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TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

NEWALL HALL, NEWALL CARR ROAD, OTLEY

FLOOD RISK SUMMARY & DRAINAGE STRATEGY

NOVEMBER 2023

REPORT NO: 20795-FRSDS-003

NEWALL HALL, NEWALL CARR ROAD, OTLEY

FLOOD RISK SUMMARY & DRAINAGE STRATEGY

Basil Houldsworth & Sons Ltd

Flood Risk Summary & Drainage Strategy

CONFIDENTIAL

Project no: 20795-FRSDS-003

Date: November 2023

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QUALITY MANAGEMENT

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Prepared by	JE	AY	JE	
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1 INTRODUCTION

1.1.1 This Flood Risk Summary (FRS) and Drainage Strategy (DS) has been provided at the request of Basil Houldsworth & Sons Ltd, hereafter referred to as "the client", to assess the flood risks associated with the proposed development of Newall Hall, Newall Carr Road, Otley, hereafter referred to as "the site".

1.1.2 The purpose of this FRS and DS is to:

- Identify the possible hazards posed from all major sources of flooding (fluvial, surface water, groundwater, infrastructural and coastal sources);
- Provide a qualitative assessment of the probability of each potential flood hazard representing a constraint on the proposed development, based on the proposed land use type for the development and likelihood of flood occurrence;
- Investigate and define any potential drainage impacts associated with the site;
- Conceptually determine and define necessary surface water management controls to ensure no exacerbation of flood risk on the site or to external receptors due to any increase in surface water runoff; and
- Recommend appropriate and necessary mitigation measures and additional assessments that may be required to progress the sustainable development of the site.

1.1.3 The FRS and DS comprises the following:

- A desktop review of publicly available information, including information from the Environment Agency (EA) and Leeds City Council (LCC) who are the Lead Local Flood Authority (LLFA) for the proposed development area; and
- An assessment and outline design of hydraulic controls and drainage requirements and drainage elements required to support the development of the site.

1.1.4 This report further details the methodologies employed within this study and provides recommendations as to any further work or investigations required to support the development of the site through the planning application process.

1.2 REGULATORY POLICY AND LEGISLATION

1.2.1 This assessment has been carried out in line with the current Government legislation, the National Planning Policy Framework (NPPF) 2021.

1.2.2 It has been assessed with reference to the following documents and legislative guidelines:

- CIRIA 753 The SUDS Manual V6 (2016);
- DEFRA "Flood Risk Assessment Guidance for New Developments" (2006);
- DEFRA "Surface Water Management Plan Technical Guidance" (2010);
- BS 8533 2011 Assessing & Managing Flood Risk in Development Code of Practice (2011);
- BS 8582:2013 Code of practice for surface water management for development Sites (2013);
- National Planning Practice Guidance (2012 – updated 2016);
- C624 Development and Flood Risk – Guidance for the Construction Industry' (2004);

- Design and Construction Guidance for Sewage Sector (DCGSS) (2020);
- Planning Policy Guidance – Flood Risk and Climate Change (2014 and as amended).

1.2.3 In addition to the above, this report has also been informed by the following documents:

- Leeds City Council Core Strategy
- Leeds City Council Minimum Development Control Standards

1.3 SCOPE OF FLOOD RISK SUMMARY

1.3.1 The objective of this analysis and report is to provide an FRA in accordance with local and national guidance.

1.3.2 The detail and complexity of the FRA will reflect the level of risk to the site and consider the appropriateness of the proposed development type. This will also include assessment of potential risk to property and livelihoods, consideration of climate change, and the definition of appropriate flood risk mitigations required to satisfy the planning process.

1.3.3 Based on the assessment of requirements for a site-specific FRA as defined within NPPF 2019 technical guidance, the site is indicated as being located within Flood Zone 1, therefore it is necessary to provide a site-specific FRA. Flood Zone 1 refers to an area assessed as having less than 1 in 1,000 annual probability (<0.1%) of river or sea flooding in any one year.

1.3.4 Similarly, as the site is indicatively located in an area that may be subject to other assessable sources of flooding, such as pluvial (surface water) flooding, it is necessary to undertake a further site-specific assessment to verify the proposals for development.

1.3.5 Policy EN5 of the Leeds City Council Core Strategy states that all future development must ensure that:

- The Council will manage and mitigate flood risk by:
    - Avoiding development in flood risk areas, where possible, by applying the sequential approach and where this is not possible by mitigating measures, in line with the NPPF, both in the allocation of sites for development and in the determination of planning applications.
    - (i) Protecting areas of functional floodplain as shown on the Leeds SFRA from development (except for water compatible uses and essential infrastructure),
    - (ii) Requiring flood risk to be considered for all development commensurate with the scale and impact of the proposed development and mitigated where appropriate,
    - (iii) Reducing the speed and volume of surface water run-off as part of new build developments,
    - (iv) Making space for flood water in high flood risk areas,
    - (v) Reducing the residual risk within Areas of Rapid Inundation,
    - (vi) Encouraging the removal of existing culverting where practicable and appropriate,
    - (vii) The development of the Leeds Flood Alleviation Scheme.

1.3.6 Potential flood risk at the site has been assessed against the site layout plan, which has been provided as **Appendix A** to this report. Significant changes to the site's developable area may necessitate a further review of this document to ensure that risk of flooding is not exacerbated and has been satisfactorily addressed within the development proposal

1.4 SCOPE OF OUTLINE DRAINAGE STRATEGY

1.4.1 Surface water runoff must be effectively managed to ensure that there is no exacerbation of potential surface water flooding issues on the site, or at any external receptors, due to any potential increases in surface water runoff rates and volumes.

1.4.2 The drainage hierarchy will be applied in determining the most suitable type and point of discharge of surface waters runoff from impermeable areas on the site. This will ensure that surface water is sustainably managed on the site, and that there is no exacerbation of flood risk elsewhere as a result of undertaking the development. This will be undertaken in accordance with industry best practice principles and guidance, such as the C753 SUDS Manual (2016), Design and Construction Guidance for Sewage Sector (DCGSS) (2020) and applicable sections of the Planning Policy Guidance (PPG).

1.4.3 Any increase in surface water runoff rate associated with the development of the site must also be managed in accordance with the guidelines set by LPA, the LLFA for the area.

1.4.4 As indicated in the Leeds City Council Minimum development control standards surface water run-off from the site must adhere to the following:

1.4.5 Demonstrate compliance with Note 1 – Give preference to on site retention and infiltration techniques, except where there is a history of groundwater flooding, high water table or where flows could re-emerge to flood lower-level property/basements.

1.4.6 Surface Water Drainage Design: As per current Yorkshire Water Adoption Criteria

- 50% AEP event = pipe full / No surcharge (with exceptions)
- 3.33% AEP event = No site flooding
- 1% AEP event + Climate Change (CC) = No property flooding

1.4.7 Surface Water Flooding from events in excess of 3.33% AEP can be within the site (e.g., in car parks, Public Open Space, etc.), provided that the associated risks are managed and there is no property flooding.

1.4.8 Surface Water Drainage: No increase in flood risk, offsite, up to and during the critical 1% AEP event (+CC)

1.4.9 To watercourse or to sewer:

- Greenfield rates up to the 1% AEP event (+CC)
- Volume control – Peak flow capped at QBAR to conform to no increase of 100-year 6-hour event volume. Additional downstream improvement works may be required.

1.4.10 New connection to watercourse or sewer = As per Greenfield

1.4.11 Existing connection to watercourse or sewer Minor Developments: A min. 30% reduction to peak flow rates up to the 1% AEP event (+CC)

1.4.12 Major Developments: Where it can be proved by drainage survey that the existing site drains to a sewer or watercourse, then a 50% reduction can be applied. Where no proof is available, then Greenfield discharge rates will apply.

1.4.13 The DS will identify potential opportunities and locations for attenuation infrastructure, as well as potential connection points and provide calculations of permissible discharge rates for runoff generated on site.

1.4.14 The DS therefore aims to provide surety that any drainage provided as part of the project development can safely and appropriately convey all flows from the site to appropriate discharge locations. This is to ensure sustainable and safe operation within the site, as well as ensuring sustainable operation of any receiving infrastructure. These assessments have been undertaken in accordance with prescribed best practice and building codes, including prioritising the incorporation of SuDS, where appropriate and practicable for the management of surface water.

1.4.15 Following the completion of a final site masterplan the drainage scheme proposed within this report should be reassessed to ensure surface water runoff and foul water drainage can be appropriately managed in accordance with best practise and local and national standard requirements.

2 METHODOLOGY

2.1 INTRODUCTION

2.1.1 This report aims to demonstrate that the proposed development is sustainable and will not be impacted by or exacerbate flood risk elsewhere through the development of the site. This assessment will account for the effects of climate change, as well as identifying further opportunities to reduce the probability and consequences of flooding within the site locality.

2.1.2 This report aims to identify constraints and opportunities for the site based on the development proposals provided by the client (**Appendix A**) and provide recommendations for the sustainable provision of drainage and mitigation of any potential flood risk for the site.

2.1.3 The assessment methodology is as follows:

- Desktop review of the geology, hydrology, and other pertinent environmental characteristics of the site, and how these affect flood risk of the proposed development and site drainage.
- Obtain and review existing baseline flood risk and drainage guidance information from relevant environmental authorities (EA, LLFA, etc.) as to site specific flood risk from all applicable sources
- Produce indicative design calculations for the Outline DS to determine the requirements for developing the site's surface water drainage and providing adequate storage in line with local planning policy and guidance. This will include the presentation of drawings with an indicative layout for any additional drainage and attenuation infrastructure located on the site.
- Review the findings from the above and advise on the suitability of developing the site for the proposed development in consideration of the applicable flood risk and drainage and comment on limitations and opportunities for the site, with recommendations of further mitigation where applicable and appropriate

3 PROJECT BACKGROUND

3.1 DEVELOPMENT DESCRIPTION AND LOCATION

3.1.1 Andrew Moseley Associates (AMA) was appointed by Johnson Mowat to provide a Flood Risk Summary and Drainage Strategy in support of a residential development, located behind Newall Church Hall, Newall, Otley, Leeds, LS21 2AP and NGR: SE 20042 46474.

3.1.2 The proposed development is located in the area of Otley, approximately 10 miles from Leeds. Proposals for the site are for residential use, consisting of 6 residential dwellings as well as an access road, with associated landscaping and infrastructure. A site layout plan can be found in **Appendix A.**

3.1.3 The Local Planning Authority for this development is Leeds City Council (LCC) who are also the Lead Local Flood Authority for the area.

3.1.4 This report has been prepared in accordance with the National Planning Policy Framework (NPPF) and the accompanying technical guidance to assess all forms of flooding including the management of surface water on-site.

3.1.5 The site is referenced in **Table 3-1** and **Figure 1** below.

Table 3-1. Site Context

Site Name	Newall Hall, Newall Carr Road
Location	Otley
NGR (approx.)	SE 20042 46474
Application Site Area (ha)	0.34
General Locality	The site is located on undeveloped greenfield land and borders undeveloped land to the east and south, the local church hall to the west and a residential development to the north. Pedestrian and vehicular access to the site is provided via Newall Carr Road, which is located to the east of the site.
Development Type	Residential
EA Flood Zone	Flood Zone 1
Local Planning Authority	Leeds City Council

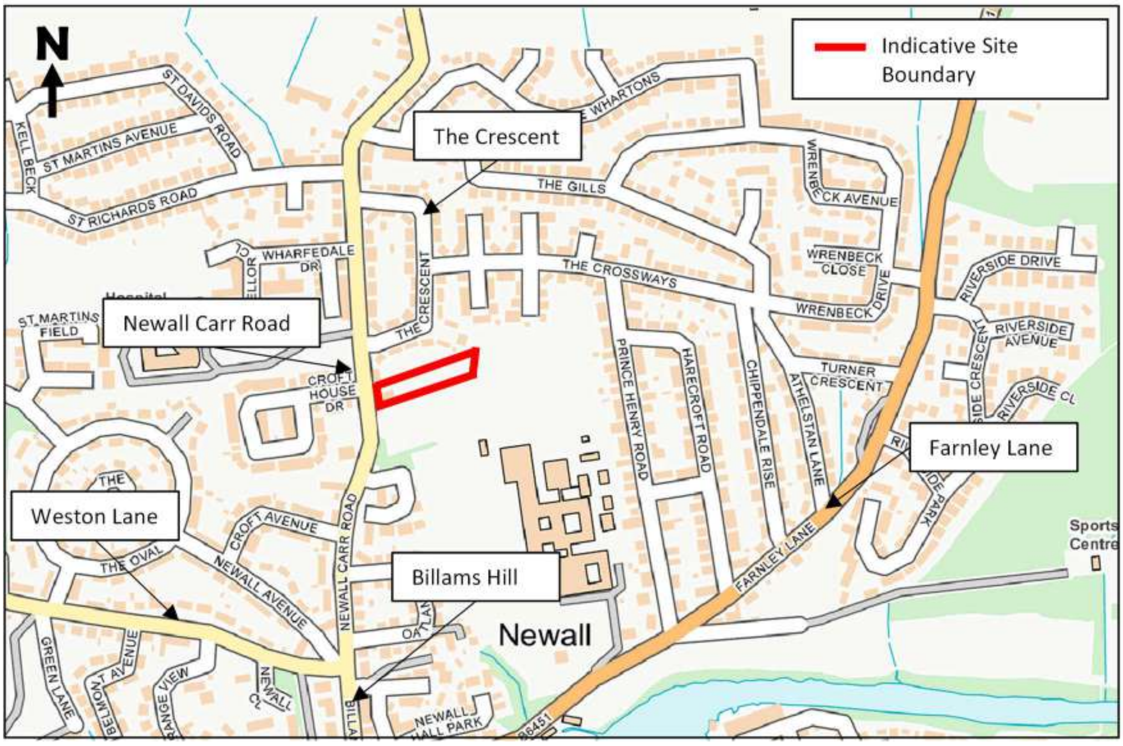

Figure 1. Site Location

3.2 CURRENT SITE CONDITIONS

Ground cover and topography

3.2.1 A topographic survey of the site was undertaken by MT Surveys and can be found in **Appendix B**. The topographic Survey shows ground levels at the site are shown to be in the region of 70.2 to 72.8 m Above Ordnance Datum (m AOD).

3.2.2 Further review of topographical data shows site levels to be lowest at the centre of the southern boundary of the site, while greatest levels are located in the north-eastern corner of the site. A general fall in gradient from north to south is observed across the site.

3.3 GEOLOGY

3.3.1 British Geological Survey (BGS) Open Geoscience website[1] indicates that the entire site is underlain by Millstone Grit Group – Mudstone, siltstone, and sandstone, with overlying superficial deposits of Till, Devensian – Diamicton.

3.3.2 The BGS website information indicates that there is no borehole record within close proximity of the site.

[1] Available at: http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed on 15/11/2022

3.4 HYDROGEOLOGY

3.4.1 According to the Department for Environment, Food and Rural Affairs (DEFRA) MAGIC map[2], the site is indicated as not being located in a Groundwater Source Protection Zone (SPZ), as defined by the Environment Agency (EA) for the protection of potable groundwater supply.

3.4.2 The site is located as being in an area of medium-low groundwater vulnerability and located above a Secondary A bedrock aquifer and a Secondary (undifferentiated) superficial aquifer.

3.4.3 Information obtained from the Cranfield University's Soilscape website[3] indicates that the site is located in an area classified as being Soilscape 18, which is defined as having slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

3.5 HYDROLOGY

3.5.1 There are no watercourses within close proximity of the site however, there are several within the local area. The River Wharfe runs approximately 450m to the south-east of the site. The Wharfe flows in an easterly direction in the vicinity of the site, flowing into the River Ouse and ultimately the Humber Estuary.

3.5.2 Located approximately 270m to the north-west of the site is Carr Banks Gill. Within the vicinity of the site there is also four unnamed watercourses, as identified within **Figure 2**. Two unnamed watercourses are located to the north of the site, 345m and 420m from the site and either side of Newell Carr Road. There are also two unnamed watercourses just west of Farnley Road, approximately 460m and 560m from the site.

3.5.3 The EA's Catchment Data Explorer website[4] indicates that the site resides within the Wharfe Middle and Washburn operational catchment and the Wharfe from Hundwith Beck to River Washburn sub catchment.

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[2] Available at: https://magic.defra.gov.uk/MagicMap.aspx?startTopic, accessed on 15/11/2022
[3] Available at: http://www.landis.org.uk/soilscapes/, accessed on 15/11/2022
[4] Available at: https://environment.data.gov.uk/catchment-planning/ , accessed on 15/11/2022

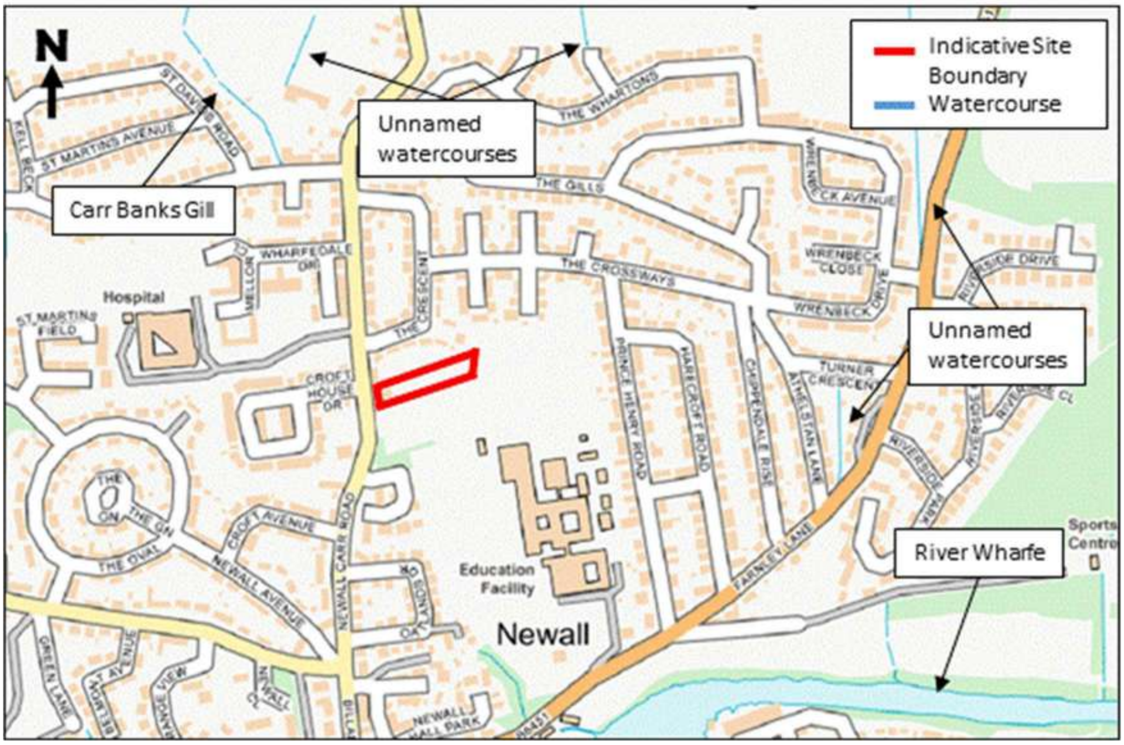


Figure 2. Watercourse Location

3.6 SITE WALKOVER OBSERVATIONS

3.6.1 A site walkover was conducted by an AMA representative on the 21st of November 2022. The photographic recordings of observations made within this site walkover are presented as **Appendix C** to this report.

3.6.2 Pedestrian and vehicular access to the site is provided via Newall Carr Road which is located along the western boundary of the site, with access to the site being located to the north of Newall Church Hall.

3.6.3 The site consists of undeveloped grass land with medium vegetation cover (Photos 1, 2 and 3).

3.6.4 A general fall in gradient from north to south was observed (Photo 4).

3.6.5 The site is bounded by a residential development to the north and undeveloped land to the east and south.

Existing Site Drainage and Water Assets

3.6.6 The site is located in an area covered by Yorkshire Water as the statutory undertaken for sewerage and water assets. Public sewer records obtained from Yorkshire Water are provided in **Appendix D**.

3.6.7 Water company public sewer records show the site to have no existing drainage infrastructure with the closest public sewer located approximately 5m west of the site. The public sewer is assumed to flow from north to south noting site levels.

4 POTENTIAL FLOOD RISK

4.1 SOURCES OF FLOODING

4.1.1 This report is to consider flood risk from all potential sources. Section 5.0 then discusses in further detail the probability of flooding, any potential impacts and necessary mitigation, where required.

4.1.2 The NPPF (2021) also requires site developers to consider the impact of additional runoff generated by the proposed development on the receiving downstream catchment, and to assess the risk of runoff from the surrounding. This is further discussed in Section 8.0.

4.2 ENVIRONMENT AGENCY FLOOD ZONES

4.2.1 The EA Flood Map for Planning shows the site is located within Flood Zone 1, i.e., land assessed as having less than 1 in 1,000 annual probability (<0.1%) of river or sea flooding in any one year.

4.2.2 This potential fluvial / coastal flood risk to the site has been illustrated in **Figure 3.**

Figure 3. Environment Agency Long Term Flood Map for Planning

4.3 FLUVIAL AND COASTAL FLOODING

4.3.1 The EA Long Term Flood Risk Map for fluvial and coastal flooding shown in **Figure 4** indicates that the site is at very low risk of fluvial flooding. As the site is situated 48 miles from the nearest coastline the site is also considered to not be at risk from coastal flooding.

4.3.2 The risk of flooding posed to the proposed development is classed as very low. This is because there are no watercourses in close proximity to the site.

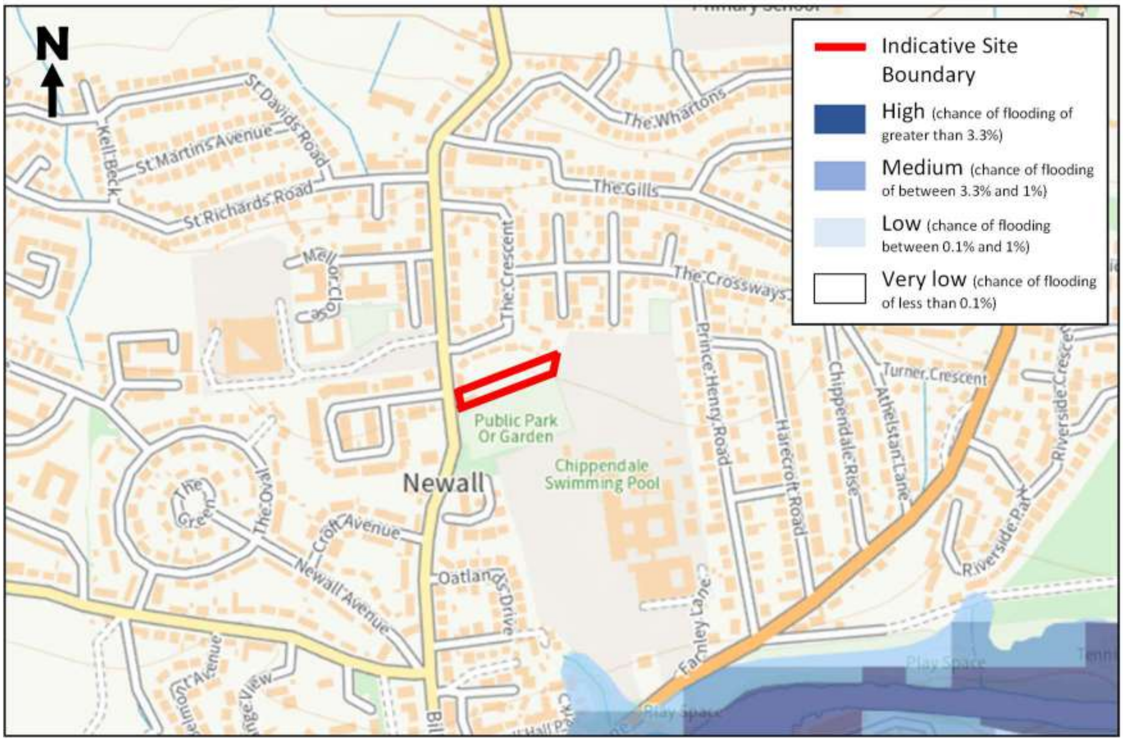


Figure 4. Environment Agency Long Term Flood Map – Rivers and Sea

4.4 PLUVIAL (SURFACE WATER) FLOODING

4.4.1 The EA Long Term Flood Risk Map (**Figure 5**) shows the site is located within an area at very low potential risk of surface water flooding. The area on Newell Carr Road that provides access to the site is shown to be at low potential risk of surface water flooding.

4.4.2 Areas at very low potential risk of surface water flooding have less than 0.1% probability of flooding each year. Areas at low potential risk of surface water flooding have between 0.1% and 1% each year. This area can expect below 300mm depth of surface water and over 0.25 m/s, and flow in a southerly direction in the vicinity of the site.

4.4.3 As the proposed development of the site may potentially reduce the overall site permeability and potentially increase surface water runoff rates and volumes, the surface water discharge controls must ensure that any proposal for drainage, or discharge, does not adversely impact upon downstream drainage infrastructure or offsite receptors.

4.4.4 The site is therefore considered to have very low potential risk of flooding from pluvial sources.

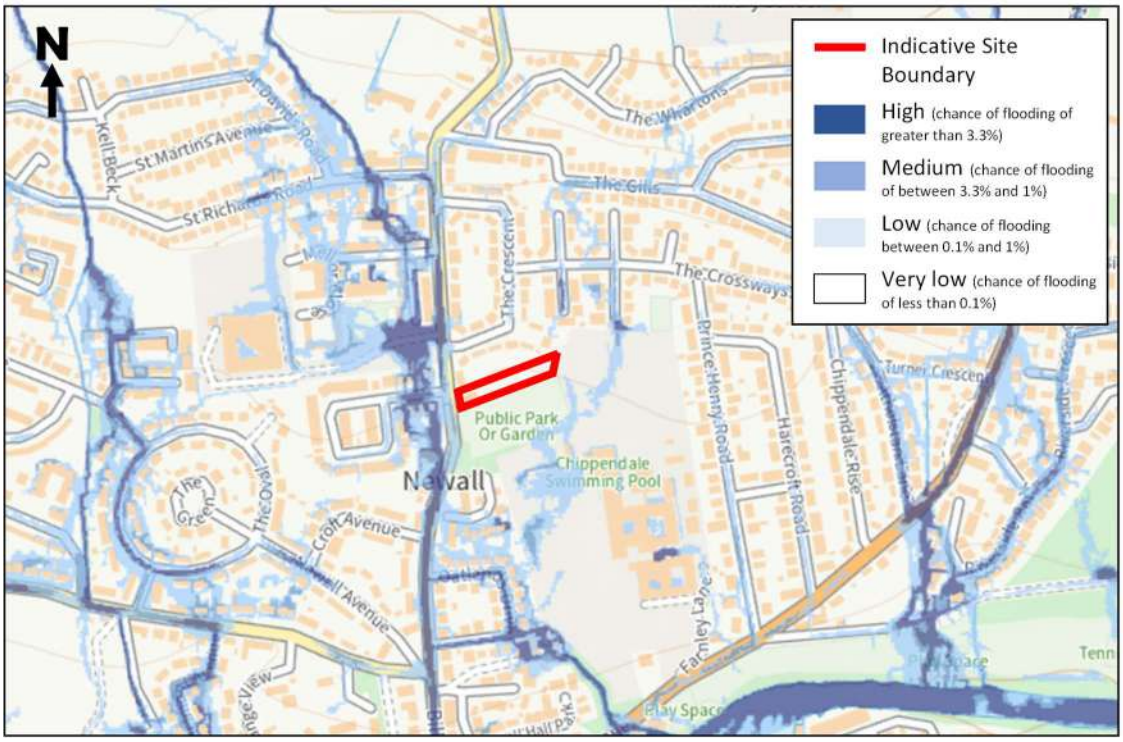


Figure 5. Environment Agency Long Term Flood Risk Map – Pluvial (Surface Water) Flooding

4.5 GROUNDWATER FLOODING

4.5.1 Ground conditions at the site consist of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, therefore the propensity for ground water emergence at the site is considered to be low, and the potential risk of groundwater emergence affecting the site development is considered to be low.

