

Nonsuch House, Bromham

Stage 1 Flood Risk Assessment

For: Boyce Group

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Executive Summary

Tumu Consulting Ltd have been appointed by Boyce Group to undertake a Stage 1 Flood Risk Assessment for a proposed development at Nonsuch House, Bromham. This report provides a qualitative assessment of the potential sources and effects of flooding in accordance with the guidelines set out in the National Planning Policy Framework (NPPF).

Item	Response
Site location	The site is located at Nonsuch House and Estate, Westbrook Road, Bromham, Wiltshire, SN15 2ED. It lies to the south of the A3102 Westbrook Road, approximately 550m north of the village of Bromham and approximately 750m east of the hamlet of Westbrook.
Size and Current Land Use	The site has an area of 13.765 hectares. The wider estate extends to approximately 18 hectares in a semi-rural setting, with the principal house, farmstead buildings and associated yards concentrated towards the north-western part of the site. The remainder comprises parkland-style pasture, areas of cultivated land, gardens, woodland edges and wider estate landscape.
Fluvial (rivers) Flood Risk	Low risk
Tidal Flood Risk	Low risk
Surface Water Flood Risk	Low risk
Groundwater Flood Risk	Low risk
Sewer Flood Risk	Low risk
Reservoirs, canals & other artificial sources	Low risk
Historical Flooding	No historical flooding.
Proposed Development	The development will comprise the proposed restoration and change of use of Nonsuch House (Grade II* listed) and the sensitive conversion of associated outbuildings to a boutique hotel, along with the erection of ancillary health and wellbeing facilities, staff accommodation, associated landscaping and access improvements, and rural buildings. The proposed development will increase the impermeable catchment area at the site to 0.482-hectares.
NPPF Flood Risk Vulnerability	More Vulnerable. It is considered that the proposed development is sequentially appropriate, with no requirement to undertake the sequential or exception tests.

The risk of flooding to the proposed development has been assessed in accordance with the NPPF. It is concluded that the development can be undertaken in a sustainable manner without increasing the flood risk to the proposed development or to existing properties/systems.

Surface water will be managed on site using a range of sustainable drainage solutions. These will be in addition to the proposed irrigation lake and will include green roofs, permeable paving, soakaways/infiltration systems as well as the extensive use of soft landscaped areas. Source control measures will be provided in accordance with the 2025 National Standards for Sustainable Drainage Systems (SuDS), and in accordance with Wiltshire LLFA guidance.

Surface water from the new parts of development will be collected and conveyed by localised gravity surface water drainage networks, which will discharge to adjacent geocellular soakaways. These will be sized to accommodate surface water runoff arising from the 100-year return period storm with 45% allowance for future climate change.

There is an existing public foul sewer serving the development at the west of the site. It is proposed that a new connection will be made to the existing public sewer to receive foul drainage from the new Welcome Building and Gate Cottage. Those parts of the proposed development that cannot achieve a gravity-fed connection will be serviced by a new package Sewage Treatment Plant (STP) and drainage field.

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1 Introduction

Tumu Consulting Ltd have been appointed by Boyce Group to prepare a Stage 1 Flood Risk Assessment in support of the proposed restoration, reconstruction and redevelopment of Nonsuch House and its wider estate at Westbrook Road, Bromham, Wiltshire. The proposals form part of a comprehensive heritage-led scheme to bring the Grade II* listed Nonsuch House back into active and sustainable use following extensive fire damage, while also providing associated visitor accommodation, ancillary health and wellbeing facilities, landscape enhancements, access improvements and supporting estate infrastructure.

1.1 Site Location

The site is located at Nonsuch House and Estate, Westbrook Road, Bromham, Wiltshire, SN15 2ED. It lies to the south of the A3102 Westbrook Road, approximately 550m north of the village of Bromham and approximately 750m east of the hamlet of Westbrook. The site has an area of 13.765 hectares.

The wider estate occupies a semi-rural setting and extends to approximately 18-hectares, with the principal house, farmstead buildings and associated yards concentrated towards the north-western part of the site and the remainder comprising parkland-style pasture, areas of cultivated land, gardens, woodland edges and wider estate landscape. The site location is shown below in Figure 1.

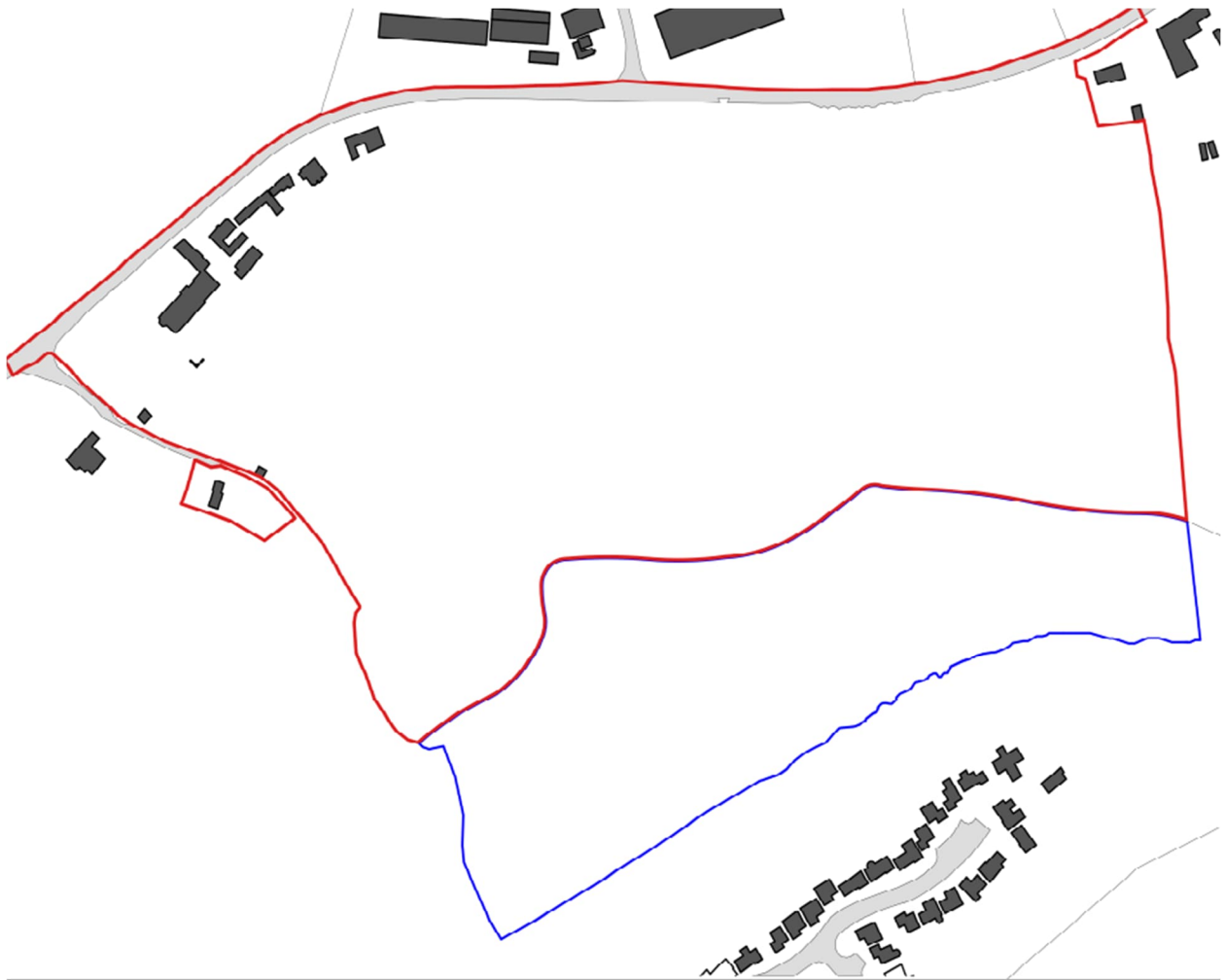


Figure 1 Site Location Plan

1.2 Existing site usage

The existing estate comprises the fire-damaged Grade II* listed Nonsuch House and East Wing, together with a wider group of residential, agricultural and estate buildings arranged primarily around the historic farmstead and northern part of the site. The existing built form includes Nonsuch House, the Stables and Stable End, Gate Cottage, the Bungalow, agricultural barns, estate office buildings and the dovecote, with associated gardens, yards, access tracks and areas of hardstanding. Nonsuch House is currently vacant and uninhabitable following the 2022 fire and has been protected by a temporary roof covering to reduce further deterioration.

The wider landholding is predominantly rural in character and includes grazed pasture in a parkland-style setting, small areas of cropland, formal and informal garden areas, a swimming pool, tennis court, walled gardens, mature trees, hedgerows and woodland. Wyatt's Wood and The Coppice Local Wildlife Site lie within or immediately adjacent to the wider estate ownership, with ancient woodland forming an important ecological and landscape feature to the south. Existing access is taken from Westbrook Road at the north, with a number of existing vehicular entrances serving Nonsuch House, the farmstead and wider estate management functions.

1.3 Topography

The estate is characterised by gently varying topography which contributes to its parkland character and influences views, movement and the spatial relationship between the principal house, the farmstead and the wider landscape. The principal built elements are located toward the northern part of the estate, close to Westbrook Road, with the wider site extending southwards into open pasture and woodland edge conditions. The combination of open grassland, mature tree cover, woodland boundaries and localised changes in level creates a contained semi-rural landscape setting and helps define the estate as a distinct, self-contained environment.

A full topographical survey of the site was undertaken by Anthony Brookes Surveys in 2009.

1.4 Geology & hydrogeology

British Geological Survey (BGS) Geology Viewer shows the site is underlain by Lower Greensand Group - Sandstone. The BGS describe the strata as *'Mainly sands and sandstones (varying from well-sorted fine-grained to poorly sorted medium- to coarse-grained) with silts and clays in some intervals.'* The BGS Geology Viewer confirmed no superficial deposits are present.

The Natural England Magic Maps demonstrate that the site is not located within a groundwater Source Protection Zone.

No infiltration testing or intrusive ground investigation has been undertaken. However, given the ground conditions it is anticipated that disposal of surface water to ground via infiltration will be feasible. This will be verified by:

- Soakaway tests carried out in accordance with BRE365 methodology at the location and depth of proposed soakaway features. Test logs, and calculations of infiltration rates to be provided.
- Geotechnical or Geoenvironmental desk study, supported by ground investigations to establish the peak winter groundwater level.

1.5 Hydrology

The principal watercourse in the vicinity of the site is Clackers Brook, which lies along the southern edge of the site in association with the woodland area to the south of the main developed part of the estate. Clackers Brook forms part of the local drainage network and is connected to drainage features within the southern woodland.

There is understood to be a pond within the ancient woodland habitat area and three drainage ditches within the woodland, which lead towards Clackers Brook. No other significant existing watercourses or natural water bodies have been identified within the main developed area of the site.

1.6 Existing drainage

Existing drainage arrangements have been reviewed based on information provided by the client and correspondence with Wessex Water. It is understood that all existing buildings drain to the mains sewer for foul drainage. Surface water runoff from the existing buildings is understood to discharge to ground via soakaways in most cases.

Wessex Water sewer records (as included in Appendix B) indicate that there are no existing public surface water sewers on or adjacent to the site. Surface water runoff is therefore understood to be disposed of either to ground or, where applicable, to a nearby watercourse. This is consistent with the reported use of soakaways across the existing estate.

An existing public foul sewer is located at the southwest of the site, as shown on the Wessex Water network mapping. It is understood anecdotally that only part of the existing estate currently discharges to this public foul sewer, with other parts of the estate potentially served by on-site septic tanks. The exact foul drainage arrangement should therefore be confirmed as part of the detailed drainage design and any future connection application.

1.7 Calculation of Greenfield Runoff Rates

The greenfield response has been estimated using FEH rainfall data. The parameters used in the calculation and the results are summarized below in Table 1.

Parameter	Value	Source
AREA	13.765 ha	Measured from site layout
BFIHost	0.793	FEH
SAAR	719 mm	FEH
FSR Region	8	FSR
Urban	Nil	For greenfield areas only
Q_1	11.3 l/s	Calculated
Q_2	12.8 l/s	Calculated
Q_{BAR}	14.5 l/s	Calculated
Q_{30}	28.7 l/s	Calculated
Q_{100}	35.1 l/s	Calculated

Table 1 Greenfield runoff rate (calculated using FEH rainfall data)

1.8 Calculation of Brownfield Runoff Rates

The site is brownfield and has an existing impermeable area of approximately 0.236 hectares, as measured from the topographical survey (refer to Appendix A). As all existing surface water drainage is understood to discharge to ground via soakaways, it is considered that the existing brownfield runoff rates are functionally the same as the calculated greenfield responses set out in Table 1.

2 Development Proposals

2.1 Description of the proposed works

The development will comprise the proposed restoration and change of use of Nonsuch House (Grade II* listed) and the sensitive conversion of associated outbuildings to a boutique hotel, along with the erection of ancillary health and wellbeing facilities, staff accommodation, associated landscaping and access improvements, and rural buildings. The proposed development will increase the impermeable catchment area at the site to 0.482-hectares (refer to Appendix A).

The proposals also include a new ornamental irrigation lake positioned centrally within the wider estate landscape. This is intended to form both a key landscape feature and a practical water-management asset, providing a picturesque focal point within the parkland setting while storing water for estate irrigation and drought resilience. The lake will sit within a wider landscape-led drainage and ecological strategy, with planted liminal edges and associated wetland habitats to support biodiversity, visual amenity and green-blue infrastructure. It is anticipated that the lake will fluctuate seasonally, receiving rainwater runoff from the wider estate landscape and supporting irrigation of gardens, pasture and working landscape areas.

