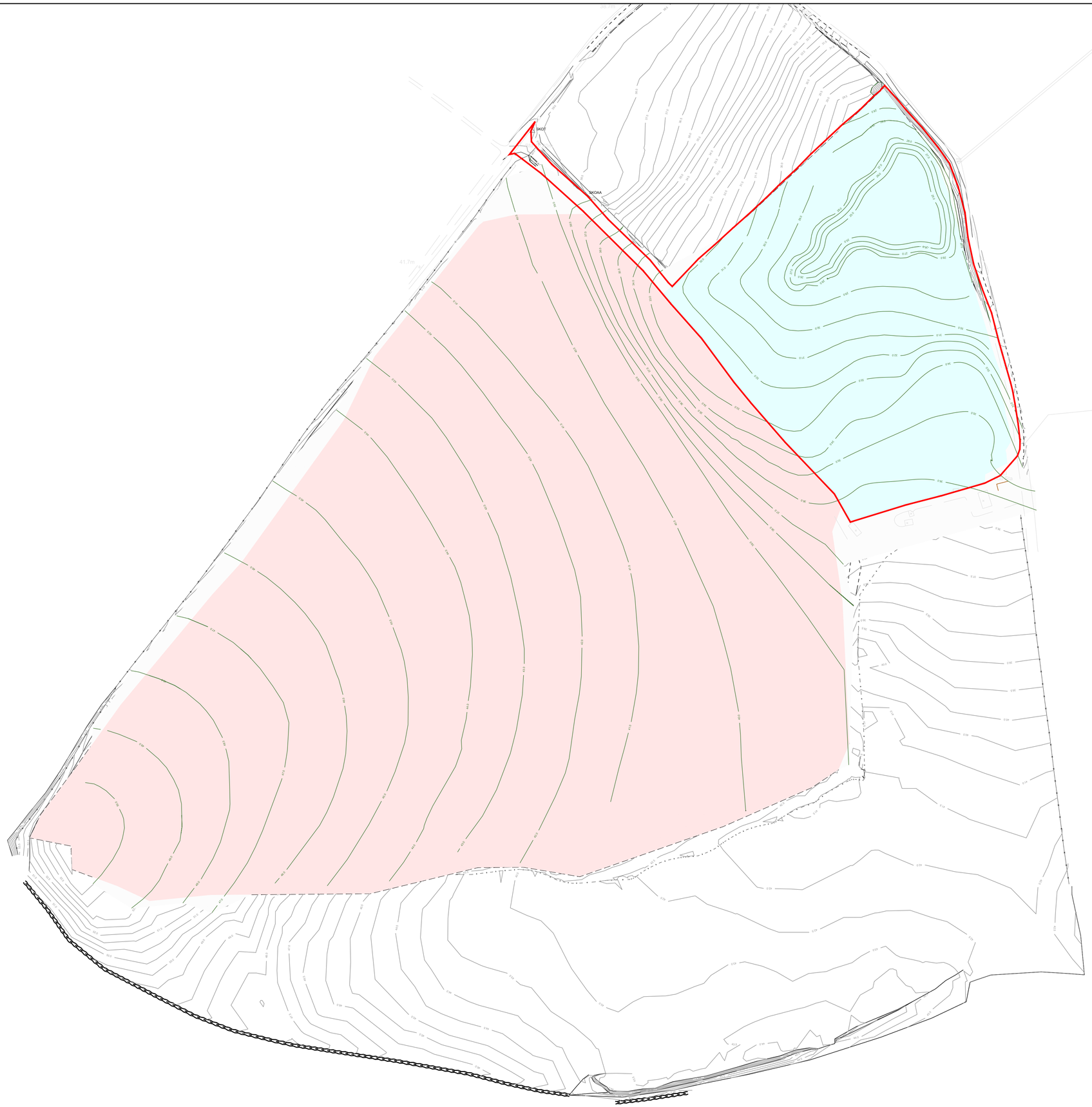
SKELBROOKE LFS
Surface Water Management Plan

DRAWING TITLE

General Arrangement

DRAWN	DATE	APPROVED	DATE
M.C	02/11/2020	J.D	02/11/2020

SCALE	SHEET	DRAWING NUMBER	REVISION
NTS	A1L	WR7754/01/01	1



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KEY

- 18.5 — SITE SURVEY
- DEVELOPMENT BOUNDARY
- LANDFILL CATCHMENTS AREA
- PLANNING CATCHMENTS AREA

REV	DESCRIPTION	DATE	BY
1	Development boundary amended	24.02.21	MCC

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Sirius Environmental
4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

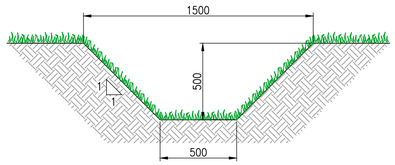
SKELBROOKE LFS
Surface Water Management Plan