4.5.2 However, given the impermeable nature of the proposed site's hardstanding areas subsequent to development, potential elevation of groundwater or groundwater emergence within the superficial geology causing flooding within the site post-development will be largely eliminated.

4.5.3 During long periods of heavy rainfall, the water table within an area can rise above the natural ground level, resulting in groundwater flooding. The site is located above a principal bedrock aquifer. This signifies permeable layers which would allow infiltration of water up through the soil.

4.5.4 Site specific investigations should be able to prove the presence of ground water and propose remedial mitigation where required. Flood risk to the proposed development due to groundwater emergence is therefore considered to be low.

4.5.5 Flood risk to the proposed development due to groundwater emergence is considered to be low provided that all reasonable and practicable mitigation measures for any subsurface construction associated with the development are adhered to.

4.6 FLOODING FROM ARTIFICIAL SOURCES

4.6.1 The EA Long Term Flood Risk Map of flood risk from reservoir and canal failure (**Figure 6**) indicates that the site and its surroundings, are not affected by potential flood waters from artificial sources such as dam or canal failure. The figures provided within the EA mapping principally indicate the worst-case flooding extents. Therefore, the potential risk of flooding from reservoir and/or canal failure is considered to be negligible.

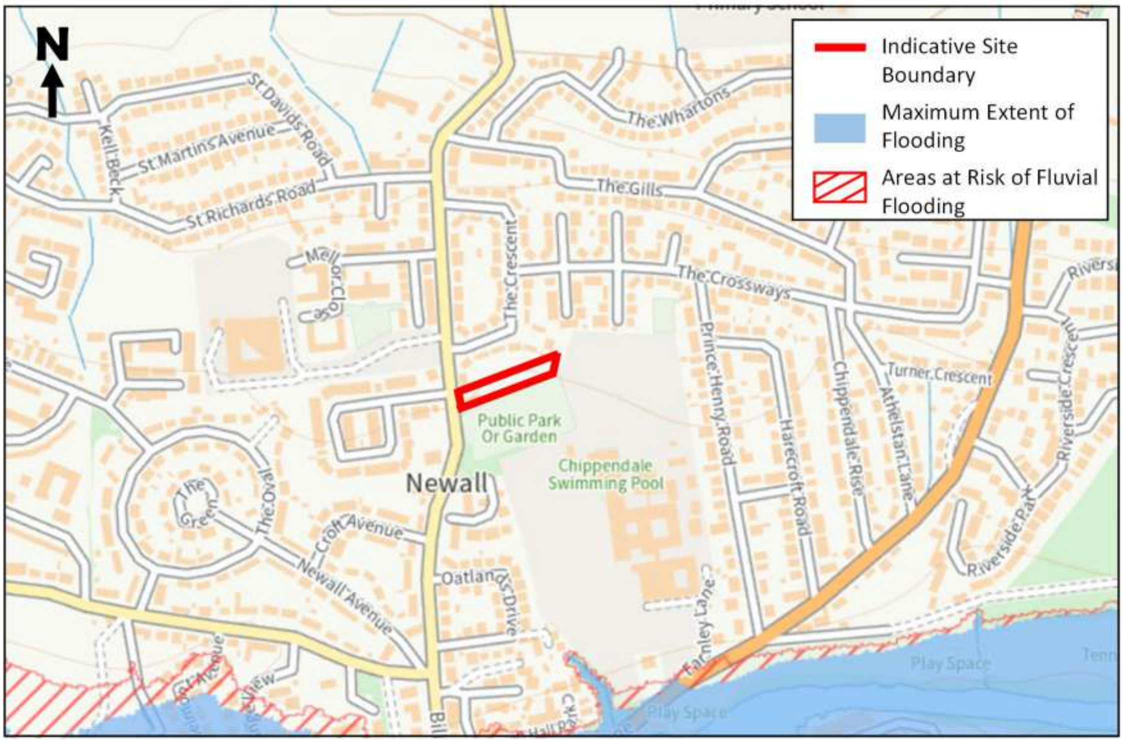


Figure 6. Environment Agency Long Term Flood Risk Map – Artificial Sources

4.7 FLOODING FROM SEWERS

4.7.1 The site currently consists of greenfield land and is not identified as having any drainage infrastructure within is boundary. The site is therefore considered to have very low potential risk of flooding from sewer flooding.

4.8 HISTORIC FLOODING

4.8.1 The EA historic flood map shows the site to not have experienced historic flooding.

4.8.2 A review of the Leeds City Council SFRA reveals that the area of Otley has experienced historical flooding from the River Wharfe in the years 2000, 1982, 1975, 1965, 1935, 1866 and 1775. There is no detail as to the locations affected by these flood events within Otley, and as such whether this affected the site area. Upon comparison with the EA historic flood map, it can be assumed that the areas historically affected by flooding are further south of the site.

5 CONCLUSION

5.1.1 In light of this assessment against the sites applicable flood zone (Flood Zone 1), further assessment against the sequential or exception test is not required. This should be confirmed with (LPA) prior to development of the site.

5.1.2 **Table 5-2** summarises the pre mitigation flood risk associated with the site as well as the impacts of the flood risk on the wider catchment prior to mitigation. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within Section 3.0.

Table 5-1 Pre-Mitigation Flood Risk Summary

Sources	Probability of Flood Risk	Impacts	Description
Tidal	N/A	N/A	Site is located inland and is not tidally influenced.
Fluvial	Low	Low	Site is not shown to be located in an area susceptible to fluvial flooding.
Surface Water (Pluvial)	Low	Low	Site is not shown to be located in an area susceptible to surface water flooding. Review of information from the EA reveals evidence of low-risk surface water flooding along Newall Carr Road at the site entrance.
Groundwater	Low	Low	Ground water flood risk is considered to be low.
Artificial Sources	Low	Low	Review of information from multiple sources (EA, LLFA) reveals no evidence of flooding from reservoirs or canals.
Sewers	Low	Low	The risk of flooding from the surcharging of sewers is considered to be low.

Effect of development on wider catchment	Low	Low	The impermeable area of the site is being altered.

5.1.3 Based on the assessable information presented, the site is considered to meet the requirements of the NPPF, given the assessed potential flood risk posed from all applicable sources, the means of adopting suitable mitigation measures to prevent increase in the potential for flood risk and based on the vulnerability of the development type. Further consideration of necessary surface water runoff mitigation measures will be provided, so as to address the potential for increase of surface water arising from the proposed development of the site.

6 FLOOD RISK MITIGATION

6.1 FLOOD RISK MITIGATION

6.1.1 Section 4.0 has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be considered within the proposed development detail design to address and reduce the risk of flooding to within acceptable levels.

6.2 EFFECT OF DEVELOPMENT ON WIDER CATCHMENT

Development drainage

6.2.1 The current site is considered to be greenfield. The amount of impermeable area will be altered. Therefore, the existing drainage systems will not be suitable to discharge the surface water from the site alongside the additional run off from the proposed development. A sufficient Drainage strategy will be therefore provided by AMA.

6.3 SITE ARRANGEMENTS

Sequential arrangement

6.3.1 The Flood Zone mapping shows the site to be located within Flood Zone 1.

Finished levels

6.3.2 Given the site's location within Flood Zone 1, there are no specific requirements for finished floor levels with regard to flood risk. However, it is recommended that an FFL of 150mm is set.

7 FOUL WATER DRAINAGE

7.1 INTRODUCTION

7.1.1 It is proposed to install a new foul drainage system to serve the proposed residential development.

7.1.2 The foul water system will be designed and constructed in accordance with the current Building Regulations, BS EN:752 'Drainage and Sewer Systems Outside Buildings', the Local Authority Building Control specifications and requirements, Sewers for Adoption 7th Edition and the Civil Engineering Specification for the Water Industry.

7.2 FOUL WATER DISCHARGE RATES

7.2.1 The estimate design Dry Weather Flow (DWF) generated by the proposed development, based on a gravity system, has been calculated as 0.27 litres per second.

7.2.2 This figure is based on 6 dwellings at 4,000 litres per dwelling as prescribed in Sewers for Adoption.

7.3 FOUL WATER CAPACITY AND POINT OF CONNECTION

7.3.1 AMA attained a Yorkshire Water pre development enquiry which can be found in **Appendix D**. Yorkshire Water have advised that foul water can discharge to the existing 381mm public combined sewer to the west of the site, located within Newall Carr Road. They have not advised of any known capacity issues with the public sewer network in the area which would hinder development at the site.

7.3.2 No depth/level information is available for these sewers and therefore further survey work in the form of a drainage CCTV and tracing survey will be required to confirm whether a gravity connection will be feasible.

7.3.3 Any proposed connection onto the public recorded sewers will require a S106 connection application.

7.4 EXISTING SEWERS

7.4.1 No other public sewers have been recorded within the site.

8 SURFACE WATER DRAINAGE STRATEGY

8.1 INTRODUCTION

8.1.1 The National Planning Policy Framework (NPPF) and accompanying Technical Guidance indicate that surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management.

8.1.2 Consideration should therefore firstly be given to using sustainable drainage (SuDS) techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, ponds and wetlands to reduce flood risk by attenuating the rate and quantity of surface water run-off from a site. This approach can also offer other benefits in terms of promoting groundwater recharge, water quality improvement and amenity enhancements. Approved document Part H of the Building Regulations (2015) sets out a hierarchy for the disposal of surface water which encourages a SuDS approach.

8.2 OVERVIEW AND CONCEPT

8.2.1 As detailed in Section 3.1, development proposals for the site consist of residential use, consisting of 6 residential dwellings with associated landscaping and infrastructure. The Site Plan shows the developable area of the Site to be restricted to the red line boundary within the Site Plan in **Appendix A**, with an approximate total developable area of 0.35 ha.

8.2.2 Review of the site plan shows proposals to consist of an approximate total impermeable area of 0.14 ha. The contributing areas have been identified within the proposed drainage strategy in **Appendix E**.

8.2.3 It is considered that green open space and landscaped areas will not produce or contribute runoff to the surface water management infrastructure proposed as part of this strategy. This has been taken into account when deriving the impermeable area for the Site.

8.3 PRE-DEVELOPMENT SURFACE WATER RUN-OFF

8.3.1 The site is approximately 0.34ha in area and currently comprises of green field agriculture land.

8.3.2 For the purposes of determining the existing rate of surface water run-off the site is considered to greenfield therefore the run-off will be estimated using the IH124 method.

8.3.3 The table below summarises the existing greenfield runoff rates generated by the development for a range of storm return periods. A calculation summary sheet from the UK SuDS website can be found in **Appendix F**.

Table 8-1. Existing Run-Off Rates

Area (Ha)	Q_{BAR} (L/S)	Q_1 (l/S)	Q_{30} (L/S)	Q_{100} (L/S)	Q_{200} (L/S)

0.34	1.96	1.68	3.42	4.07	4.63

8.4 GROUNDWATER PROTECTION

8.4.1 The proposed development site is not identified as being within a groundwater source protection zone (SPZ), as such no special measures are required to prevent risk to drinking water supplies.

8.5 METHODS OF SURFACE WATER MANAGEMENT

8.5.1 There are three methods that have been reviewed for the management and discharge of surface water which are detailed below; these may be applied individually or collectively to form a complete strategy. They should be applied in the order of priority as listed:

- Discharge via Infiltration
- Discharge to a Watercourse
- Discharge to Surface Water Sewer or Highway Drain
- Discharge to Public Sewer

8.6 INFILTRATION

8.6.1 Any impermeable areas that can drain to a soakaway or an alternative method of infiltration would significantly improve the sustainability of any surface water systems.

8.6.2 The British Geological Society (BGS) Geology of Britain Viewer indicates that the entire site is underlain by Millstone Grit Group – Mudstone, siltstone, and sandstone with overlying superficial deposits of Till, Devensian - Diamicton.

8.6.3 Information obtained from the Cranfield University's Soilscape website indicates that the site is in an area classified as being Soilscape 18, which is defined as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

8.6.4 From a desktop review of the geology and soil at the site, it is believed that infiltration would not be an acceptable way of discharging surface water from the site.

8.6.5 AMA completed percolation testing to BRE 365 digest on this site on 21st of November 2022. This showed the test to be abandoned after 60 minutes, and as such is an unviable option for discharging surface water for the proposed development. Refer to **Appendix G** for the percolation test reporting.

8.7 WATERCOURSE

8.7.1 There are multiple watercourses in the area as discussed earlier in the flood risk section. Firstly, the River Wharfe which runs approximately 450m southeast of the site. Situated between the site and the River Wharfe is Prince Henry's Grammar School as well as Wharfe meadows Playground and Café, making discharging into the River Wharfe an unviable option for surface water disposal.

8.7.2 The Carr Banks Gill is located approximately 270m northwest of the site. The distance and location of the watercourse, with residential estates situated between the site and the watercourse, means it would be unviable to discharge surface water into the Carr Banks Gill.

8.7.3 There are two unnamed watercourses to the north of the site, approximately 345m and 450m from the site. Finally, there are also two unnamed watercourses located approximately 460m and 560m from the site. All of the unnamed watercourses discussed are unviable options for the disposal of surface water due to the housing estates located in between each of the watercourses and the site.

8.7.4 As detailed in the Yorkshire Water Pre-Planning Sewerage Enquiry, located in **Appendix D**, there is an existing culverted watercourse located approximately 35m to the west of the site. This culverted watercourse crosses over Croft House Drive. From the sewer map provided by Yorkshire Water, it appears that an existing public surface water sewer connects into this culverted watercourse. AMA contacted the LLFA regarding the possibility of discharging surface water from the proposed development into the culverted watercourse. The LLFA replied stating that the culverted watercourse is riparian owned and consent with the landowner will need to be obtained to make the connection and for them to accept the discharge rate. This correspondence can be found in **Appendix H**.

8.7.5 As we would look to connect within Croft House Drive, the Leeds CC Highways are the riparian owner. It is also recommended that a detailed survey of the existing watercourse, including CCTV survey to verify its condition and location is undertaken.

8.7.6 AMA have therefore consulted Leeds CC Highways regarding the possibility of discharging surface water from the site into the existing watercourse. At the time of writing this report, AMA have not received a response from Highways. However, Highways comments regarding the application stated no objections to the development, subject to conditions. As Leeds CC Highways have confirmed that they have no objections to the development, subject to condition, this drainage strategy will be based upon discharging into the culverted watercourse as shown in **Appendix H**.

8.8 PUBLIC SEWERS

8.8.1 As a last resort and following the hierarchy of surface water, disposal discharge to the public sewer system may need to be considered.

8.8.2 Yorkshire Water have stated that there is capacity for this development to discharge surface water into the 381mm YW public water sewer to the west of the site, within Newall Carr Road. They have advised that surface water discharge from the site should be restricted to 3.0 l/s and this option should be used as a last resort.

8.8.3 As Leeds CC Highways have confirmed that they have no objections to the development, subject to conditions, it is deemed possible to dispose of surface water from the site into the culverted watercourse and as such a connection into the public sewer system is not required.

8.9 PROPOSED DISCHARGE RATES

8.9.1 Discharge via infiltration has been proven to not work as shown in **Appendix G**, and Leeds CC Highways have confirmed that they have no objections to the development, including the discharge of surface water into the culverted watercourse crossing Croft House Drive. As such, surface water discharge will be limited to the greenfield run-off rate.

8.9.2 Typically, any discharge rate less than 5.0 l/s is prone to blockage and will create maintenance issues because of the small size of the orifice required. Where the greenfield discharge suggests a discharge rate of less than 3.0 l/s the figure of 3.0 l/s shall be used to reduce the risk of blockages. This would need to be confirmed by the approving authority.

8.10 ATTENUATION REQUIREMENTS

8.10.1 As discussed earlier, surface water from the site is proposed to discharge into the culverted watercourse in Croft House Drive at a discharge rate of 3.0 l/s, meaning there is a storage requirement during periods of intense rainfall. An impermeable area plan can be found in the proposed drainage strategy in **Appendix E.**

8.10.2 Causeway Flow drainage design software has been used to estimate the maximum storage volume required on-site for the 100-year storm event plus 40% (40% allowance for climate change and 10% for urban creep). These calculations can be found in **Appendix I.**

8.10.3 A drainage layout plan can be found in **Appendix D.**

Total Impermeable Area

8.10.4 This volume is based on using an attenuation tank with a discharge limit of 3.0 l/s. The details on the attenuation can be found in **Table 8-3** below.

Table 8-2. Attenuation Volume

Attenuation Volume

Gross area (ha)	Max Discharge (l/s)	Imp. Area (ha)	Q100+40% Volume (m^3)
0.34	3.0	0.14	65.0

9 SUSTAINABLE DRAINAGE SYSTEMS

9.1.1 Where possible, Sustainable drainage (SuDS) systems/techniques should be used to drain the site of surface water runoff. These could be in the form of permeable paving, rainwater harvesting, ponds, and other above ground green systems. Swales could also be incorporated into the layout to convey surface runoff rather than below ground pipes (which tend to have a higher velocity).

9.2 SUSTAINABLE DRAINAGE (OVERVIEW)

9.2.1 Drainage systems can contribute to sustainable development and improve urban design, by balancing the different issues that influence the development of communities. Approaches to manage surface water that take account of water quantity (flooding), water quality (pollution) and amenity issues are collectively referred to as Sustainable Drainage Systems (SuDS).

9.2.2 SuDS mimic nature and typically manage rainfall close to where it falls. SuDS can be designed to slow water down (attenuate) before it enters streams, rivers, and other watercourses, they provide areas to store water in natural contours and can be used to allow water to soak (infiltrate) into the ground or evaporated from surface water and lost or transpired from vegetation (known as evapotranspiration).

9.2.3 SUDS are technically regarded a sequence of management practices, control structures and strategies designed to drain surface water efficiently and sustainably, while minimising pollution and managing the impact on water quality of local water bodies.

9.2.4 SuDS are more sustainable than traditional drainage methods because they:

- Manage runoff volumes and flow rates from hard surfaces, reducing the impact of urbanisation on flooding
- Protect or enhance water quality (reducing pollution from runoff)
- Protect natural flow regimes in watercourses
- Are sympathetic to the environment and the needs of the local community
- Provide an attractive habitat for wildlife in urban watercourses
- Provide opportunities for evapotranspiration from vegetation and surface water
- Encourage natural groundwater/aquifer recharge (where appropriate)
- Create better places to live, work and play.

9.3 SUDS PRINCIPALS

9.3.1 Sustainable drainage is a departure from the traditional approach to draining sites. There are some key principles that influence the planning and design process enabling SuDS to mimic natural drainage by:

- Storing runoff and releasing it slowly (attenuation)
- Allowing water to soak into the ground (infiltration)
- Slowly transporting (conveying) water on the surface
- Filtering out pollutants
- Allowing sediments to settle out by controlling the flow of the water

9.3.2 The above was replicated from www.susdrain.org

9.4 SUDS TECHNIQUES

9.4.1 The following table is a list of SuDS features that may/may not be feasible for the proposed site.

Table 9-1. SuDS Feasibility Table

SUDS Technique	Can they be feasibly incorporated into the site?	Comments
Green Roofs	×	The sloping roofs of the proposed development would not permit a green-roof design
Basins and Ponds	×	The proposed development could not be designed to incorporate these elements due to site constraints such as the topography.
Filter Strips, Swales and Bio-Retention	×	The proposed development could not be designed to incorporate these elements due to site constraints.
Infiltration techniques	×	Desktop review of the available data indicate that infiltration would not be feasible at the site. Percolation testing to BRE 365 digest revealed that ground conditions would not support infiltration.
Permeable surfaces and tree pits	✓	Surfacing of the external areas could be in a permeable material, such as permeable paved access roads and driveways.
Rainwater Harvesting	✓	New roofs could be directed to rainwater harvesting tanks for reuse.
Tanked Systems	✓	Attenuation storage could be provided if a restricted discharge is required by the LLFA.

10 SUDS MAINTENANCE PLAN

10.1 SURFACE WATER DRAINAGE MAINTENANCE AND MANAGEMENT SCHEDULE

Attenuation Tank

Table 10-1. Attenuation Tank

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify areas that are not operating correctly. If required, take remedial action.	Monthly for the first 3 months of operation, then annually.
	Recover debris from catchment surface area where it may cause risk to performance.	Monthly
	Remove sediment and debris from pre-tank system.	Annually
Remedial Actions	Repair inlets/outlets/vents/overflows.	As necessary
Monitoring	Inspect all inlets/outlets and upstream drainage system to ensure they are all in good condition and operating as designed.	Annually
	Survey inside of tank for sediment and build up and remove if necessary.	Every 5 years

Hydrobrake Manhole

Table 10-2. Hydrobrake Manhole

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove sediment and debris from flow control chambers and upstream manholes.	Monthly for the first 12 months, then 6 monthly.
Remedial Actions	Replace or clean Hydrobrake if performance deteriorates, or failure occurs.	As necessary
Monitoring	Check flow control to ensure emptying is occurring.	Quarterly and post high intensity storm event.

11 SUMMARY & CONCLUSION

11.1.1 The site is in an area identified as having a low probability of flooding on the EA Flood Map and is located in Flood Zone 1.

11.1.2 As with any drainage system, blockages within the surface water sewer systems constructed to serve the development has the potential to cause flooding or disruption. Any drainage systems which are not to be offered for adoption to either the Water Company or the Local Authority will have a suitable maintenance regime scheduled and an appropriate management company appointed to carry out the works.

11.1.3 The primary option for surface water disposal is to discharge into the culverted watercourse located within Croft House Drive.

11.1.4 A percolation test carried out on site confirmed that ground conditions could not support infiltration.

11.1.5 Leeds CC Highways have confirmed that they have no objection to the development, subject to conditions. As such, the proposed drainage strategy is to discharge surface water from the site into the culverted watercourse owned by Highways, located in Croft House Drive.

11.1.6 Attenuation is required for the proposed development as the means of surface water disposal is into the culverted watercourse. Discharge is proposed to be restricted to a rate of 3.0 l/s.

11.1.7 There is a formal point of connection into a YW public combined water sewer in close proximity to the site. Foul water domestic waste can discharge to the 381 mm diameter public combined sewer recorded in Newall Carr Road, at a point to the west of the site.

12 LIMITATIONS

12.1 LIMITATIONS

12.1.1 This report has been prepared for exclusive use by Basil Houldsworth & Sons Ltd for the purpose of assisting them in evaluating the potential constraints imposed by flood risk and drainage in making a Planning Application.

12.1.2 AMA accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of AMA. Any advice, opinions or recommendations within this document should be read and relied upon only in the context of the document as a whole.

12.1.3 AMA has endeavoured to assess all information provided to them during this appraisal. The report summarises from several external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

12.1.4 This report has been undertaken with the assumption that the site will be developed in accordance with the above proposals without significant change. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

12.1.5 A topographic survey has been completed for the site and was supplied to AMA by the client. AMA accepts no liability for the accuracy of this survey, and it is recommended that it is verified on-site prior to the commencement of any construction work.

12.1.6 Existing drainage information is based on third party survey data and record information which is considered to be incomplete. It is therefore recommended that a FULL drainage investigation survey is commissioned to establish the precise alignment, level, and condition of ALL existing drainage within the development site to inform the masterplan and future detailed design proposals.

APPENDICES

APPENDIX A – PROPOSED SITE LAYOUT

APPENDIX B – TOPOGRAPHIC SURVEY

APPENDIX C – SITE WALKOVER OBSERVATION IMAGES

APPENDIX D – YORKSHIRE WATER PRE-PLANNING SEWERAGE ENQUIRY

APPENDIX E – PROPOSED DRAINAGE STRATEGY

APPENDIX F – UK SUDS GREENFIELD RUN-OFF RATES

APPENDIX G – PERCOLATION TEST REPORT

APPENDIX H – CORRESPONDENCE WITH LLFA

APPENDIX I - CAUSEWAY FLOW CALCULATIONS

Appendix A

PROPOSED SITE LAYOUT

3 Beds

1 & 2. House Type A	GF	= 58.7m^2 GIA
	FF	= 57.0m^2 GIA
		= 115.7m^2 GIA

4 Beds

3. House Type B	GF	= 64.3m^2 GIA
	FF	= 64.3m^2 GIA
		= 128.7m^2 GIA
4. House Type B	GF	= 62.5m^2 GIA
	FF	= 62.5m^2 GIA
		= 125.0m^2 GIA

Proposed Site Layout
1 : 200

1 : 200
0 2 4 6 8 10m

N

Notes.

Rev.	Des.	By	Date	Ch.
4	Landscaping Amended	GM	08/11/23	GM
3	Landscaping Amended	CTM	26/10/23	GM
2	Updated In Line With House Types	CTM	10/10/23	GM
1	Issued Following Pre-App Comments	CTM	09/10/23	GM

Suitability
Status: PLANNING

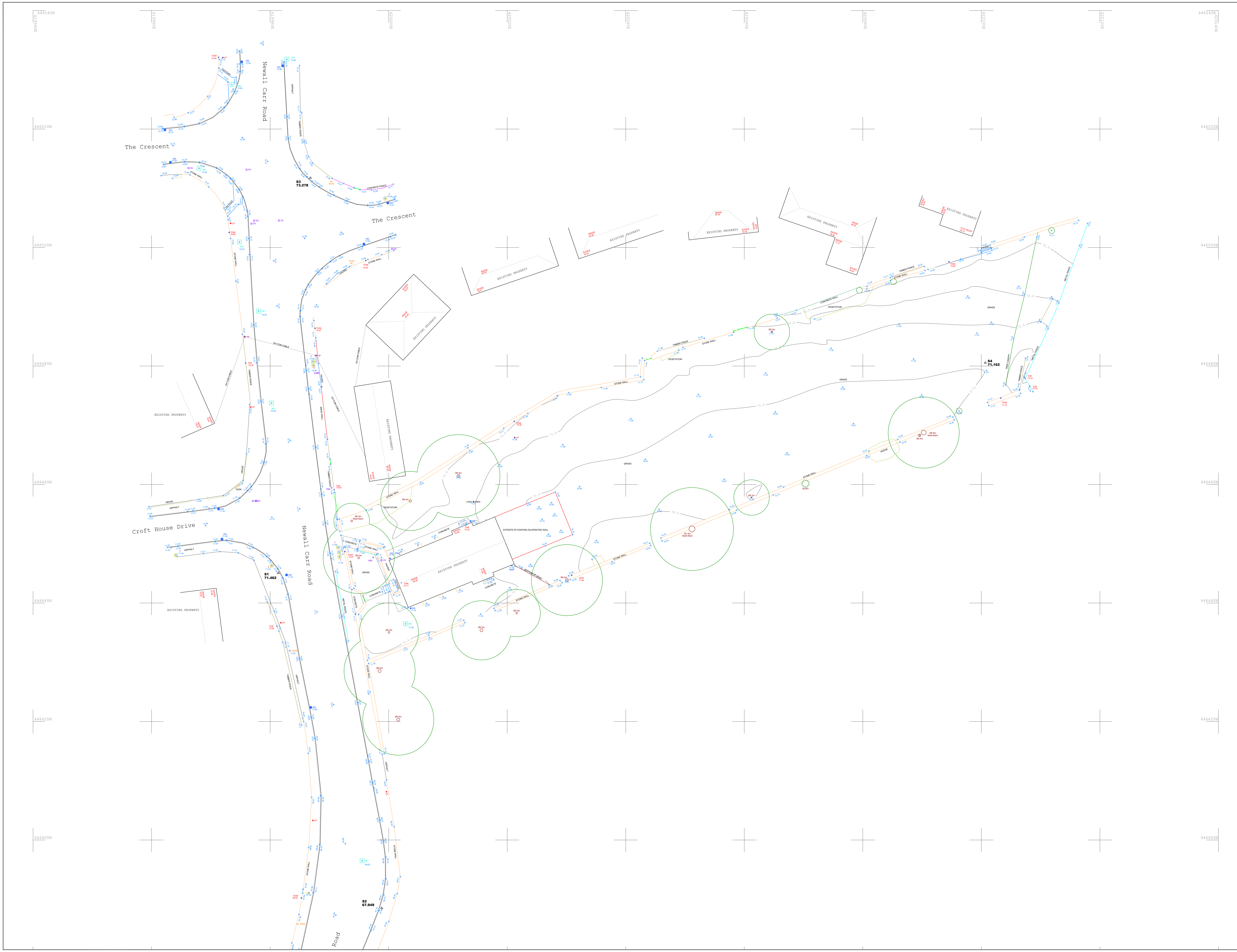
Enjoy Design Ltd
The Old Brewery
High Court
Leeds
LS2 7ES
Tel: 0113 242 3622
www.enjoy-design.co.uk

Client: Basil Houldsworth & Sons Ltd
Job No: 23,059
Project: Newall Carr Hall, Otley
Title: Proposed Site Plan
Date: 10/10/23
Scale: 1 : 200@A1
Check: GM
Drawing No: -ENJ- - - -A- SK 001
Rev: 4
Drawn: CTM

H:\Project Related Files\2023\23,059 Newall Carr Hall\4.00 Architect\4.1 WiP Revit Model\Newall Hall Model v3.rvt

Appendix B

TOPOGRAPHIC SURVEY



Notes

Direction of North

NORTH

GRID

OS NATIONAL GRID.
Using the OS GPS Network and applying OSTN15 transformation and then removing the scale factor for true distances.

