

Land at Cranesfield
Sherborne St John, Basingstoke

Flood Risk Assessment

HSP2021-C3701-C&S-FRAS1-250
November 2025



CIVIL | STRUCTURAL | GEOTECHNICAL & ENVIRONMENTAL | TRAFFIC AND TRANSPORT

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APPENDIX 2

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APPENDIX 3

- Development Proposals

APPENDIX 4

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APPENDIX 5

- Environment Agency Consultation Response
- Lead Local Flood Authority Consultation Response

APPENDIX 6

- EA Flood Map for Planning
- EA Long-term Flood Risk Mapping Extracts

APPENDIX 7

- C3701-DS003 Surface Water Catchment Plan
- Pre-development Greenfield Runoff Calculations
- Hydraulic Surface Water Calculations
- C3701-DS001 Drainage Strategy Plan
- C3701-SK03 Indicative Headwall Detail
- C3701-DS002 Overland Flow Plan

APPENDIX 8

- Example Drainage Maintenance Strategy

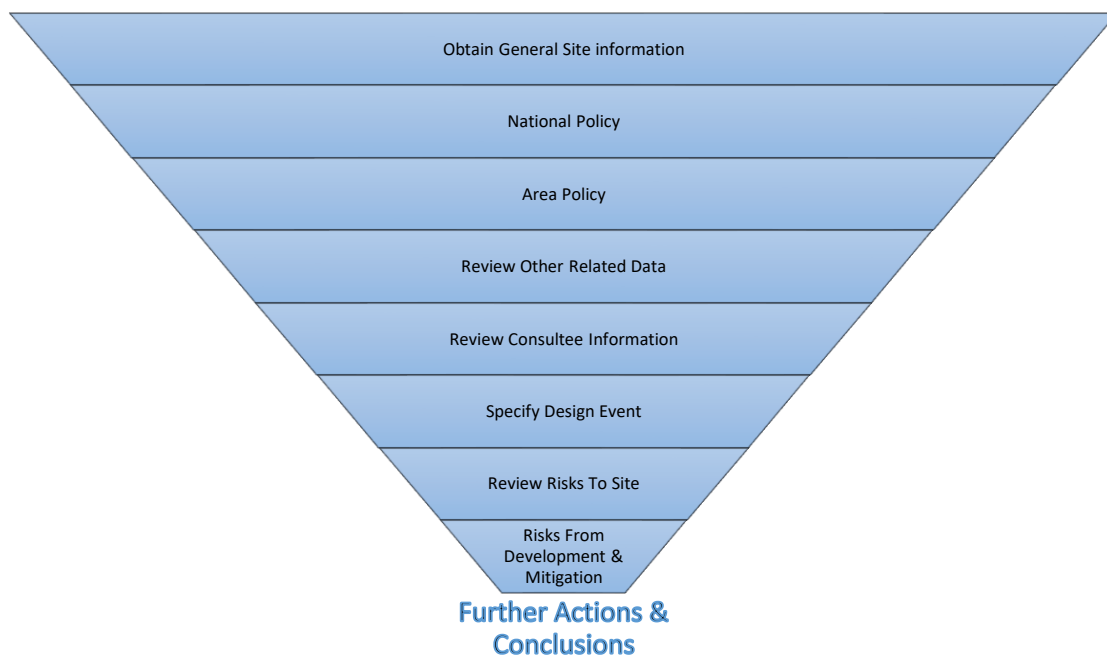
1 Introduction

1.1 General

- 1.1.1 HSP Consulting Engineers Ltd has been commissioned to undertake a Flood Risk Assessment in support of a detailed planning application for a new residential development on land at Cranesfield in Sherborne St John, Basingstoke.

1.2 Format of this Report

- 1.2.1 This report is reliant upon publicly available information and/or that provided by Consultees which is then reviewed, in outline terms, in accordance with the graphic below:



1.3 Sources of Data

- 1.3.1 This report is based on information from the following principal sources of information:

- i. Environment Agency Flood Zone (for Planning) Mapping
- ii. Government Long Term Flood Risk Mapping
- iii. Lead Local Flood Authority Information
- iv. Local Preliminary Flood Risk Assessment
- v. Local Strategic Flood Risk Assessment
- vi. Local Flood Risk Management Strategy
- vii. Local Standards and Guidance for Surface Water Drainage

2 Site Location, Description & Proposed Development

2.1 Site Location

2.1.1 The site is located at National Grid reference (NGR) E462250, Y155690 (approximately).

2.1.2 The site is located at the following address:

Land at Cranesfield
Sherborne St John
Basingstoke
RG24 9LN

2.1.3 A site location plan is included within Appendix 1 of this document.

2.2 Description

2.2.1 The existing site occupies an area of approximately 1.33 ha, is broadly rectangular in shape and comprises arable land.

2.2.2 Boundaries are formed as follows:

- i.* North: Arable land.
- ii.* East: Manor Farm Cottage and Farm Pond
- iii.* South: Residential dwellings, off Cranesfield (public highway), and a War Memorial/Cemetery.
- iv.* West: Residential dwellings, off Cranesfield (public highway).

2.3 Topography

2.3.1 The topographical survey was conducted by Survey Solutions in January 2025 (reference 74301BWLS-01) and indicates the following:

- i.* Levels along the western boundary generally fall from south (80.00m AOD) to north (79.50m AOD).
- ii.* Levels along the eastern boundary generally fall from south (77.95m AOD) to north (77.47m AOD).
- iii.* Topography generally falls from west to east, at an average slope of approximately 1 in 60 (or 1.67% gradient).

2.3.2 The topographical survey has been reproduced within Appendix 2.

2.4 Proposed Development

- 2.4.1 The proposed residential development will comprise:
- i. A development site area of approximately 1.33 ha.
 - ii. Approximately 26 residential dwellings.
 - iii. Associated infrastructure, such as access roads and private drives etc.
 - iv. A total impermeable area of approximately 5,150m².
- 2.4.2 A copy of the current development proposals has been included within Appendix 3.

3 Geology, Hydrogeology, Hydrology

3.1 Site Investigation

- 3.1.1 At the time of preparation, an intrusive site investigation was not available for review. For guidance, publicly available reference material has been reviewed in order to establish the likely environmental setting.

3.2 Geology

- 3.2.1 Published British Geological Society (BGS) online database records indicate the following:

3.2.2 Made Ground:

BGS mapping does not indicate Made Ground to be present on the site.

3.2.3 Superficial Deposits:

There are no superficial deposits recorded beneath the site.

3.2.4 Bedrock:

The site is underlain by geology of the Lambeth Group – Clay, Silt and Sand; that is, sedimentary bedrock formed between 59.2 and 47.8 million years ago during the Paleogene period.

The BGS describes the Lambeth Group as “vertically and laterally variable sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate.”

3.2.5 Borehole Logs:

Borehole logs freely available from the BGS digital borehole record viewer have been consulted to summarise the likely ground conditions at the site:

- i.* One historic borehole (reference: SU65NW16) is located approximately 220m south-west of the development site.
- ii.* This borehole identified 5.5m of 'stiff reading beds', over 17m of 'chalk and flints'.
- iii.* The resting water level at this location was recorded approximately 5.5m below existing ground level, at the top of the chalk stratum.

3.3 Hydrogeology

3.3.1 The Groundwater Vulnerability Map of England and the Environment Agency and MagicMap websites have been reviewed to determine the aquifer designations.

3.3.2 These sources show that:

- i.* The site is not situated within a Groundwater Source Protection Zone.
- ii.* With respect to groundwater vulnerability, the site is located within an area which is designated as "High". High vulnerability aquifers are defined as "areas that can easily transmit pollution to groundwater. They are characterised by high-leaching soils and the absence of low-permeability superficial deposits.
- iii.* The underlying bedrock is recorded as being a "Secondary A" aquifer. These are defined as "permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers."
- iv.* The site is situated within a "Soluble Rock Risk" area; that is, an area where solution features that enable rapid movement of a pollutant may be present.

3.4 Hydrology

3.4.1 The EA Catchment Data Explorer and other third-party mapping data has been assessed to establish hydrological context for the development site.

3.4.2 An un-named watercourse runs immediately adjacent to the eastern boundary of the development site, flowing northwards towards Wey Brook. The approximate bed level of the un-named watercourse is currently unknown.

3.4.3 The confluence of the un-named watercourse and Wey Brook (ordinary watercourse) occurs approximately 170m north of the development site. From this point, Wey Brook flows eastwards for 160m, converging with the Vyne Stream (main river).

3.4.4 The development is located within the Thames River Basin District.

4 National Planning Framework

4.1 General

4.1.1 Flood Risk Assessments in England are undertaken using the prescriptive procedures and guidance within the National Planning Policy Framework (NPPF) and “Planning practice Guide – Flood Risk and Coastal Change” (PPG) produced by Communities and Local Government, in addition to the details set out in BS 8533:2017 “Assessing and managing flood risk in development - Code of practice”.

4.1.2 NPPF provides a directive which seeks to ensure that development does not take place in areas at risk or increase flood risk in offsite areas. NPPF acknowledges that developments vary in their sensitivity to flooding and enables the correlation between proposed use and the underlying environs (flood risk) through the application of the Sequential Test.

4.2 The Sequential Test

4.2.1 The aim of the Sequential Test is to steer new development into areas with the lowest and/or appropriate probability of flooding.

4.2.2 The sequential test provides the potential to compare the subject site with other available sites to determine which has the lowest flood risk.

4.2.3 Table 1 of PPG prescribes three principal flood risk zones:

- Zone 1 (Low Probability) - land assessed as having a less than 0.1% (1 in 1000) annual probability of river or sea flooding;
- Zone 2 (Medium Probability) - land assessed as having between a 1% (1 in 100) and 0.1% (1 in 1000) annual probability of river flooding; or between a 0.5% (1 in 200) and 0.1% (1 in 1000) annual probability of sea flooding;
- Zone 3a (High Probability) - land assessed as having a 1% (1 in 100) or greater annual probability of river flooding or a 0.5% (1 in 200) or greater annual probability of flooding from the sea;
- Zone 3b (The Functional Floodplain) - land where water has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. However,

land which would naturally flood with an annual probability of 1 in 20 (5%) or greater in any year, is typically assumed to be functional floodplain.