2.2 Flood risk vulnerability classification

In accordance with Annex 3 of the National Planning Policy Framework (NPPF), the development is classified 'more vulnerable' as shown below. This flood risk assessment will therefore show that future users of the development will not be placed in danger from flood hazards throughout its design life.

More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non-residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Figure 2 Extract from NPPF Annex 3: Flood risk vulnerability classification

2.3 Design life

For the purposes of this assessment, it is anticipated that the design life of the proposed development will be 100 years. This is considered appropriate having regard to the nature of the proposals, which include the restoration and reuse of a Grade II* listed building, associated visitor accommodation and supporting estate infrastructure intended to provide a long-term, sustainable use for the site.

3 Assessment of Flood Risk

3.1 Flood map for planning

The figure below shows the whole site within Flood Zone 1, according to the Environment Agency (EA) Flood Map for Planning (FMfP). Flood Zone 1 designates an area at the lowest fluvial and tidal flood risk; less than 0.1% Annual Exceedance Probability (AEP). It can therefore be considered that the site is not at risk of fluvial or tidal flooding.

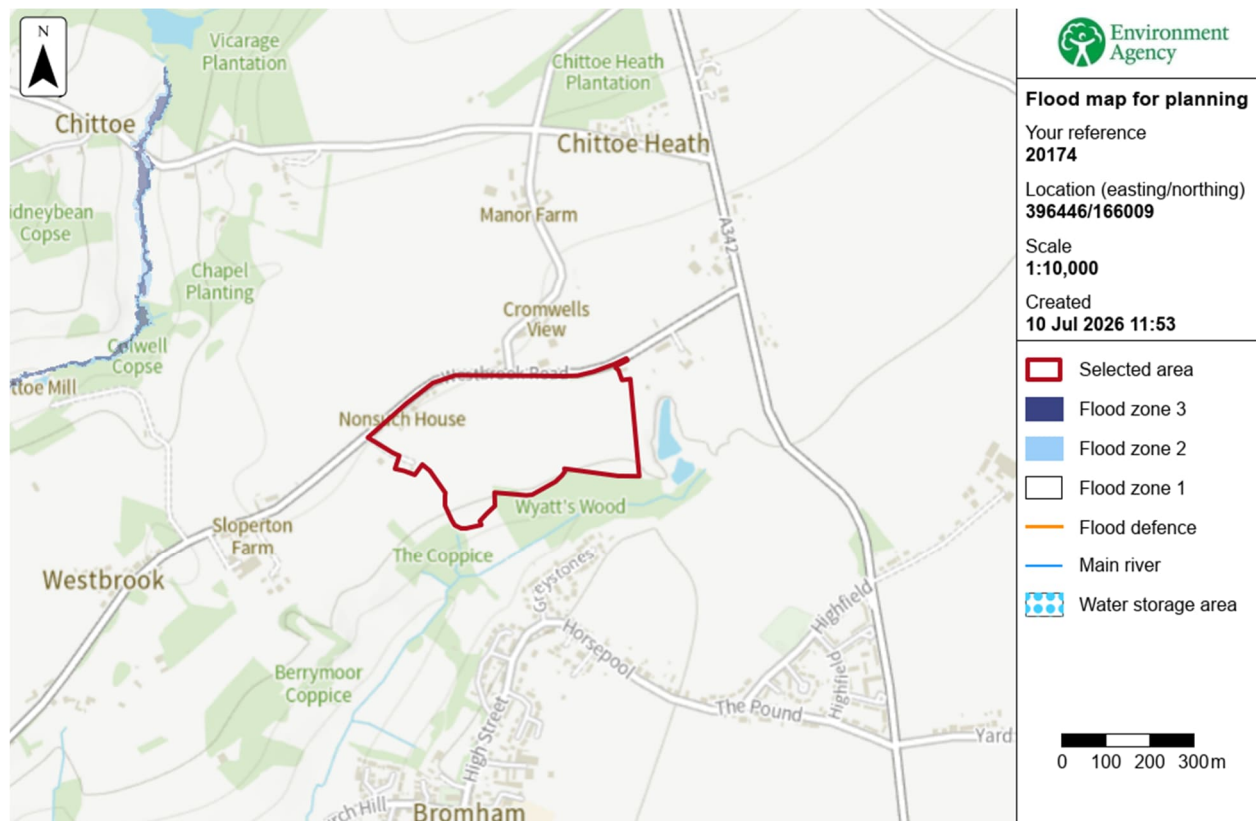


Figure 3 Flood Map for Planning

3.2 Risk of fluvial flooding

The Environment Agency (EA) Flood Map for Planning identifies the whole site as being within Flood Zone 1, as shown in Figure 3. Flood Zone 1 comprises land assessed as having a low probability of fluvial flooding, equivalent to less than a 0.1% Annual Exceedance Probability of river flooding. The site is outside the mapped extents of Flood Zones 2 and 3, which are associated with medium and high probability fluvial flood risk. On this basis, the risk of fluvial flooding to the site is considered to be low.

3.3 Risk of canal flooding

There are no canals in the vicinity of the site. The risk of flooding from canals and other artificial water sources is considered to be low.

3.4 Records of historic flooding

Wiltshire County Council's Strategic Flood Risk Assessment (SFRA) Viewer mapping indicates that the site is outside of the extent of any recorded incidences of historic flooding.

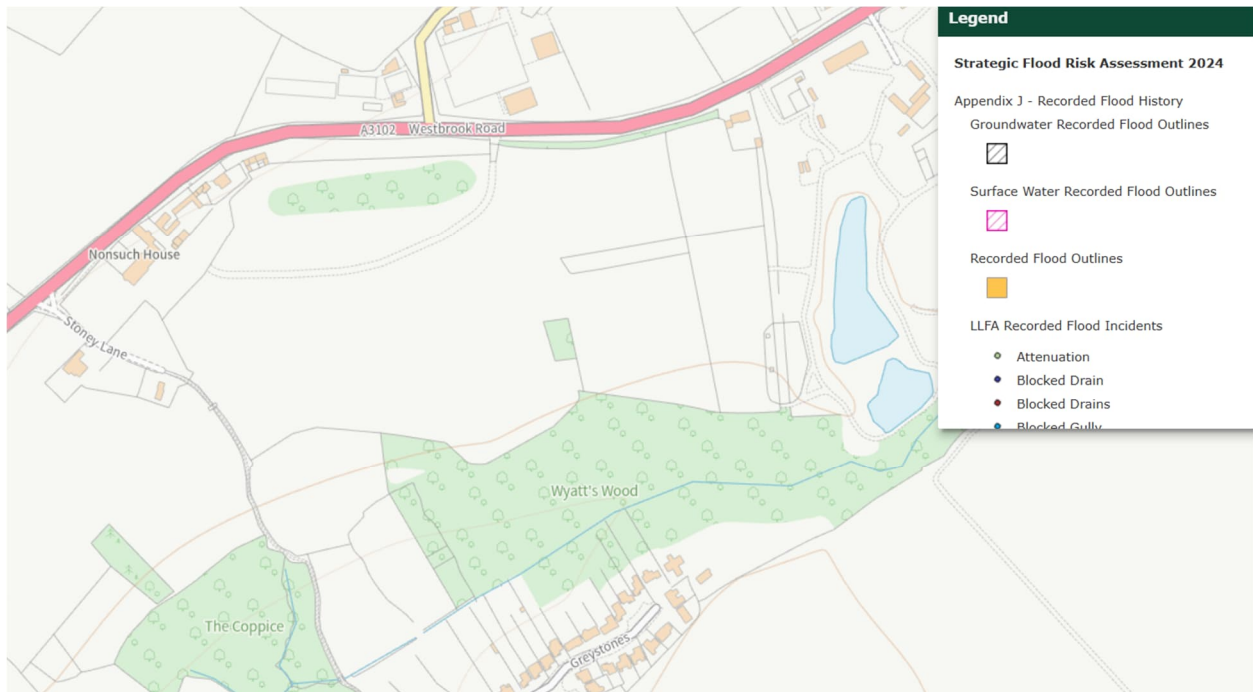


Figure 4 Recorded Flood History (Wiltshire SFRA Viewer)

3.5 Risk of sewer flooding

As shown by Figure 4 there are no recorded incidents of sewer flooding at or adjacent to the site. There is a public foul sewer situated at the southwest of the site (refer to public sewer records included in Appendix B). This is to the south and at a lower elevation than all existing and proposed buildings. It is therefore considered that the risk of sewer flooding is considered to be low.

3.6 Risk of pluvial flooding

The UK Government Surface Water Flood Risk Mapping provides a representation of catchment-wide flow routes and is indicative of areas most likely to be at risk of significant pluvial flooding due to drainage system failure and overland flows. The mapping indicates that the majority of the site is at very low risk of pluvial flooding. As shown in Figure 5, even when future climate change is taken into account the risk of flooding is generally less than 1% AEP. There is a small strip of land at the west of the site where surface water flood depths in the order of 150mm to 300mm are shown, but this area will not be developed as part of the proposals and is situated at a lower elevation than all existing and proposed buildings. It is therefore considered that the site is at low risk of pluvial flooding.

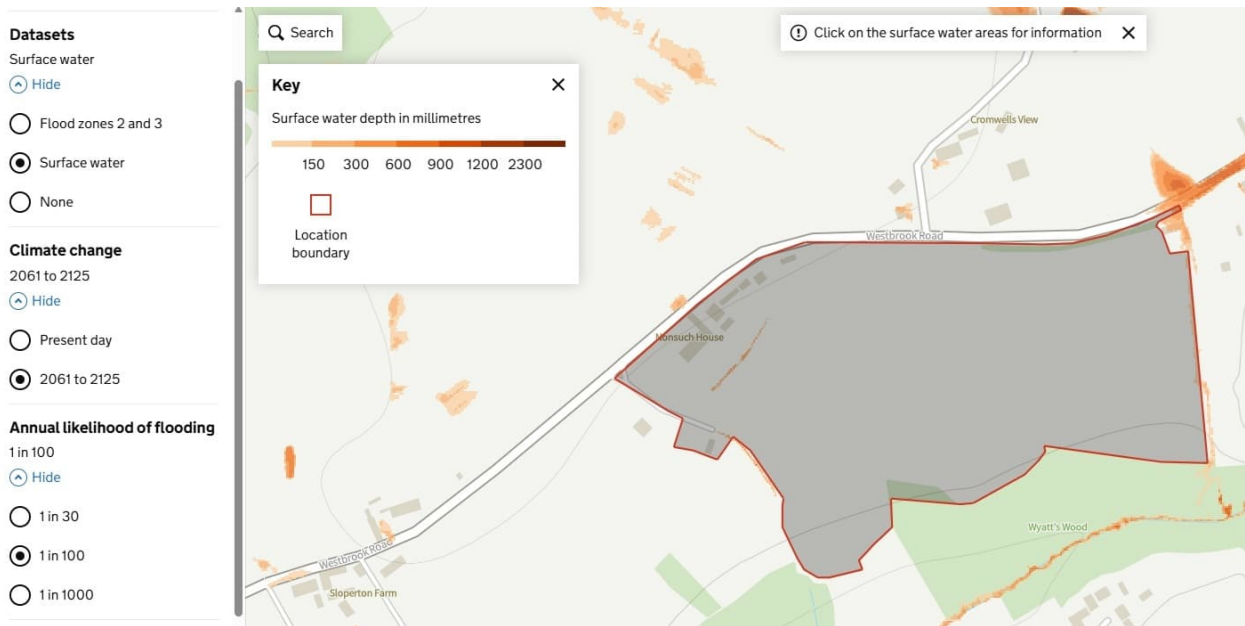


Figure 5 Pluvial/Surface water flood risk mapping (UK Government Long Term Flood Risk)

3.7 Risk of groundwater flooding

Wiltshire County Council's SFRA Viewer Mapping indicates that the majority of the site has a moderate risk of groundwater emergence. As shown in Figure 6, the mapping indicates that, with the exception of the west of the site, groundwater levels could be between 0.025m and 0.5m below ground surface.

Whilst this doesn't indicate that the site may actually be at risk of groundwater flooding, the potentially high levels of groundwater mean that where any new groundworks are proposed, these may need to consider dewatering measures.

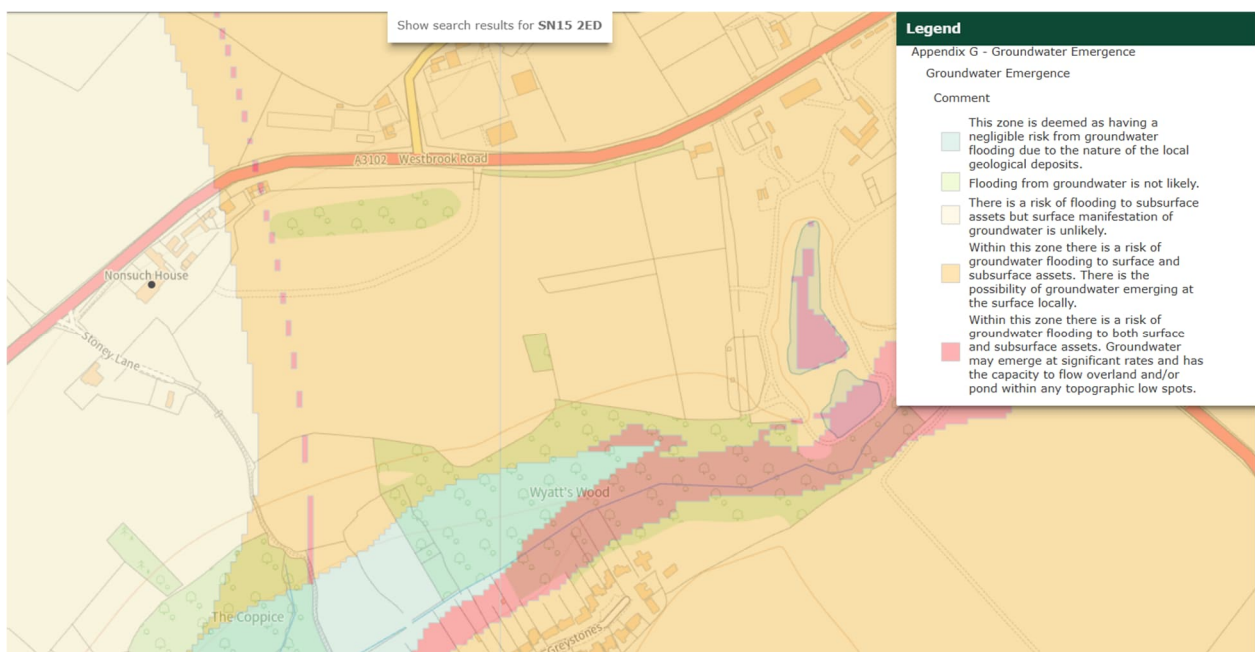


Figure 6 Groundwater emergence mapping (Wiltshire SFRA Viewer)

3.8 Risk of reservoir flooding

The site is not shown to be located in an area at risk of flooding from reservoir failure on the UK Government's online mapping. It is therefore considered that there is low risk of flooding to the site from reservoirs.