DATUM

OS LEVEL DATUM.
Using the OS GPS Network and applying OSGM15 National Geoid Model to obtain local area corrections.

STATION LISTING

Station	Easting	Northing	Level
S1	419981.378	446445.060	71.462
S2	419998.825	446388.515	67.949
S3	419986.791	446511.764	73.278

TOPOGRAPHICAL SURVEY KEY

DRAINAGE & WATER SERVICES

DG	Drain/Gully
KO	Kerb Outlet
MH	Circular Manhole
MH	Square Manhole
MH	Triangular Manhole
RE	Rodding Eye
FH	Fire Hydrant
ST	Stop Tap
SV	Stop Valve
TAP	Tap
WO	Wash Out
WM	Water Meter
WV	Water Valve
AV	Air Valve

STREET FURNITURE & GEOTEC

MAIL	Post Box
BUS	Bus Stop
BOL	Bollard
SIGN	Sign
TL	Traffic Light
CCTV	Camera
LP	Lamp Post
LIGHT	Light
COL	Column
V	Vent
BM	Bench Mark
M	Marker Post
	Trial Pit
BH	Borehole

SERVICES

G	Gas Valve
IC	Inspection Cover
C	Cable TV Cover
C	Cable TV Supply
E	Electric Cover
EP	Electricity Pole
ER	Earth Rod
T	Telecoms Cover
TP	Telegraph Pole
GAS	Gas Riser Pipe
RWP	Rainwater Pipe
SVP	Soil Vent Pipe

ABBREVIATIONS

COMH	Combined Sewer Manhole
FWMH	Foul Water Manhole
SWMH	Surface Water Manhole
CL	Cover Level
IL	Invert Level
THR	Threshold Level
TOF	Top Of Fence
TOH	Top Of Hedge
TOW	Top Of Wall
U/S	Underside
UTR	Unable To Raise

TITLE LAYOUT

(A0-1)

(A0-2)

(w) www.mtsurveys.com
(e) admin@mtsurveys.com
(t) (0)1274 408352

MT Surveys Ltd
Unit 8
Parkview Court
Shipley
BD18 3DZ

MT SURVEYS

CLIENT
Johnson Mowat

SITE
Newall Carr Road, Otley, Leeds

DRAWING TITLE
3D Topographical Survey

DRAWING REF-(LAYOUT TAB)	SCALE@A0
1216-144_3D (A0-1)	1/200

PROJECT REF	REV
1216-144	Ø

SURVEYED	AT,BF	DRAWN	AT
CHECKED	MT	DATE	26 / 03 / 2021

REV	DATE	DRAWN	DESCRIPTION	CHECKED
-	-- / -- / ----	--	--	--

Appendix C

SITE WALKOVER OBSERVATION IMAGES

SITE WALKOVER OBSERVATION IMAGES

Photo 1

Photo 2

Photo 3

Photo 4

Appendix D

YORKSHIRE WATER PRE-PLANNING SEWERAGE ENQUIRY

YorkshireWater

Yorkshire Water Services
Developer Services
Pre-Development Team
PO BOX 52
Bradford
BD3 7AY

Tel: 0345 120 8482
Fax:

Email:
technical.sewerage@yorkshirewater.co.uk

For telephone enquiries ring:
George Mullaney on 0345 120 8482

Andrew Moseley Associates
51 St Paul Street
LS1 2TE
aaron@amatp.co.uk

Your Ref:
Our Ref: Y013777

10th November 2022

Dear Mr Yesudian,

Land off Newell Carr Road, Otley, LS21 2AU - Pre-Planning Enquiry U842243

Thank you for your recent enquiry and remittance. Our official VAT receipt has been sent to you under separate cover. Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records.

The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months:

Foul Water

Development of the site should take place with separate systems for foul and surface water drainage. The separate systems should extend to the points of discharge to be agreed.

Foul water domestic waste can discharge to the 381 mm diameter public combined sewer recorded in Newall Carr Road, at a point to the west of the site.

YorkshireWater

Surface Water

The developer's attention is drawn to Requirement H3 of the Building Regulations 2010. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to soakaway, infiltration system and watercourse in that priority order.

Sustainable Drainage Systems (SuDS), for example the use of soakaways and/or permeable hardstanding etc, may be a suitable solution for surface water disposal appropriate in this situation. You are advised to seek comments on the suitability of SuDS in this instance from the appropriate authorities.

It is understood that a culverted watercourse is located to the west of the site crossing Croft House Drive. This appears to be the obvious place for surface water disposal (if SuDS are not viable). Please note Yorkshire Water cannot provide plans of culverted watercourses or highway drains. To obtain plans please contact the Lead Local Flood Authority for more details.

As a last resort and subject to providing satisfactory evidence as to why the other methods of surface water disposal have been discounted, curtilage surface water may discharge to the 381 mm diameter public surface water sewer recorded in Newall Carr Road, at a point to the west of the site. The surface water discharge from the site to be restricted to not greater than 3 (three) litres/second. This permission is not an acceptance in respect to any planning conditions imposed under the Grant of Planning Permission.

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority/Internal Drainage Board, with regard to surface water disposal from the site.

Other observations

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may apply on line or obtain an application form from our website (www.yorkshirewater.com) or by telephoning 0345 120 84 82.

Under the provisions of section 111 of the Water Industry Act 1991 it is unlawful to pass into any public sewer (or into any drain or private sewer communicating with the public sewer network) any items likely to cause damage to the public sewer network interfere with the free flow of its contents or affect the treatment and disposal of its contents. Amongst other things this includes fat, oil, nappies, bandages, syringes, medicines, sanitary towels and incontinence pants. Contravention of the provisions of section 111 is a criminal offence.

An off-site foul and surface water sewer may be required which may be provided by the developer and considered for Code for Adoption under Section 104 of the Water Industry

Act 1991. Please telephone 0345 120 84 82 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0345 120 84 82.

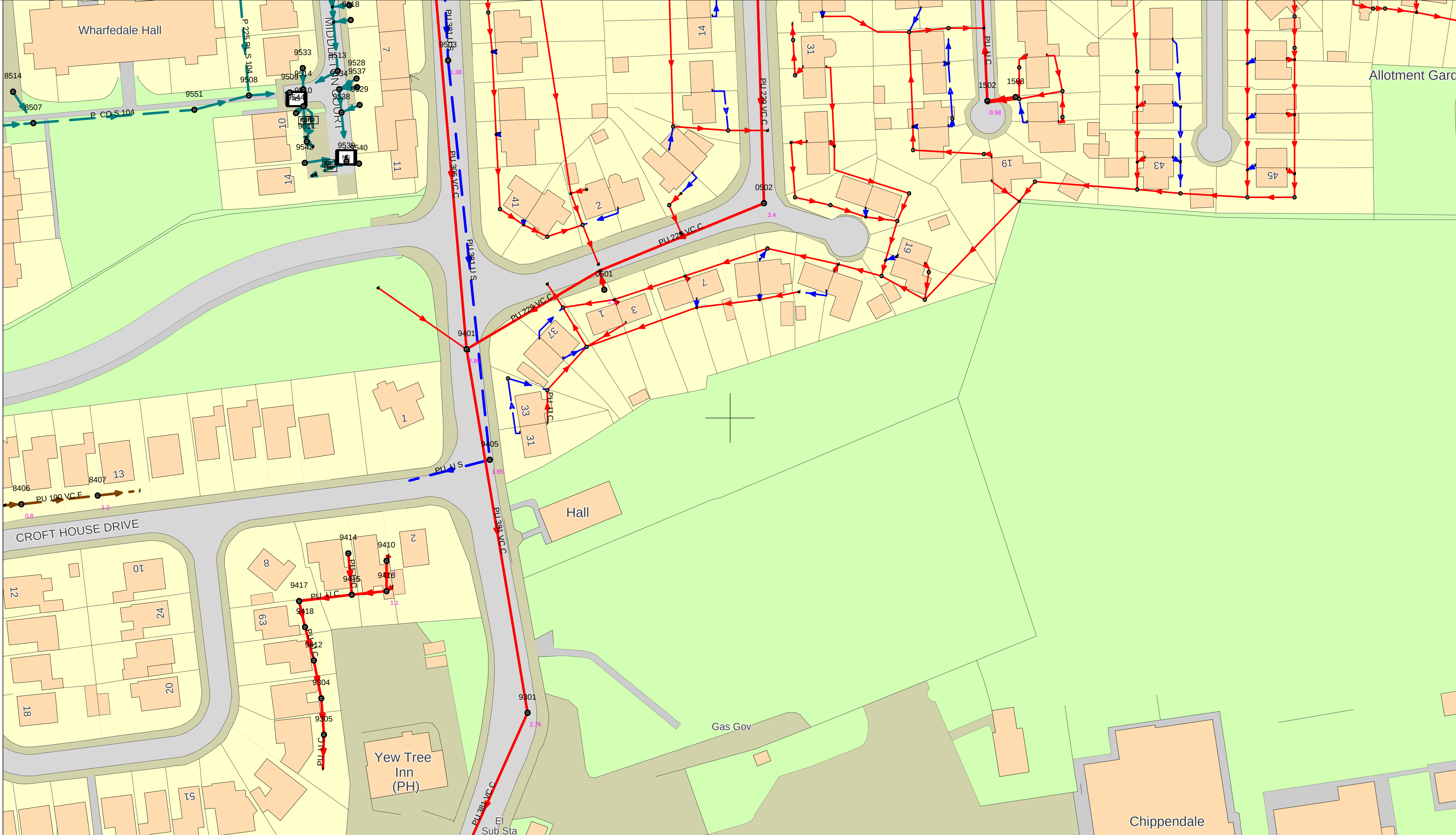
Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the Code for Adoption 2021/22, pursuant to an agreement under Section 104 of the Water Industry Act 1991. We are happy to offer pre-development technical advice on any prospective sites that you would like to put forward for adoption, prior to submission of your adoption application.

An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Sewer Adoption, Diversion and Requisition (telephone 0345 120 84 82) or email technical.sewerage@yorkshirewater.co.uk or visit - https://www.yorkshirewater.com/developers/sewerage/sewer-adoptions/ for further information.

All the above comments are based upon the information and records available at the present time and is subject to formal planning approval agreement. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours sincerely

George Mullaney
Development Services Technician



419878 : 446373

Map Name : SE1946SE

Title

Notes

Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :
G Mullaney
Contact Tel :

Partial Key

Foul Sewer = F
Combined Sewer = C
Surface Water Sewer = SW
Trade Sewer = TD
Partially Separate = PS

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connections are shown.

Date Req : 10/11/2022, 16:04:47

Date Gen : 10/11/2022, 16:04:59

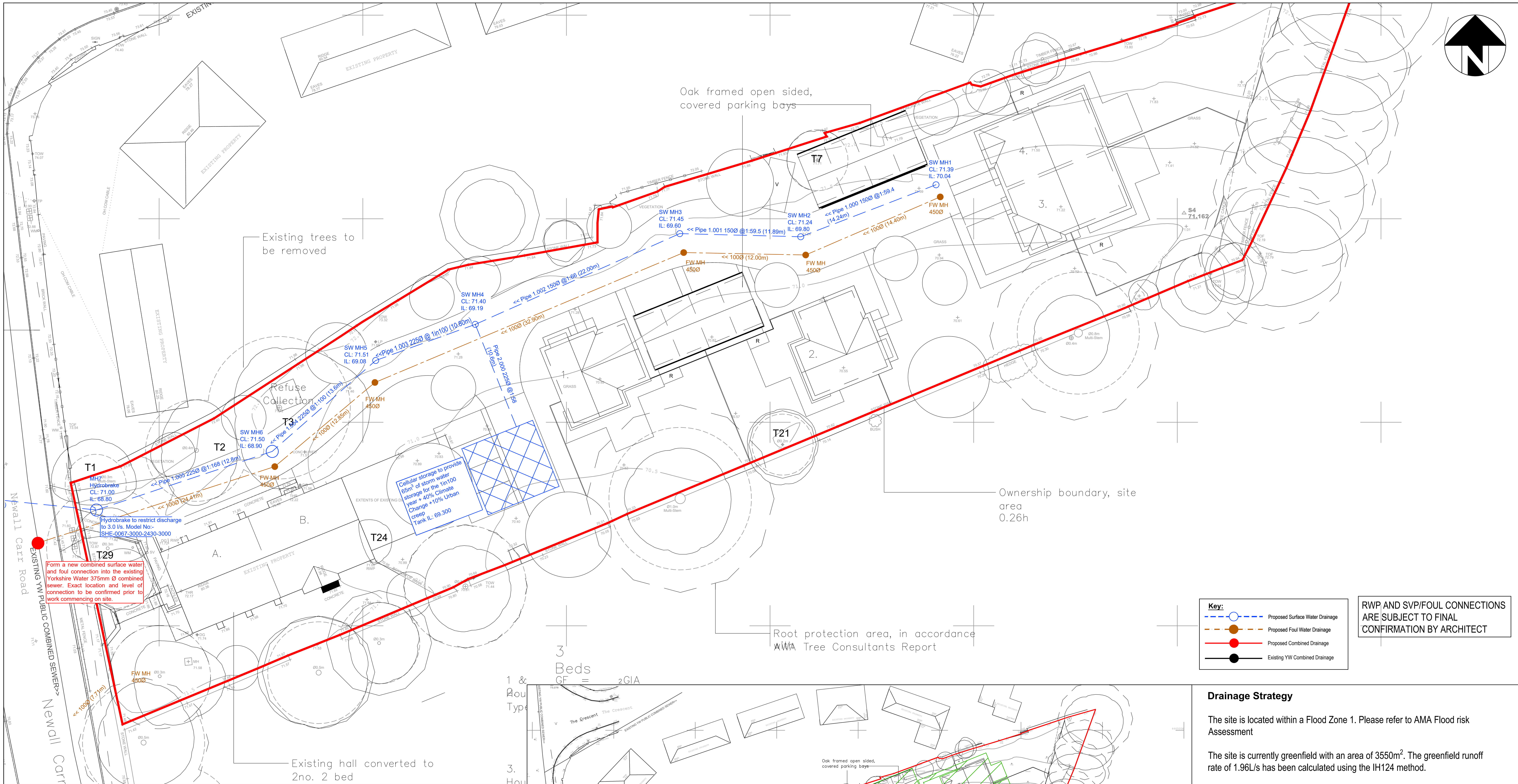
Source : Sewer Network Enquiry

UPN: Undefined

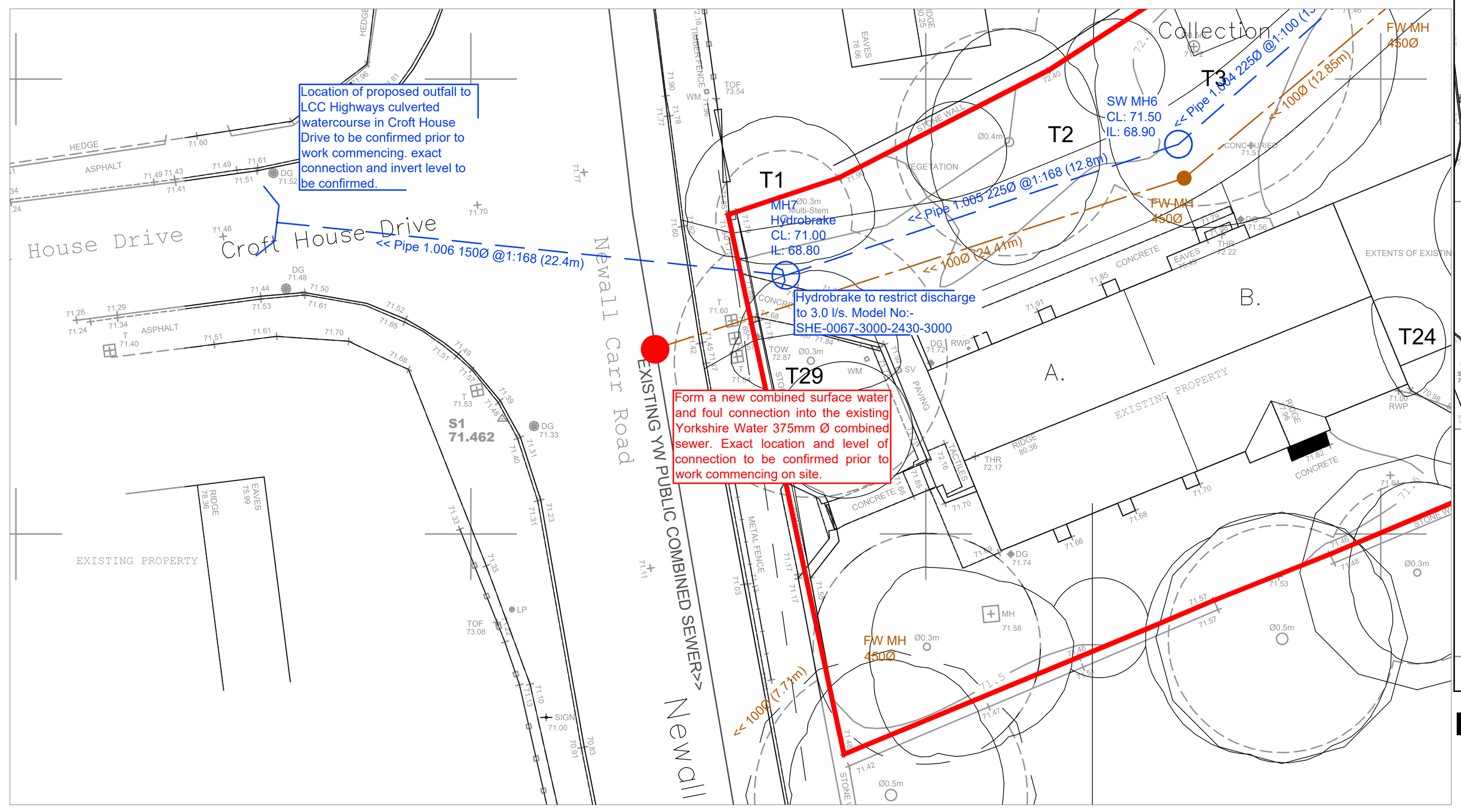
Originator: G Mullaney, ,

Appendix E

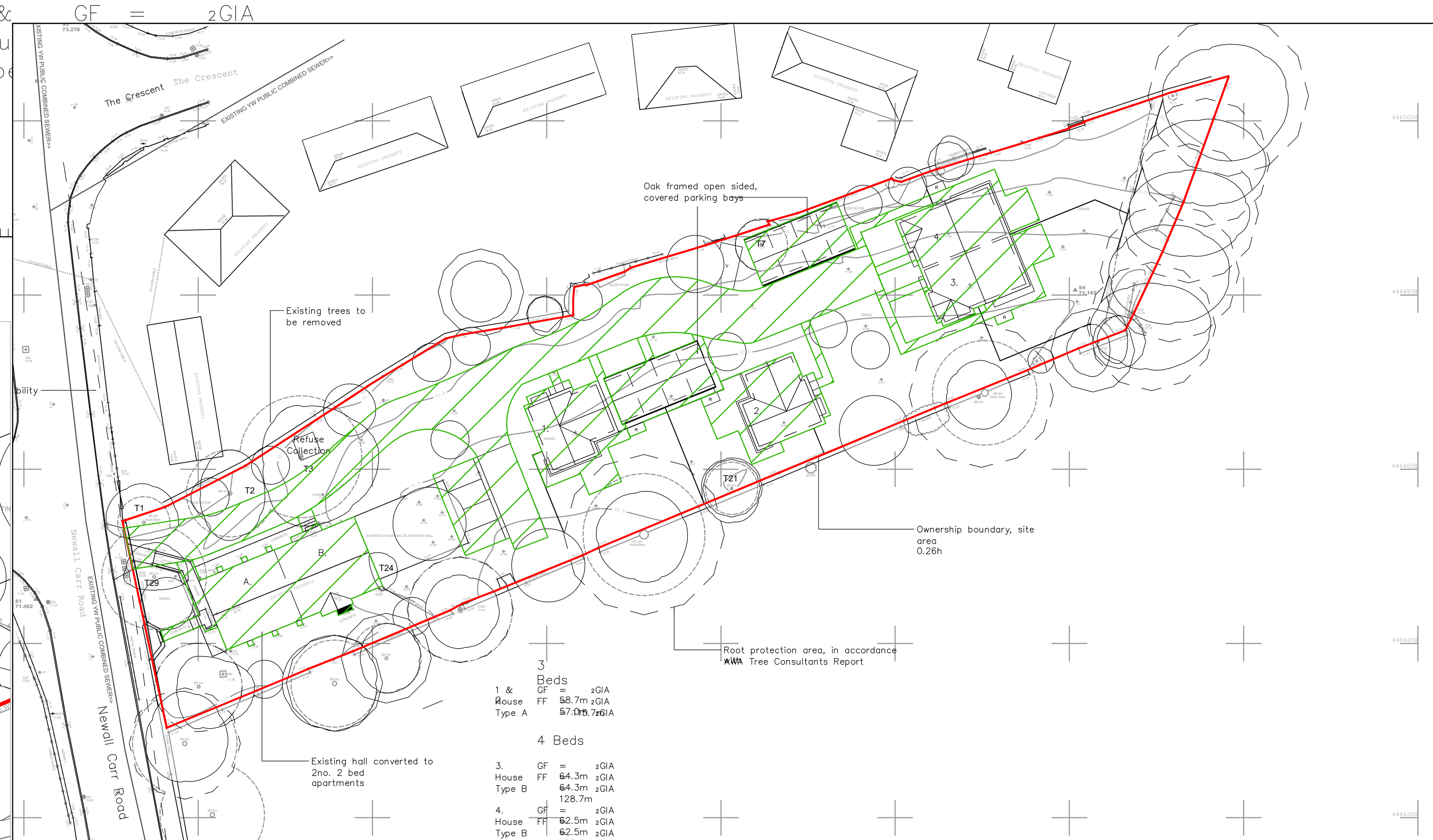
PROPOSED DRAINAGE STRATEGY



Proposed Drainage Strategy (1:200)



Proposed Off Site Drainage (1:250)



Proposed Impermeable Area (1:500) = 1455m²

Drainage Strategy

The site is located within a Flood Zone 1. Please refer to AMA Flood risk Assessment

The site is currently greenfield with an area of 3550m^2. The greenfield runoff rate of 1.96L/s has been calculated using the IH124 method.

Surface Water:

Surface water from the proposed new site will connect into the LCC Highways culverted watercourse within Croft House Drive.

Flow restriction 3.0 L/s

The proposed impermeable area is 1455m^2. Based on a flow restriction of 3l/s and modeling using Causeway Flow software the attenuation requirement for a peak return period of 1 in 100year plus 40% climate change +10% urban creep is **65.0m^3**.

Attenuation to be provided via **GEO-CELLULAR TANK 7.5x7x1.2m DEEP WITH 95% VOID RATIO.** The flows will be attenuated using a 191mm Hydrobrake Model No: SHE-0067-3000-2430-3000.

Foul Water:

Foul water from the proposed new site will connect into the existing combined Yorkshire Water sewer within Newall Carr Road. Exact level and location to be confirmed on receipt of CCTV drainage survey.

Pipe sizes and levels are indicative only and are subject to change at detailed design.

NOTES

REV	DESCRIPTION	DATE	BY
P5	Updated Site Plan	23/11/23	AY
P4	Comments from LCC Highways	22/03/23	JE
P3	Comments from the LLFA	26/01/23	AY
P2	Site layout updated	05/12/22	AJA
P1	Preliminary - Initial Issue	-	-

ANDREW MOSELEY ASSOCIATES
TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

Project: NEWALL CARR ROAD OTLEY

Client: JOHNSON MOWAT

Drawing: PROPOSED DRAINAGE LAYOUT

Drawn By: AJA | Date: 23/11/2023

Checked: GS | Scale: 1:500 | A1

Drawing No: AMA/20795/D/500 | Rev: P5

Appendix F

UK SUDS GREENFIELD RUN-OFF RATES

Print | Close Report

HR Wallingford
Working with water

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Jasmine Ellenor
Site name:	Newall Carr Road
Site location:	Otley

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.91393° N
Longitude:	1.69634° W
Reference:	2314042826
Date:	Nov 15 2022 14:43

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 0.34

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	813	813
Hydrological region:	3	3
Growth curve factor 1 year:	0.86	0.86
Growth curve factor 30 years:	1.75	1.75
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	1.96	1.96
1 in 1 year (l/s):	1.68	1.68
1 in 30 years (l/s):	3.42	3.42
1 in 100 year (l/s):	4.07	4.07
1 in 200 years (l/s):	4.63	4.63

Appendix G

PERCOLATION TEST REPORT

ANDREW MOSELEY ASSOCIATES

TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

NEWALL HALL, NEWALL CARR ROAD, OTLEY

PERCOLATION TEST REPORT

DECEMBER 2022

REPORT NO: 20795-PTR-001

NEWALL HALL, NEWALL CARR ROAD, OTLEY

PERCOLATION TEST REPORT

Basil Houldsworth & Sons Ltd

Percolation Test Report

CONFIDENTIAL

Project no: 20795-PTR-001

Date: December 2022

Andrew Moseley Associates

51A St Paul's Street

Leeds, LS1 2TE

www.amatp.co.uk

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	Planning			
Date	December 2022			
Prepared by	JE			
Checked by	AY			
Authorised by	GS			

PRODUCTION TEAM

Associate	Gavin Shepherd
Consultant	Aaron Yesudian
Graduate	Jasmine Ellenor

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1 TESTING METHODLOGY

1.1 BRE 365 INFILTRATION TEST

1.1.1 All tests undertaken at the site were excavated following the below instruction as outlined in BRE 365 Digest.

- Excavate a soakage trail pit to the required depth (typically 1.0m - 2.0m deep) using minimum width (0.3m) and length (1.0m). Carefully trim sides and bottom.
- Carefully measure size of pit and note sizes below.
- Fill soakage hole briskly with water (from bowser) to at least three quarters full. Being careful not to wash away the sides. (Note: a 0.3m wide, 1m long, 1.5m deep trench needs at least 350 litres (80 gallons) of water)
- Place straight edge over top of soakage pit and measure (dip) to the top of the water.
- Record time versus dips in table below. Dip every 5 minutes for the first hour and every hour until pit is one quarter full. Repeat test 3 times in total on the same or consecutive days.