- 4.2.4 The Sequential Test is not normally required for developments in Flood Zone 1 (i.e. the lowest probability of flooding), unless other flood related issues exist within the area of the development; for example, a critical drainage area.
- 4.2.5 Similarly, a Sequential Test is not required in respect of the intended Planning Application if one has already been undertaken for a development of the type proposed (e.g. a residential development) on the subject site. This may be the case where the site is 'allocated' in the Authorities Local Plan.
- 4.2.6 A Sequential Test is required where both of the following apply:
- The proposed development is in Flood Zone 2 or 3
 - A sequential test has not already been undertaken for a development of the type which is planned.

4.3 Land Use and Development

- 4.3.1 Current guidance accepts that it is not always possible to direct developments into areas of low flood risk and that the type of development/end use materially affects flood risk sensitivity.
- 4.3.2 Table 3 of "Planning Practice Guide – Flood Risk and Coastal Change", reproduced below, provides the outline mechanism for assessing the suitability of a development within a specific Flood Zone.

Reproduction of Table 3 of "Planning Practice Guide – Flood Risk and Coastal Change"					
Flood risk vulnerability classification	Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception Test required	✓	✓
Zone 3a	Exception Test required	✓	x	Exception Test required	✓
Zone 3b	Exception Test required	✓	x	x	x
Key: ✓ Development is appropriate x Development should not be permitted					

- 4.3.3 For guidance, Table 2 of "Planning Practice Guide – Flood Risk and Coastal Change", is reproduced below to illustrate Flood Risk Vulnerability classifications.

Reproduction of Table 2 of "Planning Practice Guide – Flood Risk and Coastal Change"	
Essential Infrastructure	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly Vulnerable	• Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').
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.
Less Vulnerable	• Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non-residential institutions not included in 'more vulnerable'; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).
Water compatible Development	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel workings. • Docks, marinas and wharves. • Navigation facilities. • MOD defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

4.4 The Exception Test

- 4.4.1 The Exception Test may be applied where, following application of the Sequential Test, it is not possible for the development to be located in zones with a lower probability of flooding.
- 4.4.2 For the Exception Test to be passed both of the following conditions must be met:
 - a) It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk; and,
 - b) A site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

5 Local Planning Framework

5.1 Strategic Flood Risk Assessment (SFRA)

- 5.1.1 Initially forming part of the NPPF technical guidance, Planning Policy Statement (PPS) 25: Development and Flood Risk (now revoked) required that local planning authorities prepare a Strategic Flood Risk Assessment (SFRA) in consultation with the Environment Agency (EA). The primary purpose of the SFRA was to determine the variation in flood risk across the district.
- 5.1.2 The technical guidance accompanying NPPF was since replaced by a series of Planning Practice Documents referred to as the Planning Practice Guidance (PPG)¹³. The PPG: Flood Risk and Coastal Change document outlines how LPAs should use a SFRA to:
 - i. Assess the flood risk to an area from all sources, both in the present day, and in the future. The impacts of climate change should be considered when assessing future flood risk;
 - ii. Determine the variations in risk from all sources of flooding across their areas, and also the risks to and from surrounding areas in the same flood catchment;
 - iii. Inform the sustainability appraisal of the Local Plan, so that flood risk is fully taken into account when considering allocation options and in the preparation of plan policies, including policies for flood risk management to ensure that flood risk is not increased;
 - iv. Apply the Sequential Test and, where necessary, the Exception Test when determining land use allocations;
 - v. Identify the requirements for FRAs in particular locations, including those at risk from sources other than river and sea flooding;

- vi. Determine the acceptability of flood risk in relation to emergency planning capability; and,
- vii. Consider opportunities to reduce flood risk to existing communities and developments through better management of surface water, provision for conveyance and of storage for flood water.

5.1.3 In 2010, Halcrow Group Limited produced a Level 1 SFRA for the BDBC. Content relevant to the subject site has been reproduced below:

- i. *'To the north and northeast of Basingstoke, groundwater flooding incidents were recorded in a number of locations including Sherborne St John', and 'these groundwater flooding events were at their most significant in areas underlain by the chalk, and indeed recent research tends to suggest that chalk aquifers are more prone to groundwater flooding than other aquifers'. The relates to groundwater flooding incidents during the winter of 2000/2001.*
- ii. *'As much of the Borough of Basingstoke and Deane is underlain by chalk aquifer, which is particularly susceptible to groundwater flooding, it is recommended that Level 2 SFRAs and FRAs should pay particular attention to the risk of groundwater flooding by assessing historical records and also potential occurrence, even where historical incidents have not been recorded, by taking into account the local geology and information from sources such as the groundwater emergence maps.'*
- iii. *'Surface water arising from Greenfield sites outside of the floodplain should, as far as is practicable, be managed in a manner to mimic surface water flows before the proposed development. Where the redevelopment of Brownfield sites can reduce the risk of flooding to known locations, seek to reduce run-off to better represent greenfield conditions'*

5.1.4 The SFRA (Table 4) includes tabulated localised flooding areas reported in relation to Sherborne St John and in the area of the development site. It is noted that the instances reported do not provide precise locations.

- i. *Flooding in the dip on Vyne Road between Swingate Hill and Smitths Green Cottages Sherborne St John Parish Council (PC) - 30/01/2008*
- ii. *Flooding at entrance to Kiln Road from Elm Road, worsened by drain blockage with leaves and debris. Sherborne St John PC - 30/01/2008*
- iii. *Surface water at north end of long field running from Gales Garage to Cranes Road. Sherborne St John PC - 30/01/2008*
- iv. *Dip at Elm Bottom flooding possibly runoff from field. Sherborne St John PC - 30/01/2008*

v. *Flooding at Cranes Road opposite the junction with Tyfield, worsened by drains blocked with debris. Sherborne St John PC - 30/01/2008*

vi. *Flooding at West End row of cottages opposite Mongers Yard layby, worsened by drains blocked by debris. Sherborne St John PC - 30/01/2008*

5.1.5 The SFRA (Table 7) includes tabulated localised groundwater flooding areas reported in relation to Sherborne St John and in the area of the development site.

i. *12/04/2001 - Sherborne St. John Drive (flooded all winter) now subsiding - Ck/WRB spr. (Spring near boundary between Seaford Chalk and Lambeth Group).*

5.1.6 The SFRA includes maps and drawings which indicate the following:

- i. Historic Flooding - The site is located within an area defined as 'Upstream of Critical Drainage Areas'. This includes much of Sherborne St John. The subject site is not located within areas identified as 'Localised Flooding' or 'Critical Drainage Areas'.
- ii. Potential Risk from Watercourses – The site is not sited within an area indicated to be at risk from watercourses. The existing watercourse located to the east of the development site is identified as forming part of the 'Detailed River Network'.
- iii. Potential Surface Water Flood Risk 1in30 – The eastern periphery of the subject site is in an area identified as having an approximate extent of flooding under a 1:30 year storm scenario with depths in excess of 100mm.
- iv. Potential Surface Water Flood Risk 1in200 – The eastern periphery of the subject site is in an area identified as having an approximate extent of flooding under a 1:200 year storm scenario with depths in excess of 100mm.
- v. Standard Percentage Runoff – The subject site is identified as having a Standard Percentage Runoff (SPR) of 49.6%. As SPR of 49.6% is generally considered to comprise low permeability soils, and therefore is likely that subsequent infiltration rates will be too low for infiltration SuDS to be viable.

5.1.7 Section 11 of the SFRA provides guidance of the application of SuDS within new development sites.

5.2 Hampshire SuDS Guidance

5.2.1 As stated within Section 5.1.7 of this report, the SFRA provides guidance in relation to the application of SuDS.

5.2.2 The document 'Surface Water and Sustainable Drainage Guidance for Developers, Designers and Planners' (available at <https://documents.hants.gov.uk/flood-water->

management/SurfaceWaterandSuDSGuidance-Nov2015.pdf) provides further information pertaining to site-specific FRA requirements in support of planning applications.

6 Miscellaneous References and/or Reports

6.1 Hampshire Groundwater Management Plan Final Draft

- 6.1.1 The above document was produced by Hampshire County Council in 2013.
- 6.1.2 The document notes that *'past flooding from groundwater has been caused both directly as water levels rise above ground level, or indirectly as high groundwater causes flooding of rivers which are dominated by water emerging from aquifers (baseflow). This has been the case in a number of areas of Hampshire, such as Basingstoke and Deane Borough where flooding was mainly due to high groundwater-fed flows on the rivers Test and Loddon causing overtopping of river banks. In addition within this area there have been reports of localised flooding in the upper parts of the Loddon catchment due to high groundwater levels. The characteristic feature of groundwater flooding events is the relatively long duration compared with fluvial flooding.'*
- 6.1.3 Figure 7 from the document, relating to areas susceptible to groundwater flooding, indicates that the Sherborne St John area is identified as being within a 1km² area susceptible to groundwater flood emergence in the range greater than or equal 25%, to less than 50%.

7 Consultation Responses

7.1 Public Sewers/Local Drainage Infrastructure

- 7.1.1 Thames Water (TW) sewer records have been assessed to establish the presence of any recorded public sewers within the vicinity of the development site and to establish any potential locations for foul/surface water discharge.
- 7.1.2 Public Sewer Records illustrate that:
- i. A 450mmØ public surface water sewer is located within the western portion of the site, flowing from south to north, towards Wey Brook.
 - ii. A 225mmØ public foul water sewer is located within the central/eastern portion of the site, flowing from south to north.
 - iii. Existing easements will be applicable to these assets. Any modification of ground levels within the associated easements, or diversion of these assets, will require regulatory approval through Section 185 of the Water Industry Act.
- 7.1.3 A copy of the Thames Water sewer record plan has been included within Appendix 4.

7.2 Environment Agency

7.2.1 The Environment Agency (EA) has been consulted in respect of the proposed development site. Their formal response is included in Appendix 5 and summarised below:

- i. The site lies within Flood Zone 1 and as a result the EA do not hold any detailed flood risk modelling for this location and are unable to provide modelled flood levels and extents for the subject site.

7.2.2 For guidance, publicly available reference material has been reviewed, the content of which is summarised below.

Flood Map for Planning

Present Day

7.2.3 The site is located within Flood Zone 1; that is, an area with a low probability of flooding. Land in Flood Zone 1 is considered as having a less than 1 in 1000 annual probability of flooding from rivers or the sea.