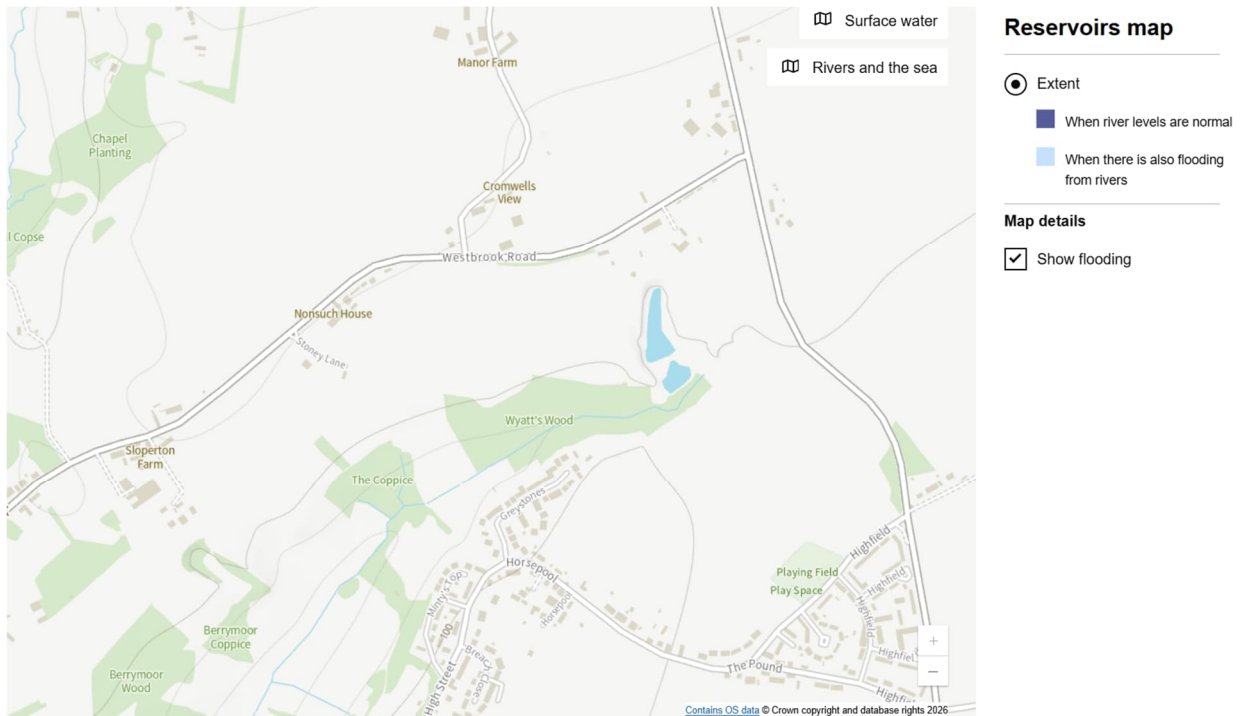


Figure 7 Reservoir flood risk mapping (UK Government Long Term Flood Risk)

3.9 Sequential & Exception Test requirements

Table 3 of the NPPF Guidance on Flood Risk and Coastal Change (see below/overleaf) indicates that More Vulnerable development is compatible for areas within Flood Zone 1. It is therefore concluded that the proposed development is sequentially appropriate with no requirement for either the sequential test or exception test.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Key:

✓ Development is appropriate

✗ Development should not be permitted.

3.10 Climate change allowances

The site lies within the Avon Bristol and North Somerset Streams Management Catchment Area. As the development design life is assumed to extend beyond 100 years, with an end-of-life beyond 2127, the Upper End Allowance for the 2070s epoch is applied in accordance with EA guidance.

For the Avon, Bristol and North Somerset Streams catchment, the following rainfall uplifts apply shown in the figure below:

- 3.3% AEP event: +40%
- 1% AEP event: +45%

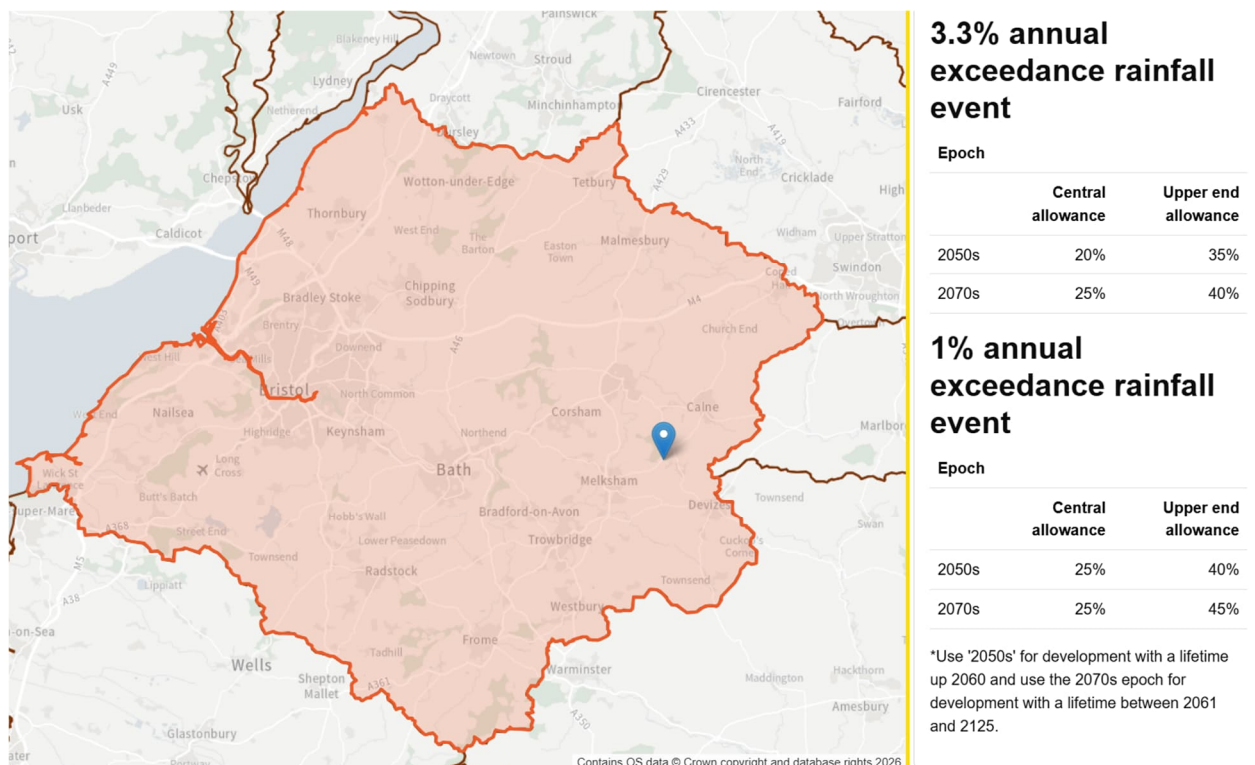


Figure 8 Avon Bristol and North Somerset Streams Management Catchment Peak Rainfall Allowances

4 Runoff Destination Hierarchy

In accordance with the DEFRA National Standards for Sustainable Drainage Systems (2025), the below hierarchy has been applied:

Priority	Option	Comments
1.	Collected for non-potable use	Reuse is proposed in the form of the irrigation lake, which will collect water for non-potable estate irrigation use.
2.	Infiltrated to ground	The ground conditions indicate that infiltration is feasible and is understood to be the current method of surface water disposal, infiltration has therefore been prioritised. The proposed final outfall is therefore to ground via infiltration. This will need to be verified by site specific infiltration testing to be undertaken in accordance with the BRE365 methodology.
3.	Discharged to an above ground surface water body	The nearest watercourse is Clackers Brook located along the southern boundary of the site. It is feasible to discharge to this existing watercourse, but surface water runoff from the development will be discharged to ground via infiltration.
4.	Discharged to a surface water sewer, or another piped surface water drainage system	Existing sewer records for the site are included in Appendix B. There are no existing surface water sewers, or another piped surface water drainage system in the vicinity of the site.
5.	Discharged to a combined sewer	There are no existing combined sewers in the vicinity of the site.

Table 2 Drainage discharge hierarchy

The proposed drainage strategy has been developed in accordance with the runoff destination hierarchy, prioritising reuse and infiltration before considering discharge to surface water sewers or drainage systems.

5 Management of Everyday Rainfall

The strategy incorporates distributed SuDS to manage rainfall at source. The proposed measures are set out in this section. These features reduce runoff from frequent rainfall events and promote interception, evapotranspiration and infiltration.

5.1 Permeable paving

Permeable paving can contribute to the management of everyday rainfall by allowing rainfall to pass through the surface and into the pavement construction, where it can be temporarily stored, treated and infiltrated or conveyed onward in a controlled manner. This supports the National SuDS Standards by managing rainfall close to where it lands and reducing runoff from frequent events. In line with the source control principles set out in CIRIA C753, permeable paving can be particularly useful for driveways, parking bays, courtyards and lightly trafficked areas because it combines functional surfacing with interception, storage and water quality treatment within the same footprint.

The proposed car park will be surfaced with self-binding gravel, and all new proposed pathways and tracks will utilise a hoggin-type surfacing typical of rural estates, providing a good degree of permeability to surface water. These surfaces are therefore expected to contribute to source-control drainage by allowing rainfall to infiltrate or drain locally to ground, subject to confirmation of the detailed pavement construction, sub-base permeability and infiltration testing at detailed design stage.

5.2 Irrigation lake

The proposed irrigation lake will contribute to the management of everyday rainfall by collecting and storing runoff from the wider estate landscape for subsequent non-potable reuse in irrigation of the gardens, pasture and working landscape areas. This will help intercept and retain rainfall close to where it falls, reduce the volume of frequent rainfall runoff requiring downstream drainage, and provide a practical water resource during drier periods. In broad accordance with the aims of the National SuDS Standards, the lake will therefore support reuse, attenuation, evapotranspiration and wider landscape resilience as part of the site's green-blue infrastructure network.

5.3 Soft landscaping

Soft landscaping contributes to everyday rainfall management by intercepting rainfall on vegetation, promoting evapotranspiration, increasing soil moisture storage and allowing infiltration where ground conditions permit. Planted areas, grass verges, gardens, open space and landscape margins can reduce the speed and volume of runoff entering the formal drainage system, particularly during frequent rainfall events. In line with CIRIA C753, soft landscaping should be integrated with the drainage strategy as part of the wider SuDS management train, with soil depths, planting type, compaction control and maintenance arrangements considered so that the landscape can continue to provide interception and infiltration benefits over the design life of the development.

5.4 Tree planting

Tree planting supports everyday rainfall management by intercepting rainfall on the canopy, promoting evapotranspiration, increasing soil water storage and improving the structure and permeability of surrounding soils over time. Trees can reduce the amount and speed of runoff reaching hard drainage infrastructure. Proposed tree and woodland-edge planting will form part of the wider landscape-led SuDS and ecological enhancement strategy, helping to intercept rainfall, promote evapotranspiration, improve soil structure and strengthen the estate's green infrastructure.

5.5 Green roofs

Green roofs are proposed on the Welcome Building, Yoga Studio and selected ancillary structures, where they will help the new buildings sit discreetly within the estate landscape. The roofs will comprise extensive sedum-based planting, with a context-specific palette to be developed by the landscape architect, including local sedums, grasses, mosses and succulents suited to low-maintenance and minimal-irrigation conditions. These planted roof areas will intercept and temporarily store rainfall at source, reduce runoff from frequent rainfall events, support evapotranspiration, provide additional habitat value and contribute to the visual integration of the buildings as part of the wider landscape-led SuDS strategy.

5.6 Soakaways & Infiltration systems

Soakaways & infiltration systems can manage everyday rainfall by receiving runoff close to source and temporarily storing it within a stone-filled trench or similar voided structure before it infiltrates to the surrounding ground. This helps reduce runoff from frequent events, supports groundwater recharge where ground conditions are suitable, and limits the volume of water entering downstream drainage systems. In accordance with the National SuDS Standards and CIRIA C753, infiltration systems should be supported by site-specific infiltration testing, protected by suitable pre-treatment to reduce silt and pollutant loading, and designed with inspection and maintenance access so that long-term infiltration performance can be monitored.