2 PERCOLATION TEST

2.1 INTRODUCTION

2.1.1 This infiltration test report has been prepared by Andrew Moseley Associates (AMA) in relation to the drainage design associated with Newall Hall, Newall Carr Road, Otley. The purpose of this document is to supplement the AMA Flood Risk Statement & Drainage Strategy report for the development and construction of eight residential dwellings located at Newall Hall, Newall Carr Road, Otley. This report will focus on:

- Development and site description
- Weather conditions
- Dimensions and properties of the pit
- Results
- Summary

2.2 DEVELOPMENT AND SITE DESCRIPTION

2.2.1 Andrew Moseley Associates (AMA) was appointed by Basil Houldsworth & Sons Ltd to provide a Percolation Test Report in support of a residential development, located behind Newall Church Hall, Newall, Otley, Leeds, LS21 2AP.

2.2.2 The Local Planning Authority for this development is Leeds City Council who are also the Lead Local Flood Authority for the area.

2.2.3 The site is referenced in Table 2-1 and Figure 1 below.

Table 2-1. Site Context

Site Name	Newall Hall, Newall Carr Road
Location	Otley
NGR (approx.)	SE 20042 46474
Application Site Area (ha)	0.34
General Locality	The site is located on undeveloped greenfield land and borders undeveloped land to the east and south, the local church hall to the west and a residential development to the north. Pedestrian and vehicular access to the site is provided via Newall Carr Road, which is located to the east of the site.
Local Planning Authority	Leeds City Council

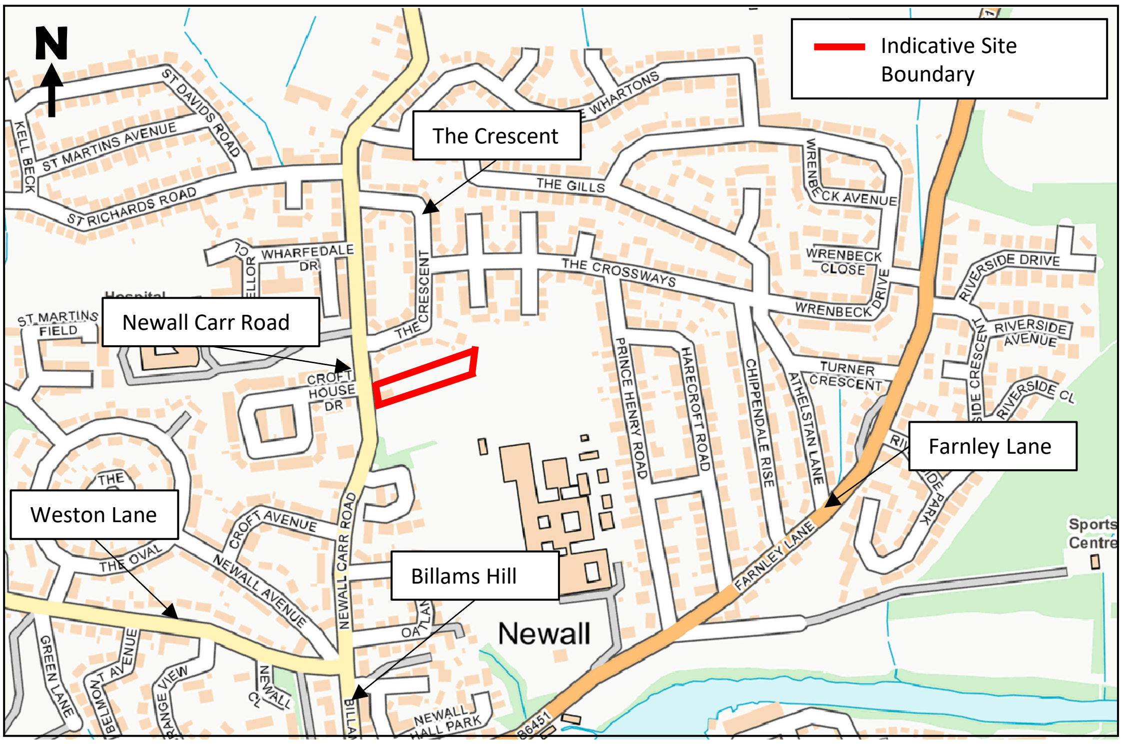

Figure 1. Site Location

Geology

2.2.4 British Geological Survey (BGS) Open Geoscience website[1] indicates that the entire site is underlain by Millstone Grit Group – Mudstone, siltstone and sandstone, with overlying superficial deposits of Till, Devensian - Diamicton.

2.2.5 The BGS website information indicates that there is no borehole record within close proximity of the site.

Hydrogeology

2.2.6 According to the Department for Environment, Food and Rural Affairs (DEFRA) MAGIC map[2], the site is indicated as not being located in a Groundwater Source Protection Zone (SPZ), as defined by the Environment Agency (EA) for the protection of a potable groundwater supply.

2.2.7 The site is located as being in an area of medium-low ground water vulnerability and located above a Secondary A bedrock aquifer and a Secondary (undifferentiated) superficial aquifer.

[1] Available at: http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed on 15/11/2022
[2] Available at: https://magic.defra.gov.uk/MagicMap.aspx?startTopic, accessed on 15/11/2022

2.2.8 Information obtained from the Cranfield University's Soilscape website[3] indicates that the site is located in an area classified as being Soilscape 18, which is defined as having slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

2.3 WEATHER CONDITIONS

2.3.1 The infiltration test was undertaken on the 21st of November 2022, throughout the times of 9:00 am to 11:00 pm. The ground was fairly wet from rain showers the previous night, with clear weather throughout the infiltration test.

2.4 DIMENSIONS AND PROPERTIES OF THE PIT

2.4.1 The Percolation Testing was carried out on site on 21st November 2022 to establish if infiltration methods were going to be a suitable solution for draining the site.

2.4.2 Three trial holes were formed with the following dimensions:

- Test Pit 1: 1200mm x 1200mm x 950mm
- Test Pit 2: 1200mm x 1100mm x 950mm
- Test Pit 3: 1200mm x 1200mm x 1000mm

2.4.3 The water level drop was monitored and recorded.

2.5 RESULTS

2.5.1 For the test completed on Test Pit 1, water was filled to a depth of 750 mm, and the water level dropped 13 mm over a 60-minute period.

2.5.2 For the test completed on Test Pit 2, water was filled to a depth of 860 mm, and the water level dropped 70 mm over a 60-minute period.

2.5.3 For the test completed on Test Pit 3, water was filled to a depth of 800 mm, and the water level dropped 55 mm over a 60-minute period.

Table 2-2. Test Results

Test Pit 1		Test Pit 2		Test Pit 3	
Time (mins)	Dip (mm)	Time (mins)	Dip (mm)	Time (mins)	Dip (mm)
0	750	0	860	0	800
5	750	5	870	5	795

[3] Available at: http://www.landis.org.uk/soilscapes/, accessed on 15/11/2022

10	748	10	850	10	790
15	745	15	855	15	785
20	743	20	840	20	780
25	742	25	830	25	775
30	740	30	825	30	765
35	740	35	820	35	765
40	739	40	810	40	760
45	737	45	800	45	755
50	737	50	795	50	750
55	737	55	795	55	745
60	737	60	790	60	745

2.6 SUMMARY

2.6.1 The test was abandoned after 60 minutes. This shows that infiltration is not a viable option for draining the proposed site.

APPENDICES

APPENDIX A

Percolation Photography

Test Pit 1

Test Pit 2

Test Pit 3

ANDREW MOSELEY ASSOCIATES
TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

Andrew Moseley Associates, 51A St Paul's Street, Leeds, LS1 2TE

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Appendix H

CORRESPONDENCE WITH LLFA

From:	Beavis, Thomas
To:	Jasmine Ellenor
Subject:	RE: Newall Carr Road, Otley Drainage Strategy
Date:	13 December 2022 17:31:33
Attachments:	image001.png image002.png Newall Carr Road.pdf

Ellenor
Apologies for delay in replying, but O only work Tues PM, Wed and Thursdays.

The culverted watercourse you intend to discharge to is a riparian owned watercourse and you will need to obtain the consent to make the connection and for them to accept the discharge rate of whoever owns the land where you propose to connect. I assume you would want to connect within Cross house Drive, in which case the riparian owner would be Leeds CC Highways and you should contact them to agree the connection. I would suggest that you undertake a detailed survey of the existing watercourse, including CCTV survey to verify its condition and location.

I attach a copy of our old sewer records which show the assumed route of the culverted watercourse

In terms of discharge rate, unless you can prove a higher existing connection rate, then the maximum allowed rate we would accept would be 3.5 l/s

You will initially need to demonstrate that infiltration and the use of soakaways is not a viable means of disposing of surface water before you can consider discharging to the culverted watercourse.

For your information, we do not have any records of flooding within the immediate area of the site which would require additional flood mitigation measures.

To support a future planning application, a SUDS based Drainage Assessment and Flood Risk Assessment (where the site area exceeds 1 ha or is located within Flood Zone 2 or 3 or within an area at risk of surface water flooding) should be provided.
The level of information to be provided to support a future planning application shall be as set out within the Leeds FRM Validation Requirements for Flood Risk & Surface Water Drainage, which can be downloaded from here
https://www.leeds.gov.uk/docs/Flood%20Risk%20requirements.pdf and the SUDS based drainage design shall be based on the specific requirements as set out within the current Leeds FRM Minimum Development Control Standards for Flood Risk (MDCSFR), which can be downloaded from here
https://www.leeds.gov.uk/docs/Minimum%20Development%20Control%20Standards%20for%20Flood%20Risk.pdf

Regards
Tom Beavis
Leeds Flood Risk Management – Development Control
Tel No 0113 336 8982
E mail Thomas.Beavis@leeds.gov.uk

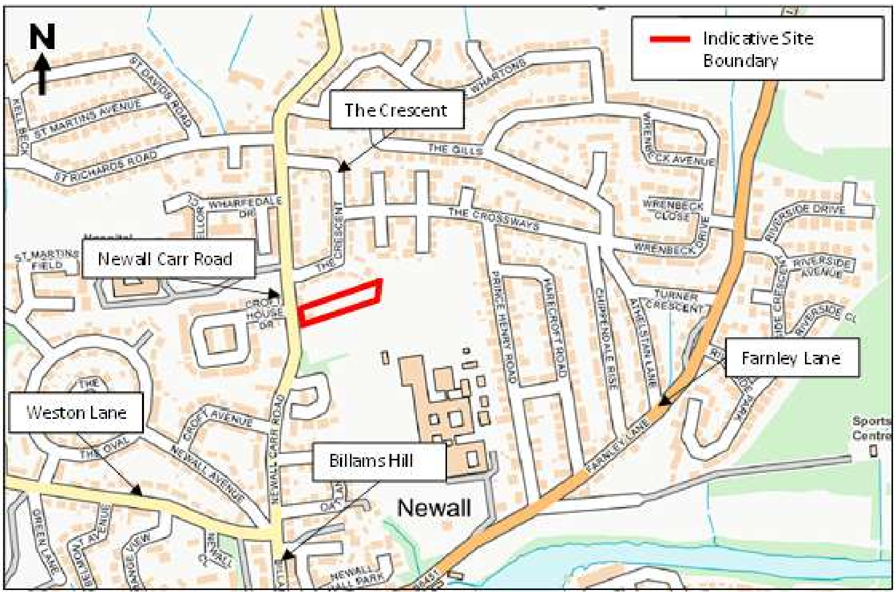
Please note that I only work Wednesdays and Thursdays. In the meantime if you require urgent assistance please contact Robert Sanderson Principle Engineer Dev Control at Robert.Sanderson@leeds.gov.uk

---

From: Jasmine Ellenor <jasmine@amatp.co.uk>
Sent: 13 December 2022 11:13
To: Beavis, Thomas <Thomas.Beavis@leeds.gov.uk>
Subject: RE: Newall Carr Road, Otley Drainage Strategy

Dear Mr Beavis,

Hope you are well. I am emailing this morning regarding our site at Newall Carr Road, Otley (see below). We are currently looking for a method of discharging surface water from the site. We are pushed to complete our report as soon as possible, so my apologies for contacting you again regarding this.



Would you be able to provide information on the possibility of discharging surface water into the culverted watercourse to the west of the site, along with a possible discharge rate?

Thank you.

Kind regards,

Jasmine

Jasmine Ellenor
Graduate Flood Risk Engineer

ANDREW MOSELEY ASSOCIATES
TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

Web: www.amatp.co.uk
DD: 0113 418 2615
Mob: 07742 668 250

From: Jasmine Ellenor
Sent: 09 December 2022 13:51
To: Beavis, Thomas <Thomas.Beavis@leeds.gov.uk>
Subject: RE: Newall Carr Road, Otley Drainage Strategy

Dear Mr Beavis,

I am emailing regarding our site at Newall Carr Road, Otley and wondered if you had had the chance to look over my previous email? Apologies for the quick turn around, we are pushed to find a drainage strategy for this.

Would you be able to provide information on the possibility of discharging surface water into the culverted watercourse to the west of the site, along with a possible discharge rate?

Thank you!

Kind regards,

Jasmine

Jasmine Ellenor
Graduate Flood Risk Engineer

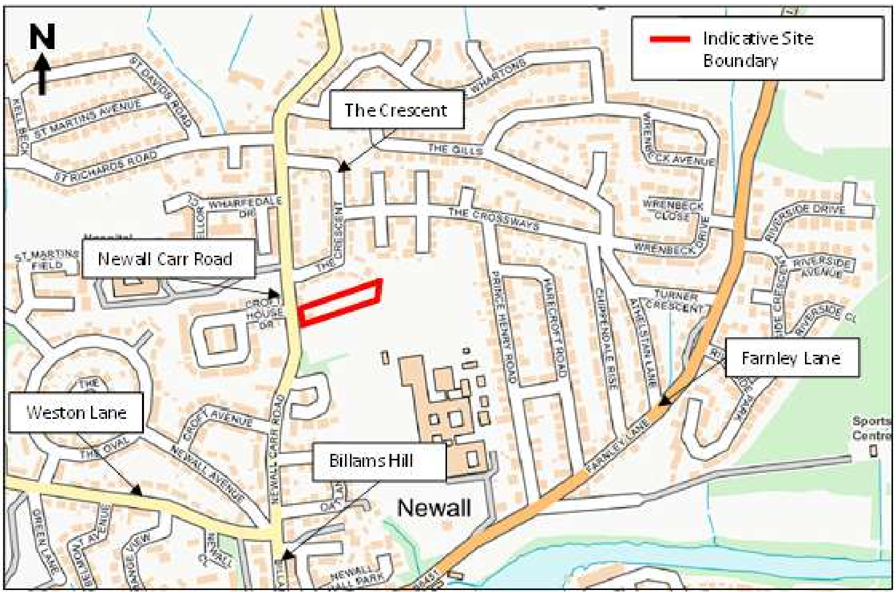
ANDREW MOSELEY ASSOCIATES
TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

Web: www.amatp.co.uk
DD: 0113 418 2615
Mob: 07742 668 250

From: Jasmine Ellenor
Sent: 07 December 2022 11:25
To: Beavis, Thomas <Thomas.Beavis@leeds.gov.uk>
Cc: Aaron Yesudian <aaron@amatp.co.uk>
Subject: Newall Carr Road, Otley Drainage Strategy

Dear Mr Beavis

Hope you are well! I am emailing regarding the drainage strategy for a residential development located at Newall Hall, Newall Carr Road, Otley, Leeds, LS21 2AP at NGR: SE 20042 46474 (see below).



AMA are undertaking a drainage strategy for this site and received the attached Pre-Planning Sewerage Enquiry from Yorkshire Water. This provides detail of a culverted watercourse to the west of the site, crossing Croft House Drive, as a potential outfall for surface water. Looking at the sewer map provided by Yorkshire Water, it appears that the existing surface water sewer likely connects into this watercourse.

Would you be able to provide information on the possibility of discharging surface water into this culverted watercourse, along with a possible discharge rate?

If you require any further information regarding the site, please let me know!

Thank you!

Kind regards,

Jasmine

Jasmine Ellenor
Graduate Flood Risk Engineer

ANDREW MOSELEY ASSOCIATES
TRANSPORT AND DEVELOPMENT PLANNING CONSULTANTS

Web: www.amatp.co.uk
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Andrew Moseley Associates
51A St Paul's Street
Ground Floor
Leeds

LS1 2TE

Appendix I

CAUSEWAY FLOW CALCULATIONS

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
MH1	0.024	5.00	71.390	1200	1.350
MH2	0.024	5.00	71.240	1200	1.439
MH3	0.024	5.00	71.450	1200	1.849
MH4	0.024	5.00	71.400	1200	2.205
MH5	0.024	5.00	71.510	1200	2.423
MH6	0.024	5.00	71.500	1200	2.548
MH7			71.840	1200	2.964
OUTFALL			71.110	1200	2.265
TANK		5.00	70.800	1200	1.425

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	MH1	MH2	14.200	0.600	70.040	69.801	0.239	59.4	150	5.18	50.0
1.001	MH2	MH3	11.890	0.600	69.801	69.601	0.200	59.5	150	5.33	50.0
1.002	MH3	MH4	21.900	0.600	69.601	69.270	0.331	66.2	150	5.63	50.0
2.000	TANK	MH4	10.600	0.600	69.375	69.195	0.180	58.9	225	5.10	50.0
1.003	MH4	MH5	10.800	0.600	69.195	69.087	0.108	100.0	225	5.77	50.0
1.004	MH5	MH6	13.600	0.600	69.087	68.952	0.135	100.7	225	5.94	50.0
1.005	MH6	MH7	12.800	0.600	68.952	68.876	0.076	168.4	225	6.15	50.0
1.006	MH7	OUTFALL	22.400	0.600	68.876	68.845	0.031	722.6	300	6.80	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.307	23.1	3.3	1.200	1.289	0.024	0.0	38	0.923
1.001	1.307	23.1	6.5	1.289	1.699	0.048	0.0	54	1.123
1.002	1.238	21.9	9.8	1.699	1.980	0.072	0.0	70	1.202
2.000	1.707	67.9	0.0	1.200	1.980	0.000	0.0	0	0.000
1.003	1.307	52.0	13.0	1.980	2.198	0.096	0.0	77	1.094
1.004	1.302	51.8	16.3	2.198	2.323	0.120	0.0	87	1.157
1.005	1.004	39.9	19.5	2.323	2.739	0.144	0.0	111	0.999
1.006	0.577	40.8	19.5	2.664	1.965	0.144	0.0	146	0.571

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	14.200	59.4	150	Circular	71.390	70.040	1.200	71.240	69.801	1.289
1.001	11.890	59.5	150	Circular	71.240	69.801	1.289	71.450	69.601	1.699
1.002	21.900	66.2	150	Circular	71.450	69.601	1.699	71.400	69.270	1.980
2.000	10.600	58.9	225	Circular	70.800	69.375	1.200	71.400	69.195	1.980
1.003	10.800	100.0	225	Circular	71.400	69.195	1.980	71.510	69.087	2.198
1.004	13.600	100.7	225	Circular	71.510	69.087	2.198	71.500	68.952	2.323
1.005	12.800	168.4	225	Circular	71.500	68.952	2.323	71.840	68.876	2.739
1.006	22.400	722.6	300	Circular	71.840	68.876	2.664	71.110	68.845	1.965

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	MH1	1200	Manhole	Adoptable	MH2	1200	Manhole	Adoptable
1.001	MH2	1200	Manhole	Adoptable	MH3	1200	Manhole	Adoptable
1.002	MH3	1200	Manhole	Adoptable	MH4	1200	Manhole	Adoptable
2.000	TANK	1200	Manhole	Adoptable	MH4	1200	Manhole	Adoptable
1.003	MH4	1200	Manhole	Adoptable	MH5	1200	Manhole	Adoptable
1.004	MH5	1200	Manhole	Adoptable	MH6	1200	Manhole	Adoptable
1.005	MH6	1200	Manhole	Adoptable	MH7	1200	Manhole	Adoptable
1.006	MH7	1200	Manhole	Adoptable	OUTFALL	1200	Manhole	Adoptable

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
MH1	71.390	1.350	1200	0	1.000	70.040	150
MH2	71.240	1.439	1200	1	1.000	69.801	150
				0	1.001	69.801	150
MH3	71.450	1.849	1200	1	1.001	69.601	150
				0	1.002	69.601	150
MH4	71.400	2.205	1200	1	2.000	69.195	225
				2	1.002	69.270	150
				0	1.003	69.195	225
MH5	71.510	2.423	1200	1	1.003	69.087	225
				0	1.004	69.087	225
MH6	71.500	2.548	1200	1	1.004	68.952	225
				0	1.005	68.952	225
MH7	71.840	2.964	1200	1	1.005	68.876	225
				0	1.006	68.876	300

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
OUTFALL	71.110	2.265	1200	1	1.006	68.845	300
TANK	70.800	1.425	1200	0	2.000	69.375	225

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	10	0

Node MH7 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	68.876	Product Number	CTL-SHE-0075-3000-1500-3000
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.0	Min Node Diameter (mm)	1200

Node TANK Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	69.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	200

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	70.0	0.0	1.200	70.0	0.0	1.201	0.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	10	70.076	0.036	2.9	0.0532	0.0000	OK
15 minute winter	MH2	10	69.852	0.051	5.8	0.0753	0.0000	OK
15 minute winter	MH3	10	69.668	0.067	8.6	0.0929	0.0000	OK
15 minute winter	MH4	13	69.458	0.263	11.7	0.3545	0.0000	SURCHARGED
15 minute winter	MH5	12	69.466	0.379	13.2	0.5035	0.0000	SURCHARGED
15 minute winter	MH6	12	69.473	0.521	11.1	0.6871	0.0000	SURCHARGED
15 minute winter	MH7	12	69.472	0.596	3.9	0.6737	0.0000	SURCHARGED
480 minute summer	OUTFALL	248	68.883	0.038	2.6	0.0000	0.0000	OK
120 minute winter	TANK	86	69.424	0.049	4.1	3.2544	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	MH1	1.000	MH2	2.9	0.677	0.124	0.0607	
15 minute winter	MH2	1.001	MH3	5.7	0.901	0.248	0.0768	
15 minute winter	MH3	1.002	MH4	8.6	1.136	0.391	0.2664	
15 minute winter	MH4	1.003	MH5	10.2	0.822	0.196	0.4295	
15 minute winter	MH5	1.004	MH6	8.8	0.660	0.170	0.5409	
15 minute winter	MH6	1.005	MH7	3.9	0.445	0.098	0.5091	
15 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	8.0
120 minute winter	TANK	2.000	MH4	-4.1	0.375	-0.060	0.2441	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	10	70.101	0.061	8.2	0.0912	0.0000	OK
15 minute winter	MH2	12	70.080	0.279	16.3	0.4085	0.0000	SURCHARGED
15 minute winter	MH3	12	69.985	0.384	21.5	0.5341	0.0000	SURCHARGED
120 minute winter	MH4	116	69.742	0.547	13.3	0.7382	0.0000	SURCHARGED
120 minute winter	MH5	116	69.742	0.655	4.5	0.8706	0.0000	SURCHARGED
120 minute winter	MH6	116	69.742	0.790	4.6	1.0418	0.0000	SURCHARGED
120 minute winter	MH7	116	69.741	0.865	3.5	0.9789	0.0000	SURCHARGED
360 minute summer	OUTFALL	448	68.883	0.038	2.6	0.0000	0.0000	OK
120 minute winter	TANK	116	69.742	0.367	12.9	24.8051	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	MH1	1.000	MH2	8.1	0.854	0.351	0.1731	
15 minute winter	MH2	1.001	MH3	13.9	1.049	0.603	0.2093	
15 minute winter	MH3	1.002	MH4	20.9	1.211	0.957	0.3855	
120 minute winter	MH4	1.003	MH5	3.4	0.597	0.066	0.4295	
120 minute winter	MH5	1.004	MH6	3.5	0.537	0.068	0.5409	
120 minute winter	MH6	1.005	MH7	3.5	0.370	0.089	0.5091	
120 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	46.0
120 minute winter	TANK	2.000	MH4	-12.9	0.399	-0.190	0.4216	

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	13	71.198	1.158	16.8	1.7625	0.0000	FLOOD RISK
15 minute winter	MH2	13	71.126	1.325	25.8	1.9844	0.0000	FLOOD RISK
15 minute winter	MH3	12	70.883	1.282	36.3	1.8169	0.0000	SURCHARGED
180 minute winter	MH4	176	70.341	1.146	19.5	1.5693	0.0000	SURCHARGED
180 minute winter	MH5	176	70.340	1.253	4.9	1.6907	0.0000	SURCHARGED
180 minute winter	MH6	176	70.340	1.388	4.0	1.8570	0.0000	SURCHARGED
180 minute winter	MH7	176	70.339	1.463	2.9	1.6550	0.0000	SURCHARGED
180 minute winter	OUTFALL	176	68.885	0.040	2.9	0.0000	0.0000	OK
180 minute winter	TANK	176	70.341	0.966	19.1	65.2698	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	MH1	1.000	MH2	11.3	0.844	0.489	0.2500	
15 minute winter	MH2	1.001	MH3	22.6	1.282	0.977	0.2093	
15 minute winter	MH3	1.002	MH4	33.7	1.917	1.542	0.3855	
180 minute winter	MH4	1.003	MH5	-4.5	0.633	-0.088	0.4295	
180 minute winter	MH5	1.004	MH6	3.3	0.555	0.065	0.5409	
180 minute winter	MH6	1.005	MH7	2.9	0.369	0.073	0.5091	
180 minute winter	MH7	1.006	OUTFALL	2.9	0.396	0.071	0.1662	64.6
180 minute winter	TANK	2.000	MH4	-19.1	-0.480	-0.281	0.4216	

Results for 2 year 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	MH1	10	70.075	0.035	2.8	0.0522	0.0000	OK
15 minute summer	MH2	10	69.851	0.050	5.6	0.0738	0.0000	OK
15 minute summer	MH3	10	69.666	0.065	8.3	0.0909	0.0000	OK
15 minute summer	MH4	13	69.453	0.258	11.2	0.3478	0.0000	SURCHARGED
15 minute summer	MH5	13	69.449	0.362	13.6	0.4813	0.0000	SURCHARGED
15 minute summer	MH6	13	69.444	0.492	14.0	0.6495	0.0000	SURCHARGED
15 minute summer	MH7	13	69.441	0.565	8.5	0.6389	0.0000	SURCHARGED
15 minute summer	OUTFALL	32	68.883	0.038	2.6	0.0000	0.0000	OK
15 minute summer	TANK	17	69.398	0.023	9.1	1.5207	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	MH1	1.000	MH2	2.8	0.671	0.120	0.0591	
15 minute summer	MH2	1.001	MH3	5.5	0.886	0.239	0.0747	
15 minute summer	MH3	1.002	MH4	8.5	1.126	0.388	0.2643	
15 minute summer	MH4	1.003	MH5	10.8	0.872	0.207	0.4295	
15 minute summer	MH5	1.004	MH6	11.2	0.665	0.217	0.5409	
15 minute summer	MH6	1.005	MH7	8.5	0.432	0.214	0.5091	
15 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	7.0
15 minute summer	TANK	2.000	MH4	-9.1	0.381	-0.134	0.2513	