Climate Change Adjusted (2070 to 2125)

7.2.4 The site is located within Flood Zone 1; that is, an area with a low probability of flooding. Land in Flood Zone 1 is considered as having a less than 1 in 1000 annual probability of flooding from rivers or the sea.

7.2.5 Refer to section entitled “The Sequential Test” for definitions of the ‘Flood Map for Planning’ Flood Zones.

Flood Risk from Surface Water

7.2.6 The Environment Agency “Flood Map for Planning” and the “Government Long-Term Flood Risk” maps provide surface water flooding envelopes for the 30 year, 100 year and 1000 year return periods.

7.2.7 The majority of the site is identified as being at “very low” risk of surface water flooding; that is, land assessed as having a less than 1 in 1,000 annual probability of flooding from surface water (<0.1%).

7.2.8 However, a small pocket of ‘low’ risk is apparent in the southeast corner of the site and can be attributed to a low point in the existing site topography. When the effects of climate change are considered, the flood risk envelope marginally increases but remains isolated.

7.2.9 Areas of ‘low’ to ‘high’ risk are present immediately beyond the eastern site boundary associated with surface water features in adjacent land. However, even when the effects of climate change are considered, this flood risk envelope does not encroach into the site.

- 7.2.10 Notwithstanding the above, flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features such as terrain aberrations can greatly affect the chance and severity of flooding.

Groundwater Flood Risk

- 7.2.11 The Government Long-Term Flood Risk” website identifies the site as being located outside of a groundwater flood alert area.

Reservoir/Infrastructure Flood Risk

- 7.2.12 Based upon flood risk mapping, the site is not located within an area depicted as being at risk of flooding from reservoirs.
- 7.2.13 Extracts from the Environment Agency online mapping are included in Appendix 6.

7.3 Lead Local Flood Authority (LLFA)

- 7.3.1 As Lead Local Flood Authority (LLFA), Hampshire County Council was consulted in respect of the proposed development. Their formal response is included in Appendix 5 and summarised below:
- i.* All historic flood information and information on flood water management priority areas is available online.

8 Planning Policy & Compatibility of the Proposed Development

- 8.1 Table 2 of PPG categorises the development proposals as “More Vulnerable”.
- 8.2 Table 3 of PPG indicates that More Vulnerable end uses are compatible with Flood Zone 1.
- 8.3 The site is therefore considered to be compatible with planning policy.

9 Existing Drainage

9.1 Site Specific Existing Drainage

- 9.1.1 A utility survey was not available at the time of writing this report.
- 9.1.2 Existing public sewers are apparent within the subject site boundary – refer to Section 7.1.
- 9.1.3 An existing watercourse is located adjacent to the eastern boundary of the development site.

10 Climate Change and Design Event

10.1 Lifetime of Development

- 10.1.1 A residential development of this type is typically considered to have a design life of 100 years.

10.2 Peak Rainfall Intensity

- 10.2.1 The table below, reproduced from the Department for Environment, Food & Rural Affairs website, outlines the climate change allowances that should be applied to peak rainfall intensity for the Loddon and tributaries Management Catchment.

Annual Exceedance Rainfall Event	Allowance	Total potential change anticipated for the '2050s' (up to 2060)	Total potential change anticipated for the '2070s' (2061 to 2125)
3.3% (1 in 30 years)	Upper end	35%	35%
	Central	20%	25%
1% (1 in 100 years)	Upper end	40%	40%
	Central	20%	25%

- 10.2.2 In respect of climate change allowances, the following selection criteria is utilised:

- i. Development with a lifetime beyond 2100, this includes development proposed in applications or local plan allocations should include an appraisal of upper end allowances. This should include the 1% (100 year) and 3.3% annual exceedance probability events for the 2070s epoch (2061 to 2125), albeit the 1% (100 year) event is likely to define the attenuation requirements.
- ii. Development with a lifetime between 2061 and 2100 should utilise a similar approach but use the central allowance for the 2070s epoch (2061 to 2125).
- iii. Development with a lifetime up to 2060 should use the central allowance for the 2050s epoch (2022 to 2060).

10.3 Peak River Flow/River Flooding Envelope

- 10.3.1 Given the site setting, river flows are not considered necessary for further discussion within this appraisal.

10.4 Design Event

- 10.4.1 Notwithstanding the design life, using the precautionary principal and the anticipated Regulators prescriptive requirements, it is considered appropriate to study the development relative to the 1 in 100 year event, including an uplift of 40% for the effects of climate change, with the surface water drainage design considering the 100 year event.
- 10.4.2 It should be noted that this analysis must determine if the impacts of the 40% allowance are significant and lead to any unacceptable flood risks (it is not normally expected that the site would not flood in this scenario, only that if this storm were to occur the impacts would be minimal). The design may need to be modified to avoid any unacceptable risks, but may also need additional mitigation allowances, for example a higher freeboard on attenuation features and/or provision of exceedance routes.
- 10.4.3 An additional allowance for urban creep may be required during the design process. Normally applied to residential development, urban creep may be requested at the discretion of the LLFA/Planning Authority and influences the surface water drainage design and, in particular, the attenuation requirements.
- 10.4.4 Rainfall Runoff Management for Developments, jointly published by the Department for Environment, Food & Rural Affairs and the Environment Agency, recommends the following:
- “Urban creep is now an acknowledged issue which results in an increase in runoff from an estate over time. An allowance should be made by factoring the impermeability percentage by 1.1 (10% increase)...”*
- 10.4.5 In 2016, the advice in respect of urban creep was expanded upon by the Local Authority SuDS Officer Organisation (LASOO) document entitled “Non-Statutory Technical Standards for Sustainable Drainage: Practice Guide”. The LASOO guidance correlates potential space for future expansion with uplifts in drainage design requirements and is typically directed towards residential development.

11 Potential Sources of Flooding

11.1 General

- 11.1.1 BS 8533: 2011 “Assessing and managing flood risk in development – Code of practice” provides recommendations and guidance the assessment and management of flood risk for proposed development within the UK.
- 11.1.2 Assessment should include an appraisal of risk both to- and from- the development from all sources of flooding, including:
 - i. Tidal and fluvial flooding – flooding from main rivers, ordinary watercourses and the sea.
 - ii. Surface water flooding – flooding from overland flow due to rainfall.
 - iii. Flooding from sewers and drains – flooding from surcharging of below ground drainage systems.
 - iv. Groundwater flooding – flooding related to the water table, where ground water levels rise above surface levels.
 - v. Flooding caused by the failure of infrastructure, such as from reservoir, canal or land drainage infrastructure, usually as a result of catastrophic failure.

12 Flooding Risks to the Development

12.1 Tidal Flood Risk

- 12.1.1 The site is not considered to be at risk of tidal flooding.

12.2 Fluvial Flood Risk

- 12.2.1 According to the Environment Agency “Flood Map for Planning” (see 7.2.3), the site is located within an area considered to be at ‘very low’ risk of flooding from rivers or the sea.
- 12.2.2 The site is not considered to be at risk of fluvial flooding.

12.3 Groundwater Flooding

- 12.3.1 No information pertaining to site-specific groundwater flooding was available at the time of writing this report.
- 12.3.2 Based on the anticipated underlying strata, it is not envisaged that groundwater emergence would pose a significant flood risk to the proposed development.

- 12.3.3 However, the inferred interface between the Lambeth Group and Seaford Chalk Formation is situated in close proximity (approximately 100m based on BGS mapping data) to the development site. Therefore, an elevated risk of groundwater emergence may be apparent in areas surrounding the development site.
- 12.3.4 Site-specific groundwater monitoring is currently ongoing to assess the groundwater levels and the implications of groundwater to the site. Results are expected to be available in February 2026.

12.4 Pluvial Flood Risk

- 12.4.1 According to the Environment Agency “Flood Risk from Surface Water” map (see 7.2), the development site is located predominantly within an area of very low flood risk.
- 12.4.2 Areas of ‘low’ to ‘high’ risk are present immediately beyond the eastern site boundary associated with surface water features in adjacent land. However, even when the effects of climate change are considered, this flood risk envelope does not encroach into the site.
- 12.4.3 A small pocket of ‘low’ risk is apparent in the southeast corner of the site and can be attributed to a low point in the existing site topography. When the effects of climate change are considered, the flood risk envelope marginally increases but remains isolated.
- 12.4.4 The current development proposals indicate that Plot 14 will be located within this area of the site and, as such, it is considered to be at risk of pluvial flooding.
- 12.4.5 Mitigation measures will be required in order to be compatible with planning objectives. It is considered likely that the identified flood risk can be removed through detailed levels design and the installation of a new drainage network to intercept runoff and prevent ponding.

12.5 Sewer Flooding

- 12.5.1 Thames Water sewer flooding records were not available during the writing of this report.
- 12.5.2 There are recorded public sewers within close vicinity to, and within the development site.
- 12.5.3 Existing sewer records indicate that the access road located adjacent to the western site boundary benefits from a formal surface water drainage system; draining surface water from the road surface.
- 12.5.4 It is not anticipated that the site is at risk of flooding from sewers.

12.6 Infrastructure/Reservoir Flood Risk

- 12.6.1 According to the Environment Agency “Reservoir Flood Risk” map (see 7.2.14), the development site is located within an area of very low flood risk.

13 Effect of Development on Flooding & Design Inclusions

13.1 Surface Water Drainage

- 13.1.1 Given the clay nature of the soils encountered on site, conventional soakaway drainage is not considered to be viable and, as such, no infiltration testing has been undertaken.
- 13.1.2 It is anticipated that the proposed surface water drainage system will discharge from the site to the Wey Brook, an ordinary watercourse located approximately 120m to the north of the proposed development.
- 13.1.3 The site is a greenfield development. Potential exists for design inclusions (e.g. flow controls and attenuation) to manage the discharge from the site and mitigate offsite impacts.
- 13.1.4 Section 14 provides additional guidance and commentary on surface water drainage, assuming a positive connection to the surrounding drainage network is necessary.
- 13.1.5 Notwithstanding the above, appropriate and management system will require consideration of discharge in terms of:
 - i.* Rate
 - ii.* Quantity
 - iii.* Quality
- 13.1.6 Assuming on-parcel drainage is designed:
 - i.* In accordance with good practice;
 - ii.* To attenuate reduced brownfield flows/proposed greenfield flows, and;
 - iii.* To accommodate the 1 in 100 year plus 40% (for climate change) event;the development will not have an adverse impact on surface water drainage.