6 Management of Extreme Rainfall and Flooding

The drainage proposals shall ensure that no surface flooding occurs in the critical storm events for the 1 in 30-year return period and all runoff is contained underground. Final design requirements are dependent upon the site layout and drainage arrangements, both of which are subject to detailed design. The drainage proposals shall also ensure that in the critical storm events for the 1 in 100-year return period (plus 45% allowance for future climate change) there will be no flooding of any buildings within the site boundary and shall ensure that properties off site are not exposed to an increase in flood risk as a result of the development.

All existing drainage connections and outlets that service the existing Grade II* listed buildings will be retained as existing. Pipework will be subject to a full condition survey, and any necessary remedial works will be undertaken to ensure existing drainage remains fully functional.

Surface water from the new parts of development will be collected and conveyed by localised gravity surface water drainage networks, which will discharge to adjacent geocellular soakaways. These will be sized to accommodate surface water runoff arising from the 100-year return period storm with 45% allowance for future climate change. The sizing of the soakaways will also be dependent site-specific infiltration testing to be undertaken in accordance with the BRE365 methodology. On the basis that all surface water runoff from the new parts of the development will be disposed of to the ground via infiltration, the proposed development will therefore represent a betterment relative to the existing greenfield runoff response as calculated in Section 1.7.

The drainage strategy is supported by hydraulic calculations (included in Appendix D) that demonstrate the performance of the proposed system for the 1 in 100-year event, with an 45% allowance for climate change. The final design will also be required to include a 10% allowance for urban creep. The calculations identify the contributing impermeable areas, runoff coefficients, proposed discharge rate, attenuation volume, infiltration assumptions, storage locations and any residual flood risk.

The following table summarises the project-specific hydrological and hydraulic parameters. The values should be read alongside the drainage calculations in Appendix D and the proposed drainage strategy layout in Appendix C.

Parameter	Project-specific value	Source / evidence	Relevance to Standard 3
Proposed impermeable area	0.482 ha	Measured from site layout	Defines post-development runoff.
Climate change allowance	45%	EA	Allows for future rainfall intensity.
Soakaway storage volume required	182 m ³	Layout (Appendix C) & Calculations (Appendix D)	Confirms storage sufficiency.

Table 3 Standard 3 hydrological and hydraulic parameters

7 Water Quality

The water quality assessment identifies whether the site drains to, or could otherwise affect, any sensitive receptors. These are summarised below in Table 4. Sensitive receptors may include groundwater Source Protection Zones, principal or secondary aquifers, watercourses, ponds, wetlands, designated ecological sites, protected habitats, bathing waters, shellfish waters, nutrient-sensitive catchments, drinking water abstractions, infiltration features or any receiving environment identified by the Environment Agency, lead local flood authority, local planning authority or ecological adviser. Where sensitive receptors are present, the drainage strategy shall provide an appropriate treatment train, pre-treatment, spill control and maintenance regime to reduce the risk of pollution during construction and operation.

Potential receptor	Present?	Evidence / source	Design response
Groundwater / aquifer / Source Protection Zone	No	Online MAGIC mapping	SuDS treatment measures in accordance with Simple Index Approach (CIRIA C753)
Watercourse / pond	Yes	Preliminary Ecological Appraisal	SuDS treatment measures in accordance with Simple Index Approach (CIRIA C753)

Table 4 Sensitive receptor check

The Preliminary Ecological Appraisal identifies several sensitive receptors that are relevant to the drainage strategy and water quality assessment. These include Clackers Brook along the southern boundary, which is identified as a reportable WFD water body and valued at local ecological importance; three drainage ditches within the ancient woodland that connect to Clackers Brook; the on-site pond within the ancient woodland, which has average suitability for great crested newts; and Wyatt's Wood and The Coppice Local Wildlife Site, including ancient wet woodland habitat within or adjacent to the site. The appraisal also identifies additional off-site ponds within 500m and notes that Clackers Brook and the ancient woodland provide suitable habitat for otter and water vole. Accordingly, the drainage strategy should ensure that infiltration, runoff, exceedance flows and any overflow or discharge arrangements do not adversely affect these receptors through changes in hydrology, sediment mobilisation, pollution, waterlogging or erosion. Surface water from trafficked and hardstanding areas should therefore be managed through an appropriate SuDS treatment train, with suitable pre-treatment, construction-phase pollution prevention and long-term maintenance provisions.

The CIRIA C753 SuDS Manual has been consulted to ensure that the SuDS provided successfully mitigate the anticipated pollutants which may arise from the proposed land use. Table 26.2 of CIRIA C753 outlines the pollution hazard indices for the anticipated land use type as shown below.

Land Use	Pollution Hazard Level	TSS	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (e.g. cul-de-sacs, home-zones and general access roads) and non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day.	Low	0.5	0.4	0.4
Highest Pollution Hazard Index	Low	0.5	0.4	0.4

Table 5 CIRIA C753 Table 26.2 Pollution Hazard Indices

As per the Simple Index Approach guidance, because the land use varies then it is appropriate to use the land use type with the highest Pollution Hazard Index.

Table 26.3 of CIRIA C753 outlines the mitigation indices for a number of SuDS components which can mitigate the anticipated pollutants which may arise from the development. The mitigation indices are shown below.

SuDS Component	TSS	Metals	Hydrocarbons
Permeable pavement	0.7	0.6	0.7
Total SuDS mitigation index	0.7	0.6	0.7

Table 6 CIRIA C753 Table 26.3 SuDS Mitigation Indices for Permeable Paving

As the mitigation indices for the proposed SuDS exceed the pollution hazard index, the proposed drainage strategy will deliver adequate treatment in accordance with CIRIA C753 and therefore will be able to successfully mitigate against the pollutants expected from development.

8 Foul drainage

All existing drainage connections and outlets that service the existing Grade II* listed buildings will be retained as existing. Pipework will be subject to a full condition survey, and any necessary remedial works will be undertaken to ensure existing drainage remains fully functional.

The proposed Welcome Building and Gate Cottage will be discharged to a system of new underground gravity foul sewers, which will collect flows from each property and convey them to the existing public foul sewer at the west of the site. All foul drainage will be designed and constructed in accordance with Building Regulations Part H.

The proposed Yoga Studio and New Farm/managers accommodation buildings are situated at a lower elevation in the landscape and at the east of the site. It is considered that a gravity-fed connection to the existing sewer will not be feasible from these parts of the development. It is therefore proposed that these buildings discharge to a new package Sewage Treatment Plant (STP), which will conform with current standards and requirements. Treated effluent from the STP will be discharged to ground via a drainage field which will be designed and constructed in accordance with BS6297.

The proposed foul drainage arrangements are included in Appendix C.

9 Management & maintenance

9.1 Maintenance responsibilities

All proposed drainage will be private and no new drainage assets will be re offered for adoption The private drainage pipework serving buildings and external areas shall remain the responsibility of the developer. This includes private roof drainage, private laterals, private gullies, private inspection chambers, plot drainage, driveway drainage, all SuDS components and any other drainage components located within the estate.

9.2 Management & Maintenance Plan

The system drains the site by collecting, conveying, treating, storing and infiltrating surface water runoff in a controlled manner. In doing so, it reduces flood risk, protects buildings and access routes, safeguards downstream drainage networks and watercourses, and helps protect the environment by limiting pollution, erosion, sediment mobilisation and uncontrolled runoff.

During everyday and frequent rainfall events, runoff should generally be managed close to source, with flow directed through the intended inlets, gullies, channels, permeable surfaces, landscaped areas, treatment features, and outfalls. Users may observe water entering SuDS features, temporary wetting of planted or permeable areas, and short-lived flows through conveyance routes. These observations are normally expected and do not indicate a defect, provided water drains away within the design period and does not cause nuisance flooding, pollution, erosion or unsafe conditions.

During heavier rainfall, parts of the system may operate at or near capacity. Permeable sub-base storage, swales, , lakes, or other SuDS features may temporarily fill or hold surface water before it is released, infiltrated or conveyed onward. Temporary shallow ponding in designed storage areas is acceptable during and shortly after rainfall, provided the water remains within the intended extents, does not threaten buildings, does not create unsafe access conditions, and drains down as designed.

Operational requirements for the drainage system include keeping inlets, outlets, overflows, flow controls, inspection chambers, access covers, permeable surfaces, filters, silt traps, proprietary treatment units and

vegetated SuDS free from obstruction and damage. Access for inspection and maintenance must be retained at all times. The system must not be altered, obstructed, infilled, resurfaced, disconnected, built over or used for storage without prior technical review and, where applicable, approval from the adopting authority, sewerage undertaker, local planning authority, lead local flood authority, Environment Agency or other relevant body.

In the event of a pollution incident, the first priority should be to prevent pollution entering the drainage system, receiving watercourse, groundwater, sewer or wider environment, where this can be done safely. The incident should be contained at source using appropriate spill control measures, and any affected inlets, gullies, channels or SuDS components should be isolated where practicable. Contaminated material, sediment, absorbents and water should be removed and disposed of by a suitably competent contractor in accordance with statutory requirements. The affected part of the drainage system should be inspected, cleaned and recommissioned before normal operation resumes.

Pollution incidents, significant spills, unexplained contamination, fish or wildlife distress, oil sheen, odour, discoloration, contaminated sediment, blocked or damaged outfalls, repeated surcharge, uncontrolled discharge, flooding outside designed storage areas, failure of infiltration or storage features to drain down, or any event that may affect a receiving watercourse, groundwater or statutory environmental receptor should be brought promptly to the attention of the party responsible for the drainage system. Where relevant, the adopting authority, sewerage undertaker, lead local flood authority, local planning authority and/or the Environment Agency should also be notified.

Emergency contact details and reporting routes shall be confirmed in the final management and maintenance plan. As a minimum, the plan should identify the management company or asset owner, maintenance contractor, relevant water or sewerage undertaker, lead local flood authority, local planning authority and Environment Agency incident reporting route where applicable. The plan should also set out who is responsible for receiving, recording, investigating and closing out reports of flooding, pollution, blockages, damage, safety concerns or poor SuDS performance.

Records shall be retained for inspections, routine maintenance, occasional maintenance, remedial works, repairs, replacement planting, sediment removal, cleansing, pollution incidents, complaints, post-storm inspections and any changes to the drainage system. The maintenance plan should be reviewed after significant rainfall events, repeated defects, pollution incidents, ownership or adoption changes, changes in site use, alterations to SuDS components, or where monitoring shows that the system is not performing as designed.

The maintenance tables below provide standard maintenance activities and frequencies for typical SuDS components. These should be reviewed and amended for the final drainage design, the manufacturer's recommendations, the adopting authority's requirements, the maintenance responsibilities for the site and any project-specific health, safety, ecological or access constraints.

Maintenance schedule	Required action	Typical frequency
Regular inspections	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes and roof structures	Annually and after severe storms
	Inspect soil substrate for evidence of erosion channels and identify any sediment sources	Annually and after severe storms
	Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system	Annually and after severe storms
	Inspect underside of roof for evidence of leakage	Annually and after severe storms
Regular Maintenance	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth	Six monthly and annually or as required
	During establishment (i.e. year one), replace dead plants as required	Monthly (but usually responsibility of the manufacturer)
	Post establishment, replace dead plants	Annually (in autumn)
	Remove fallen leaves and debris from deciduous plant foliage	Six monthly or as required
	Remove nuisance and invasive vegetation	Six monthly or as required
	Mow grasses, prune shrubs and manage other planting – clippings should be removed and not allowed to accumulate	Six monthly or as required
Remedial maintenance	If erosion channels are evident, these should be stabilised with extra soil substrate similar to the original material, and sources of erosion damage should be identified and controlled	As required
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate	As required

Table 7 Maintenance requirements for green roofs

Maintenance schedule	Required action	Typical frequency
Regular inspections	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspection)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional Maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As required, based on inspections
Remedial action	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation	Monthly in the first year and then annually
	Check soakaways to ensure emptying is occurring	Annually

Table 8 Maintenance requirements for soakaways/infiltration systems

Maintenance schedule	Required action	Typical frequency
Regular inspections	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturers recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment.
Occasional Maintenance	Removal of weeds	As required – once per year on less frequently used pavements.
Remedial action	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Table 9 Maintenance requirements for permeable paving

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove litter and debris.	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)
	Cut the meadow grass	Half yearly (spring, before nesting season ad autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for the first 3 years)	Monthly (at the start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May-October)
	Inspect silt accumulation rates in main body of the lake and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options	Half yearly
	Check any mechanical devices e.g. penstocks	Half yearly
	Hand cut submerged and emerged aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season	Annually
	Remove sediment from any forebay	Every 1-5 years, or as required
	Remove sediment and planting from one quadrant of the main body of lake	Every 5 years, or as required
Occasional Maintenance	Remove sediment from the main body of lake when the pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, every 25-50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when the signs of eutrophication are detected	As required
	Realign riprap or repair other damage	As required
	Repair/ rehabilitate inlets, outlets and overflows.	As required

Table 10 Maintenance requirements for irrigation lake

10 Conclusions

Tumu Consulting Ltd have been appointed by Boyce Group to prepare a Stage 1 Flood Risk Assessment in support of the proposed restoration, reconstruction and redevelopment of Nonsuch House and its wider estate at Westbrook Road, Bromham, Wiltshire. The proposals form part of a comprehensive heritage-led scheme to bring the Grade II* listed Nonsuch House back into active and sustainable use following extensive fire damage, while also providing associated visitor accommodation, ancillary health and wellbeing facilities, landscape enhancements, access improvements and supporting estate infrastructure.

The risk of flooding to the proposed development has been assessed in accordance with the NPPF. The site has been assessed to be at a low risk of all sources of flooding for the development lifetime.