Results for 2 year 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	10	70.076	0.036	2.9	0.0532	0.0000	OK
15 minute winter	MH2	10	69.852	0.051	5.8	0.0753	0.0000	OK
15 minute winter	MH3	10	69.668	0.067	8.6	0.0929	0.0000	OK
15 minute winter	MH4	13	69.458	0.263	11.7	0.3545	0.0000	SURCHARGED
15 minute winter	MH5	12	69.466	0.379	13.2	0.5035	0.0000	SURCHARGED
15 minute winter	MH6	12	69.473	0.521	11.1	0.6871	0.0000	SURCHARGED
15 minute winter	MH7	12	69.472	0.596	3.9	0.6737	0.0000	SURCHARGED
15 minute winter	OUTFALL	38	68.883	0.038	2.6	0.0000	0.0000	OK
15 minute winter	TANK	17	69.410	0.035	10.1	2.3311	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	MH1	1.000	MH2	2.9	0.677	0.124	0.0607	
15 minute winter	MH2	1.001	MH3	5.7	0.901	0.248	0.0768	
15 minute winter	MH3	1.002	MH4	8.6	1.136	0.391	0.2664	
15 minute winter	MH4	1.003	MH5	10.2	0.822	0.196	0.4295	
15 minute winter	MH5	1.004	MH6	8.8	0.660	0.170	0.5409	
15 minute winter	MH6	1.005	MH7	3.9	0.445	0.098	0.5091	
15 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	8.0
15 minute winter	TANK	2.000	MH4	-10.1	0.397	-0.149	0.2541	

Results for 2 year 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	MH1	18	70.073	0.033	2.5	0.0495	0.0000	OK
30 minute summer	MH2	18	69.849	0.048	5.0	0.0697	0.0000	OK
30 minute summer	MH3	18	69.662	0.061	7.5	0.0852	0.0000	OK
30 minute summer	MH4	20	69.457	0.262	10.2	0.3536	0.0000	SURCHARGED
30 minute summer	MH5	20	69.454	0.367	10.5	0.4871	0.0000	SURCHARGED
30 minute summer	MH6	20	69.452	0.500	8.6	0.6591	0.0000	SURCHARGED
30 minute summer	MH7	20	69.452	0.576	5.2	0.6516	0.0000	SURCHARGED
30 minute summer	OUTFALL	50	68.883	0.038	2.6	0.0000	0.0000	OK
30 minute summer	TANK	27	69.407	0.032	9.7	2.1066	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	MH1	1.000	MH2	2.5	0.654	0.108	0.0547	
30 minute summer	MH2	1.001	MH3	5.0	0.866	0.216	0.0687	
30 minute summer	MH3	1.002	MH4	7.7	1.082	0.352	0.2633	
30 minute summer	MH4	1.003	MH5	8.0	0.767	0.154	0.4295	
30 minute summer	MH5	1.004	MH6	6.8	0.535	0.131	0.5409	
30 minute summer	MH6	1.005	MH7	5.2	0.384	0.131	0.5091	
30 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	9.3
30 minute summer	TANK	2.000	MH4	-9.7	0.393	-0.143	0.2530	

Results for 2 year 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH1	18	70.072	0.032	2.3	0.0475	0.0000	OK
30 minute winter	MH2	18	69.847	0.046	4.6	0.0668	0.0000	OK
30 minute winter	MH3	18	69.659	0.058	6.9	0.0802	0.0000	OK
30 minute winter	MH4	20	69.458	0.263	9.5	0.3543	0.0000	SURCHARGED
30 minute winter	MH5	20	69.457	0.370	8.5	0.4914	0.0000	SURCHARGED
30 minute winter	MH6	20	69.456	0.504	8.6	0.6642	0.0000	SURCHARGED
30 minute winter	MH7	20	69.455	0.579	5.3	0.6546	0.0000	SURCHARGED
30 minute winter	OUTFALL	57	68.883	0.038	2.6	0.0000	0.0000	OK
30 minute winter	TANK	29	69.421	0.046	9.8	3.0664	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	MH1	1.000	MH2	2.3	0.638	0.100	0.0515	
30 minute winter	MH2	1.001	MH3	4.6	0.856	0.199	0.0639	
30 minute winter	MH3	1.002	MH4	6.9	1.031	0.314	0.2590	
30 minute winter	MH4	1.003	MH5	6.7	0.764	0.128	0.4295	
30 minute winter	MH5	1.004	MH6	6.7	0.565	0.130	0.5409	
30 minute winter	MH6	1.005	MH7	5.3	0.419	0.132	0.5091	
30 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	10.6
30 minute winter	TANK	2.000	MH4	-9.8	0.399	-0.144	0.2531	

Results for 2 year 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	MH1	33	70.069	0.029	1.9	0.0433	0.0000	OK
60 minute summer	MH2	33	69.842	0.041	3.8	0.0602	0.0000	OK
60 minute summer	MH3	33	69.653	0.052	5.7	0.0728	0.0000	OK
60 minute summer	MH4	35	69.438	0.243	8.2	0.3281	0.0000	SURCHARGED
60 minute summer	MH5	35	69.439	0.352	8.3	0.4679	0.0000	SURCHARGED
60 minute summer	MH6	35	69.440	0.488	7.9	0.6432	0.0000	SURCHARGED
60 minute summer	MH7	35	69.440	0.564	5.0	0.6377	0.0000	SURCHARGED
60 minute summer	OUTFALL	74	68.883	0.038	2.6	0.0000	0.0000	OK
60 minute summer	TANK	43	69.407	0.032	6.7	2.1413	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	MH1	1.000	MH2	1.9	0.607	0.082	0.0448	
60 minute summer	MH2	1.001	MH3	3.8	0.812	0.164	0.0558	
60 minute summer	MH3	1.002	MH4	5.7	1.014	0.263	0.2495	
60 minute summer	MH4	1.003	MH5	6.5	0.744	0.126	0.4295	
60 minute summer	MH5	1.004	MH6	6.2	0.486	0.121	0.5409	
60 minute summer	MH6	1.005	MH7	5.0	0.377	0.125	0.5091	
60 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	11.9
60 minute summer	TANK	2.000	MH4	-6.7	0.368	-0.099	0.2430	

Results for 2 year 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH1	33	70.066	0.026	1.5	0.0386	0.0000	OK
60 minute winter	MH2	34	69.838	0.037	3.0	0.0535	0.0000	OK
60 minute winter	MH3	34	69.647	0.046	4.5	0.0642	0.0000	OK
60 minute winter	MH4	36	69.433	0.238	6.0	0.3207	0.0000	SURCHARGED
60 minute winter	MH5	35	69.433	0.346	6.6	0.4600	0.0000	SURCHARGED
60 minute winter	MH6	35	69.434	0.482	6.1	0.6357	0.0000	SURCHARGED
60 minute winter	MH7	35	69.434	0.558	3.9	0.6315	0.0000	SURCHARGED
60 minute winter	OUTFALL	81	68.883	0.038	2.6	0.0000	0.0000	OK
60 minute winter	TANK	47	69.419	0.044	6.0	2.9323	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	MH1	1.000	MH2	1.5	0.566	0.065	0.0379	
60 minute winter	MH2	1.001	MH3	3.0	0.762	0.130	0.0470	
60 minute winter	MH3	1.002	MH4	4.5	0.944	0.206	0.2430	
60 minute winter	MH4	1.003	MH5	5.2	0.707	0.099	0.4295	
60 minute winter	MH5	1.004	MH6	5.0	0.495	0.096	0.5409	
60 minute winter	MH6	1.005	MH7	3.9	0.377	0.097	0.5091	
60 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	13.3
60 minute winter	TANK	2.000	MH4	-6.0	0.397	-0.088	0.2405	

Results for 2 year 120 minute summer. 360 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	MH1	64	70.065	0.025	1.4	0.0373	0.0000	OK
120 minute summer	MH2	64	69.836	0.035	2.8	0.0517	0.0000	OK
120 minute summer	MH3	64	69.646	0.044	4.2	0.0619	0.0000	OK
120 minute summer	MH4	66	69.429	0.234	5.6	0.3160	0.0000	SURCHARGED
120 minute summer	MH5	66	69.429	0.342	5.3	0.4546	0.0000	SURCHARGED
120 minute summer	MH6	66	69.428	0.476	5.6	0.6283	0.0000	SURCHARGED
120 minute summer	MH7	66	69.427	0.551	3.9	0.6237	0.0000	SURCHARGED
120 minute summer	OUTFALL	122	68.883	0.038	2.6	0.0000	0.0000	OK
120 minute summer	TANK	80	69.415	0.040	5.4	2.6450	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	MH1	1.000	MH2	1.4	0.555	0.061	0.0361	
120 minute summer	MH2	1.001	MH3	2.8	0.747	0.121	0.0447	
120 minute summer	MH3	1.002	MH4	4.2	0.909	0.192	0.2389	
120 minute summer	MH4	1.003	MH5	4.2	0.673	0.081	0.4295	
120 minute summer	MH5	1.004	MH6	4.5	0.486	0.087	0.5409	
120 minute summer	MH6	1.005	MH7	3.9	0.326	0.097	0.5091	
120 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	16.4
120 minute summer	TANK	2.000	MH4	-5.4	0.317	-0.079	0.2384	

Results for 2 year 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	MH1	64	70.062	0.022	1.1	0.0332	0.0000	OK
120 minute winter	MH2	64	69.832	0.031	2.2	0.0458	0.0000	OK
120 minute winter	MH3	64	69.640	0.039	3.3	0.0547	0.0000	OK
120 minute winter	MH4	88	69.423	0.228	4.4	0.3082	0.0000	SURCHARGED
120 minute winter	MH5	88	69.423	0.336	4.4	0.4469	0.0000	SURCHARGED
120 minute winter	MH6	88	69.423	0.471	4.5	0.6212	0.0000	SURCHARGED
120 minute winter	MH7	88	69.423	0.547	3.2	0.6182	0.0000	SURCHARGED
120 minute winter	OUTFALL	132	68.883	0.038	2.6	0.0000	0.0000	OK
120 minute winter	TANK	86	69.424	0.049	4.1	3.2544	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	MH1	1.000	MH2	1.1	0.518	0.048	0.0304	
120 minute winter	MH2	1.001	MH3	2.2	0.697	0.095	0.0377	
120 minute winter	MH3	1.002	MH4	3.3	0.862	0.151	0.2329	
120 minute winter	MH4	1.003	MH5	3.4	0.652	0.066	0.4295	
120 minute winter	MH5	1.004	MH6	3.7	0.486	0.071	0.5409	
120 minute winter	MH6	1.005	MH7	3.2	0.326	0.081	0.5091	
120 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	18.9
120 minute winter	TANK	2.000	MH4	-4.1	0.375	-0.060	0.2441	

Results for 2 year 180 minute summer. 420 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	MH1	96	70.062	0.022	1.1	0.0332	0.0000	OK
180 minute summer	MH2	96	69.832	0.031	2.2	0.0458	0.0000	OK
180 minute summer	MH3	96	69.640	0.039	3.3	0.0547	0.0000	OK
180 minute summer	MH4	100	69.414	0.219	4.4	0.2957	0.0000	OK
180 minute summer	MH5	100	69.414	0.327	4.8	0.4349	0.0000	SURCHARGED
180 minute summer	MH6	100	69.414	0.462	4.7	0.6095	0.0000	SURCHARGED
180 minute summer	MH7	100	69.414	0.538	3.6	0.6082	0.0000	SURCHARGED
180 minute summer	OUTFALL	156	68.883	0.038	2.6	0.0000	0.0000	OK
180 minute summer	TANK	116	69.407	0.032	3.2	2.1326	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	MH1	1.000	MH2	1.1	0.518	0.048	0.0304	
180 minute summer	MH2	1.001	MH3	2.2	0.697	0.095	0.0376	
180 minute summer	MH3	1.002	MH4	3.3	0.874	0.151	0.2263	
180 minute summer	MH4	1.003	MH5	3.7	0.652	0.072	0.4279	
180 minute summer	MH5	1.004	MH6	3.7	0.475	0.071	0.5409	
180 minute summer	MH6	1.005	MH7	3.6	0.317	0.091	0.5091	
180 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	19.7
180 minute summer	TANK	2.000	MH4	-3.2	0.218	-0.048	0.2286	

Results for 2 year 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	MH1	96	70.060	0.020	0.9	0.0301	0.0000	OK
180 minute winter	MH2	96	69.829	0.028	1.8	0.0415	0.0000	OK
180 minute winter	MH3	96	69.637	0.036	2.7	0.0495	0.0000	OK
180 minute winter	MH4	124	69.413	0.218	3.6	0.2940	0.0000	OK
180 minute winter	MH5	124	69.413	0.326	3.9	0.4329	0.0000	SURCHARGED
180 minute winter	MH6	124	69.412	0.460	4.0	0.6073	0.0000	SURCHARGED
180 minute winter	MH7	124	69.412	0.536	3.2	0.6062	0.0000	SURCHARGED
180 minute winter	OUTFALL	88	68.883	0.038	2.6	0.0000	0.0000	OK
180 minute winter	TANK	124	69.413	0.038	2.5	2.5390	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	MH1	1.000	MH2	0.9	0.488	0.039	0.0264	
180 minute winter	MH2	1.001	MH3	1.8	0.657	0.078	0.0327	
180 minute winter	MH3	1.002	MH4	2.7	0.810	0.123	0.2187	
180 minute winter	MH4	1.003	MH5	3.1	0.614	0.060	0.4274	
180 minute winter	MH5	1.004	MH6	3.3	0.475	0.063	0.5409	
180 minute winter	MH6	1.005	MH7	3.2	0.287	0.080	0.5091	
180 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	22.6
180 minute winter	TANK	2.000	MH4	-2.5	0.260	-0.037	0.2321	

Results for 2 year 240 minute summer. 480 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	MH1	124	70.061	0.021	1.0	0.0315	0.0000	OK
240 minute summer	MH2	124	69.831	0.030	2.0	0.0434	0.0000	OK
240 minute summer	MH3	124	69.638	0.037	3.0	0.0517	0.0000	OK
240 minute summer	MH4	132	69.409	0.214	3.9	0.2880	0.0000	OK
240 minute summer	MH5	132	69.408	0.321	4.3	0.4273	0.0000	SURCHARGED
240 minute summer	MH6	132	69.408	0.456	4.4	0.6019	0.0000	SURCHARGED
240 minute summer	MH7	132	69.408	0.532	3.4	0.6016	0.0000	SURCHARGED
240 minute summer	OUTFALL	188	68.883	0.038	2.6	0.0000	0.0000	OK
240 minute summer	TANK	148	69.404	0.029	2.5	1.8964	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	MH1	1.000	MH2	1.0	0.502	0.043	0.0282	
240 minute summer	MH2	1.001	MH3	2.0	0.676	0.085	0.0348	
240 minute summer	MH3	1.002	MH4	2.9	0.830	0.135	0.2200	
240 minute summer	MH4	1.003	MH5	3.4	0.633	0.065	0.4253	
240 minute summer	MH5	1.004	MH6	3.5	0.475	0.068	0.5409	
240 minute summer	MH6	1.005	MH7	3.4	0.287	0.086	0.5091	
240 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	22.4
240 minute summer	TANK	2.000	MH4	-2.5	0.218	-0.037	0.2227	

Results for 2 year 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	MH1	120	70.058	0.018	0.7	0.0267	0.0000	OK
240 minute winter	MH2	120	69.826	0.025	1.4	0.0367	0.0000	OK
240 minute winter	MH3	120	69.633	0.032	2.1	0.0443	0.0000	OK
240 minute winter	MH4	136	69.402	0.207	2.8	0.2794	0.0000	OK
240 minute winter	MH5	136	69.401	0.314	3.5	0.4179	0.0000	SURCHARGED
240 minute winter	MH6	132	69.403	0.451	3.6	0.5954	0.0000	SURCHARGED
240 minute winter	MH7	132	69.403	0.527	3.1	0.5961	0.0000	SURCHARGED
240 minute winter	OUTFALL	120	68.883	0.038	2.6	0.0000	0.0000	OK
240 minute winter	TANK	156	69.397	0.022	1.7	1.4402	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	MH1	1.000	MH2	0.7	0.452	0.030	0.0222	
240 minute winter	MH2	1.001	MH3	1.4	0.611	0.061	0.0277	
240 minute winter	MH3	1.002	MH4	2.1	0.779	0.096	0.2091	
240 minute winter	MH4	1.003	MH5	2.8	0.605	0.054	0.4213	
240 minute winter	MH5	1.004	MH6	2.9	0.475	0.057	0.5409	
240 minute winter	MH6	1.005	MH7	3.1	0.287	0.077	0.5091	
240 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	24.3
240 minute winter	TANK	2.000	MH4	-1.7	0.193	-0.025	0.2153	

Results for 2 year 360 minute summer. 600 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	MH1	184	70.059	0.019	0.8	0.0284	0.0000	OK
360 minute summer	MH2	184	69.828	0.027	1.6	0.0391	0.0000	OK
360 minute summer	MH3	184	69.635	0.034	2.4	0.0470	0.0000	OK
360 minute summer	MH4	192	69.402	0.207	3.2	0.2796	0.0000	OK
360 minute summer	MH5	192	69.401	0.314	3.4	0.4176	0.0000	SURCHARGED
360 minute summer	MH6	192	69.398	0.446	3.5	0.5877	0.0000	SURCHARGED
360 minute summer	MH7	200	69.396	0.520	2.8	0.5887	0.0000	SURCHARGED
360 minute summer	OUTFALL	248	68.883	0.038	2.6	0.0000	0.0000	OK
360 minute summer	TANK	216	69.395	0.020	1.7	1.2983	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute summer	MH1	1.000	MH2	0.8	0.470	0.034	0.0242	
360 minute summer	MH2	1.001	MH3	1.6	0.627	0.069	0.0302	
360 minute summer	MH3	1.002	MH4	2.4	0.784	0.109	0.2095	
360 minute summer	MH4	1.003	MH5	2.7	0.610	0.053	0.4215	
360 minute summer	MH5	1.004	MH6	2.9	0.455	0.056	0.5409	
360 minute summer	MH6	1.005	MH7	2.8	0.173	0.069	0.5091	
360 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	28.0
360 minute summer	TANK	2.000	MH4	-1.7	0.163	-0.025	0.2155	

Results for 2 year 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	MH1	184	70.057	0.017	0.6	0.0249	0.0000	OK
360 minute winter	MH2	184	69.824	0.023	1.2	0.0341	0.0000	OK
360 minute winter	MH3	184	69.630	0.029	1.8	0.0410	0.0000	OK
360 minute winter	MH4	216	69.351	0.156	2.4	0.2110	0.0000	OK
360 minute winter	MH5	216	69.351	0.264	2.9	0.3513	0.0000	SURCHARGED
360 minute winter	MH6	216	69.351	0.399	3.1	0.5263	0.0000	SURCHARGED
360 minute winter	MH7	216	69.351	0.475	2.8	0.5367	0.0000	SURCHARGED
360 minute winter	OUTFALL	248	68.883	0.038	2.6	0.0000	0.0000	OK
360 minute winter	TANK	8	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	MH1	1.000	MH2	0.6	0.432	0.026	0.0199	
360 minute winter	MH2	1.001	MH3	1.2	0.578	0.052	0.0248	
360 minute winter	MH3	1.002	MH4	1.8	0.746	0.082	0.1270	
360 minute winter	MH4	1.003	MH5	2.3	0.582	0.045	0.3739	
360 minute winter	MH5	1.004	MH6	2.5	0.455	0.048	0.5409	
360 minute winter	MH6	1.005	MH7	2.8	0.287	0.070	0.5091	
360 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	29.4
360 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.1561	

Results for 2 year 480 minute summer. 720 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	MH1	240	70.057	0.017	0.6	0.0249	0.0000	OK
480 minute summer	MH2	240	69.824	0.023	1.2	0.0341	0.0000	OK
480 minute summer	MH3	240	69.630	0.029	1.8	0.0410	0.0000	OK
480 minute summer	MH4	272	69.356	0.161	2.4	0.2178	0.0000	OK
480 minute summer	MH5	272	69.356	0.269	3.0	0.3579	0.0000	SURCHARGED
480 minute summer	MH6	272	69.356	0.404	3.3	0.5329	0.0000	SURCHARGED
480 minute summer	MH7	272	69.356	0.480	2.9	0.5424	0.0000	SURCHARGED
480 minute summer	OUTFALL	248	68.883	0.038	2.6	0.0000	0.0000	OK
480 minute summer	TANK	8	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	MH1	1.000	MH2	0.6	0.432	0.026	0.0199	
480 minute summer	MH2	1.001	MH3	1.2	0.584	0.052	0.0248	
480 minute summer	MH3	1.002	MH4	1.8	0.746	0.082	0.1352	
480 minute summer	MH4	1.003	MH5	2.4	0.577	0.046	0.3794	
480 minute summer	MH5	1.004	MH6	2.7	0.455	0.051	0.5409	
480 minute summer	MH6	1.005	MH7	2.9	0.173	0.072	0.5091	
480 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	32.1
480 minute summer	TANK	2.000	MH4	0.0	0.000	0.000	0.1616	

Results for 2 year 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	MH1	240	70.055	0.015	0.5	0.0228	0.0000	OK
480 minute winter	MH2	240	69.822	0.021	1.0	0.0312	0.0000	OK
480 minute winter	MH3	248	69.628	0.027	1.5	0.0375	0.0000	OK
480 minute winter	MH4	240	69.225	0.030	2.0	0.0405	0.0000	OK
480 minute winter	MH5	264	69.200	0.113	2.5	0.1496	0.0000	OK
480 minute winter	MH6	264	69.199	0.247	3.1	0.3263	0.0000	SURCHARGED
480 minute winter	MH7	264	69.199	0.323	2.7	0.3652	0.0000	SURCHARGED
480 minute winter	OUTFALL	264	68.882	0.037	2.6	0.0000	0.0000	OK
480 minute winter	TANK	8	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	MH1	1.000	MH2	0.5	0.409	0.022	0.0175	
480 minute winter	MH2	1.001	MH3	1.0	0.548	0.043	0.0218	
480 minute winter	MH3	1.002	MH4	1.5	0.707	0.069	0.0465	
480 minute winter	MH4	1.003	MH5	2.0	0.577	0.038	0.1221	
480 minute winter	MH5	1.004	MH6	2.6	0.455	0.050	0.4054	
480 minute winter	MH6	1.005	MH7	2.7	0.287	0.068	0.5091	
480 minute winter	MH7	1.006	OUTFALL	2.6	0.382	0.063	0.1520	33.4
480 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.0166	

Results for 2 year 600 minute summer. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	MH1	315	70.055	0.015	0.5	0.0228	0.0000	OK
600 minute summer	MH2	315	69.822	0.021	1.0	0.0312	0.0000	OK
600 minute summer	MH3	315	69.628	0.027	1.5	0.0375	0.0000	OK
600 minute summer	MH4	300	69.225	0.030	2.0	0.0407	0.0000	OK
600 minute summer	MH5	330	69.175	0.088	2.5	0.1168	0.0000	OK
600 minute summer	MH6	330	69.176	0.224	3.1	0.2948	0.0000	OK
600 minute summer	MH7	330	69.175	0.299	2.7	0.3385	0.0000	OK
600 minute summer	OUTFALL	330	68.882	0.037	2.5	0.0000	0.0000	OK
600 minute summer	TANK	15	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute summer	MH1	1.000	MH2	0.5	0.409	0.022	0.0175	
600 minute summer	MH2	1.001	MH3	1.0	0.548	0.043	0.0218	
600 minute summer	MH3	1.002	MH4	1.5	0.707	0.069	0.0465	
600 minute summer	MH4	1.003	MH5	2.0	0.580	0.038	0.0922	
600 minute summer	MH5	1.004	MH6	2.6	0.439	0.050	0.3677	
600 minute summer	MH6	1.005	MH7	2.7	0.160	0.068	0.5087	
600 minute summer	MH7	1.006	OUTFALL	2.5	0.381	0.062	0.1511	33.4
600 minute summer	TANK	2.000	MH4	0.0	0.000	0.000	0.0167	

Results for 2 year 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	MH1	285	70.054	0.014	0.4	0.0205	0.0000	OK
600 minute winter	MH2	285	69.820	0.019	0.8	0.0281	0.0000	OK
600 minute winter	MH3	285	69.625	0.024	1.2	0.0335	0.0000	OK
600 minute winter	MH4	285	69.222	0.027	1.6	0.0367	0.0000	OK
600 minute winter	MH5	285	69.117	0.030	2.0	0.0400	0.0000	OK
600 minute winter	MH6	345	69.090	0.138	2.4	0.1821	0.0000	OK
600 minute winter	MH7	345	69.090	0.214	2.4	0.2418	0.0000	OK
600 minute winter	OUTFALL	345	68.881	0.036	2.4	0.0000	0.0000	OK
600 minute winter	TANK	15	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	MH1	1.000	MH2	0.4	0.384	0.017	0.0150	
600 minute winter	MH2	1.001	MH3	0.8	0.513	0.035	0.0186	
600 minute winter	MH3	1.002	MH4	1.2	0.662	0.055	0.0397	
600 minute winter	MH4	1.003	MH5	1.6	0.546	0.031	0.0317	
600 minute winter	MH5	1.004	MH6	2.0	0.439	0.039	0.1950	
600 minute winter	MH6	1.005	MH7	2.4	0.160	0.060	0.4131	
600 minute winter	MH7	1.006	OUTFALL	2.4	0.374	0.058	0.1440	36.6
600 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.0144	

Results for 2 year 720 minute summer. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	MH1	375	70.055	0.015	0.5	0.0228	0.0000	OK
720 minute summer	MH2	375	69.822	0.021	1.0	0.0312	0.0000	OK
720 minute summer	MH3	375	69.628	0.027	1.5	0.0375	0.0000	OK
720 minute summer	MH4	360	69.225	0.030	2.0	0.0407	0.0000	OK
720 minute summer	MH5	390	69.175	0.088	2.5	0.1168	0.0000	OK
720 minute summer	MH6	390	69.176	0.224	3.1	0.2948	0.0000	OK
720 minute summer	MH7	390	69.175	0.299	2.7	0.3385	0.0000	OK
720 minute summer	OUTFALL	390	68.882	0.037	2.5	0.0000	0.0000	OK
720 minute summer	TANK	15	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	MH1	1.000	MH2	0.5	0.409	0.022	0.0175	
720 minute summer	MH2	1.001	MH3	1.0	0.548	0.043	0.0218	
720 minute summer	MH3	1.002	MH4	1.5	0.707	0.069	0.0465	
720 minute summer	MH4	1.003	MH5	2.0	0.580	0.038	0.0922	
720 minute summer	MH5	1.004	MH6	2.6	0.439	0.050	0.3677	
720 minute summer	MH6	1.005	MH7	2.7	0.160	0.068	0.5087	
720 minute summer	MH7	1.006	OUTFALL	2.5	0.381	0.062	0.1511	33.4
720 minute summer	TANK	2.000	MH4	0.0	0.000	0.000	0.0167	

Results for 2 year 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	MH1	360	70.054	0.014	0.4	0.0205	0.0000	OK
720 minute winter	MH2	360	69.820	0.019	0.8	0.0281	0.0000	OK
720 minute winter	MH3	360	69.625	0.024	1.2	0.0335	0.0000	OK
720 minute winter	MH4	360	69.222	0.027	1.6	0.0367	0.0000	OK
720 minute winter	MH5	360	69.117	0.030	2.0	0.0400	0.0000	OK
720 minute winter	MH6	390	69.081	0.129	2.4	0.1696	0.0000	OK
720 minute winter	MH7	390	69.080	0.204	2.4	0.2311	0.0000	OK
720 minute winter	OUTFALL	390	68.881	0.036	2.3	0.0000	0.0000	OK
720 minute winter	TANK	15	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	MH1	1.000	MH2	0.4	0.384	0.017	0.0150	
720 minute winter	MH2	1.001	MH3	0.8	0.513	0.035	0.0186	
720 minute winter	MH3	1.002	MH4	1.2	0.662	0.055	0.0397	
720 minute winter	MH4	1.003	MH5	1.6	0.546	0.031	0.0317	
720 minute winter	MH5	1.004	MH6	2.0	0.439	0.039	0.1807	
720 minute winter	MH6	1.005	MH7	2.4	0.160	0.059	0.3926	
720 minute winter	MH7	1.006	OUTFALL	2.3	0.372	0.058	0.1426	41.0
720 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.0144	