13.2 Foul Water Drainage

- 13.2.1 The detailed design of foul water drainage is outside of the scope of this assessment.
- 13.2.2 It is anticipated that the proposed foul water drainage system will discharge to the existing public foul sewer currently crossing the subject site.
- 13.2.3 It should be noted that all connections to the public sewer, whether made directly to the sewer or indirectly via existing pipework, can only be legally made with the permission of the Undertaker. Such permission will not be given where this presents an unacceptable risk

to the receiving sewer. Where there is insufficient capacity, the applicant may be required to contribute to public sewer reinforcements.

13.2.4 Assuming on-parcel drainage is designed:

- i.* In accordance with good practice; and,
- ii.* To discharge flows to the existing public sewer surrounding the site; the proposed works are not considered likely to adversely impact on offsite flood risk as a result of foul water drainage.

13.3 Overland Flows

- 13.3.1 Based upon publicly available resources (i.e. the EA “Flood Risk from Surface Water” map), the site is not inferred to be located within an identified overland flow route(s).
- 13.3.2 Surface water (i.e. pluvial) flooding is apparent in the southeast corner of the site. This flooding can be attributed to surface runoff ponding in a low point in the terrain. Proposed levels will be designed to remove this low point and contributing flows originating from the west will be intercepted by the proposed drainage network.
- 13.3.3 Exceedance flows will be directed through the proposed access roads, around dwellings and away from building entrances.

13.4 Existing Sewers

- 13.4.1 Measures to mitigate the conjectural flood risk (albeit, inferred to be a low risk) associated with existing sewers should be as overland flows plus:
- i.* Use of non-return valves to prevent water ‘backing up’ and impacting sensitive areas.
- 13.4.2 Foul water drainage is typically the most sensitive due to pop-ups being inside of buildings. However, where rainwater pipes are internal, or other areas are appraised as being sensitive during the detailed design, non-return valves may also be appropriate within the proposed surface water drainage system.

13.5 Floodplain/Displacement of Floodwaters

- 13.5.1 The development parcel lies within the Flood Zone 1 and is at low risk of flooding (less than 1 in 1000 annual probability of flooding).
- 13.5.2 Floodplain compensation is not considered necessary for developments located within Flood Zone 1.

13.6 Means of Access/Egress

- 13.6.1 This area is within Flood Zone 1 and would not be considered to pose any issues with respect to access to the proposed development.

13.7 Groundwater

- 13.7.1 At the time of writing this report, no intrusive survey information pertaining to ground water was available. However, a programme of groundwater monitoring is currently ongoing to establish water levels and to allow an assessment of groundwater flood risk across the site.
- 13.7.2 The results may influence build techniques, basement detailing and the selection and design of surface water disposal solutions.
- 13.7.3 Published information suggests that the site is not likely to impact upon groundwater, as infiltration features are considered to be unviable.

13.8 Flood Resistant/Resilient Construction

- 13.8.1 The site is located within an area at low risk of fluvial flooding.
- 13.8.2 No flood resilient/resistant measures are anticipated.

14 Surface Water Drainage Strategy

14.1 Preface

- 14.1.1 The management and/or disposal of surface water is a material planning matter.
- 14.1.2 Building Regulations (Part H) and other contemporary guidance requires that surface water should be disposed according to the following hierarchy:
- i.* Infiltration to the ground
 - ii.* Discharge to a local watercourse
 - iii.* Discharge to the local sewerage network
- 14.1.3 Given the clay nature of the soils encountered on site and the soluble rock risk within the underlying clay layers, infiltration drainage systems are not considered viable.
- 14.1.4 It is proposed to discharge the proposed surface water drainage system into an existing watercourse located along the eastern site boundary. Consent to discharge to the existing watercourse will be required from the Lead Local Flood Authority (Hampshire County Council).

14.2 Sustainability: Discharge Rate

- 14.2.1 Given that the site is greenfield, it is anticipated that the Regulators will require runoff from the proposed development to be restricted to greenfield rates as far as possible for all events up to and including the climate adjusted 1 in 100 year (1% AEP) design event.
- 14.2.2 The UK SuDS online Greenfield Runoff Rate Estimation Tool has been used to estimate the greenfield runoff rate using the IH124 methodology, based upon the permeable and impermeable catchment areas contributing to the proposed surface water network. The results are summarised in the table below:

Period	Greenfield Rate (l/s) *
Qbar	3.3
1 year	2.8
30 year	7.5
100 year	10.4
*Based on total catchment area of 0.64 ha Impermeable catchment areas include a 10% uplift for urban creep	

- 14.2.3 Refer to Appendix 7 for reproductions of the Surface Water Catchment Plan (ref. C3701-DS003) and Greenfield runoff calculations.

14.3 Sustainability: Discharge Volume

- 14.3.1 In the absence of infiltration, where the drained area increases the volume of water disposed off-site will also increase. Given that the site is currently greenfield, the development will lead to an increase in drained area.
- 14.3.2 Controlling the volume of runoff from the site can be a significant matter when considering offsite flood risks.
- 14.3.3 LLFAs typically require:
- Discharge rates to mimic existing greenfield runoff rates of the 1:1 year, 1:30 year and 1:100 year storm events as long as long-term storage is utilised for flow volumes in excess of the greenfield volume for the 1:100 year 6-hour event.
 - The long-term storage volume must discharge at a rate no greater than 2 l/s/ha and the total flow rate must not exceed the 1:100 year greenfield flow rate.
 - If long-term storage is not designed for, Qbar should be applied to all events.

- 14.3.4 Using the precautionary principle, it is assumed that discharge will be restricted Qbar for all events (i.e. simple controls used). Where this is the case, the LLFA's requirements are likely to be achieved without significant additional consideration to long term attenuation. However, this assertion should be verified, and remedied if appropriate, during the detailed drainage design process.

14.4 Sustainability: Discharge Quality

- 14.4.1 The management of water quality is a significant issue, and it is envisaged that measures will be required.
- 14.4.2 CIRIA C753 "The SuDS Manual" provides guidance of treatment measures (also known as the treatments train) required to offset contaminant and sediment loads.
- 14.4.3 Permeable surfacing, green/blue roofs, filter strips and basins provide treatment and should be incorporated wherever practicable.
- 14.4.4 A detailed drainage strategy has been prepared, which is outlined within Section 15 of this report.
- 14.4.5 As discussed in Section 14.1, the use of infiltration SuDS within the site is considered to be unviable, owing to the underlying geology encountered on site.
- 14.4.6 Above ground, surficial SuDS such as swales, ponds or detention basins are considered feasible within the proposed layout.
- 14.4.7 The proposed building will likely comprise pitched roofs, which preclude the use of green or blue roofs.
- 14.4.8 Surface water collection features (i.e. gullies and linear drains etc.), where required, will be provided with silt traps, to mitigate silts entering the downstream drainage network.
- 14.4.9 It is proposed that any required surface attenuation will be provided within a detention/attenuation basin. The basin will be lined with an impermeable membrane to prevent any potential transfer of pollutants to groundwater.
- 14.4.10 In accordance with CIRIA C753 The SuDS Manual, the simple index approach can be utilised to establish that suitable water quality treatment and pollution mitigation will be provided by the proposed SuDS.

- 14.4.11 Firstly, suitable pollution hazard indices should be allocated. The SuDS specific pollution mitigation indices will be required to equal, or exceed, the pollution hazard indices. The simple index assessment has been tabulated below:

Land Use	Pollution hazard level	Total suspended solids	Metals	Hydrocarbons
Low traffic roads, residential car parks, driveways	Low	0.5	0.4	0.4

- 14.4.12 All surface water flows are proposed to be routed through the detention basin, prior to discharge off site.
- 14.4.13 It is demonstrated below that a detention basin can suitably mitigate the anticipated pollution index of areas draining into the proposed drainage system.

Contaminants	Total suspended solids	Metals	Hydrocarbons
Pollution hazard indices	0.5	0.4	0.4
Detention Basin mitigation index	0.5	0.5	0.6
Residual pollution indices	0	-0.1	-0.2

14.5 Surface Water Strategy

- 14.5.1 External areas and highways will generally be drained by trapped gullies and linear drains.
- 14.5.2 All surface water drainage emanating from the site will be routed through the detention basin. The detention basin is anticipated to be located towards the north-eastern boundary of the development site, subject to detailed design.
- 14.5.3 A vortex flow control device will be provided to restrict flows to 3.3 l/s maximum, prior to discharging to the Wey Brook, an ordinary watercourse located approximately 120m to the north of the proposed development.
- 14.5.4 A copy of the drainage strategy and hydraulic calculations has been included within Appendix 7.

14.6 Exceedance Flow Routes

- 14.6.1 In the event that a failure of the proposed surface water drainage system occurs, it should be demonstrated that such failures would not lead to flooding on or off the site and would be contained on the site in suitable locations.
- 14.6.2 According to topographical data, site topography falls consistently from west to east.

- 14.6.3 Should exceedance flows occur at the subject site, then overland flows would be:
- i.* Routed through proposed access roads and external areas (which would generally be elevated above surrounding highway/external levels).
 - ii.* Attenuated within any 'freeboard' element of the detention basin located towards the eastern boundary of the site.
 - iii.* Routed to the existing surface water features located immediately adjacent to the eastern site boundary.
- 14.6.4 An Overland Flow Plan (ref. C3701-DS002) has been produced to illustrate the above and is included in Appendix 7 of this report.

14.7 Operation and Maintenance

- 14.7.1 The long-term efficacy of any installed drainage system will be compromised by a lack of maintenance.
- 14.7.2 During the detailed design stage, consideration should be given to the maintenance of any proposed system. It is recommended that a drainage maintenance regime is developed and provided in an "Operation and Maintenance Manual" for the scheme.
- 14.7.3 The maintenance regime should conform to the requirements set out within CIRIA C753 The SuDS Manual.
- 14.7.4 Refer to Appendix 8 for typical inclusions.