The purpose of this report is to provide information explaining the principles of the proposed drainage strategy to demonstrate that the surface and foul water discharges from the development can be managed in a sustainable manner, in accordance with NPPF requirements and National SuDS Standards.

Surface water will be managed on site using a range of sustainable drainage solutions. These will be in addition to the proposed irrigation lake and will include green roofs, permeable paving, soakaways/infiltration systems as well as the extensive use of soft landscaped areas. Source control measures will be provided in accordance with the 2025 National Standards for Sustainable Drainage Systems (SuDS), and in accordance with Wiltshire LLFA guidance.

Surface water from the new parts of development will be collected and conveyed by localised gravity surface water drainage networks, which will discharge to adjacent geocellular soakaways. These will be sized to accommodate surface water runoff arising from the 100-year return period storm with 45% allowance for future climate change.

There is an existing public foul sewer serving the development as the west of the site. It is proposed that a new connection will be made to the existing public sewer to receive foul drainage from the new Welcome Building and Gate Cottage. Those parts of the proposed development that cannot achieve a gravity-fed connection will be serviced by a new package Sewage Treatment Plant (STP) and drainage field.

It is concluded that the development can be undertaken in a sustainable manner without increasing the flood risk to the proposed development or to existing properties / systems within the downstream catchment and is therefore compliant.

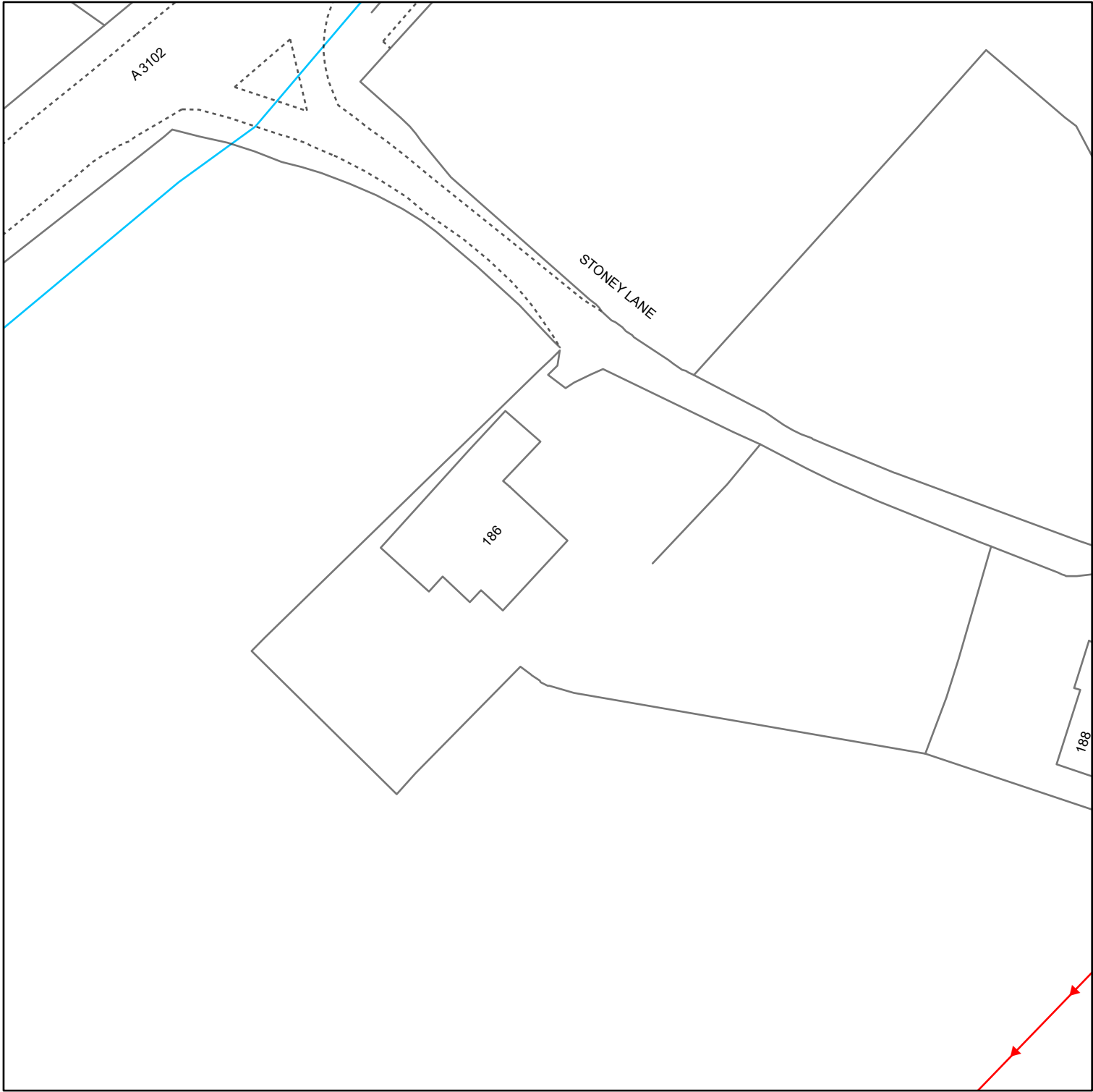
Appendix A – Impermeable catchment areas



KEY						DESIGN BY:	CLIENT:	PROJECT:	
	EXISTING IMPERMEABLE AREA (0.236ha)						BOYCE GROUP	NONSUCH HOUSE, BROMHAM	
	PROPOSED IMPERMEABLE AREA (0.482ha)							TITLE:	
								IMPERMEABLE CATCHMENT AREAS	
A FIRST ISSUE		29.07.26	TH	PS	DRAWING STATUS:	SCALE @ A1:	0 1:1250 50 metres	Project Ref: Originator: Stage: Phase: Number:	REV:
REV.	DESCRIPTION	Date	BY	CHK	PLANNING APPLICATION			20174-TUM-PL-XXX-0001	A

Appendix B – Existing sewer records

Wessex Water Network Map



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WATER MAINS		SEWERS		STRATEGIC PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul								Rising Mains		Private Rising Mains
	Washout		Surface								Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined								EDM Effluent Disposal		Highway Drain
	Abandoned		Abandoned								Overflow		Use Unknown
	Private										Syphon		Status Unknown
FITTINGS		STRUCTURES		PUMPING STATION		GULLY		VENT COLUMN		RODDING EYE		CATCHPIT	
	Hydrant		Manhole - Foul		Pumping Stn - Surface		Pumping Stn - Foul/Combined		Gully		Vent Column		Catchpit
	Other		Manhole - Surface		Manhole - Combined		Manhole - Combined		Inlet		Outfall		Outfall
			Lamphole		Bifurcation - Foul		Bifurcation - Surface		Bifurcation - Combined		Combined Sewage Overflow		Combined Sewage Overflow
			Non Return Valve		Air Valve		Hatch Box		Washout				
			Attenuation Tank		Storage Tank		Chamber		Tunnel		Interceptor		

Wessex Water
YTL GROUP

Date: 10/07/2026
Centre: 396152E, 165951N
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Wessex Water Network Map

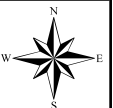


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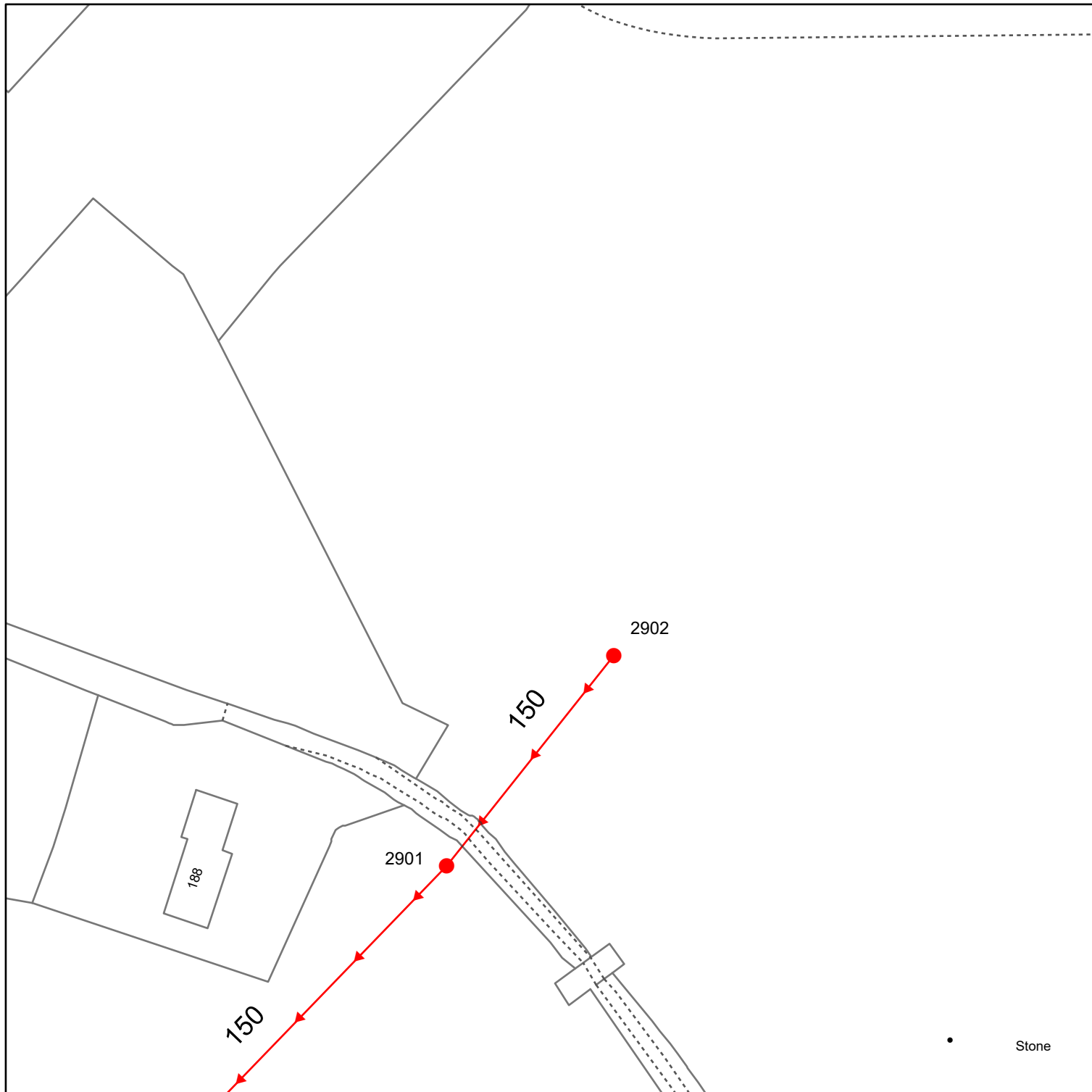
WATER MAINS		SEWERS		STRATEGIC		PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul		Surface								Rising Mains		Private Rising Mains
	Washout		Surface		Combined								Standby Rising Mains		Culverted Watercourse
	Raw Water		Abandoned										Effluent Disposal		Highway Drain
	Abandoned												Overflow		Use Unknown
	Private												Syphon		Status Unknown
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.															
FITTINGS		STRUCTURES													
	Hydrant		Manhole - Foul		Pumping Station - Surface										
	Other		Manhole - Surface		Pumping Stn - Foul/Combined										
			Manhole - Combined		Gully										
			Inlet		Vent Column										
			Outfall		Rodding Eye										
			Lamphole		Catchpit										
			Bifurcation - Foul		Flushing Chamber										
			Bifurcation - Surface		Soakaway										
			Bifurcation - Combined		Non Return Valve										
			Combined Sewage Overflow		Air Valve		Hatch Box		Washout						
OTHER STRUCTURES Attenuation Tank Tunnel Storage Tank Interceptor															