Results for 2 year 960 minute summer. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	MH1	480	70.054	0.014	0.4	0.0205	0.0000	OK
960 minute summer	MH2	480	69.820	0.019	0.8	0.0281	0.0000	OK
960 minute summer	MH3	480	69.625	0.024	1.2	0.0335	0.0000	OK
960 minute summer	MH4	480	69.222	0.027	1.6	0.0367	0.0000	OK
960 minute summer	MH5	480	69.117	0.030	2.0	0.0400	0.0000	OK
960 minute summer	MH6	510	69.081	0.129	2.4	0.1695	0.0000	OK
960 minute summer	MH7	510	69.080	0.204	2.4	0.2311	0.0000	OK
960 minute summer	OUTFALL	510	68.881	0.036	2.3	0.0000	0.0000	OK
960 minute summer	TANK	15	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	MH1	1.000	MH2	0.4	0.384	0.017	0.0150	
960 minute summer	MH2	1.001	MH3	0.8	0.513	0.035	0.0186	
960 minute summer	MH3	1.002	MH4	1.2	0.662	0.055	0.0397	
960 minute summer	MH4	1.003	MH5	1.6	0.546	0.031	0.0317	
960 minute summer	MH5	1.004	MH6	2.0	0.439	0.039	0.1807	
960 minute summer	MH6	1.005	MH7	2.4	0.160	0.059	0.3925	
960 minute summer	MH7	1.006	OUTFALL	2.3	0.372	0.058	0.1426	34.5
960 minute summer	TANK	2.000	MH4	0.0	0.000	0.000	0.0144	

Results for 2 year 960 minute winter. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	MH1	435	70.052	0.012	0.3	0.0179	0.0000	OK
960 minute winter	MH2	435	69.818	0.017	0.6	0.0245	0.0000	OK
960 minute winter	MH3	435	69.622	0.021	0.9	0.0291	0.0000	OK
960 minute winter	MH4	435	69.219	0.024	1.2	0.0320	0.0000	OK
960 minute winter	MH5	435	69.113	0.026	1.5	0.0349	0.0000	OK
960 minute winter	MH6	540	69.006	0.054	1.8	0.0717	0.0000	OK
960 minute winter	MH7	525	69.006	0.130	1.8	0.1472	0.0000	OK
960 minute winter	OUTFALL	525	68.876	0.031	1.8	0.0000	0.0000	OK
960 minute winter	TANK	15	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	MH1	1.000	MH2	0.3	0.350	0.013	0.0123	
960 minute winter	MH2	1.001	MH3	0.6	0.471	0.026	0.0152	
960 minute winter	MH3	1.002	MH4	0.9	0.608	0.041	0.0324	
960 minute winter	MH4	1.003	MH5	1.2	0.503	0.023	0.0258	
960 minute winter	MH5	1.004	MH6	1.5	0.439	0.029	0.0676	
960 minute winter	MH6	1.005	MH7	1.8	0.160	0.045	0.1994	
960 minute winter	MH7	1.006	OUTFALL	1.8	0.343	0.044	0.1187	45.3
960 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.0117	

Results for 2 year 1440 minute summer. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	MH1	720	70.052	0.012	0.3	0.0179	0.0000	OK
1440 minute summer	MH2	720	69.818	0.017	0.6	0.0245	0.0000	OK
1440 minute summer	MH3	720	69.622	0.021	0.9	0.0291	0.0000	OK
1440 minute summer	MH4	720	69.219	0.024	1.2	0.0320	0.0000	OK
1440 minute summer	MH5	720	69.113	0.026	1.5	0.0349	0.0000	OK
1440 minute summer	MH6	780	69.006	0.054	1.8	0.0717	0.0000	OK
1440 minute summer	MH7	780	69.006	0.130	1.8	0.1472	0.0000	OK
1440 minute summer	OUTFALL	780	68.876	0.031	1.8	0.0000	0.0000	OK
1440 minute summer	TANK	30	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	MH1	1.000	MH2	0.3	0.350	0.013	0.0123	
1440 minute summer	MH2	1.001	MH3	0.6	0.471	0.026	0.0152	
1440 minute summer	MH3	1.002	MH4	0.9	0.608	0.041	0.0324	
1440 minute summer	MH4	1.003	MH5	1.2	0.503	0.023	0.0258	
1440 minute summer	MH5	1.004	MH6	1.5	0.439	0.029	0.0676	
1440 minute summer	MH6	1.005	MH7	1.8	0.138	0.045	0.1994	
1440 minute summer	MH7	1.006	OUTFALL	1.8	0.343	0.044	0.1187	34.7
1440 minute summer	TANK	2.000	MH4	0.0	0.000	0.000	0.0117	

Results for 2 year 1440 minute winter. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	MH1	600	70.050	0.010	0.2	0.0149	0.0000	OK
1440 minute winter	MH2	600	69.815	0.014	0.4	0.0202	0.0000	OK
1440 minute winter	MH3	600	69.618	0.017	0.6	0.0240	0.0000	OK
1440 minute winter	MH4	600	69.215	0.019	0.8	0.0263	0.0000	OK
1440 minute winter	MH5	600	69.109	0.022	1.0	0.0288	0.0000	OK
1440 minute winter	MH6	600	68.979	0.027	1.2	0.0352	0.0000	OK
1440 minute winter	MH7	630	68.973	0.097	1.2	0.1098	0.0000	OK
1440 minute winter	OUTFALL	630	68.871	0.026	1.2	0.0000	0.0000	OK
1440 minute winter	TANK	30	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	MH1	1.000	MH2	0.2	0.309	0.009	0.0092	
1440 minute winter	MH2	1.001	MH3	0.4	0.417	0.017	0.0114	
1440 minute winter	MH3	1.002	MH4	0.6	0.539	0.027	0.0244	
1440 minute winter	MH4	1.003	MH5	0.8	0.446	0.015	0.0194	
1440 minute winter	MH5	1.004	MH6	1.0	0.439	0.019	0.0311	
1440 minute winter	MH6	1.005	MH7	1.2	0.138	0.030	0.1217	
1440 minute winter	MH7	1.006	OUTFALL	1.2	0.299	0.029	0.0911	41.2
1440 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.0088	

Results for 30 year 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	MH1	10	70.100	0.060	7.8	0.0888	0.0000	OK
15 minute summer	MH2	12	70.033	0.232	15.5	0.3392	0.0000	SURCHARGED
15 minute summer	MH3	12	69.946	0.345	21.5	0.4797	0.0000	SURCHARGED
15 minute summer	MH4	11	69.622	0.427	39.3	0.5757	0.0000	SURCHARGED
15 minute summer	MH5	11	69.631	0.544	14.8	0.7229	0.0000	SURCHARGED
15 minute summer	MH6	11	69.633	0.681	11.2	0.8976	0.0000	SURCHARGED
15 minute summer	MH7	11	69.631	0.755	8.0	0.8543	0.0000	SURCHARGED
15 minute summer	OUTFALL	122	68.883	0.038	2.6	0.0000	0.0000	OK
15 minute summer	TANK	19	69.567	0.192	39.3	12.9346	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	MH1	1.000	MH2	7.7	0.828	0.335	0.1702	
15 minute summer	MH2	1.001	MH3	14.1	1.022	0.611	0.2093	
15 minute summer	MH3	1.002	MH4	20.0	1.138	0.915	0.3855	
15 minute summer	MH4	1.003	MH5	-12.6	0.821	-0.242	0.4295	
15 minute summer	MH5	1.004	MH6	8.8	0.732	0.171	0.5409	
15 minute summer	MH6	1.005	MH7	8.0	0.517	0.201	0.5091	
15 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	19.9
15 minute summer	TANK	2.000	MH4	-39.3	-1.125	-0.579	0.4019	

Results for 30 year 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 99.69%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	10	70.101	0.061	8.2	0.0912	0.0000	OK
15 minute winter	MH2	12	70.080	0.279	16.3	0.4085	0.0000	SURCHARGED
15 minute winter	MH3	12	69.985	0.384	21.5	0.5341	0.0000	SURCHARGED
15 minute winter	MH4	11	69.631	0.436	41.3	0.5877	0.0000	SURCHARGED
15 minute winter	MH5	11	69.641	0.554	13.7	0.7359	0.0000	SURCHARGED
15 minute winter	MH6	11	69.643	0.691	17.8	0.9110	0.0000	SURCHARGED
15 minute winter	MH7	11	69.642	0.766	11.0	0.8667	0.0000	SURCHARGED
15 minute winter	OUTFALL	142	68.883	0.038	2.6	0.0000	0.0000	OK
15 minute winter	TANK	19	69.601	0.226	41.2	15.2793	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	MH1	1.000	MH2	8.1	0.854	0.351	0.1731	
15 minute winter	MH2	1.001	MH3	13.9	1.049	0.603	0.2093	
15 minute winter	MH3	1.002	MH4	20.9	1.211	0.957	0.3855	
15 minute winter	MH4	1.003	MH5	-13.3	0.886	-0.256	0.4295	
15 minute winter	MH5	1.004	MH6	13.1	0.744	0.254	0.5409	
15 minute winter	MH6	1.005	MH7	11.0	0.537	0.276	0.5091	
15 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	22.5
15 minute winter	TANK	2.000	MH4	-41.2	-1.169	-0.607	0.4215	

Results for 30 year 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	MH1	18	70.097	0.057	7.1	0.0848	0.0000	OK
30 minute summer	MH2	19	69.991	0.190	14.2	0.2776	0.0000	SURCHARGED
30 minute summer	MH3	19	69.911	0.310	19.2	0.4316	0.0000	SURCHARGED
30 minute summer	MH4	33	69.634	0.439	37.0	0.5919	0.0000	SURCHARGED
30 minute summer	MH5	33	69.634	0.547	11.9	0.7263	0.0000	SURCHARGED
30 minute summer	MH6	33	69.633	0.681	9.2	0.8985	0.0000	SURCHARGED
30 minute summer	MH7	33	69.633	0.757	6.6	0.8561	0.0000	SURCHARGED
30 minute summer	OUTFALL	175	68.883	0.038	2.6	0.0000	0.0000	OK
30 minute summer	TANK	33	69.634	0.259	36.9	17.4968	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	MH1	1.000	MH2	7.1	0.810	0.307	0.1684	
30 minute summer	MH2	1.001	MH3	12.7	1.014	0.551	0.2093	
30 minute summer	MH3	1.002	MH4	19.0	1.080	0.869	0.3855	
30 minute summer	MH4	1.003	MH5	-11.8	0.727	-0.227	0.4295	
30 minute summer	MH5	1.004	MH6	6.1	0.669	0.118	0.5409	
30 minute summer	MH6	1.005	MH7	6.6	0.465	0.166	0.5091	
30 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	26.7
30 minute summer	TANK	2.000	MH4	-36.9	-1.069	-0.544	0.4216	

Results for 30 year 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH1	18	70.094	0.054	6.4	0.0802	0.0000	OK
30 minute winter	MH2	19	69.920	0.119	12.8	0.1736	0.0000	OK
30 minute winter	MH3	19	69.869	0.268	18.3	0.3729	0.0000	SURCHARGED
30 minute winter	MH4	33	69.675	0.480	34.4	0.6478	0.0000	SURCHARGED
30 minute winter	MH5	33	69.675	0.588	10.5	0.7814	0.0000	SURCHARGED
30 minute winter	MH6	33	69.675	0.723	7.9	0.9532	0.0000	SURCHARGED
30 minute winter	MH7	33	69.674	0.798	5.8	0.9030	0.0000	SURCHARGED
30 minute winter	OUTFALL	200	68.883	0.038	2.6	0.0000	0.0000	OK
30 minute winter	TANK	33	69.676	0.301	34.2	20.2994	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	MH1	1.000	MH2	6.4	0.812	0.277	0.1453	
30 minute winter	MH2	1.001	MH3	12.2	0.996	0.530	0.1934	
30 minute winter	MH3	1.002	MH4	17.8	1.044	0.814	0.3855	
30 minute winter	MH4	1.003	MH5	-10.4	0.760	-0.201	0.4295	
30 minute winter	MH5	1.004	MH6	6.5	0.689	0.125	0.5409	
30 minute winter	MH6	1.005	MH7	5.8	0.469	0.144	0.5091	
30 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	29.8
30 minute winter	TANK	2.000	MH4	-34.2	-0.986	-0.505	0.4216	

Results for 30 year 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	MH1	33	70.089	0.049	5.4	0.0733	0.0000	OK
60 minute summer	MH2	32	69.875	0.074	10.8	0.1089	0.0000	OK
60 minute summer	MH3	34	69.773	0.172	16.3	0.2397	0.0000	SURCHARGED
60 minute summer	MH4	62	69.676	0.481	28.5	0.6495	0.0000	SURCHARGED
60 minute summer	MH5	62	69.676	0.589	8.4	0.7831	0.0000	SURCHARGED
60 minute summer	MH6	61	69.676	0.724	5.4	0.9549	0.0000	SURCHARGED
60 minute summer	MH7	61	69.676	0.800	3.5	0.9044	0.0000	SURCHARGED
60 minute summer	OUTFALL	230	68.883	0.038	2.6	0.0000	0.0000	OK
60 minute summer	TANK	62	69.677	0.302	28.5	20.3709	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	MH1	1.000	MH2	5.4	0.807	0.234	0.0973	
60 minute summer	MH2	1.001	MH3	10.9	0.998	0.471	0.1529	
60 minute summer	MH3	1.002	MH4	15.1	0.931	0.692	0.3855	
60 minute summer	MH4	1.003	MH5	-8.4	0.644	-0.161	0.4295	
60 minute summer	MH5	1.004	MH6	3.6	0.595	0.069	0.5409	
60 minute summer	MH6	1.005	MH7	3.5	0.432	0.088	0.5091	
60 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	33.7
60 minute summer	TANK	2.000	MH4	-28.5	-0.845	-0.420	0.4216	

Results for 30 year 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH1	33	70.084	0.044	4.4	0.0659	0.0000	OK
60 minute winter	MH2	33	69.867	0.066	8.8	0.0965	0.0000	OK
60 minute winter	MH3	59	69.735	0.134	13.2	0.1869	0.0000	OK
60 minute winter	MH4	61	69.734	0.539	23.2	0.7272	0.0000	SURCHARGED
60 minute winter	MH5	60	69.734	0.647	6.1	0.8597	0.0000	SURCHARGED
60 minute winter	MH6	60	69.734	0.782	5.1	1.0309	0.0000	SURCHARGED
60 minute winter	MH7	60	69.733	0.857	4.3	0.9695	0.0000	SURCHARGED
60 minute winter	OUTFALL	262	68.883	0.038	2.6	0.0000	0.0000	OK
60 minute winter	TANK	61	69.735	0.360	22.7	24.2884	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	MH1	1.000	MH2	4.4	0.751	0.190	0.0837	
60 minute winter	MH2	1.001	MH3	8.8	0.990	0.382	0.1136	
60 minute winter	MH3	1.002	MH4	12.9	0.948	0.592	0.3749	
60 minute winter	MH4	1.003	MH5	-5.8	0.665	-0.112	0.4295	
60 minute winter	MH5	1.004	MH6	4.1	0.622	0.080	0.5409	
60 minute winter	MH6	1.005	MH7	4.3	0.430	0.108	0.5091	
60 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	37.9
60 minute winter	TANK	2.000	MH4	-22.7	-0.637	-0.335	0.4216	

Results for 30 year 120 minute summer. 360 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	MH1	64	70.079	0.039	3.5	0.0587	0.0000	OK
120 minute summer	MH2	64	69.859	0.058	7.0	0.0846	0.0000	OK
120 minute summer	MH3	112	69.682	0.081	10.5	0.1129	0.0000	OK
120 minute summer	MH4	112	69.681	0.486	18.0	0.6560	0.0000	SURCHARGED
120 minute summer	MH5	112	69.681	0.594	4.7	0.7896	0.0000	SURCHARGED
120 minute summer	MH6	112	69.681	0.729	4.6	0.9615	0.0000	SURCHARGED
120 minute summer	MH7	112	69.681	0.805	3.6	0.9100	0.0000	SURCHARGED
120 minute summer	OUTFALL	290	68.883	0.038	2.6	0.0000	0.0000	OK
120 minute summer	TANK	112	69.681	0.306	17.6	20.6809	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	MH1	1.000	MH2	3.5	0.709	0.152	0.0706	
120 minute summer	MH2	1.001	MH3	7.0	0.949	0.303	0.0878	
120 minute summer	MH3	1.002	MH4	10.5	0.887	0.480	0.2992	
120 minute summer	MH4	1.003	MH5	-4.1	0.613	-0.078	0.4295	
120 minute summer	MH5	1.004	MH6	3.4	0.496	0.066	0.5409	
120 minute summer	MH6	1.005	MH7	3.6	0.369	0.090	0.5091	
120 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	41.4
120 minute summer	TANK	2.000	MH4	-17.6	-0.513	-0.260	0.4216	

Results for 30 year 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	MH1	64	70.075	0.035	2.7	0.0515	0.0000	OK
120 minute winter	MH2	64	69.851	0.050	5.4	0.0730	0.0000	OK
120 minute winter	MH3	116	69.743	0.142	8.1	0.1980	0.0000	OK
120 minute winter	MH4	116	69.742	0.547	13.3	0.7382	0.0000	SURCHARGED
120 minute winter	MH5	116	69.742	0.655	4.5	0.8706	0.0000	SURCHARGED
120 minute winter	MH6	116	69.742	0.790	4.6	1.0418	0.0000	SURCHARGED
120 minute winter	MH7	116	69.741	0.865	3.5	0.9789	0.0000	SURCHARGED
120 minute winter	OUTFALL	324	68.883	0.038	2.6	0.0000	0.0000	OK
120 minute winter	TANK	116	69.742	0.367	12.9	24.8051	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	MH1	1.000	MH2	2.7	0.665	0.117	0.0581	
120 minute winter	MH2	1.001	MH3	5.4	0.891	0.234	0.1116	
120 minute winter	MH3	1.002	MH4	8.1	0.863	0.370	0.3819	
120 minute winter	MH4	1.003	MH5	3.4	0.597	0.066	0.4295	
120 minute winter	MH5	1.004	MH6	3.5	0.537	0.068	0.5409	
120 minute winter	MH6	1.005	MH7	3.5	0.370	0.089	0.5091	
120 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	46.0
120 minute winter	TANK	2.000	MH4	-12.9	0.399	-0.190	0.4216	

Results for 30 year 180 minute summer. 420 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	MH1	96	70.074	0.034	2.6	0.0505	0.0000	OK
180 minute summer	MH2	96	69.850	0.049	5.2	0.0715	0.0000	OK
180 minute summer	MH3	140	69.668	0.067	7.8	0.0937	0.0000	OK
180 minute summer	MH4	140	69.668	0.473	12.7	0.6374	0.0000	SURCHARGED
180 minute summer	MH5	140	69.667	0.580	4.4	0.7714	0.0000	SURCHARGED
180 minute summer	MH6	140	69.667	0.715	4.5	0.9433	0.0000	SURCHARGED
180 minute summer	MH7	140	69.667	0.791	3.5	0.8945	0.0000	SURCHARGED
180 minute summer	OUTFALL	336	68.883	0.038	2.6	0.0000	0.0000	OK
180 minute summer	TANK	140	69.668	0.293	12.3	19.7499	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	MH1	1.000	MH2	2.6	0.659	0.113	0.0565	
180 minute summer	MH2	1.001	MH3	5.2	0.883	0.225	0.0702	
180 minute summer	MH3	1.002	MH4	7.8	0.892	0.357	0.2767	
180 minute summer	MH4	1.003	MH5	3.4	0.605	0.065	0.4295	
180 minute summer	MH5	1.004	MH6	3.6	0.475	0.070	0.5409	
180 minute summer	MH6	1.005	MH7	3.5	0.349	0.088	0.5091	
180 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	46.0
180 minute summer	TANK	2.000	MH4	-12.3	0.399	-0.181	0.4216	

Results for 30 year 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	MH1	96	70.070	0.030	2.0	0.0444	0.0000	OK
180 minute winter	MH2	96	69.843	0.042	4.0	0.0619	0.0000	OK
180 minute winter	MH3	164	69.731	0.130	6.0	0.1807	0.0000	OK
180 minute winter	MH4	164	69.730	0.535	9.3	0.7216	0.0000	SURCHARGED
180 minute winter	MH5	164	69.730	0.643	3.9	0.8543	0.0000	SURCHARGED
180 minute winter	MH6	164	69.730	0.778	4.1	1.0256	0.0000	SURCHARGED
180 minute winter	MH7	164	69.729	0.853	3.2	0.9650	0.0000	SURCHARGED
180 minute winter	OUTFALL	64	68.883	0.038	2.6	0.0000	0.0000	OK
180 minute winter	TANK	164	69.730	0.355	9.0	23.9709	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	MH1	1.000	MH2	2.0	0.616	0.087	0.0465	
180 minute winter	MH2	1.001	MH3	4.0	0.826	0.173	0.1041	
180 minute winter	MH3	1.002	MH4	6.0	0.850	0.274	0.3702	
180 minute winter	MH4	1.003	MH5	3.1	0.605	0.060	0.4295	
180 minute winter	MH5	1.004	MH6	3.3	0.475	0.063	0.5409	
180 minute winter	MH6	1.005	MH7	3.2	0.287	0.081	0.5091	
180 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	51.7
180 minute winter	TANK	2.000	MH4	-9.0	0.391	-0.132	0.4216	

Results for 30 year 240 minute summer. 480 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	MH1	124	70.071	0.031	2.2	0.0464	0.0000	OK
240 minute summer	MH2	124	69.845	0.044	4.4	0.0649	0.0000	OK
240 minute summer	MH3	124	69.657	0.056	6.6	0.0780	0.0000	OK
240 minute summer	MH4	172	69.655	0.460	10.2	0.6210	0.0000	SURCHARGED
240 minute summer	MH5	172	69.655	0.568	4.0	0.7552	0.0000	SURCHARGED
240 minute summer	MH6	172	69.655	0.703	4.3	0.9273	0.0000	SURCHARGED
240 minute summer	MH7	172	69.655	0.779	3.4	0.8808	0.0000	SURCHARGED
240 minute summer	OUTFALL	376	68.883	0.038	2.6	0.0000	0.0000	OK
240 minute summer	TANK	172	69.655	0.280	9.9	18.9287	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	MH1	1.000	MH2	2.2	0.630	0.095	0.0496	
240 minute summer	MH2	1.001	MH3	4.4	0.845	0.189	0.0615	
240 minute summer	MH3	1.002	MH4	6.5	0.830	0.298	0.2585	
240 minute summer	MH4	1.003	MH5	3.1	0.633	0.060	0.4295	
240 minute summer	MH5	1.004	MH6	3.4	0.475	0.066	0.5409	
240 minute summer	MH6	1.005	MH7	3.4	0.349	0.086	0.5091	
240 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	49.5
240 minute summer	TANK	2.000	MH4	-9.9	0.400	-0.145	0.4216	

Results for 30 year 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	MH1	124	70.067	0.027	1.6	0.0398	0.0000	OK
240 minute winter	MH2	124	69.839	0.038	3.2	0.0553	0.0000	OK
240 minute winter	MH3	188	69.714	0.113	4.8	0.1565	0.0000	OK
240 minute winter	MH4	188	69.713	0.518	7.0	0.6982	0.0000	SURCHARGED
240 minute winter	MH5	188	69.712	0.625	3.9	0.8313	0.0000	SURCHARGED
240 minute winter	MH6	188	69.712	0.760	3.7	1.0028	0.0000	SURCHARGED
240 minute winter	MH7	188	69.712	0.836	3.1	0.9454	0.0000	SURCHARGED
240 minute winter	OUTFALL	416	68.883	0.038	2.6	0.0000	0.0000	OK
240 minute winter	TANK	188	69.713	0.338	6.7	22.7989	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	MH1	1.000	MH2	1.6	0.577	0.069	0.0397	
240 minute winter	MH2	1.001	MH3	3.2	0.776	0.139	0.0920	
240 minute winter	MH3	1.002	MH4	4.8	0.830	0.219	0.3480	
240 minute winter	MH4	1.003	MH5	3.1	0.605	0.060	0.4295	
240 minute winter	MH5	1.004	MH6	2.8	0.475	0.055	0.5409	
240 minute winter	MH6	1.005	MH7	3.1	0.287	0.077	0.5091	
240 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	56.3
240 minute winter	TANK	2.000	MH4	-6.7	0.400	-0.099	0.4216	

Results for 30 year 360 minute summer. 600 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	MH1	184	70.067	0.027	1.6	0.0397	0.0000	OK
360 minute summer	MH2	184	69.839	0.038	3.2	0.0551	0.0000	OK
360 minute summer	MH3	184	69.648	0.047	4.8	0.0660	0.0000	OK
360 minute summer	MH4	240	69.629	0.434	6.8	0.5854	0.0000	SURCHARGED
360 minute summer	MH5	240	69.629	0.542	3.9	0.7201	0.0000	SURCHARGED
360 minute summer	MH6	240	69.629	0.677	3.9	0.8924	0.0000	SURCHARGED
360 minute summer	MH7	240	69.628	0.752	3.1	0.8509	0.0000	SURCHARGED
360 minute summer	OUTFALL	448	68.883	0.038	2.6	0.0000	0.0000	OK
360 minute summer	TANK	240	69.629	0.254	6.5	17.1424	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute summer	MH1	1.000	MH2	1.6	0.577	0.069	0.0395	
360 minute summer	MH2	1.001	MH3	3.2	0.775	0.138	0.0489	
360 minute summer	MH3	1.002	MH4	4.8	0.802	0.217	0.2451	
360 minute summer	MH4	1.003	MH5	3.1	0.610	0.060	0.4295	
360 minute summer	MH5	1.004	MH6	3.1	0.455	0.060	0.5409	
360 minute summer	MH6	1.005	MH7	3.1	0.173	0.079	0.5091	
360 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	54.9
360 minute summer	TANK	2.000	MH4	-6.5	0.384	-0.096	0.4216	

Results for 30 year 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	MH1	184	70.063	0.023	1.2	0.0346	0.0000	OK
360 minute winter	MH2	184	69.834	0.033	2.4	0.0478	0.0000	OK
360 minute winter	MH3	264	69.657	0.056	3.6	0.0773	0.0000	OK
360 minute winter	MH4	264	69.656	0.461	4.8	0.6215	0.0000	SURCHARGED
360 minute winter	MH5	264	69.656	0.569	3.4	0.7557	0.0000	SURCHARGED
360 minute winter	MH6	264	69.655	0.703	3.6	0.9278	0.0000	SURCHARGED
360 minute winter	MH7	264	69.655	0.779	3.0	0.8811	0.0000	SURCHARGED
360 minute winter	OUTFALL	472	68.883	0.038	2.6	0.0000	0.0000	OK
360 minute winter	TANK	264	69.656	0.281	4.5	18.9521	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	MH1	1.000	MH2	1.2	0.531	0.052	0.0323	
360 minute winter	MH2	1.001	MH3	2.4	0.715	0.104	0.0430	
360 minute winter	MH3	1.002	MH4	3.6	0.775	0.165	0.2577	
360 minute winter	MH4	1.003	MH5	2.7	0.577	0.053	0.4295	
360 minute winter	MH5	1.004	MH6	2.9	0.455	0.055	0.5409	
360 minute winter	MH6	1.005	MH7	3.0	0.287	0.075	0.5091	
360 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	60.3
360 minute winter	TANK	2.000	MH4	-4.5	0.399	-0.066	0.4216	