15 Foul Water Drainage Strategy

- 15.1 It is anticipated that proposed foul water drainage emanating from the development site will discharge to the existing public foul sewer crossing the subject site.
- 15.2 The invert levels of the existing foul system should be clarified, to determine if a gravity outfall is achievable. Pumping may be required, subject to final detailed design and confirmation of the existing sewer details.
- 15.3 Based on approximately 26 dwellings, the design flow for gravity flows from the site is anticipated to be 1.2 l/s (based on 4000l/dwelling/day as outlined within Sewers for Adoption). Should pumping be required, it is anticipated that a flow rate of in the region of 4 l/s would be generated.
- 15.4 It is recommended that approval from Thames Water is sought to clarify that the existing sewerage network has capacity to accommodate new foul flows from the development.
- 15.5 A copy of the drainage strategy for the site has been included within Appendix 7.

16 Further Actions

16.1 Groundwater Monitoring

- 16.1.1 At the time of writing, groundwater monitoring was still ongoing at the site.
- 16.1.2 Knowledge of the groundwater regime will assist in the design/construction process; for example, by identifying the requirements for dewatering, and to substantiate any groundwater flood risk relevant to the development.

16.2 Sewerage Undertaker - Thames Water

- 16.2.1 The sewerage undertaker should be contacted in order to formally confirm discharge constraints and network capacity, where a connection is proposed.
- 16.2.2 Further survey work (topographical, sonde and CCTV etc.) of the existing public sewer levels and details should be undertaken in order to ascertain the appropriate easements and protection measures required where such sewers pass through the development site and also to confirm the feasibility of a gravity foul drainage solution and the proposed diversion.
- 16.2.3 Additional, unrecorded, existing connections to the public sewer may be apparent within the site boundary that require diversion.

16.3 Lead Local Flood Authority (LLFA) - Hampshire County Council

- 16.3.1 An ordinary watercourse consent will be required for construction of an outfall to the watercourse.

16.4 Design Co-ordination

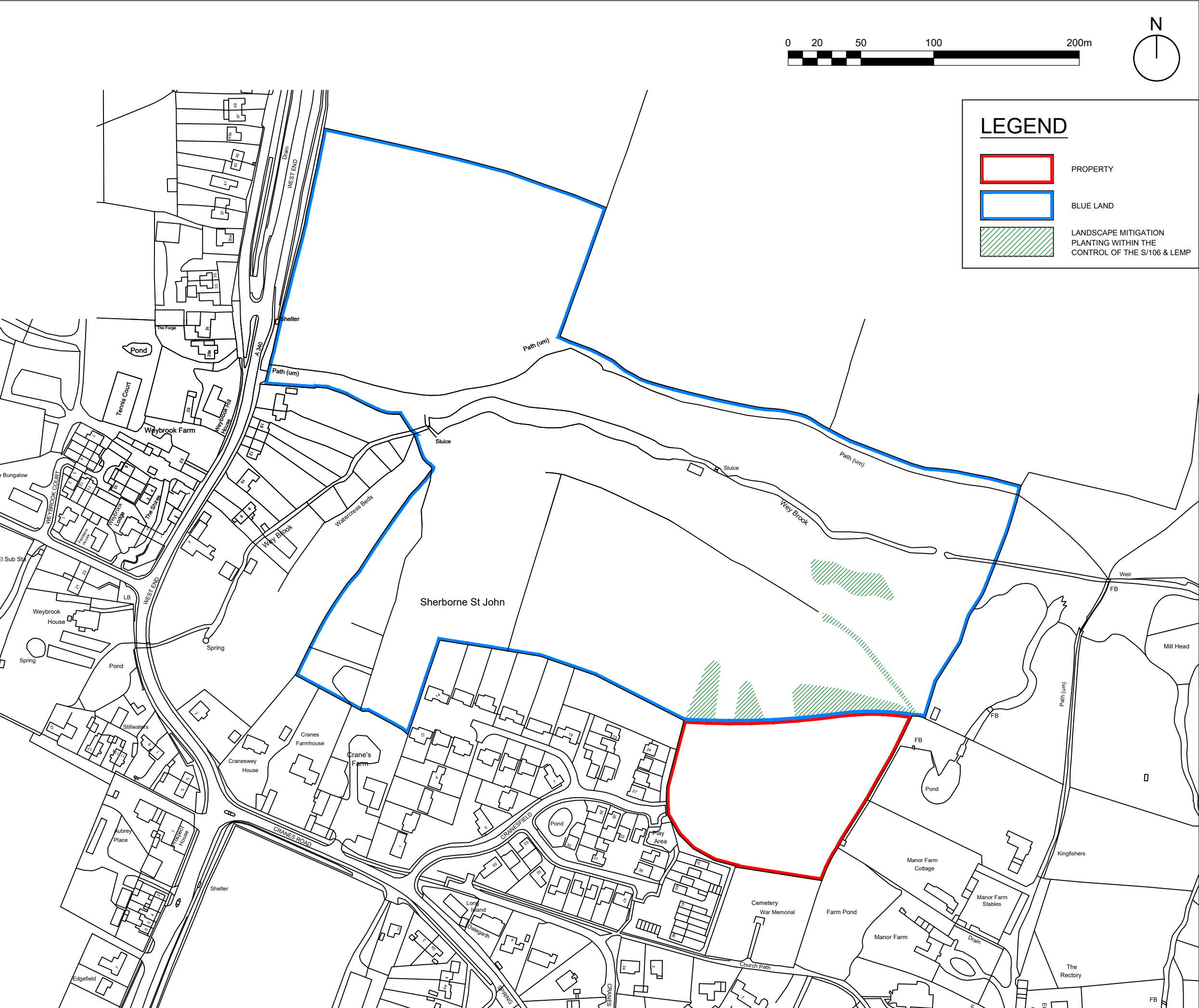
- 16.4.1 The management of surface water will require the provision of significant resources, each with their own constraints; for example, legal easements and access for maintenance/maintenance equipment.
- 16.4.2 It is recommended that the provision of drainage is considered during the evolution of the detailed design to ensure that an appropriate compromise between cost, performance and environmental responsibility can be provided.

17 Conclusions

- 17.1 This Flood Risk Assessment has been prepared in support of a detailed planning application for a proposed residential development on land at Cranesfield in Sherborne St John, Basingstoke.
- 17.2 Based upon its end use as a residential estate, the proposed development is classified as More Vulnerable.
- 17.3 The proposed development lies within an area categorised as Flood Zone 1; that is, an area with a low probability of flooding from rivers or the sea.
- 17.4 Planning Policy Guidance considers More Vulnerable uses within Flood Zone 1 as being appropriate.
- 17.5 The site is not considered to be at significant risk of flooding from the failure of reservoirs or infrastructure, fluvial flooding or sewer flooding.
- 17.6 According to the Environment Agency “Flood Risk from Surface Water” map (see 7.2), the development site is located predominantly within an area of very low flood risk. However, a small pocket of ‘low’ risk is apparent in the southeast corner of the site and can be attributed to a low point in the existing site topography.
- 17.7 The current development proposals indicate that Plot 14 will be located within this area of the site and, as such, it is considered to be at risk of pluvial flooding.
- 17.8 Mitigation measures will be required in order to be compatible with planning objectives. It is considered likely that the identified flood risk can be removed through detailed levels design and the installation of a new drainage network to intercept runoff and prevent ponding.
- 17.9 Given the clay nature of the soils encountered on site and the soluble rock risk within the underlying clay layers, infiltration drainage systems are not considered viable.
- 17.10 The site is greenfield, and current national guidance recommends that proposed surface water discharge should mimic pre-development greenfield rates.
- 17.11 For the purpose of this assessment:
 - i. The design life of the proposed development is 100 years.
 - ii. The design event is the 100 year plus 40% event for surface water drainage.
- 17.12 A drainage strategy has been produced for the development.

Flood Risk Assessment

Appendix 1 ■ Site Location Plan



Rev. Description Date By

Land at Cranesfield
Sherborne St John

Location Plan

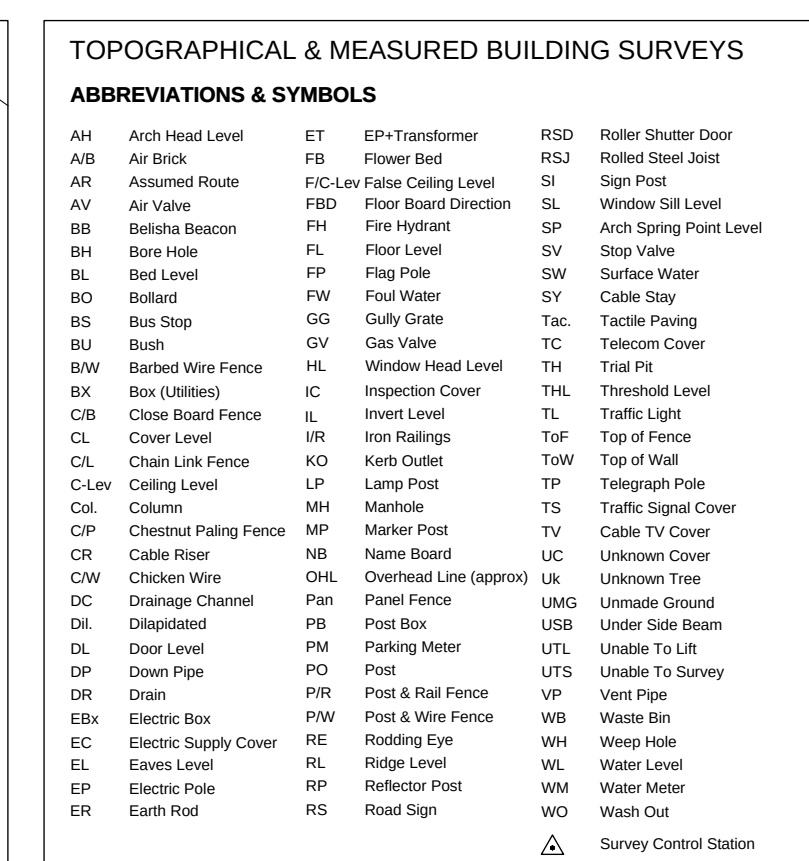
DWG N° H0123-FA-01
Rev.
Date 24/02/2025
Drawn by SM
Scale 1:2,500 @ A3



B.Yond Homes Ltd
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RH18 5HE
Tel: 01342 825 151
E-mail: design@byondhomes.co.uk

Flood Risk Assessment

Appendix 2 ▪ Topographical Survey



The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

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SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