DRAWING TITLE

Catchments

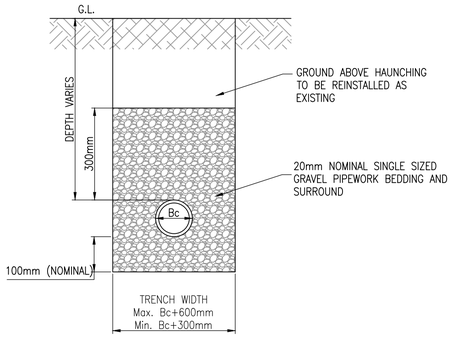
DRAWN	DATE	APPROVED	DATE
M.C	02/11/2020	J.D	02/11/2020

SCALE	SHEET	DRAWING NUMBER	REVISION
NTS	A1L	WR7754/01/02	1



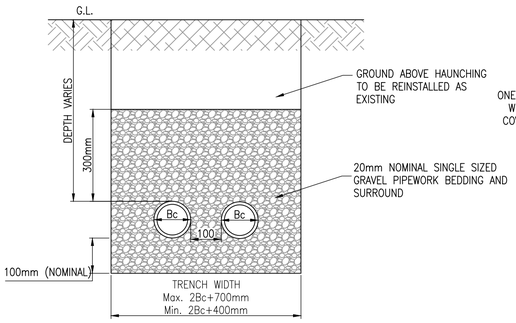
CROSS SECTION THROUGH PROPOSED DRAINAGE DITCH

(NTS)



PIPEWORK DETAIL FOR SINGLE PIPES

SCALE 1:10



PIPEWORK DETAIL FOR DOUBLE PIPES

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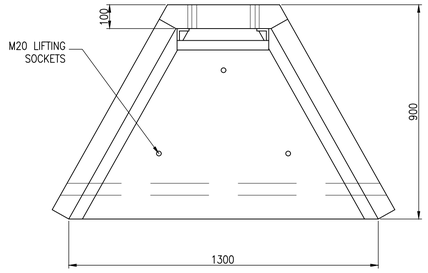

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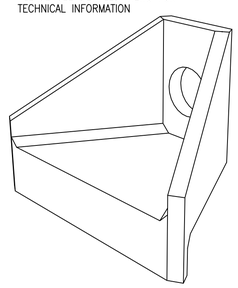
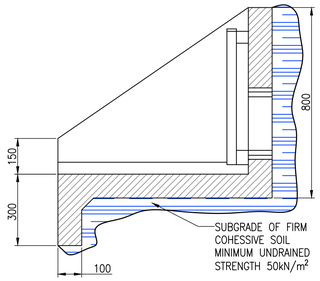
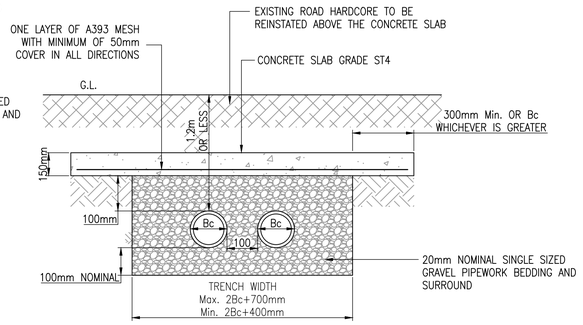




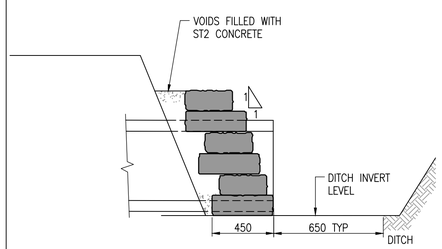
H3C A HEADWALL

(NTS)



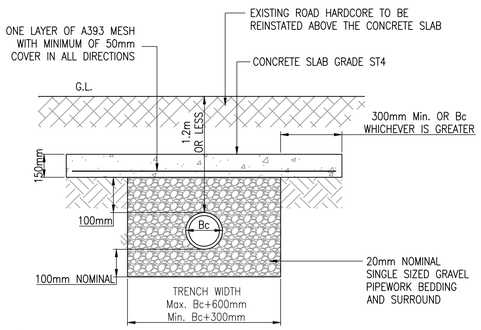
PIPEWORK WITH CONCRETE BRIDGING DETAIL WITH DOUBLE PIPES

SCALE 1:10



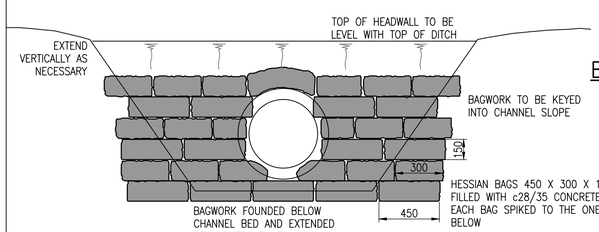
SECTION THROUGH CONCRETE SANDBAG HEADWALL