Results for 30 year 480 minute summer. 720 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	MH1	248	70.064	0.024	1.3	0.0360	0.0000	OK
480 minute summer	MH2	248	69.835	0.034	2.6	0.0498	0.0000	OK
480 minute summer	MH3	248	69.644	0.043	3.9	0.0596	0.0000	OK
480 minute summer	MH4	320	69.589	0.394	5.2	0.5318	0.0000	SURCHARGED
480 minute summer	MH5	320	69.589	0.502	3.4	0.6673	0.0000	SURCHARGED
480 minute summer	MH6	312	69.589	0.637	3.6	0.8401	0.0000	SURCHARGED
480 minute summer	MH7	312	69.589	0.713	3.0	0.8059	0.0000	SURCHARGED
480 minute summer	OUTFALL	504	68.883	0.038	2.6	0.0000	0.0000	OK
480 minute summer	TANK	320	69.589	0.214	4.9	14.4605	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	MH1	1.000	MH2	1.3	0.544	0.056	0.0342	
480 minute summer	MH2	1.001	MH3	2.6	0.731	0.113	0.0424	
480 minute summer	MH3	1.002	MH4	3.9	0.775	0.178	0.2381	
480 minute summer	MH4	1.003	MH5	2.7	0.577	0.053	0.4295	
480 minute summer	MH5	1.004	MH6	2.9	0.455	0.055	0.5409	
480 minute summer	MH6	1.005	MH7	3.0	0.173	0.075	0.5091	
480 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1524	57.9
480 minute summer	TANK	2.000	MH4	-4.9	0.365	-0.073	0.4178	

Results for 30 year 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	MH1	248	70.061	0.021	1.0	0.0317	0.0000	OK
480 minute winter	MH2	248	69.831	0.030	2.0	0.0437	0.0000	OK
480 minute winter	MH3	248	69.639	0.038	3.0	0.0522	0.0000	OK
480 minute winter	MH4	344	69.607	0.412	4.0	0.5563	0.0000	SURCHARGED
480 minute winter	MH5	344	69.607	0.520	3.3	0.6914	0.0000	SURCHARGED
480 minute winter	MH6	344	69.607	0.655	3.5	0.8640	0.0000	SURCHARGED
480 minute winter	MH7	344	69.607	0.731	3.0	0.8265	0.0000	SURCHARGED
480 minute winter	OUTFALL	192	68.883	0.038	2.6	0.0000	0.0000	OK
480 minute winter	TANK	344	69.607	0.232	3.3	15.6873	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	MH1	1.000	MH2	1.0	0.503	0.043	0.0284	
480 minute winter	MH2	1.001	MH3	2.0	0.678	0.087	0.0352	
480 minute winter	MH3	1.002	MH4	3.0	0.775	0.137	0.2304	
480 minute winter	MH4	1.003	MH5	2.6	0.582	0.049	0.4295	
480 minute winter	MH5	1.004	MH6	2.8	0.455	0.054	0.5409	
480 minute winter	MH6	1.005	MH7	3.0	0.287	0.075	0.5091	
480 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	66.6
480 minute winter	TANK	2.000	MH4	-3.3	0.367	-0.048	0.4216	

Results for 30 year 600 minute summer. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	MH1	315	70.062	0.022	1.1	0.0332	0.0000	OK
600 minute summer	MH2	315	69.832	0.031	2.2	0.0458	0.0000	OK
600 minute summer	MH3	315	69.640	0.039	3.3	0.0547	0.0000	OK
600 minute summer	MH4	375	69.553	0.358	4.4	0.4831	0.0000	SURCHARGED
600 minute summer	MH5	375	69.553	0.466	3.4	0.6193	0.0000	SURCHARGED
600 minute summer	MH6	375	69.553	0.601	3.4	0.7923	0.0000	SURCHARGED
600 minute summer	MH7	375	69.552	0.676	2.9	0.7650	0.0000	SURCHARGED
600 minute summer	OUTFALL	540	68.883	0.038	2.6	0.0000	0.0000	OK
600 minute summer	TANK	375	69.553	0.178	3.8	12.0124	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute summer	MH1	1.000	MH2	1.1	0.518	0.048	0.0304	
600 minute summer	MH2	1.001	MH3	2.2	0.697	0.095	0.0376	
600 minute summer	MH3	1.002	MH4	3.3	0.775	0.151	0.2330	
600 minute summer	MH4	1.003	MH5	2.7	0.580	0.053	0.4295	
600 minute summer	MH5	1.004	MH6	2.7	0.439	0.053	0.5409	
600 minute summer	MH6	1.005	MH7	2.9	0.140	0.073	0.5091	
600 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	60.2
600 minute summer	TANK	2.000	MH4	-3.8	0.200	-0.056	0.3895	

Results for 30 year 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	MH1	300	70.059	0.019	0.8	0.0285	0.0000	OK
600 minute winter	MH2	300	69.828	0.027	1.6	0.0392	0.0000	OK
600 minute winter	MH3	300	69.635	0.034	2.4	0.0467	0.0000	OK
600 minute winter	MH4	405	69.550	0.355	3.2	0.4794	0.0000	SURCHARGED
600 minute winter	MH5	405	69.550	0.463	2.6	0.6156	0.0000	SURCHARGED
600 minute winter	MH6	405	69.550	0.598	3.1	0.7887	0.0000	SURCHARGED
600 minute winter	MH7	405	69.550	0.674	2.7	0.7619	0.0000	SURCHARGED
600 minute winter	OUTFALL	255	68.883	0.038	2.6	0.0000	0.0000	OK
600 minute winter	TANK	405	69.550	0.175	2.2	11.8267	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	MH1	1.000	MH2	0.8	0.471	0.035	0.0243	
600 minute winter	MH2	1.001	MH3	1.6	0.635	0.069	0.0300	
600 minute winter	MH3	1.002	MH4	2.4	0.743	0.110	0.2249	
600 minute winter	MH4	1.003	MH5	2.2	0.580	0.043	0.4295	
600 minute winter	MH5	1.004	MH6	2.6	0.439	0.050	0.5409	
600 minute winter	MH6	1.005	MH7	2.7	0.160	0.068	0.5091	
600 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	66.6
600 minute winter	TANK	2.000	MH4	-2.2	0.245	-0.033	0.3868	

Results for 30 year 720 minute summer. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	MH1	375	70.060	0.020	0.9	0.0301	0.0000	OK
720 minute summer	MH2	375	69.829	0.028	1.8	0.0415	0.0000	OK
720 minute summer	MH3	375	69.637	0.036	2.7	0.0495	0.0000	OK
720 minute summer	MH4	435	69.505	0.310	3.6	0.4184	0.0000	SURCHARGED
720 minute summer	MH5	435	69.505	0.418	3.0	0.5556	0.0000	SURCHARGED
720 minute summer	MH6	435	69.505	0.553	3.3	0.7291	0.0000	SURCHARGED
720 minute summer	MH7	435	69.504	0.628	2.9	0.7107	0.0000	SURCHARGED
720 minute summer	OUTFALL	570	68.883	0.038	2.6	0.0000	0.0000	OK
720 minute summer	TANK	435	69.505	0.130	2.8	8.7724	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	MH1	1.000	MH2	0.9	0.488	0.039	0.0264	
720 minute summer	MH2	1.001	MH3	1.8	0.657	0.078	0.0327	
720 minute summer	MH3	1.002	MH4	2.7	0.743	0.123	0.2277	
720 minute summer	MH4	1.003	MH5	2.4	0.580	0.046	0.4295	
720 minute summer	MH5	1.004	MH6	2.7	0.439	0.053	0.5409	
720 minute summer	MH6	1.005	MH7	2.9	0.140	0.072	0.5091	
720 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	62.4
720 minute summer	TANK	2.000	MH4	-2.8	0.190	-0.042	0.3369	

Results for 30 year 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	MH1	360	70.058	0.018	0.7	0.0267	0.0000	OK
720 minute winter	MH2	360	69.826	0.025	1.4	0.0367	0.0000	OK
720 minute winter	MH3	360	69.632	0.031	2.1	0.0437	0.0000	OK
720 minute winter	MH4	480	69.502	0.307	2.8	0.4142	0.0000	SURCHARGED
720 minute winter	MH5	480	69.502	0.415	2.5	0.5514	0.0000	SURCHARGED
720 minute winter	MH6	480	69.502	0.550	3.0	0.7249	0.0000	SURCHARGED
720 minute winter	MH7	480	69.501	0.625	2.7	0.7072	0.0000	SURCHARGED
720 minute winter	OUTFALL	315	68.883	0.038	2.6	0.0000	0.0000	OK
720 minute winter	TANK	480	69.502	0.127	1.6	8.5592	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	MH1	1.000	MH2	0.7	0.452	0.030	0.0222	
720 minute winter	MH2	1.001	MH3	1.4	0.611	0.061	0.0273	
720 minute winter	MH3	1.002	MH4	2.1	0.743	0.096	0.2220	
720 minute winter	MH4	1.003	MH5	2.2	0.580	0.043	0.4295	
720 minute winter	MH5	1.004	MH6	2.5	0.439	0.047	0.5409	
720 minute winter	MH6	1.005	MH7	2.7	0.160	0.067	0.5091	
720 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	71.3
720 minute winter	TANK	2.000	MH4	1.7	0.248	0.025	0.3332	

Results for 30 year 960 minute summer. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	MH1	495	70.059	0.019	0.8	0.0285	0.0000	OK
960 minute summer	MH2	495	69.828	0.027	1.6	0.0392	0.0000	OK
960 minute summer	MH3	495	69.635	0.034	2.4	0.0467	0.0000	OK
960 minute summer	MH4	555	69.475	0.280	3.2	0.3783	0.0000	SURCHARGED
960 minute summer	MH5	555	69.475	0.388	3.0	0.5160	0.0000	SURCHARGED
960 minute summer	MH6	555	69.475	0.523	3.0	0.6898	0.0000	SURCHARGED
960 minute summer	MH7	555	69.475	0.599	2.8	0.6770	0.0000	SURCHARGED
960 minute summer	OUTFALL	690	68.883	0.038	2.6	0.0000	0.0000	OK
960 minute summer	TANK	555	69.475	0.100	2.2	6.7606	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	MH1	1.000	MH2	0.8	0.471	0.035	0.0243	
960 minute summer	MH2	1.001	MH3	1.6	0.635	0.069	0.0300	
960 minute summer	MH3	1.002	MH4	2.4	0.743	0.110	0.2249	
960 minute summer	MH4	1.003	MH5	2.4	0.580	0.046	0.4295	
960 minute summer	MH5	1.004	MH6	2.5	0.439	0.047	0.5409	
960 minute summer	MH6	1.005	MH7	2.8	0.140	0.070	0.5091	
960 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1524	73.3
960 minute summer	TANK	2.000	MH4	-2.2	0.234	-0.033	0.3016	

Results for 30 year 960 minute winter. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	MH1	480	70.057	0.017	0.6	0.0249	0.0000	OK
960 minute winter	MH2	480	69.824	0.023	1.2	0.0341	0.0000	OK
960 minute winter	MH3	465	69.630	0.029	1.8	0.0407	0.0000	OK
960 minute winter	MH4	570	69.427	0.232	2.4	0.3129	0.0000	SURCHARGED
960 minute winter	MH5	570	69.427	0.340	2.5	0.4516	0.0000	SURCHARGED
960 minute winter	MH6	570	69.427	0.475	3.0	0.6259	0.0000	SURCHARGED
960 minute winter	MH7	570	69.426	0.550	2.7	0.6222	0.0000	SURCHARGED
960 minute winter	OUTFALL	465	68.883	0.038	2.6	0.0000	0.0000	OK
960 minute winter	TANK	570	69.427	0.052	1.1	3.4848	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	MH1	1.000	MH2	0.6	0.432	0.026	0.0199	
960 minute winter	MH2	1.001	MH3	1.2	0.584	0.052	0.0246	
960 minute winter	MH3	1.002	MH4	1.8	0.743	0.082	0.2158	
960 minute winter	MH4	1.003	MH5	2.0	0.580	0.038	0.4295	
960 minute winter	MH5	1.004	MH6	2.5	0.439	0.047	0.5409	
960 minute winter	MH6	1.005	MH7	2.7	0.160	0.067	0.5091	
960 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	77.7
960 minute winter	TANK	2.000	MH4	-1.1	0.141	-0.016	0.2475	

Results for 30 year 1440 minute summer. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	MH1	750	70.057	0.017	0.6	0.0249	0.0000	OK
1440 minute summer	MH2	750	69.824	0.023	1.2	0.0341	0.0000	OK
1440 minute summer	MH3	720	69.630	0.029	1.8	0.0409	0.0000	OK
1440 minute summer	MH4	810	69.414	0.219	2.4	0.2949	0.0000	OK
1440 minute summer	MH5	810	69.413	0.326	2.5	0.4339	0.0000	SURCHARGED
1440 minute summer	MH6	810	69.413	0.461	2.9	0.6083	0.0000	SURCHARGED
1440 minute summer	MH7	810	69.413	0.537	2.7	0.6070	0.0000	SURCHARGED
1440 minute summer	OUTFALL	720	68.883	0.038	2.6	0.0000	0.0000	OK
1440 minute summer	TANK	810	69.414	0.039	1.1	2.5802	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	MH1	1.000	MH2	0.6	0.432	0.026	0.0199	
1440 minute summer	MH2	1.001	MH3	1.2	0.584	0.052	0.0247	
1440 minute summer	MH3	1.002	MH4	1.8	0.744	0.082	0.2098	
1440 minute summer	MH4	1.003	MH5	2.0	0.544	0.038	0.4277	
1440 minute summer	MH5	1.004	MH6	2.4	0.439	0.047	0.5409	
1440 minute summer	MH6	1.005	MH7	2.7	0.138	0.067	0.5091	
1440 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	86.3
1440 minute summer	TANK	2.000	MH4	-1.1	0.085	-0.016	0.2330	

Results for 30 year 1440 minute winter. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	MH1	690	70.054	0.014	0.4	0.0205	0.0000	OK
1440 minute winter	MH2	690	69.820	0.019	0.8	0.0281	0.0000	OK
1440 minute winter	MH3	690	69.625	0.024	1.2	0.0335	0.0000	OK
1440 minute winter	MH4	690	69.222	0.027	1.6	0.0367	0.0000	OK
1440 minute winter	MH5	690	69.117	0.030	2.0	0.0400	0.0000	OK
1440 minute winter	MH6	810	69.096	0.144	2.4	0.1900	0.0000	OK
1440 minute winter	MH7	810	69.096	0.220	2.4	0.2486	0.0000	OK
1440 minute winter	OUTFALL	810	68.881	0.036	2.4	0.0000	0.0000	OK
1440 minute winter	TANK	30	69.375	0.000	0.0	0.0006	0.0000	OK

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	MH1	1.000	MH2	0.4	0.384	0.017	0.0150	
1440 minute winter	MH2	1.001	MH3	0.8	0.513	0.035	0.0186	
1440 minute winter	MH3	1.002	MH4	1.2	0.662	0.055	0.0397	
1440 minute winter	MH4	1.003	MH5	1.6	0.546	0.031	0.0317	
1440 minute winter	MH5	1.004	MH6	2.0	0.439	0.039	0.2039	
1440 minute winter	MH6	1.005	MH7	2.4	0.138	0.060	0.4246	
1440 minute winter	MH7	1.006	OUTFALL	2.4	0.375	0.059	0.1447	88.7
1440 minute winter	TANK	2.000	MH4	0.0	0.000	0.000	0.0144	

Results for 100 year +40% CC +10% A 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	MH1	12	71.050	1.010	16.0	1.5377	0.0000	SURCHARGED
15 minute summer	MH2	12	70.987	1.186	24.8	1.7761	0.0000	FLOOD RISK
15 minute summer	MH3	12	70.765	1.164	34.8	1.6500	0.0000	SURCHARGED
15 minute summer	MH4	12	69.888	0.693	70.9	0.9493	0.0000	SURCHARGED
15 minute summer	MH5	12	69.914	0.827	26.7	1.1160	0.0000	SURCHARGED
15 minute summer	MH6	12	69.919	0.967	17.1	1.2935	0.0000	SURCHARGED
15 minute summer	MH7	12	69.918	1.042	10.1	1.1783	0.0000	SURCHARGED
15 minute summer	OUTFALL	6	68.882	0.037	2.5	0.0000	0.0000	OK
15 minute summer	TANK	20	69.844	0.469	70.1	31.6544	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	MH1	1.000	MH2	11.7	0.834	0.507	0.2500	
15 minute summer	MH2	1.001	MH3	21.7	1.234	0.941	0.2093	
15 minute summer	MH3	1.002	MH4	32.5	1.846	1.486	0.3855	
15 minute summer	MH4	1.003	MH5	-25.0	0.913	-0.481	0.4295	
15 minute summer	MH5	1.004	MH6	13.6	0.796	0.262	0.5409	
15 minute summer	MH6	1.005	MH7	10.1	0.552	0.252	0.5091	
15 minute summer	MH7	1.006	OUTFALL	2.5	0.381	0.062	0.1512	34.4
15 minute summer	TANK	2.000	MH4	-70.1	-1.763	-1.033	0.4216	

Results for 100 year +40% CC +10% A 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	13	71.198	1.158	16.8	1.7625	0.0000	FLOOD RISK
15 minute winter	MH2	13	71.126	1.325	25.8	1.9844	0.0000	FLOOD RISK
15 minute winter	MH3	12	70.883	1.282	36.3	1.8169	0.0000	SURCHARGED
15 minute winter	MH4	13	69.938	0.743	74.9	1.0186	0.0000	SURCHARGED
15 minute winter	MH5	12	69.967	0.880	27.7	1.1872	0.0000	SURCHARGED
15 minute winter	MH6	12	69.974	1.022	16.8	1.3671	0.0000	SURCHARGED
15 minute winter	MH7	12	69.974	1.098	7.5	1.2415	0.0000	SURCHARGED
15 minute winter	OUTFALL	13	68.882	0.037	2.5	0.0000	0.0000	OK
15 minute winter	TANK	20	69.908	0.533	73.9	35.9899	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	MH1	1.000	MH2	11.3	0.844	0.489	0.2500	
15 minute winter	MH2	1.001	MH3	22.6	1.282	0.977	0.2093	
15 minute winter	MH3	1.002	MH4	33.7	1.917	1.542	0.3855	
15 minute winter	MH4	1.003	MH5	-27.0	0.939	-0.519	0.4295	
15 minute winter	MH5	1.004	MH6	-11.9	0.803	-0.230	0.5409	
15 minute winter	MH6	1.005	MH7	7.5	0.565	0.188	0.5091	
15 minute winter	MH7	1.006	OUTFALL	2.5	0.381	0.062	0.1507	34.4
15 minute winter	TANK	2.000	MH4	-73.9	-1.858	-1.089	0.4216	

Results for 100 year +40% CC +10% A 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 99.72%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	MH1	20	71.024	0.984	14.7	1.4977	0.0000	SURCHARGED
30 minute summer	MH2	20	70.964	1.163	23.7	1.7415	0.0000	FLOOD RISK
30 minute summer	MH3	20	70.755	1.154	33.2	1.6347	0.0000	SURCHARGED
30 minute summer	MH4	34	69.999	0.804	65.4	1.1011	0.0000	SURCHARGED
30 minute summer	MH5	34	69.998	0.911	23.7	1.2292	0.0000	SURCHARGED
30 minute summer	MH6	34	69.998	1.046	14.7	1.3991	0.0000	SURCHARGED
30 minute summer	MH7	34	69.997	1.121	5.1	1.2682	0.0000	SURCHARGED
30 minute summer	OUTFALL	8	68.883	0.038	2.6	0.0000	0.0000	OK
30 minute summer	TANK	34	70.000	0.625	64.3	42.2213	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	MH1	1.000	MH2	10.4	0.865	0.449	0.2500	
30 minute summer	MH2	1.001	MH3	20.7	1.174	0.895	0.2093	
30 minute summer	MH3	1.002	MH4	31.2	1.774	1.428	0.3855	
30 minute summer	MH4	1.003	MH5	-21.9	0.836	-0.421	0.4295	
30 minute summer	MH5	1.004	MH6	9.2	0.691	0.178	0.5409	
30 minute summer	MH6	1.005	MH7	5.1	0.543	0.128	0.5091	
30 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1525	37.1
30 minute summer	TANK	2.000	MH4	-64.3	-1.617	-0.947	0.4216	

Results for 100 year +40% CC +10% A 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 99.72%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH1	21	71.005	0.965	13.3	1.4690	0.0000	SURCHARGED
30 minute winter	MH2	21	70.948	1.147	22.3	1.7177	0.0000	FLOOD RISK
30 minute winter	MH3	21	70.750	1.149	31.9	1.6287	0.0000	SURCHARGED
30 minute winter	MH4	33	70.087	0.892	61.8	1.2221	0.0000	SURCHARGED
30 minute winter	MH5	33	70.087	1.000	21.3	1.3486	0.0000	SURCHARGED
30 minute winter	MH6	33	70.086	1.134	13.3	1.5177	0.0000	SURCHARGED
30 minute winter	MH7	33	70.086	1.210	5.7	1.3684	0.0000	SURCHARGED
30 minute winter	OUTFALL	34	68.883	0.038	2.7	0.0000	0.0000	OK
30 minute winter	TANK	34	70.088	0.713	60.6	48.2156	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	MH1	1.000	MH2	10.1	0.806	0.436	0.2500	
30 minute winter	MH2	1.001	MH3	20.1	1.143	0.872	0.2093	
30 minute winter	MH3	1.002	MH4	30.2	1.718	1.383	0.3855	
30 minute winter	MH4	1.003	MH5	-19.9	0.862	-0.382	0.4295	
30 minute winter	MH5	1.004	MH6	10.5	0.720	0.202	0.5409	
30 minute winter	MH6	1.005	MH7	5.7	0.545	0.144	0.5091	
30 minute winter	MH7	1.006	OUTFALL	2.7	0.386	0.065	0.1561	38.4
30 minute winter	TANK	2.000	MH4	-60.6	-1.525	-0.893	0.4216	

Results for 100 year +40% CC +10% A 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 99.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	MH1	36	70.716	0.676	11.2	1.0289	0.0000	SURCHARGED
60 minute summer	MH2	36	70.673	0.872	19.1	1.3067	0.0000	SURCHARGED
60 minute summer	MH3	36	70.527	0.926	27.6	1.3119	0.0000	SURCHARGED
60 minute summer	MH4	63	70.146	0.951	52.7	1.3025	0.0000	SURCHARGED
60 minute summer	MH5	62	70.145	1.058	17.7	1.4276	0.0000	SURCHARGED
60 minute summer	MH6	62	70.145	1.193	11.2	1.5962	0.0000	SURCHARGED
60 minute summer	MH7	62	70.144	1.268	5.8	1.4347	0.0000	SURCHARGED
60 minute summer	OUTFALL	64	68.884	0.039	2.7	0.0000	0.0000	OK
60 minute summer	TANK	63	70.147	0.772	51.7	52.1523	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	MH1	1.000	MH2	8.7	0.838	0.377	0.2500	
60 minute summer	MH2	1.001	MH3	17.4	0.995	0.752	0.2093	
60 minute summer	MH3	1.002	MH4	26.2	1.488	1.197	0.3855	
60 minute summer	MH4	1.003	MH5	-16.5	0.744	-0.318	0.4295	
60 minute summer	MH5	1.004	MH6	-6.5	0.669	-0.126	0.5409	
60 minute summer	MH6	1.005	MH7	5.8	0.502	0.145	0.5091	
60 minute summer	MH7	1.006	OUTFALL	2.7	0.388	0.067	0.1586	43.9
60 minute summer	TANK	2.000	MH4	-51.7	-1.299	-0.761	0.4216	

Results for 100 year +40% CC +10% A 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH1	37	70.588	0.548	9.1	0.8337	0.0000	SURCHARGED
60 minute winter	MH2	37	70.556	0.755	16.4	1.1306	0.0000	SURCHARGED
60 minute winter	MH3	38	70.448	0.847	23.9	1.2005	0.0000	SURCHARGED
60 minute winter	MH4	62	70.260	1.065	44.5	1.4594	0.0000	SURCHARGED
60 minute winter	MH5	62	70.260	1.173	14.0	1.5821	0.0000	SURCHARGED
60 minute winter	MH6	62	70.259	1.307	9.1	1.7491	0.0000	SURCHARGED
60 minute winter	MH7	62	70.259	1.383	6.9	1.5638	0.0000	SURCHARGED
60 minute winter	OUTFALL	63	68.885	0.040	2.8	0.0000	0.0000	OK
60 minute winter	TANK	62	70.261	0.886	43.6	59.8935	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute winter	MH1	1.000	MH2	7.6	0.814	0.330	0.2500	
60 minute winter	MH2	1.001	MH3	15.2	0.994	0.659	0.2093	
60 minute winter	MH3	1.002	MH4	22.9	1.300	1.046	0.3855	
60 minute winter	MH4	1.003	MH5	-13.1	0.787	-0.252	0.4295	
60 minute winter	MH5	1.004	MH6	7.4	0.691	0.142	0.5409	
60 minute winter	MH6	1.005	MH7	6.9	0.476	0.174	0.5091	
60 minute winter	MH7	1.006	OUTFALL	2.8	0.393	0.070	0.1633	45.5
60 minute winter	TANK	2.000	MH4	-43.6	-1.097	-0.642	0.4216	

Results for 100 year +40% CC +10% A 120 minute summer. 360 minute analysis at 2 minute timestep. Mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	MH1	68	70.276	0.236	7.1	0.3594	0.0000	SURCHARGED
120 minute summer	MH2	68	70.257	0.456	12.9	0.6837	0.0000	SURCHARGED
120 minute summer	MH3	120	70.205	0.604	18.8	0.8565	0.0000	SURCHARGED
120 minute summer	MH4	122	70.203	1.008	34.7	1.3806	0.0000	SURCHARGED
120 minute summer	MH5	122	70.202	1.115	10.5	1.5047	0.0000	SURCHARGED
120 minute summer	MH6	122	70.202	1.250	7.1	1.6725	0.0000	SURCHARGED
120 minute summer	MH7	122	70.202	1.326	3.3	1.4992	0.0000	SURCHARGED
120 minute summer	OUTFALL	122	68.884	0.039	2.8	0.0000	0.0000	OK
120 minute summer	TANK	122	70.203	0.828	34.0	55.9729	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute summer	MH1	1.000	MH2	6.4	0.804	0.278	0.2500	
120 minute summer	MH2	1.001	MH3	12.0	0.975	0.522	0.2093	
120 minute summer	MH3	1.002	MH4	18.1	1.027	0.826	0.3855	
120 minute summer	MH4	1.003	MH5	-9.8	0.641	-0.189	0.4295	
120 minute summer	MH5	1.004	MH6	3.8	0.569	0.073	0.5409	
120 minute summer	MH6	1.005	MH7	3.3	0.447	0.082	0.5091	
120 minute summer	MH7	1.006	OUTFALL	2.8	0.390	0.068	0.1610	53.7
120 minute summer	TANK	2.000	MH4	-34.0	-0.856	-0.501	0.4216	

Results for 100 year +40% CC +10% A 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 99.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	MH1	116	70.342	0.302	5.5	0.4593	0.0000	SURCHARGED
120 minute winter	MH2	116	70.342	0.541	11.0	0.8097	0.0000	SURCHARGED
120 minute winter	MH3	116	70.340	0.739	15.4	1.0478	0.0000	SURCHARGED
120 minute winter	MH4	120	70.338	1.143	27.2	1.5665	0.0000	SURCHARGED
120 minute winter	MH5	120	70.338	1.251	7.6	1.6878	0.0000	SURCHARGED
120 minute winter	MH6	120	70.338	1.386	5.5	1.8540	0.0000	SURCHARGED
120 minute winter	MH7	120	70.337	1.461	3.5	1.6525	0.0000	SURCHARGED
120 minute winter	OUTFALL	120	68.885	0.040	2.9	0.0000	0.0000	OK
120 minute winter	TANK	120	70.339	0.964	26.6	65.1432	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	MH1	1.000	MH2	5.5	0.771	0.237	0.2500	
120 minute winter	MH2	1.001	MH3	9.9	0.948	0.430	0.2093	
120 minute winter	MH3	1.002	MH4	14.7	0.862	0.672	0.3855	
120 minute winter	MH4	1.003	MH5	-7.1	0.687	-0.136	0.4295	
120 minute winter	MH5	1.004	MH6	4.5	0.566	0.086	0.5409	
120 minute winter	MH6	1.005	MH7	3.5	0.388	0.088	0.5091	
120 minute winter	MH7	1.006	OUTFALL	2.9	0.396	0.071	0.1661	55.6
120 minute winter	TANK	2.000	MH4	-26.6	-0.670	-0.393	0.4216	