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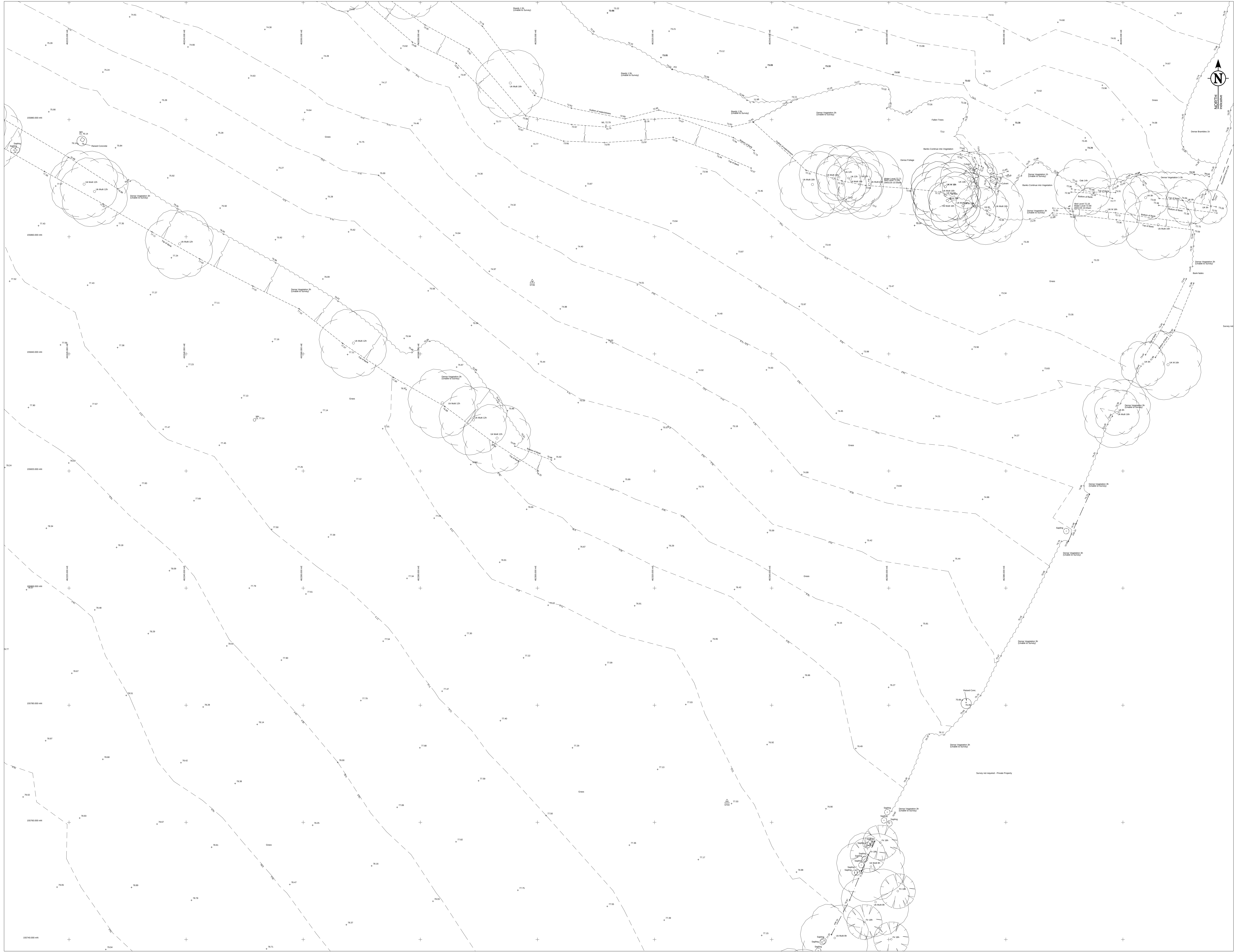


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TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

AA	Arch Head Level	ET	EP-Transformer	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street
AB	Arch Base	ET	Electric Street	ESD	Electric Street

TOPOGRAPHICAL SURVEYS

These are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level. All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including, size, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Surveyed physical features may not necessarily represent the legal boundary.

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

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This drawing should only be scaled using digital methods.

SURVEY CONTROL CO-ORDINATES

STATIONS	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION
ST01	462091.451	15677.815	81.790	PK Nail
ST02	462151.344	156702.353	80.644	PK Nail
ST03	462226.686	156668.067	79.058	Peep and Nail
ST04	462352.382	156763.509	77.166	Peep and Nail
ST05	462152.287	156618.070	78.714	Peep and Nail
ST06	462299.112	156852.300	74.901	Peep and Nail

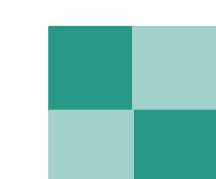
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A	Detail added to north of the site	HG	ADK	15/02/25
REV	DESCRIPTION	DRAWN	APPR	DATE



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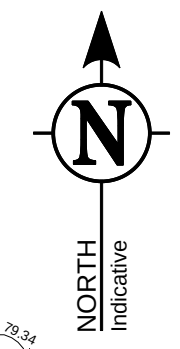
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PROJECT TITLE CRANESFIELD, SHERBORNE ST JOHN, BASINGSTOKE, RG24 3LN			
DRAWING DETAIL TOPOGRAPHICAL SURVEY Sheet 3 of 6			
CLIENT B.YOND HOMES LTD		SCALE 1:200	
SURVEYOR PC	SURVEY DATE 15/02/25	CHECKED BY HG	APPROVED BY ADK
DRAWING NUMBER 74301BWLS-03	REVISION A	ISSUE DATE 03/02/2025	DWG STATUS FINAL



Logos for Survey Solutions, CIPR, and other associated organizations.



AA	Alphabet	ET	E=Transformer	RS	Risk	Risk	Risk
AB	Abacus	AC	Account	SD	Standard	SD	Standard
AD	Adapt	AE	Adjusted	SI	Sign	SI	Sign
AE	Adjusted	AF	After	SL	Slip	SL	Slip
AF	After	AG	Against	SM	Small	SM	Small
AG	Against	AI	Artificial	SN	Snake	SN	Snake
AI	Artificial	AL	Aluminum	SO	Soft	SO	Soft
AL	Aluminum	AM	Amount	SP	Spring	SP	Spring
AM	Amount	AN	Answer	SR	Stress	SR	Stress
AN	Answer	AO	As	ST	Steel	ST	Steel
AO	As	AP	Appl	TA	Tail	TA	Tail
AP	Appl	AR	Area	TE	Teach	TE	Teach
AR	Area	AS	Assess	TF	True	TF	True
AS	Assess	AT	At	TH	Threat	TH	Threat
AT	At	AV	Available	TI	Time	TI	Time
AV	Available	AW	Awake	TL	Travel	TL	Travel
AW	Awake	AX	Axis	TM	Tool	TM	Tool
AX	Axis	AY	Again	TO	Top	TO	Top
AY	Again	BA	Back	TR	Trust	TR	Trust
BA	Back	BB	Bank	TS	Trust	TS	Trust
BB	Bank	BC	Bank	TT	True	TT	True
BC	Bank	BD	Bank	TV	Travel	TV	Travel
BD	Bank	BE	Bank	TX	Travel	TX	Travel
BE	Bank	BF	Bank	TY	Travel	TY	Travel
BF	Bank	BG	Bank	UZ	Under	UZ	Under
BG	Bank	BH	Bank	VA	Vain	VA	Vain
BH	Bank	BI	Bank	VB	Vain	VB	Vain
BI	Bank	BJ	Bank	VC	Vain	VC	Vain
BJ	Bank	BK	Bank	VD	Vain	VD	Vain
BK	Bank	BL	Bank	VE	Vain	VE	Vain
BL	Bank	BM	Bank	VF	Vain	VF	Vain
BM	Bank	BN	Bank	VG	Vain	VG	Vain
BN	Bank	BO	Bank	VH	Vain	VH	Vain
BO	Bank	BP	Bank	VI	Vain	VI	Vain
BP	Bank	BQ	Bank	VJ	Vain	VJ	Vain
BQ	Bank	BR	Bank	VK	Vain	VK	Vain
BR	Bank	BS	Bank	VL	Vain	VL	Vain
BS	Bank	BT	Bank	VM	Vain	VM	Vain
BT	Bank	BU	Bank	VN	Vain	VN	Vain
BU	Bank	BV	Bank	VO	Vain	VO	Vain
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BX	Bank	BY	Bank	VR	Vain	VR	Vain
BY	Bank	BZ	Bank	VS	Vain	VS	Vain
BZ	Bank	CA	Bank	VT	Vain	VT	Vain
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CB	Bank	CC	Bank	VV	Vain	VV	Vain
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Topographical Surveys

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including; sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting

Surveyed physical features may not necessarily represent the legal boundary line.

General

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

before copying or using the data other than for the purpose it was originally supplied.

The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.000.

To avoid discrepancies within the survey, adding to the survey or setting out points from the survey, any coordinated data must be directly derived from the original

A	Detail added to north of the site	HG	ADK	05/02/25
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CLIP (5)



IPSWICH / BEDFORD / BIRMINGHAM / COVENTRY / CRAWLEY / GLASGOW / LEEDS / LONDON CENTRAL /
LONDON EAST / MANCHESTER / NEWCASTLE / NORWICH / NOTTINGHAM / THAMES VALLEY

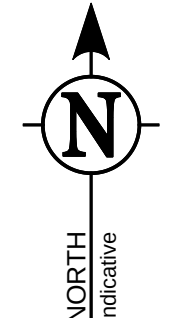
PROJECT TITLE
CRANESFIELD, SHERBORNE ST JOHN,
FARNHAM, SHERBORNE ST JOHN

TOPOGRAPHICAL SURVEY
Sheet 4 of 6

B. FOND HOMES LTD				A.200
SURVEYOR	SURVEY DATE	CHECKED BY	APPROVED BY	DWG STATUS

74301BWLS-04	A	03/02/2025
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[illegible]

Topographical Surveys

All building names, descriptions, number of storeys, construction type incl roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these have including; sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to start work.

Surveyed physical features may not necessarily represent the legal boundary.

The contractor must check and verify all site and building dimensions, level, utilities and drainage details and preparations prior to commencing work.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

This drawing should only be scaled using digital methods.

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) National Grid at multiple points using GNSS with a scale factor of 1.000 000 000.

The level datum established for this survey is related to Ordnance Survey (OS) using GPS Smartnet.