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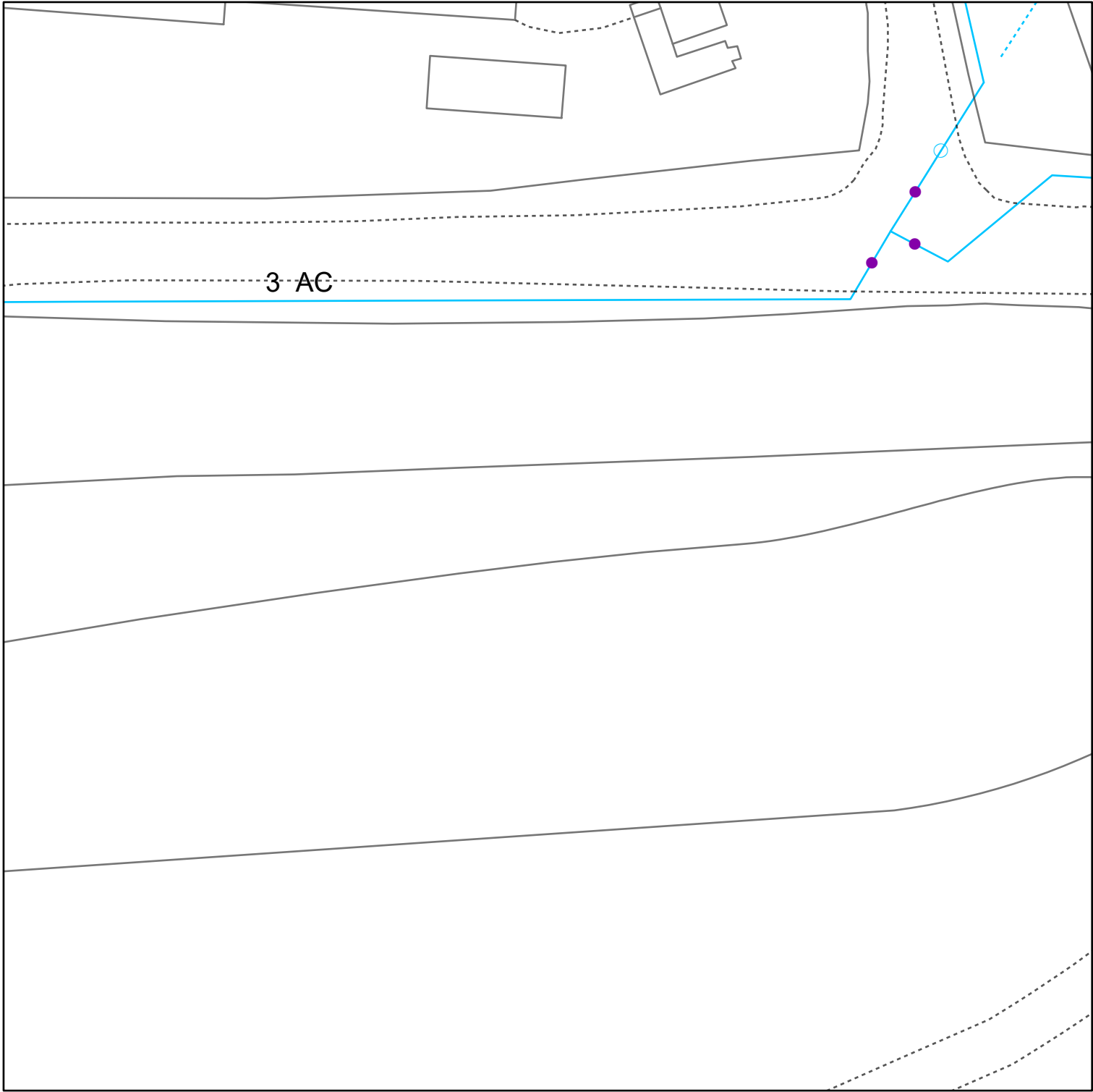
WATER MAINS		SEWERS		STRATEGIC		PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul		Surface								Rising Mains		Private Rising Mains
	Washout		Surface		Combined								Standby Rising Mains		Culverted Watercourse
	Raw Water		Abandoned										Effluent Disposal		Highway Drain
	Abandoned												Overflow		Use Unknown
	Private												Syphon		Status Unknown
FITTINGS		STRUCTURES													
	Hydrant		Manhole - Foul		Pumping Station - Surface										
	Other		Manhole - Surface		Pumping Stn - Foul/Combined										
			Manhole - Combined		Gully										
			Inlet		Vent Column										
			Outfall		Rodding Eye										
			Lamphole		Catchpit										
			Bifurcation - Foul		Flushing Chamber										
			Bifurcation - Surface		Soakaway										
			Bifurcation - Combined		Non Return Valve										
			Combined Sewage Overflow		Air Valve										
					Hatch Box										
					Washout										
												OTHER STRUCTURES Attenuation Tank Storage Tank Chamber Tunnel Interceptor			

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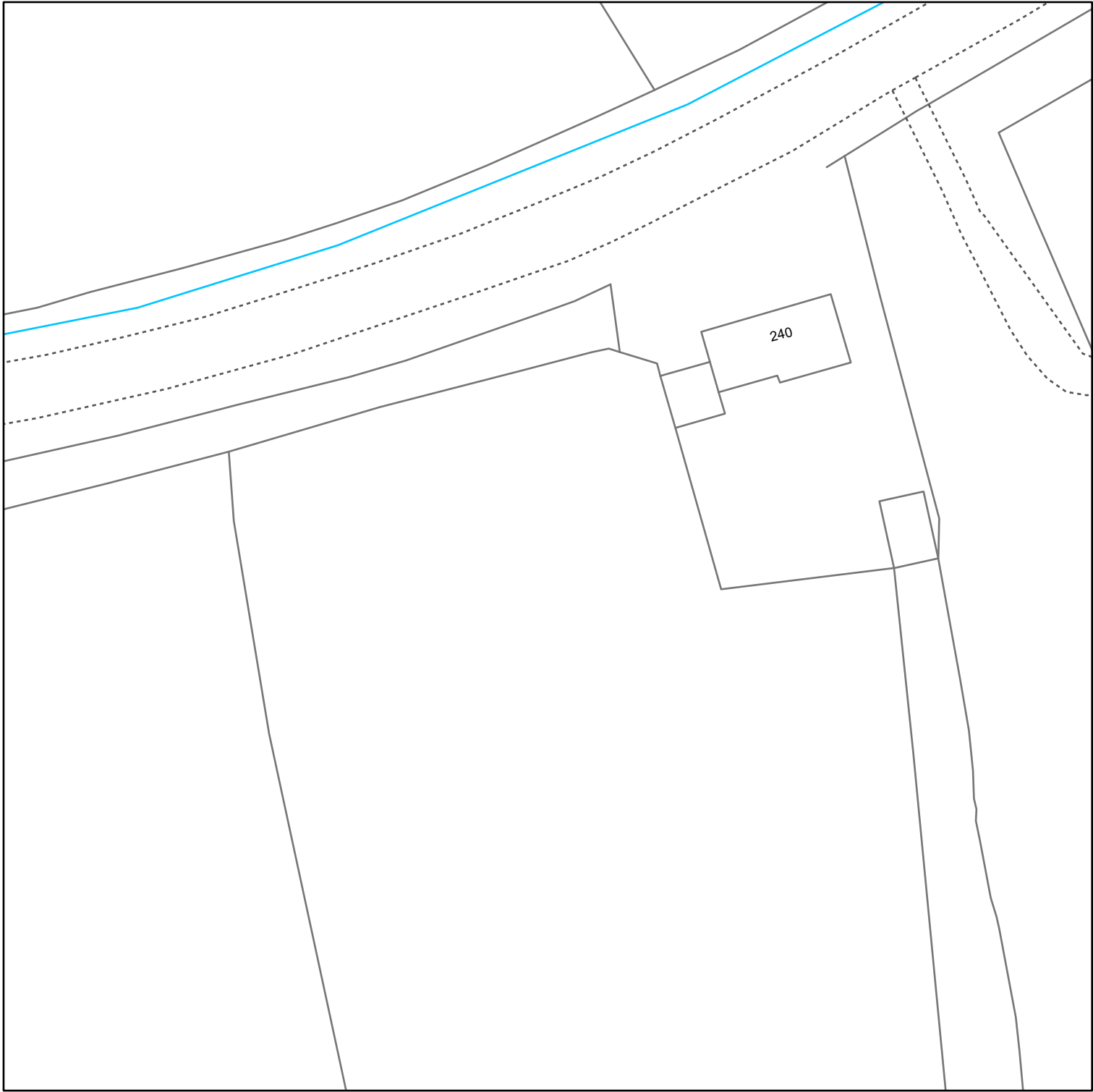
Wessex Water Network Map



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WATER MAINS		SEWERS		STRATEGIC	PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul						Rising Mains		Private Rising Mains
	Washout		Surface						Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined						Effluent Disposal		Highway Drain
	Abandoned		Abandoned						Overflow		Use Unknown
	Private	Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow).									
FITTINGS		Some styles of line and symbol are shown on the key in sample/typical colours.									
	Hydrant	STRUCTURES									
	Other		Manhole - Foul		Manhole - Surface		Manhole - Combined		Inlet		Outfall
			Lamphole		Bifurcation - Foul		Bifurcation - Surface		Bifurcation - Combined		Combined Sewage Overflow
			Pumping Station - Surface		Pumping Stn - Foul/Combined		Gully		Vent Column		Rodding Eye
			Catchpit		Flushing Chamber		Soakaway		Non Return Valve		Air Valve
			Hatch Box		X	Washout					
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OTHER STRUCTURES Attenuation Tank Storage Tank Chamber Tunnel Interceptor											
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WATER MAINS		SEWERS		STRATEGIC PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
Distribution	Washout	Foul	Surface	Foul	Surface	Foul	Surface	Foul	Surface	Rising Mains	Standby Rising Mains	Private Rising Mains	Culverted Watercourse
Raw Water	Abandoned	Combined	Abandoned	Foul	Surface	Foul	Surface	Foul	Surface	EDM	Effluent Disposal	Highway Drain	Use Unknown
Private		Abandoned		Foul	Surface	Foul	Surface	Foul	Surface	Syphon		Status Unknown	
FITTINGS		STRUCTURES		PUMPING STATIONS		GULLIES		OTHER STRUCTURES					
Hydrant	Other	Manhole - Foul	Manhole - Surface	Pumping Stn - Surface	Pumping Stn - Foul/Combined	Gully	Vent Column	Attenuation Tank	Chamber	Storage Tank	Tunnel	Interceptor	
		Manhole - Combined	Manhole - Combined	Rodding Eye	Catchpit	Catchpit	Flushing Chamber						
		Inlet	Outfall	Soakaway	Non Return Valve	Air Valve	Hatch Box						
		Lamphole	Bifurcation - Foul	Bifurcation - Surface	Bifurcation - Combined	Combined Sewage Overflow	Washout						

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow).
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Wessex Water
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Appendix C – Preliminary drainage strategy layout



KEY

- FOUL WATER DRAIN
- SURFACE WATER DRAIN
- GREEN ROOF
- GEOCELLULAR SOAKAWAY
- POROUS CONCRETE
- PERMEABLE SELF-BINDING GRAVEL

NOTES

- ALL PRIVATE DRAINAGE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS PART H.
- ALL FOUL WATER PRIVATE PIPES TO BE 100MM DIAMETER UNLESS OTHERWISE STATED. MIN GRADIENT 1:80 WHERE CONNECTED TO A MINIMUM OF 1WC, OTHERWISE MIN 1:40. ALL SURFACE PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS OTHERWISE STATED WITH A MIN GRADIENT OF 1:100 UNLESS OTHERWISE STATED.
- ALL SURFACE WATER PIPES 600MMØ OR LESS TO BE POLYPIPE RIDGIDRAIN OR SIMILAR APPROVED. SURFACE WATER PIPES GREATER THAN 600MMØ TO BE POLYPIPE RIDGIDRAIN XL OR SIMILAR APPROVED. ALL 100MM DIAMETER FOUL WATER DRAINS TO BE VITRIFIED CLAY. ALL 150MM DIAMETER FOUL DRAINS TO BE POLYPIPE POLYSEWER OR SIMILAR APPROVED.
SVP AND AAV REQUIREMENTS - FOR UP TO AND INCLUDING FOUR DWELLINGS, ONE, TWO OR THREE STOREYS IN HEIGHT, ADDITIONAL DRAIN VENTING IS NOT REQUIRED (AAVS ONLY). WHERE A DRAIN SERVES MORE THAN FOUR SUCH DWELLINGS EQUIPPED WITH THE VALVES, THE DRAIN SHOULD BE VENTED ACCORDING TO THE FOLLOWING RULE, EITHER BY A CONVENTIONAL OPEN TOPPED VENTILATION OR DISCHARGE STACK:
 - 5 TO 10 SUCH DWELLINGS -- CONVENTIONAL VENTILATION (SVP) TO BE PROVIDED AT THE HEAD OF THE SYSTEM
 - 11 TO 20 SUCH DWELLINGS -- CONVENTIONAL VENTILATION TO BE PROVIDED AT THE MID-POINT AND AT THE HEAD OF THE SYSTEM
- ALL DRAINAGE ARRANGEMENTS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE LOCAL AUTHORITY BUILDING INSPECTOR ONSITE.
- PRIVATE FOUL WATER DRAIN ROUTE UNDER SLAB IS INDICATIVE ONLY; BEDDING, PIPE MATERIAL AND PENETRATION OF PROPERTY WALL DETAILS BY OTHERS.
- CONTRACTOR TO REVIEW ALL BELOW SLAB PRIVATE DRAINAGE ND ENSURE, WHERE REQUIRED, FOUNDATION PENETRATIONS/ PLINTHS ARE PROVIDED IN ACCORDANCE WITH STRUCTURAL ENGINEER REQUIREMENTS.
- WHERE NO DPC IS PRESENT A GRAVEL-FILLED SPLASH STRIP WILL BE PROVIDED AROUND THE PERIMETER OF THESE TYPES OF WALL, THIS WOULD COMPRISE A 150MM WIDE, 300MM DEEP STRIP BACKFILLED WITH 10-14MM CLEAN STONE

A	FIRST ISSUE	29.07.26	TH	PS
REV.	DESCRIPTION	Date	BY	CHK

DESIGN BY:

CLIENT:

BOYCE GROUP

DRAWING STATUS:

PLANNING APPLICATION

SCALE @ A1:

0 1:500 25 metres

PROJECT:

NONSUCH HOUSE, BROMHAM

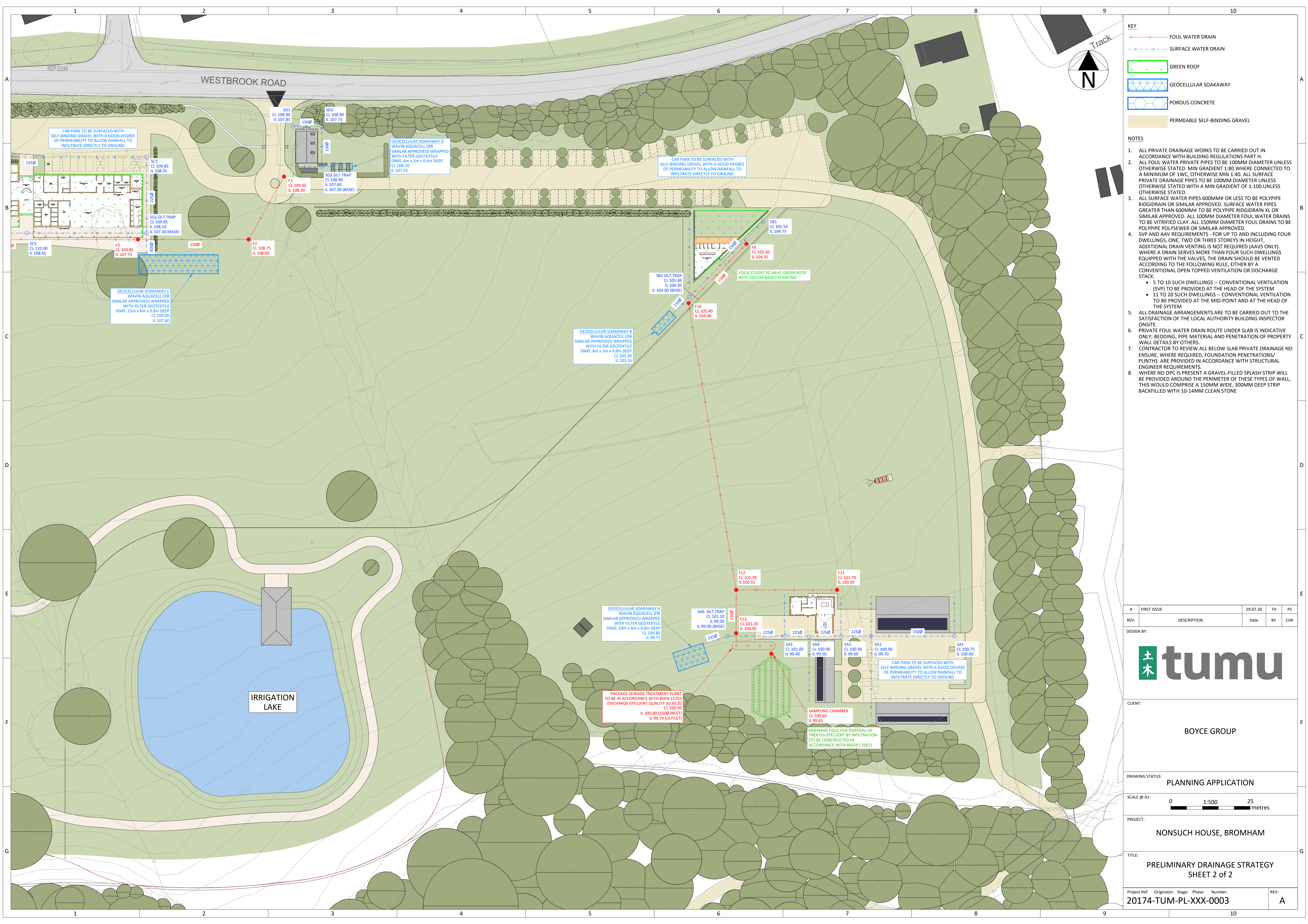
TITLE:

PRELIMINARY DRAINAGE STRATEGY
SHEET 1 of 2

Project Ref: 20174-TUM-PL-XXX-0002

Originator: Stage: Phase: Number:

REV: A



KEY

- FOUL WATER DRAIN
- SURFACE WATER DRAIN
- GREEN ROOF
- GEOCELLULAR SOAKAWAY
- POROUS CONCRETE
- PERMEABLE SELF-BINDING GRAVEL

- NOTES**
- ALL PRIVATE DRAINAGE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS PART H.
 - ALL FOUL WATER PRIVATE PIPES TO BE 100MM DIAMETER UNLESS OTHERWISE STATED. MIN GRADIENT 1:80 WHERE CONNECTED TO A MINIMUM OF 1WC, OTHERWISE MIN 1:40. ALL SURFACE PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS OTHERWISE STATED WITH A MIN GRADIENT OF 1:100 UNLESS OTHERWISE STATED.
 - ALL SURFACE WATER PIPES 600MMØ OR LESS TO BE POLYPIPE RIDGIDRAIN OR SIMILAR APPROVED. SURFACE WATER PIPES GREATER THAN 600MMØ TO BE POLYPIPE RIDGIDRAIN XL OR SIMILAR APPROVED. ALL 100MM DIAMETER FOUL WATER DRAINS TO BE VITRIFIED CLAY. ALL 150MM DIAMETER FOUL DRAINS TO BE POLYPIPE POLYSEWER OR SIMILAR APPROVED.
 - SVP AND AAV REQUIREMENTS - FOR UP TO AND INCLUDING FOUR DWELLINGS, ONE, TWO OR THREE STOREYS IN HEIGHT, ADDITIONAL DRAIN VENTING IS NOT REQUIRED (AAVS ONLY). WHERE A DRAIN SERVES MORE THAN FOUR SUCH DWELLINGS EQUIPPED WITH THE VALVES, THE DRAIN SHOULD BE VENTED ACCORDING TO THE FOLLOWING RULE, EITHER BY A CONVENTIONAL OPEN TOPPED VENTILATION OR DISCHARGE STACK:
 - 5 TO 10 SUCH DWELLINGS -- CONVENTIONAL VENTILATION (SVP) TO BE PROVIDED AT THE HEAD OF THE SYSTEM
 - 11 TO 20 SUCH DWELLINGS -- CONVENTIONAL VENTILATION TO BE PROVIDED AT THE MID-POINT AND AT THE HEAD OF THE SYSTEM
 - ALL DRAINAGE ARRANGEMENTS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE LOCAL AUTHORITY BUILDING INSPECTOR ONSITE.
 - PRIVATE FOUL WATER DRAIN ROUTE UNDER SLAB IS INDICATIVE ONLY; BEDDING, PIPE MATERIAL AND PENETRATION OF PROPERTY WALL DETAILS BY OTHERS.
 - CONTRACTOR TO REVIEW ALL BELOW SLAB PRIVATE DRAINAGE ND ENSURE, WHERE REQUIRED, FOUNDATION PENETRATIONS/ PLINTHS ARE PROVIDED IN ACCORDANCE WITH STRUCTURAL ENGINEER REQUIREMENTS.
 - WHERE NO DPC IS PRESENT A GRAVEL-FILLED SPLASH STRIP WILL BE PROVIDED AROUND THE PERIMETER OF THESE TYPES OF WALL, THIS WOULD COMPRISE A 150MM WIDE, 300MM DEEP STRIP BACKFILLED WITH 10-14MM CLEAN STONE

A	FIRST ISSUE	29.07.26	TH	PS
REV.	DESCRIPTION	Date	BY	CHK

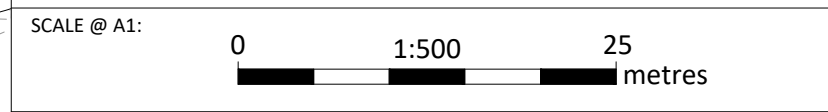


CLIENT:

BOYCE GROUP

DRAWING STATUS:

PLANNING APPLICATION



PROJECT:

NONSUCH HOUSE, BROMHAM

TITLE:

PRELIMINARY DRAINAGE STRATEGY
SHEET 2 of 2

Project Ref:	Originator:	Stage:	Phase:	Number:	REV:
20174-TUM-PL-XXX-0003					A

Appendix D – Source control calculations

Tumu Consulting		Page 1
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway A 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway A.SRCX	Designed by PS Checked by	
Micro Drainage	Source Control 2018.1	

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 481 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	99.056	0.306	0.6	17.5	O K
30 min Summer	99.143	0.393	0.7	22.4	O K
60 min Summer	99.222	0.472	0.7	26.9	O K
120 min Summer	99.298	0.548	0.7	31.2	O K
180 min Summer	99.337	0.587	0.7	33.4	O K
240 min Summer	99.357	0.607	0.7	34.6	O K
360 min Summer	99.368	0.618	0.7	35.2	O K
480 min Summer	99.364	0.614	0.7	35.0	O K
600 min Summer	99.354	0.604	0.7	34.4	O K
720 min Summer	99.341	0.591	0.7	33.7	O K
960 min Summer	99.311	0.561	0.7	32.0	O K
1440 min Summer	99.247	0.497	0.7	28.3	O K
2160 min Summer	99.159	0.409	0.7	23.3	O K
2880 min Summer	99.084	0.334	0.7	19.0	O K
4320 min Summer	98.968	0.218	0.6	12.4	O K
5760 min Summer	98.890	0.140	0.6	8.0	O K
7200 min Summer	98.840	0.090	0.6	5.1	O K
8640 min Summer	98.812	0.062	0.6	3.5	O K
10080 min Summer	98.799	0.049	0.6	2.8	O K
15 min Winter	99.094	0.344	0.7	19.6	O K
30 min Winter	99.192	0.442	0.7	25.2	O K
60 min Winter	99.283	0.533	0.7	30.4	O K
120 min Winter	99.372	0.622	0.7	35.5	O K
180 min Winter	99.420	0.670	0.7	38.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	145.316	0.0	19
30 min Summer	94.632	0.0	33
60 min Summer	58.467	0.0	62
120 min Summer	35.731	0.0	122
180 min Summer	26.748	0.0	182
240 min Summer	21.735	0.0	240
360 min Summer	16.133	0.0	354
480 min Summer	12.999	0.0	408
600 min Summer	10.949	0.0	470
720 min Summer	9.490	0.0	534
960 min Summer	7.524	0.0	666
1440 min Summer	5.359	0.0	938
2160 min Summer	3.772	0.0	1340
2880 min Summer	2.936	0.0	1728
4320 min Summer	2.066	0.0	2464
5760 min Summer	1.620	0.0	3168
7200 min Summer	1.357	0.0	3824
8640 min Summer	1.182	0.0	4488
10080 min Summer	1.058	0.0	5136
15 min Winter	145.316	0.0	19
30 min Winter	94.632	0.0	33
60 min Winter	58.467	0.0	62
120 min Winter	35.731	0.0	120
180 min Winter	26.748	0.0	178

Tumu Consulting		Page 2
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway A 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway A.SRCX	Designed by PS Checked by	
Micro Drainage	Source Control 2018.1	

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
240 min Winter	99.447	0.697	0.8	39.7	O K
360 min Winter	99.468	0.718	0.8	40.9	O K
480 min Winter	99.465	0.715	0.8	40.8	O K
600 min Winter	99.450	0.700	0.8	39.9	O K
720 min Winter	99.435	0.685	0.8	39.1	O K
960 min Winter	99.396	0.646	0.7	36.8	O K
1440 min Winter	99.308	0.558	0.7	31.8	O K
2160 min Winter	99.181	0.431	0.7	24.6	O K
2880 min Winter	99.074	0.324	0.6	18.5	O K
4320 min Winter	98.915	0.165	0.6	9.4	O K
5760 min Winter	98.820	0.070	0.6	4.0	O K
7200 min Winter	98.796	0.046	0.5	2.6	O K
8640 min Winter	98.790	0.040	0.5	2.3	O K
10080 min Winter	98.786	0.036	0.4	2.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
240 min Winter	21.735	0.0	236
360 min Winter	16.133	0.0	346
480 min Winter	12.999	0.0	452
600 min Winter	10.949	0.0	500
720 min Winter	9.490	0.0	564
960 min Winter	7.524	0.0	720
1440 min Winter	5.359	0.0	1024
2160 min Winter	3.772	0.0	1448
2880 min Winter	2.936	0.0	1844
4320 min Winter	2.066	0.0	2552
5760 min Winter	1.620	0.0	3168
7200 min Winter	1.357	0.0	3672
8640 min Winter	1.182	0.0	4408
10080 min Winter	1.058	0.0	5080

Tumu Consulting		Page 3
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway A 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway A.SRCX	Designed by PS Checked by	
Micro Drainage		Source Control 2018.1

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 396198 166041 ST 96198 66041
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.066

Time (mins)		Area
From:	To:	(ha)
0	4	0.066

Tumu Consulting		Page 4
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway A 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway A.SRCX	Designed by PS Checked by	
Micro Drainage	Source Control 2018.1	

Model Details

Storage is Online Cover Level (m) 100.800

Cellular Storage Structure

Invert Level (m) 98.750 Safety Factor 1.5
Infiltration Coefficient Base (m/hr) 0.05000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.05000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	60.0	60.0	0.800	60.0	84.8	0.810	0.0	84.9

Tumu Consulting		Page 1
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway B 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway B.SRCX	Designed by PS Checked by	
Micro Drainage	Source Control 2018.1	

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 433 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	103.863	0.313	0.3	7.1	O K
30 min Summer	103.951	0.401	0.3	9.1	O K
60 min Summer	104.031	0.481	0.3	11.0	O K
120 min Summer	104.106	0.556	0.3	12.7	O K
180 min Summer	104.142	0.592	0.3	13.5	O K
240 min Summer	104.160	0.610	0.3	13.9	O K
360 min Summer	104.167	0.617	0.3	14.1	O K
480 min Summer	104.163	0.613	0.3	14.0	O K
600 min Summer	104.153	0.603	0.3	13.7	O K
720 min Summer	104.140	0.590	0.3	13.4	O K
960 min Summer	104.109	0.559	0.3	12.7	O K
1440 min Summer	104.044	0.494	0.3	11.3	O K
2160 min Summer	103.954	0.404	0.3	9.2	O K
2880 min Summer	103.880	0.330	0.3	7.5	O K
4320 min Summer	103.766	0.216	0.3	4.9	O K
5760 min Summer	103.690	0.140	0.2	3.2	O K
7200 min Summer	103.642	0.092	0.2	2.1	O K
8640 min Summer	103.613	0.063	0.2	1.4	O K
10080 min Summer	103.600	0.050	0.2	1.1	O K
15 min Winter	103.901	0.351	0.3	8.0	O K
30 min Winter	104.001	0.451	0.3	10.3	O K
60 min Winter	104.092	0.542	0.3	12.4	O K
120 min Winter	104.181	0.631	0.3	14.4	O K
180 min Winter	104.226	0.676	0.3	15.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	145.316	0.0	19
30 min Summer	94.632	0.0	33
60 min Summer	58.467	0.0	62
120 min Summer	35.731	0.0	122
180 min Summer	26.748	0.0	182
240 min Summer	21.735	0.0	240
360 min Summer	16.133	0.0	328
480 min Summer	12.999	0.0	386
600 min Summer	10.949	0.0	450
720 min Summer	9.490	0.0	514
960 min Summer	7.524	0.0	654
1440 min Summer	5.359	0.0	924
2160 min Summer	3.772	0.0	1320
2880 min Summer	2.936	0.0	1704
4320 min Summer	2.066	0.0	2460
5760 min Summer	1.620	0.0	3168
7200 min Summer	1.357	0.0	3824
8640 min Summer	1.182	0.0	4496
10080 min Summer	1.058	0.0	5136
15 min Winter	145.316	0.0	18
30 min Winter	94.632	0.0	33
60 min Winter	58.467	0.0	62
120 min Winter	35.731	0.0	120
180 min Winter	26.748	0.0	178