Results for 100 year +40% CC +10% A 180 minute summer. 420 minute analysis at 4 minute timestep. Mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	MH1	180	70.195	0.155	5.2	0.2354	0.0000	SURCHARGED
180 minute summer	MH2	180	70.195	0.394	10.4	0.5895	0.0000	SURCHARGED
180 minute summer	MH3	180	70.194	0.593	14.8	0.8403	0.0000	SURCHARGED
180 minute summer	MH4	180	70.192	0.997	25.9	1.3662	0.0000	SURCHARGED
180 minute summer	MH5	180	70.192	1.105	7.1	1.4907	0.0000	SURCHARGED
180 minute summer	MH6	180	70.192	1.240	5.2	1.6587	0.0000	SURCHARGED
180 minute summer	MH7	180	70.191	1.315	2.9	1.4874	0.0000	SURCHARGED
180 minute summer	OUTFALL	180	68.884	0.039	2.8	0.0000	0.0000	OK
180 minute summer	TANK	180	70.192	0.817	25.4	55.2357	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	MH1	1.000	MH2	5.2	0.766	0.225	0.2500	
180 minute summer	MH2	1.001	MH3	9.6	0.949	0.414	0.2093	
180 minute summer	MH3	1.002	MH4	14.2	0.806	0.649	0.3855	
180 minute summer	MH4	1.003	MH5	-6.6	0.582	-0.127	0.4295	
180 minute summer	MH5	1.004	MH6	2.7	0.524	0.052	0.5409	
180 minute summer	MH6	1.005	MH7	2.9	0.341	0.072	0.5091	
180 minute summer	MH7	1.006	OUTFALL	2.8	0.390	0.068	0.1606	62.3
180 minute summer	TANK	2.000	MH4	-25.4	-0.639	-0.375	0.4216	

Results for 100 year +40% CC +10% A 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 99.74%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	MH1	176	70.343	0.303	4.0	0.4609	0.0000	SURCHARGED
180 minute winter	MH2	176	70.343	0.542	8.0	0.8115	0.0000	SURCHARGED
180 minute winter	MH3	176	70.342	0.741	11.4	1.0504	0.0000	SURCHARGED
180 minute winter	MH4	176	70.341	1.146	19.5	1.5693	0.0000	SURCHARGED
180 minute winter	MH5	176	70.340	1.253	4.9	1.6907	0.0000	SURCHARGED
180 minute winter	MH6	176	70.340	1.388	4.0	1.8570	0.0000	SURCHARGED
180 minute winter	MH7	176	70.339	1.463	2.9	1.6550	0.0000	SURCHARGED
180 minute winter	OUTFALL	176	68.885	0.040	2.9	0.0000	0.0000	OK
180 minute winter	TANK	176	70.341	0.966	19.1	65.2698	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	MH1	1.000	MH2	4.0	0.726	0.173	0.2500	
180 minute winter	MH2	1.001	MH3	7.4	0.905	0.322	0.2093	
180 minute winter	MH3	1.002	MH4	11.0	0.779	0.504	0.3855	
180 minute winter	MH4	1.003	MH5	-4.5	0.633	-0.088	0.4295	
180 minute winter	MH5	1.004	MH6	3.3	0.555	0.065	0.5409	
180 minute winter	MH6	1.005	MH7	2.9	0.369	0.073	0.5091	
180 minute winter	MH7	1.006	OUTFALL	2.9	0.396	0.071	0.1662	64.6
180 minute winter	TANK	2.000	MH4	-19.1	-0.480	-0.281	0.4216	

Results for 100 year +40% CC +10% A 240 minute summer. 480 minute analysis at 4 minute timestep. Mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	MH1	208	70.183	0.143	4.4	0.2177	0.0000	OK
240 minute summer	MH2	208	70.183	0.382	8.8	0.5721	0.0000	SURCHARGED
240 minute summer	MH3	208	70.182	0.581	12.2	0.8239	0.0000	SURCHARGED
240 minute summer	MH4	208	70.181	0.986	21.0	1.3503	0.0000	SURCHARGED
240 minute summer	MH5	208	70.180	1.093	5.7	1.4750	0.0000	SURCHARGED
240 minute summer	MH6	208	70.180	1.228	4.4	1.6432	0.0000	SURCHARGED
240 minute summer	MH7	208	70.180	1.304	2.9	1.4743	0.0000	SURCHARGED
240 minute summer	OUTFALL	208	68.884	0.039	2.8	0.0000	0.0000	OK
240 minute summer	TANK	208	70.181	0.806	20.6	54.4513	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	MH1	1.000	MH2	4.4	0.752	0.190	0.2479	
240 minute summer	MH2	1.001	MH3	8.1	0.913	0.351	0.2093	
240 minute summer	MH3	1.002	MH4	11.5	0.779	0.527	0.3855	
240 minute summer	MH4	1.003	MH5	-5.3	0.582	-0.101	0.4295	
240 minute summer	MH5	1.004	MH6	2.7	0.489	0.051	0.5409	
240 minute summer	MH6	1.005	MH7	2.9	0.334	0.073	0.5091	
240 minute summer	MH7	1.006	OUTFALL	2.8	0.390	0.068	0.1601	70.8
240 minute summer	TANK	2.000	MH4	-20.6	-0.518	-0.303	0.4216	

Results for 100 year +40% CC +10% A 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	MH1	228	70.330	0.290	3.3	0.4410	0.0000	SURCHARGED
240 minute winter	MH2	228	70.330	0.529	6.6	0.7918	0.0000	SURCHARGED
240 minute winter	MH3	228	70.329	0.728	9.3	1.0317	0.0000	SURCHARGED
240 minute winter	MH4	228	70.327	1.132	15.3	1.5512	0.0000	SURCHARGED
240 minute winter	MH5	228	70.327	1.240	3.6	1.6729	0.0000	SURCHARGED
240 minute winter	MH6	228	70.327	1.375	3.5	1.8393	0.0000	SURCHARGED
240 minute winter	MH7	228	70.326	1.450	2.9	1.6401	0.0000	SURCHARGED
240 minute winter	OUTFALL	228	68.885	0.040	2.9	0.0000	0.0000	OK
240 minute winter	TANK	228	70.327	0.952	15.0	64.3716	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	MH1	1.000	MH2	3.3	0.697	0.143	0.2500	
240 minute winter	MH2	1.001	MH3	6.2	0.881	0.267	0.2093	
240 minute winter	MH3	1.002	MH4	8.9	0.746	0.408	0.3855	
240 minute winter	MH4	1.003	MH5	-3.3	0.605	-0.064	0.4295	
240 minute winter	MH5	1.004	MH6	2.8	0.474	0.055	0.5409	
240 minute winter	MH6	1.005	MH7	2.9	0.370	0.073	0.5091	
240 minute winter	MH7	1.006	OUTFALL	2.9	0.396	0.071	0.1657	73.2
240 minute winter	TANK	2.000	MH4	-15.0	-0.377	-0.221	0.4216	

Results for 100 year +40% CC +10% A 360 minute summer. 600 minute analysis at 8 minute timestep. Mass balance: 99.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	MH1	272	70.131	0.091	3.3	0.1383	0.0000	OK
360 minute summer	MH2	272	70.131	0.330	6.6	0.4941	0.0000	SURCHARGED
360 minute summer	MH3	272	70.130	0.529	9.9	0.7501	0.0000	SURCHARGED
360 minute summer	MH4	272	70.129	0.934	16.0	1.2789	0.0000	SURCHARGED
360 minute summer	MH5	272	70.128	1.041	3.7	1.4048	0.0000	SURCHARGED
360 minute summer	MH6	272	70.128	1.176	3.3	1.5735	0.0000	SURCHARGED
360 minute summer	MH7	272	70.128	1.252	2.9	1.4155	0.0000	SURCHARGED
360 minute summer	OUTFALL	280	68.884	0.039	2.7	0.0000	0.0000	OK
360 minute summer	TANK	280	70.129	0.754	15.7	50.9305	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute summer	MH1	1.000	MH2	3.3	0.709	0.142	0.2043	
360 minute summer	MH2	1.001	MH3	6.6	0.854	0.284	0.2093	
360 minute summer	MH3	1.002	MH4	9.3	0.746	0.427	0.3855	
360 minute summer	MH4	1.003	MH5	-3.4	0.577	-0.065	0.4295	
360 minute summer	MH5	1.004	MH6	2.6	0.492	0.051	0.5409	
360 minute summer	MH6	1.005	MH7	2.9	0.150	0.072	0.5091	
360 minute summer	MH7	1.006	OUTFALL	2.7	0.388	0.066	0.1579	85.1
360 minute summer	TANK	2.000	MH4	-15.7	-0.394	-0.231	0.4216	

Results for 100 year +40% CC +10% A 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 99.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	MH1	288	70.260	0.220	2.4	0.3352	0.0000	SURCHARGED
360 minute winter	MH2	288	70.260	0.459	4.8	0.6877	0.0000	SURCHARGED
360 minute winter	MH3	288	70.260	0.659	6.9	0.9332	0.0000	SURCHARGED
360 minute winter	MH4	288	70.258	1.063	10.6	1.4560	0.0000	SURCHARGED
360 minute winter	MH5	288	70.258	1.171	3.5	1.5791	0.0000	SURCHARGED
360 minute winter	MH6	288	70.257	1.305	3.4	1.7463	0.0000	SURCHARGED
360 minute winter	MH7	288	70.257	1.381	2.9	1.5615	0.0000	SURCHARGED
360 minute winter	OUTFALL	288	68.885	0.040	2.8	0.0000	0.0000	OK
360 minute winter	TANK	288	70.258	0.883	10.4	59.6693	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	MH1	1.000	MH2	2.4	0.641	0.104	0.2500	
360 minute winter	MH2	1.001	MH3	4.6	0.825	0.199	0.2093	
360 minute winter	MH3	1.002	MH4	6.6	0.775	0.302	0.3855	
360 minute winter	MH4	1.003	MH5	2.8	0.577	0.053	0.4295	
360 minute winter	MH5	1.004	MH6	2.7	0.462	0.053	0.5409	
360 minute winter	MH6	1.005	MH7	2.9	0.192	0.073	0.5091	
360 minute winter	MH7	1.006	OUTFALL	2.8	0.392	0.069	0.1632	88.4
360 minute winter	TANK	2.000	MH4	-10.4	-0.262	-0.154	0.4216	

Results for 100 year +40% CC +10% A 480 minute summer. 720 minute analysis at 8 minute timestep. Mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute summer	MH1	336	70.100	0.060	2.6	0.0918	0.0000	OK
480 minute summer	MH2	336	70.100	0.299	5.2	0.4483	0.0000	SURCHARGED
480 minute summer	MH3	336	70.100	0.499	7.8	0.7068	0.0000	SURCHARGED
480 minute summer	MH4	344	70.098	0.903	12.3	1.2373	0.0000	SURCHARGED
480 minute summer	MH5	344	70.098	1.011	2.9	1.3637	0.0000	SURCHARGED
480 minute summer	MH6	344	70.098	1.146	3.4	1.5328	0.0000	SURCHARGED
480 minute summer	MH7	344	70.097	1.221	2.8	1.3811	0.0000	SURCHARGED
480 minute summer	OUTFALL	344	68.883	0.038	2.7	0.0000	0.0000	OK
480 minute summer	TANK	344	70.098	0.723	12.0	48.8763	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute summer	MH1	1.000	MH2	2.6	0.663	0.113	0.1720	
480 minute summer	MH2	1.001	MH3	5.2	0.845	0.225	0.2093	
480 minute summer	MH3	1.002	MH4	7.5	0.775	0.342	0.3855	
480 minute summer	MH4	1.003	MH5	2.4	0.577	0.047	0.4295	
480 minute summer	MH5	1.004	MH6	2.8	0.455	0.053	0.5409	
480 minute summer	MH6	1.005	MH7	2.8	0.166	0.071	0.5091	
480 minute summer	MH7	1.006	OUTFALL	2.7	0.387	0.066	0.1566	97.4
480 minute summer	TANK	2.000	MH4	-12.0	-0.303	-0.177	0.4216	

Results for 100 year +40% CC +10% A 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	MH1	360	70.217	0.177	1.9	0.2690	0.0000	SURCHARGED
480 minute winter	MH2	360	70.217	0.416	3.8	0.6226	0.0000	SURCHARGED
480 minute winter	MH3	360	70.216	0.615	5.7	0.8717	0.0000	SURCHARGED
480 minute winter	MH4	360	70.214	1.019	8.4	1.3966	0.0000	SURCHARGED
480 minute winter	MH5	360	70.214	1.127	3.0	1.5206	0.0000	SURCHARGED
480 minute winter	MH6	360	70.214	1.262	3.3	1.6883	0.0000	SURCHARGED
480 minute winter	MH7	360	70.213	1.337	2.9	1.5125	0.0000	SURCHARGED
480 minute winter	OUTFALL	360	68.884	0.039	2.8	0.0000	0.0000	OK
480 minute winter	TANK	360	70.214	0.839	8.2	56.7395	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	MH1	1.000	MH2	1.9	0.607	0.082	0.2500	
480 minute winter	MH2	1.001	MH3	3.8	0.789	0.164	0.2093	
480 minute winter	MH3	1.002	MH4	5.5	0.775	0.249	0.3855	
480 minute winter	MH4	1.003	MH5	2.6	0.577	0.049	0.4295	
480 minute winter	MH5	1.004	MH6	2.6	0.456	0.050	0.5409	
480 minute winter	MH6	1.005	MH7	2.9	0.192	0.072	0.5091	
480 minute winter	MH7	1.006	OUTFALL	2.8	0.391	0.068	0.1615	102.4
480 minute winter	TANK	2.000	MH4	-8.2	-0.207	-0.121	0.4216	

Results for 100 year +40% CC +10% A 600 minute summer. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	MH1	315	70.071	0.031	2.1	0.0465	0.0000	OK
600 minute summer	MH2	405	70.068	0.267	4.2	0.3998	0.0000	SURCHARGED
600 minute summer	MH3	420	70.068	0.467	6.3	0.6611	0.0000	SURCHARGED
600 minute summer	MH4	420	70.066	0.871	9.5	1.1938	0.0000	SURCHARGED
600 minute summer	MH5	420	70.066	0.979	3.0	1.3209	0.0000	SURCHARGED
600 minute summer	MH6	420	70.066	1.114	3.4	1.4903	0.0000	SURCHARGED
600 minute summer	MH7	420	70.065	1.189	2.9	1.3452	0.0000	SURCHARGED
600 minute summer	OUTFALL	420	68.883	0.038	2.6	0.0000	0.0000	OK
600 minute summer	TANK	420	70.066	0.691	9.3	46.7256	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute summer	MH1	1.000	MH2	2.1	0.625	0.091	0.1411	
600 minute summer	MH2	1.001	MH3	4.2	0.788	0.182	0.2093	
600 minute summer	MH3	1.002	MH4	6.0	0.743	0.276	0.3855	
600 minute summer	MH4	1.003	MH5	2.4	0.580	0.046	0.4295	
600 minute summer	MH5	1.004	MH6	2.8	0.439	0.053	0.5409	
600 minute summer	MH6	1.005	MH7	2.9	0.137	0.073	0.5091	
600 minute summer	MH7	1.006	OUTFALL	2.6	0.385	0.065	0.1552	109.1
600 minute summer	TANK	2.000	MH4	-9.3	-0.234	-0.137	0.4216	

Results for 100 year +40% CC +10% A 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	MH1	435	70.170	0.130	1.6	0.1976	0.0000	OK
600 minute winter	MH2	435	70.170	0.369	3.2	0.5524	0.0000	SURCHARGED
600 minute winter	MH3	435	70.169	0.568	4.8	0.8052	0.0000	SURCHARGED
600 minute winter	MH4	435	70.167	0.972	6.7	1.3323	0.0000	SURCHARGED
600 minute winter	MH5	435	70.167	1.080	3.0	1.4573	0.0000	SURCHARGED
600 minute winter	MH6	435	70.167	1.215	3.1	1.6256	0.0000	SURCHARGED
600 minute winter	MH7	435	70.166	1.290	2.8	1.4595	0.0000	SURCHARGED
600 minute winter	OUTFALL	435	68.884	0.039	2.7	0.0000	0.0000	OK
600 minute winter	TANK	435	70.167	0.792	6.6	53.5638	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	MH1	1.000	MH2	1.6	0.577	0.069	0.2400	
600 minute winter	MH2	1.001	MH3	3.2	0.746	0.139	0.2093	
600 minute winter	MH3	1.002	MH4	4.6	0.743	0.211	0.3855	
600 minute winter	MH4	1.003	MH5	2.5	0.580	0.048	0.4295	
600 minute winter	MH5	1.004	MH6	2.5	0.439	0.049	0.5409	
600 minute winter	MH6	1.005	MH7	2.8	0.143	0.071	0.5091	
600 minute winter	MH7	1.006	OUTFALL	2.7	0.389	0.067	0.1595	115.5
600 minute winter	TANK	2.000	MH4	-6.6	-0.165	-0.097	0.4216	

Results for 100 year +40% CC +10% A 720 minute summer. 960 minute analysis at 15 minute timestep. Mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	MH1	375	70.068	0.028	1.8	0.0431	0.0000	OK
720 minute summer	MH2	480	70.018	0.217	3.6	0.3244	0.0000	SURCHARGED
720 minute summer	MH3	480	70.017	0.416	5.4	0.5898	0.0000	SURCHARGED
720 minute summer	MH4	480	70.016	0.821	8.1	1.1248	0.0000	SURCHARGED
720 minute summer	MH5	480	70.016	0.929	3.4	1.2530	0.0000	SURCHARGED
720 minute summer	MH6	480	70.016	1.064	3.4	1.4230	0.0000	SURCHARGED
720 minute summer	MH7	480	70.015	1.139	2.9	1.2883	0.0000	SURCHARGED
720 minute summer	OUTFALL	480	68.883	0.038	2.6	0.0000	0.0000	OK
720 minute summer	TANK	480	70.016	0.641	7.9	43.3229	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute summer	MH1	1.000	MH2	1.8	0.597	0.078	0.1359	
720 minute summer	MH2	1.001	MH3	3.6	0.800	0.156	0.2093	
720 minute summer	MH3	1.002	MH4	5.3	0.775	0.242	0.3855	
720 minute summer	MH4	1.003	MH5	2.7	0.580	0.053	0.4295	
720 minute summer	MH5	1.004	MH6	2.7	0.439	0.053	0.5409	
720 minute summer	MH6	1.005	MH7	2.9	0.137	0.074	0.5091	
720 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1529	121.7
720 minute summer	TANK	2.000	MH4	-7.9	-0.199	-0.116	0.4216	

Results for 100 year +40% CC +10% A 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	MH1	510	70.106	0.066	1.4	0.1010	0.0000	OK
720 minute winter	MH2	510	70.106	0.305	2.8	0.4573	0.0000	SURCHARGED
720 minute winter	MH3	510	70.106	0.505	4.2	0.7153	0.0000	SURCHARGED
720 minute winter	MH4	525	70.104	0.909	5.6	1.2457	0.0000	SURCHARGED
720 minute winter	MH5	525	70.104	1.017	3.0	1.3721	0.0000	SURCHARGED
720 minute winter	MH6	525	70.104	1.152	3.1	1.5410	0.0000	SURCHARGED
720 minute winter	MH7	525	70.103	1.227	2.8	1.3880	0.0000	SURCHARGED
720 minute winter	OUTFALL	525	68.883	0.038	2.7	0.0000	0.0000	OK
720 minute winter	TANK	525	70.104	0.729	5.5	49.2916	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	MH1	1.000	MH2	1.4	0.555	0.061	0.1783	
720 minute winter	MH2	1.001	MH3	2.8	0.731	0.121	0.2093	
720 minute winter	MH3	1.002	MH4	4.1	0.743	0.185	0.3855	
720 minute winter	MH4	1.003	MH5	2.4	0.580	0.046	0.4295	
720 minute winter	MH5	1.004	MH6	2.5	0.439	0.047	0.5409	
720 minute winter	MH6	1.005	MH7	2.8	0.160	0.071	0.5091	
720 minute winter	MH7	1.006	OUTFALL	2.7	0.387	0.066	0.1568	124.9
720 minute winter	TANK	2.000	MH4	-5.5	-0.139	-0.081	0.4216	

Results for 100 year +40% CC +10% A 960 minute summer. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	MH1	495	70.066	0.026	1.5	0.0395	0.0000	OK
960 minute summer	MH2	615	69.964	0.163	3.0	0.2449	0.0000	SURCHARGED
960 minute summer	MH3	615	69.964	0.363	4.5	0.5146	0.0000	SURCHARGED
960 minute summer	MH4	615	69.963	0.768	6.5	1.0522	0.0000	SURCHARGED
960 minute summer	MH5	615	69.963	0.876	3.0	1.1815	0.0000	SURCHARGED
960 minute summer	MH6	615	69.963	1.011	3.1	1.3521	0.0000	SURCHARGED
960 minute summer	MH7	615	69.962	1.086	2.8	1.2284	0.0000	SURCHARGED
960 minute summer	OUTFALL	405	68.883	0.038	2.6	0.0000	0.0000	OK
960 minute summer	TANK	615	69.963	0.588	6.3	39.7364	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute summer	MH1	1.000	MH2	1.5	0.566	0.065	0.1326	
960 minute summer	MH2	1.001	MH3	3.0	0.761	0.130	0.2093	
960 minute summer	MH3	1.002	MH4	4.5	0.743	0.205	0.3855	
960 minute summer	MH4	1.003	MH5	2.4	0.580	0.046	0.4295	
960 minute summer	MH5	1.004	MH6	2.5	0.439	0.047	0.5409	
960 minute summer	MH6	1.005	MH7	2.8	0.140	0.071	0.5091	
960 minute summer	MH7	1.006	OUTFALL	2.6	0.382	0.063	0.1521	132.2
960 minute summer	TANK	2.000	MH4	-6.3	0.399	-0.093	0.4216	

Results for 100 year +40% CC +10% A 960 minute winter. 1200 minute analysis at 15 minute timestep. Mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	MH1	480	70.062	0.022	1.1	0.0339	0.0000	OK
960 minute winter	MH2	675	70.041	0.240	2.2	0.3589	0.0000	SURCHARGED
960 minute winter	MH3	675	70.040	0.439	3.3	0.6224	0.0000	SURCHARGED
960 minute winter	MH4	675	70.039	0.844	4.4	1.1564	0.0000	SURCHARGED
960 minute winter	MH5	675	70.039	0.952	2.7	1.2841	0.0000	SURCHARGED
960 minute winter	MH6	675	70.039	1.087	3.0	1.4538	0.0000	SURCHARGED
960 minute winter	MH7	675	70.038	1.162	2.7	1.3143	0.0000	SURCHARGED
960 minute winter	OUTFALL	675	68.883	0.038	2.6	0.0000	0.0000	OK
960 minute winter	TANK	675	70.039	0.664	4.1	44.8798	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	MH1	1.000	MH2	1.1	0.518	0.048	0.1343	
960 minute winter	MH2	1.001	MH3	2.2	0.697	0.095	0.2093	
960 minute winter	MH3	1.002	MH4	3.3	0.743	0.150	0.3855	
960 minute winter	MH4	1.003	MH5	2.4	0.580	0.046	0.4295	
960 minute winter	MH5	1.004	MH6	2.5	0.439	0.047	0.5409	
960 minute winter	MH6	1.005	MH7	2.7	0.160	0.068	0.5091	
960 minute winter	MH7	1.006	OUTFALL	2.6	0.384	0.064	0.1539	151.0
960 minute winter	TANK	2.000	MH4	-4.1	0.394	-0.061	0.4216	

Results for 100 year +40% CC +10% A 1440 minute summer. 1680 minute analysis at 30 minute timestep. Mass balance: 100.0

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	MH1	750	70.062	0.022	1.1	0.0339	0.0000	OK
1440 minute summer	MH2	900	69.860	0.059	2.2	0.0886	0.0000	OK
1440 minute summer	MH3	900	69.860	0.259	3.3	0.3670	0.0000	SURCHARGED
1440 minute summer	MH4	900	69.859	0.664	4.4	0.9094	0.0000	SURCHARGED
1440 minute summer	MH5	900	69.859	0.772	2.5	1.0409	0.0000	SURCHARGED
1440 minute summer	MH6	900	69.858	0.906	2.9	1.2127	0.0000	SURCHARGED
1440 minute summer	MH7	900	69.858	0.982	2.6	1.1106	0.0000	SURCHARGED
1440 minute summer	OUTFALL	630	68.883	0.038	2.6	0.0000	0.0000	OK
1440 minute summer	TANK	900	69.859	0.484	3.9	32.6870	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	MH1	1.000	MH2	1.1	0.518	0.048	0.0515	
1440 minute summer	MH2	1.001	MH3	2.2	0.697	0.095	0.1430	
1440 minute summer	MH3	1.002	MH4	3.3	0.744	0.150	0.3855	
1440 minute summer	MH4	1.003	MH5	2.2	0.544	0.042	0.4295	
1440 minute summer	MH5	1.004	MH6	2.4	0.439	0.046	0.5409	
1440 minute summer	MH6	1.005	MH7	2.6	0.138	0.066	0.5091	
1440 minute summer	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1526	146.2
1440 minute summer	TANK	2.000	MH4	-3.9	0.171	-0.058	0.4216	

Results for 100 year +40% CC +10% A 1440 minute winter. 1680 minute analysis at 30 minute timestep. Mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	MH1	720	70.059	0.019	0.8	0.0291	0.0000	OK
1440 minute winter	MH2	960	69.865	0.064	1.6	0.0963	0.0000	OK
1440 minute winter	MH3	960	69.865	0.264	2.4	0.3743	0.0000	SURCHARGED
1440 minute winter	MH4	960	69.864	0.669	3.2	0.9165	0.0000	SURCHARGED
1440 minute winter	MH5	960	69.864	0.777	2.5	1.0479	0.0000	SURCHARGED
1440 minute winter	MH6	960	69.864	0.912	2.6	1.2196	0.0000	SURCHARGED
1440 minute winter	MH7	960	69.863	0.987	2.6	1.1164	0.0000	SURCHARGED
1440 minute winter	OUTFALL	570	68.883	0.038	2.6	0.0000	0.0000	OK
1440 minute winter	TANK	960	69.864	0.489	2.5	33.0356	0.0000	SURCHARGED

Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	MH1	1.000	MH2	0.8	0.471	0.035	0.0569	
1440 minute winter	MH2	1.001	MH3	1.6	0.635	0.069	0.1475	
1440 minute winter	MH3	1.002	MH4	2.4	0.707	0.110	0.3855	
1440 minute winter	MH4	1.003	MH5	2.2	0.546	0.042	0.4295	
1440 minute winter	MH5	1.004	MH6	2.3	0.439	0.045	0.5409	
1440 minute winter	MH6	1.005	MH7	2.6	0.138	0.065	0.5091	
1440 minute winter	MH7	1.006	OUTFALL	2.6	0.383	0.063	0.1527	163.3
1440 minute winter	TANK	2.000	MH4	-2.5	0.307	-0.036	0.4216	

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