To avoid discrepancies within the survey, adding to the survey or setting out from the survey, any coordinated data must be directly derived from the original survey control. Survey Solutions are not responsible for any third-party adding survey data to the existing information.

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DRAWING DETAIL
TOPOGRAPHICAL SURVEY
Sheet 5 of 6

Flood Risk Assessment

Appendix 3 ■ Development Proposals



Rev.	Description	Date	By
1	Initial Design	10/10/2023	SM
2	Revised Design	15/10/2023	SM
3	Final Design	20/10/2023	SM

Land at Cranesfield,
Sherborne St John

Basingstoke
Hampshire
RG24 9LN

Site Layout

DWG N° H0123-FA-02
Rev. /

Date
Drawn by SM
Scale 1:500 @ A2

Manor Farm Cottage

Cemetery

War Memorial

Farm Pond

Play Area

Field Gate for Maintenance Access

Trim Trail

Attenuation Basin

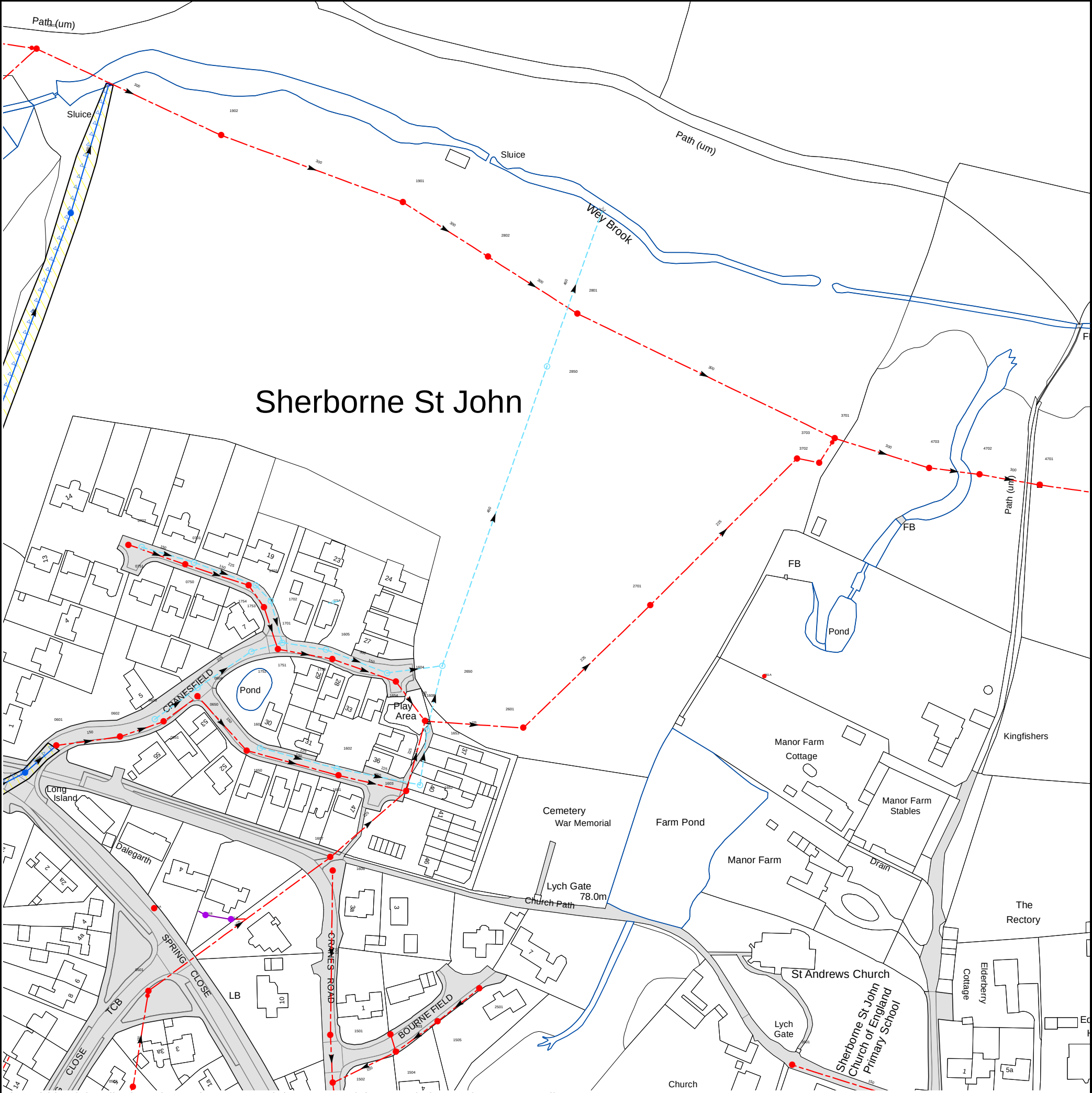
FB

Port

BYOND
HOMES

B.Yond Homes Ltd
Luxford Place
Lower Road
Forest Row
East Sussex
RH18 5HE
Tel: 01342 825 151
E-mail: design@byondhomes.co.uk

Appendix 4 Thames Water Sewer Records



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 462250,155750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3702	76.8	75.03
3701	76.33	73.07
4703	74.58	72.98
4702	74.74	72.89
4701	75	72.79
3501	78.79	77.72
1653	79.96	77.97
2601	n/a	n/a
1608	n/a	n/a
361A	n/a	n/a
2650	79.72	77.05
2701	n/a	n/a
1505	78.48	78
2501	78.82	78.23
1502	78.4	77.46
1504	78.54	77.75
1501	78.49	77.57
1503	78.58	77.99
151A	n/a	n/a
051B	n/a	n/a
1606	79.78	77.93
1607	n/a	n/a
1603	80.14	77.87
1652	n/a	n/a
1602	80.77	79.34
1651	80.66	78.93
1601	81.46	79.95
1650	81.36	79.51
0650	81.71	79.97
1604	80.22	78.61
1654	80.3	78.06
1605	80.64	79.11
1752	81.33	79.52
1750	80.71	78.68
1701	81.04	79.52
1751	81.04	79.01
1702	80.96	79.68
171A	n/a	n/a
1753	81.08	79.33
1703	81.18	79.77
1754	81.21	79.55
0901	76.58	74.3
n/a	n/a	n/a
1902	75.76	74.14
1901	76.1	73.79
2802	76.13	73.53
2850	n/a	n/a
2801	76.12	73.32
3703	n/a	n/a
0502	n/a	n/a
0501	81.79	79.39
051A	n/a	n/a
n/a	n/a	n/a
0601	82.9	81.5
0602	82.53	81.1
0603	82.17	80.74
0651	82.25	80.47
0604	81.74	80.39
0701	81.46	80
0750	81.42	79.79
0751	81.62	80.01
0702	81.67	80.27
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Trunk Surface Water
	Trunk Foul
	Storm Relief
	Trunk Combined
	Vent Pipe
	Bio-solids (Sludge)
	Proposed Thames Surface Water Sewer
	Proposed Thames Water Foul Sewer
	Gallery
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Sludge Rising Main
	Proposed Thames Water Rising Main
	Vacuum

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or 'D' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer		Surface Water Sewer
	Combined Sewer		Gully
	Culverted Watercourse		Proposed
			Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Flood Risk Assessment

Appendix 5

- Environment Agency Consultation Response
- Lead Local Flood Authority Consultation Response

Callum Jeffrey

From: Enquiries_THM <enquiries_THM@environment-agency.gov.uk>
Sent: 14 February 2025 16:33
To: Callum Jeffrey
Subject: THM396651_DC C3701 - Sherborne St John - Flood Risk

Dear Callum

Reference: THM396651

Thank you for your email requesting Product 4 data.

The site lies within flood zone 1 and as a result we do not have any detailed flood risk modelling in this location. Therefore we are unable to provide modelled flood levels and extents for your site.

You can access our flood map for planning on our website:

<https://flood-map-for-planning.service.gov.uk/>

You can find more information on the long term risk of flooding for this location on our website:

<https://flood-warning-information.service.gov.uk/long-term-flood-risk>

You can find recorded flood outlines for this location via the link below:

<https://data.gov.uk/dataset/recorded-flood-outlines1>

You can find out the risk of flooding from surface water for this location via the link below:

<https://data.gov.uk/dataset/d5ca01ec-e535-4d3f-adc0-089b4f03687d/risk-of-flooding-from-surface-water-suitability>

You may be interested in the following guidance / information publicly available:

- **‘Planning Practice Guidance’** - provides information about planning considerations in areas at risk of flooding. <https://www.gov.uk/government/collections/planning-practice-guidance>
- **‘Planning applications: assessing flood risk’** - information about completing Flood Risk Assessments. <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>
- **‘Site specific flood risk assessment: Checklist’** – a checklist to help ensure you have considered all the relevant factors in your flood risk assessment. <https://www.gov.uk/guidance/flood-risk-and-coastal-change#Site-Specific-Flood-Risk-Assessment-checklist-section>
- **‘Using modelling for flood risk assessments’** – provides information regarding the use of modelling in flood risk assessments when applying for planning permission. <https://www.gov.uk/guidance/using-modelling-for-flood-risk-assessments>

Please be aware that from 20th July 2021 the climate change allowances required in flood risk assessments have been updated. Please see <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#contents> for more information.

I hope that we have correctly interpreted your request. Please refer to our Open Government Licence for the permitted use of the supplied data: <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Please be aware that many of our datasets are now available online. Simply visit environment.data.gov.uk

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely

Dawn Cooper
Customers & Engagement Officer
Tel: 020 302 59804

Environment Planning & Engagement Team
Environment Agency
Thames Area

Did you know that the Environment Agency publishes most of its data via www.data.gov.uk? Using this site you can search for our data alongside other environmental data providers from the Defra Network and local authorities.

Follow us on:-



From: Callum Jeffrey <Callum.Jeffrey@hspconsulting.com>
Sent: 03 February 2025 11:25
To: Enquiries_THM <enquiries_THM@environment-agency.gov.uk>
Subject: THM396651_DC C3701 - Sherborne St John - Flood Risk

Dear Sir/Madam

Could you please provide details of Product 4 & Product 8 (Breach Hazard/Analysis) flood risk mapping for a site we are currently looking at.
The site is located at the following address:

Cranesfield
Sherborne St John
Basingstoke
Hampshire
RG24 9LN

Approximate coordinates for the centre of the site are E462250, N155690. A site location plan is attached for reference.