Tumu Consulting		Page 2
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway B 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway B.SRCX	Designed by PS Checked by	
Micro Drainage Source Control 2018.1		

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	104.251	0.701	0.3	16.0	O K
360 min Winter	104.266	0.716	0.4	16.3	O K
480 min Winter	104.259	0.709	0.4	16.2	O K
600 min Winter	104.247	0.697	0.3	15.9	O K
720 min Winter	104.230	0.680	0.3	15.5	O K
960 min Winter	104.189	0.639	0.3	14.6	O K
1440 min Winter	104.097	0.547	0.3	12.5	O K
2160 min Winter	103.970	0.420	0.3	9.6	O K
2880 min Winter	103.866	0.316	0.3	7.2	O K
4320 min Winter	103.713	0.163	0.3	3.7	O K
5760 min Winter	103.622	0.072	0.2	1.6	O K
7200 min Winter	103.597	0.047	0.2	1.1	O K
8640 min Winter	103.591	0.041	0.2	0.9	O K
10080 min Winter	103.586	0.036	0.2	0.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.735	0.0	234
360 min Winter	16.133	0.0	344
480 min Winter	12.999	0.0	442
600 min Winter	10.949	0.0	474
720 min Winter	9.490	0.0	550
960 min Winter	7.524	0.0	704
1440 min Winter	5.359	0.0	1008
2160 min Winter	3.772	0.0	1428
2880 min Winter	2.936	0.0	1816
4320 min Winter	2.066	0.0	2552
5760 min Winter	1.620	0.0	3168
7200 min Winter	1.357	0.0	3672
8640 min Winter	1.182	0.0	4392
10080 min Winter	1.058	0.0	5144

Tumu Consulting		Page 3
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway B 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway B.SRCX	Designed by PS Checked by	
Micro Drainage		Source Control 2018.1

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 396198 166041 ST 96198 66041
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.027

Time (mins)		Area
From:	To:	(ha)
0	4	0.027

Tumu Consulting		Page 4
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway B 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway B.SRCX	Designed by PS Checked by	
Micro Drainage Source Control 2018.1		

Model Details

Storage is Online Cover Level (m) 105.400

Cellular Storage Structure

Invert Level (m) 103.550 Safety Factor 1.5
Infiltration Coefficient Base (m/hr) 0.05000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.05000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	24.0	24.0	0.800	24.0	39.7	0.810	0.0	39.8

Tumu Consulting		Page 1
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway C 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway C.SRCX	Designed by PS Checked by	
Micro Drainage		Source Control 2018.1

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 549 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	107.912	0.312	1.5	44.5	O K
30 min Summer	108.001	0.401	1.6	57.2	O K
60 min Summer	108.083	0.483	1.6	68.8	O K
120 min Summer	108.163	0.563	1.6	80.2	O K
180 min Summer	108.205	0.605	1.7	86.2	O K
240 min Summer	108.228	0.628	1.7	89.5	O K
360 min Summer	108.245	0.645	1.7	91.9	O K
480 min Summer	108.241	0.641	1.7	91.3	O K
600 min Summer	108.231	0.631	1.7	89.9	O K
720 min Summer	108.218	0.618	1.7	88.1	O K
960 min Summer	108.188	0.588	1.7	83.8	O K
1440 min Summer	108.124	0.524	1.6	74.7	O K
2160 min Summer	108.035	0.435	1.6	62.0	O K
2880 min Summer	107.958	0.358	1.6	51.0	O K
4320 min Summer	107.837	0.237	1.5	33.8	O K
5760 min Summer	107.753	0.153	1.5	21.8	O K
7200 min Summer	107.699	0.099	1.4	14.2	O K
8640 min Summer	107.667	0.067	1.4	9.6	O K
10080 min Summer	107.651	0.051	1.4	7.3	O K
15 min Winter	107.951	0.351	1.5	50.0	O K
30 min Winter	108.051	0.451	1.6	64.3	O K
60 min Winter	108.145	0.545	1.6	77.6	O K
120 min Winter	108.238	0.638	1.7	91.0	O K
180 min Winter	108.290	0.690	1.7	98.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.316	0.0	19
30 min Summer	94.632	0.0	33
60 min Summer	58.467	0.0	64
120 min Summer	35.731	0.0	122
180 min Summer	26.748	0.0	182
240 min Summer	21.735	0.0	242
360 min Summer	16.133	0.0	360
480 min Summer	12.999	0.0	436
600 min Summer	10.949	0.0	494
720 min Summer	9.490	0.0	556
960 min Summer	7.524	0.0	684
1440 min Summer	5.359	0.0	952
2160 min Summer	3.772	0.0	1360
2880 min Summer	2.936	0.0	1756
4320 min Summer	2.066	0.0	2504
5760 min Summer	1.620	0.0	3176
7200 min Summer	1.357	0.0	3824
8640 min Summer	1.182	0.0	4496
10080 min Summer	1.058	0.0	5144
15 min Winter	145.316	0.0	19
30 min Winter	94.632	0.0	33
60 min Winter	58.467	0.0	62
120 min Winter	35.731	0.0	120
180 min Winter	26.748	0.0	178

Tumu Consulting		Page 2
20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway C 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway C.SRCX	Designed by PS Checked by	
Micro Drainage	Source Control 2018.1	

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	108.321	0.721	1.7	102.7	O K
360 min Winter	108.347	0.747	1.7	106.5	O K
480 min Winter	108.350	0.750	1.7	106.8	O K
600 min Winter	108.338	0.738	1.7	105.1	O K
720 min Winter	108.319	0.719	1.7	102.5	O K
960 min Winter	108.282	0.682	1.7	97.2	O K
1440 min Winter	108.195	0.595	1.7	84.7	O K
2160 min Winter	108.066	0.466	1.6	66.4	O K
2880 min Winter	107.955	0.355	1.6	50.6	O K
4320 min Winter	107.786	0.186	1.5	26.5	O K
5760 min Winter	107.680	0.080	1.4	11.4	O K
7200 min Winter	107.647	0.047	1.3	6.7	O K
8640 min Winter	107.641	0.041	1.2	5.9	O K
10080 min Winter	107.637	0.037	1.1	5.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.735	0.0	236
360 min Winter	16.133	0.0	350
480 min Winter	12.999	0.0	458
600 min Winter	10.949	0.0	560
720 min Winter	9.490	0.0	588
960 min Winter	7.524	0.0	732
1440 min Winter	5.359	0.0	1038
2160 min Winter	3.772	0.0	1468
2880 min Winter	2.936	0.0	1872
4320 min Winter	2.066	0.0	2596
5760 min Winter	1.620	0.0	3176
7200 min Winter	1.357	0.0	3680
8640 min Winter	1.182	0.0	4408
10080 min Winter	1.058	0.0	5104

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20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway C 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway C.SRCX	Designed by PS Checked by	
Micro Drainage		Source Control 2018.1

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 396198 166041 ST 96198 66041
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.168

Time (mins)		Area
From:	To:	(ha)
0	4	0.168

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20 East Sands	Nonsuch House, Bromham	
Burbage Marlborough	Soakaway C	
Wiltshire SN8 3AN	100-yrs +45% cc	
Date 27/07/2026	Designed by PS	
File 2026-07-27 Soakaway C.SRCX	Checked by	
Micro Drainage	Source Control 2018.1	

Model Details

Storage is Online Cover Level (m) 109.000

Cellular Storage Structure

Invert Level (m) 107.600 Safety Factor 1.5
Infiltration Coefficient Base (m/hr) 0.05000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.05000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	150.0	150.0	0.800	150.0	189.2	0.810	0.0	189.4

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20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway D 100-yrs +45% cc	
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Micro Drainage	Source Control 2018.1	

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 249 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	107.432	0.182	0.1	2.1	O K
30 min Summer	107.482	0.232	0.1	2.6	O K
60 min Summer	107.523	0.273	0.1	3.1	O K
120 min Summer	107.556	0.306	0.2	3.5	O K
180 min Summer	107.566	0.316	0.2	3.6	O K
240 min Summer	107.569	0.319	0.2	3.6	O K
360 min Summer	107.567	0.317	0.2	3.6	O K
480 min Summer	107.560	0.310	0.2	3.5	O K
600 min Summer	107.549	0.299	0.1	3.4	O K
720 min Summer	107.538	0.288	0.1	3.3	O K
960 min Summer	107.512	0.262	0.1	3.0	O K
1440 min Summer	107.463	0.213	0.1	2.4	O K
2160 min Summer	107.401	0.151	0.1	1.7	O K
2880 min Summer	107.356	0.106	0.1	1.2	O K
4320 min Summer	107.306	0.056	0.1	0.6	O K
5760 min Summer	107.293	0.043	0.1	0.5	O K
7200 min Summer	107.287	0.037	0.1	0.4	O K
8640 min Summer	107.282	0.032	0.1	0.4	O K
10080 min Summer	107.279	0.029	0.1	0.3	O K
15 min Winter	107.455	0.205	0.1	2.3	O K
30 min Winter	107.511	0.261	0.1	3.0	O K
60 min Winter	107.559	0.309	0.2	3.5	O K
120 min Winter	107.600	0.350	0.2	4.0	O K
180 min Winter	107.615	0.365	0.2	4.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	145.316	0.0	18
30 min Summer	94.632	0.0	33
60 min Summer	58.467	0.0	62
120 min Summer	35.731	0.0	120
180 min Summer	26.748	0.0	174
240 min Summer	21.735	0.0	202
360 min Summer	16.133	0.0	266
480 min Summer	12.999	0.0	334
600 min Summer	10.949	0.0	404
720 min Summer	9.490	0.0	470
960 min Summer	7.524	0.0	608
1440 min Summer	5.359	0.0	868
2160 min Summer	3.772	0.0	1252
2880 min Summer	2.936	0.0	1588
4320 min Summer	2.066	0.0	2248
5760 min Summer	1.620	0.0	2944
7200 min Summer	1.357	0.0	3672
8640 min Summer	1.182	0.0	4408
10080 min Summer	1.058	0.0	5136
15 min Winter	145.316	0.0	18
30 min Winter	94.632	0.0	32
60 min Winter	58.467	0.0	62
120 min Winter	35.731	0.0	118
180 min Winter	26.748	0.0	174

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20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway D 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway D.SRCX	Designed by PS Checked by	
Micro Drainage Source Control 2018.1		

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	107.618	0.368	0.2	4.2	O K
360 min Winter	107.614	0.364	0.2	4.1	O K
480 min Winter	107.603	0.353	0.2	4.0	O K
600 min Winter	107.588	0.338	0.2	3.9	O K
720 min Winter	107.571	0.321	0.2	3.7	O K
960 min Winter	107.534	0.284	0.1	3.2	O K
1440 min Winter	107.463	0.213	0.1	2.4	O K
2160 min Winter	107.377	0.127	0.1	1.5	O K
2880 min Winter	107.321	0.071	0.1	0.8	O K
4320 min Winter	107.291	0.041	0.1	0.5	O K
5760 min Winter	107.282	0.032	0.1	0.4	O K
7200 min Winter	107.277	0.027	0.1	0.3	O K
8640 min Winter	107.274	0.024	0.1	0.3	O K
10080 min Winter	107.271	0.021	0.0	0.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	21.735	0.0	226
360 min Winter	16.133	0.0	282
480 min Winter	12.999	0.0	360
600 min Winter	10.949	0.0	436
720 min Winter	9.490	0.0	512
960 min Winter	7.524	0.0	656
1440 min Winter	5.359	0.0	936
2160 min Winter	3.772	0.0	1300
2880 min Winter	2.936	0.0	1616
4320 min Winter	2.066	0.0	2248
5760 min Winter	1.620	0.0	2944
7200 min Winter	1.357	0.0	3624
8640 min Winter	1.182	0.0	4392
10080 min Winter	1.058	0.0	5160

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20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway D 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway D.SRCX	Designed by PS Checked by	
Micro Drainage		Source Control 2018.1

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 396198 166041 ST 96198 66041
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.008

Time (mins)		Area
From:	To:	(ha)
0	4	0.008

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20 East Sands Burbage Marlborough Wiltshire SN8 3AN	Nonsuch House, Bromham Soakaway D 100-yrs +45% cc	
Date 27/07/2026 File 2026-07-27 Soakaway D.SRCX	Designed by PS Checked by	
Micro Drainage	Source Control 2018.1	

Model Details

Storage is Online Cover Level (m) 108.700

Cellular Storage Structure

Invert Level (m) 107.250 Safety Factor 1.5
Infiltration Coefficient Base (m/hr) 0.05000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.05000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	12.0	12.0	0.400	12.0	17.5	0.410	0.0	17.6