SCALE 1:20



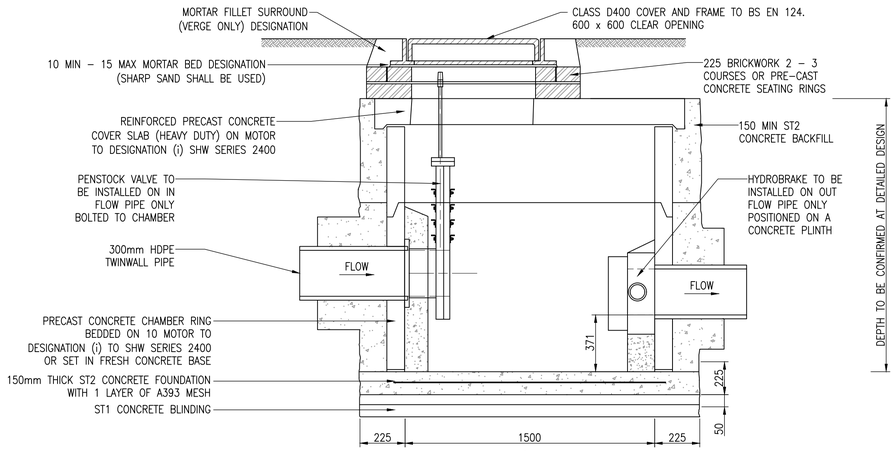
PIPEWORK WITH CONCRETE BRIDGING DETAIL WITH SINGLE PIPE

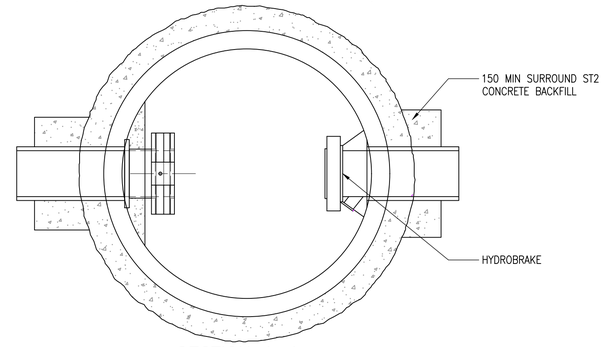
SCALE 1:10



CONCRETE SANDBAG HEADWALL

SCALE 1:20



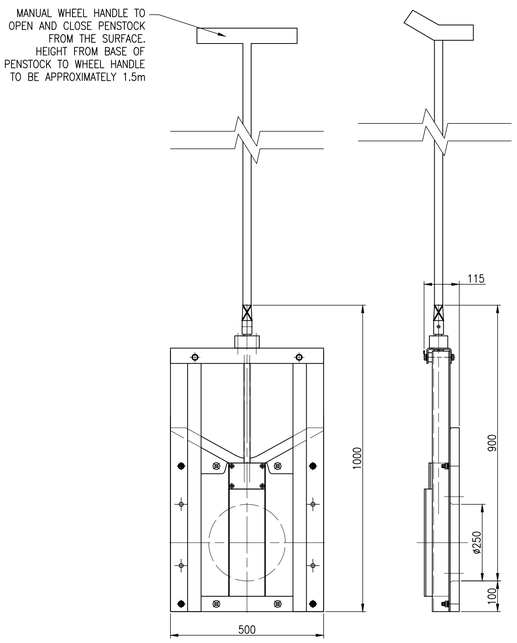


SECTION A–A

SCALE 1:20

MH01 MANHOLE DETAIL WITH PENSTOCK VALVE

NTS



PENSTOCK VALVE DETAIL

NTS

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4. A STEEL SLEEVE COULD BE UTILISED INSTEAD OF A CONCRETE BRIDGING SLAB FOR PROTECTION OF THE PIPE IF NECESSARY, IF A CONCRETE SLEEVE IS USED IT SHALL BE INSTALLED AS PER THE PIPEWORK DETAIL FOR SINGE / DOUBLE PIPES.

5. **CONCRETE WORKS** - ALL CONCRETE TO BE IN ACCORDANCE WITH BS 8500-1:2015 AND BS8500-2:2015.

6. CONCRETE FOR BLINDING TO BE 'GEN1'. CONCRETE FOR DRAINAGE WORKS UNLESS STATED OTHERWISE SHALL BE 'ST1'.

KEY

REV	DESCRIPTION	DATE	BY

CLIENT

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DRAWN	DATE	APPROVED	DATE
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As Shown	A1L	WR7754/01/03	0