Callum Jeffrey

From: Flood & Water Management <fwm@hants.gov.uk>
Sent: 03 February 2025 12:09
To: Callum Jeffrey
Subject: RE: C3701 - Sherborne St John - Flood Risk



IRONSCALES couldn't recognize this email as this is the first time you received an email from this sender
fwm@hants.gov.uk

Thank you for your enquiry. All our historic flood information and information on flood water management priority areas is now available online here:

[Flood risk information in Hampshire | Environment | Hampshire County Council.](#)

Kind regards

Philippa Booth
FWM Support Officer

**Universal Services,
The Castle, Winchester, Hampshire, SO23 8UD.**

Email: fwm@hants.gov.uk



Hampshire
County Council



Hampshire
Services

ENVIRONMENT AND PLANNING

From: Callum Jeffrey <Callum.Jeffrey@hspconsulting.com>
Sent: 03 February 2025 11:27
To: ETE Traded Services External ID <Shared.Expertise@hants.gov.uk>
Subject: C3701 - Sherborne St John - Flood Risk

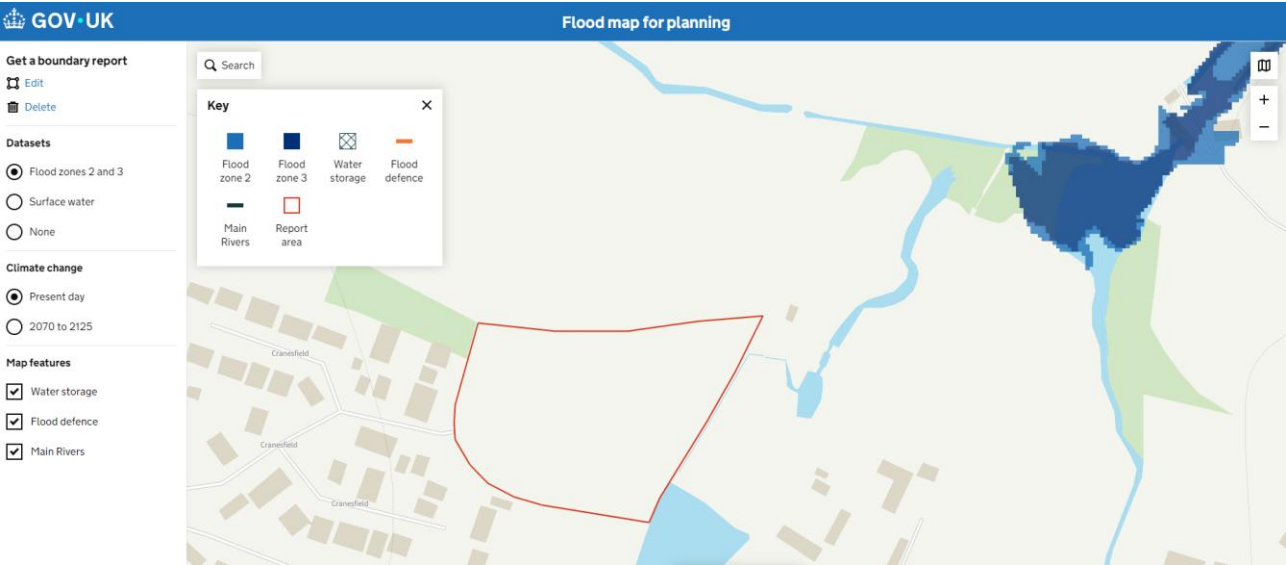
Flood Risk Assessment

Appendix 6

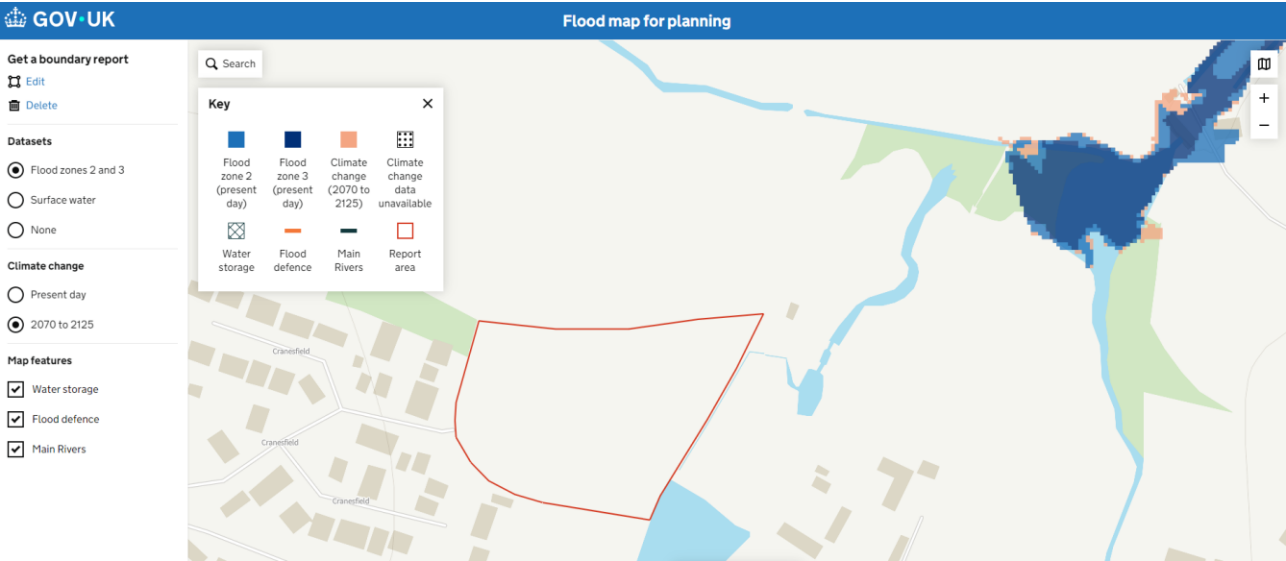
- EA Flood Map for Planning
- EA Long-term Flood Risk Mapping Extracts

FLOOD MAP FOR PLANNING

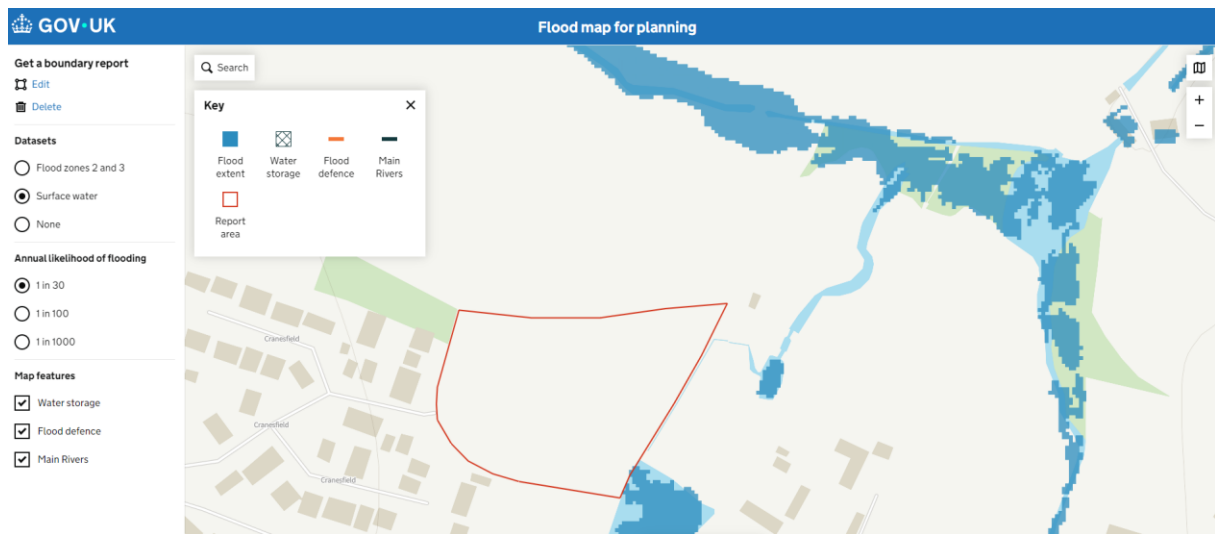
Flood Zones (Present Day)



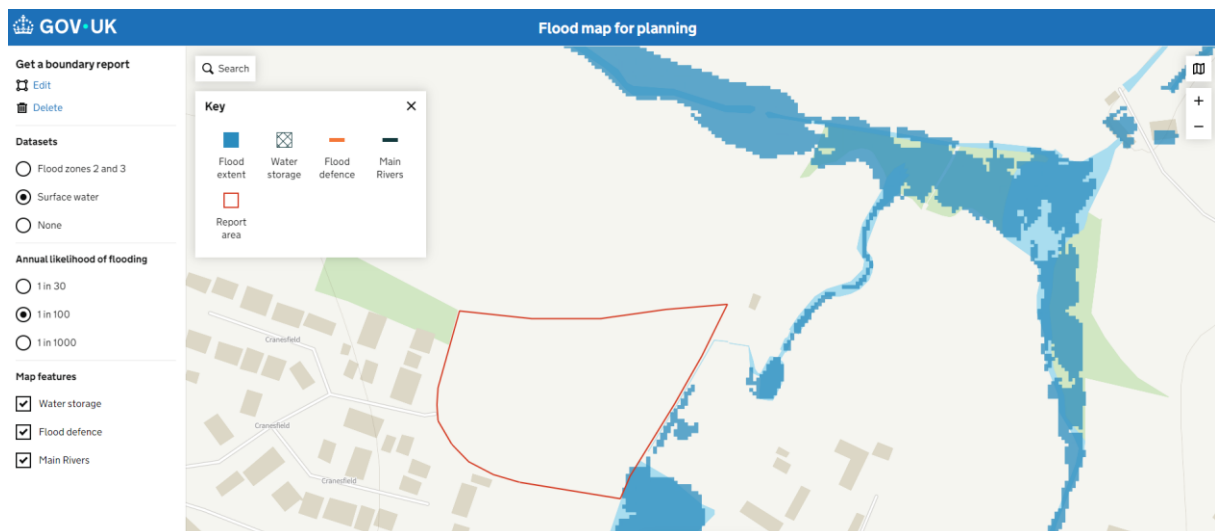
Climate Adjusted Flood Zones (2070 to 2125)



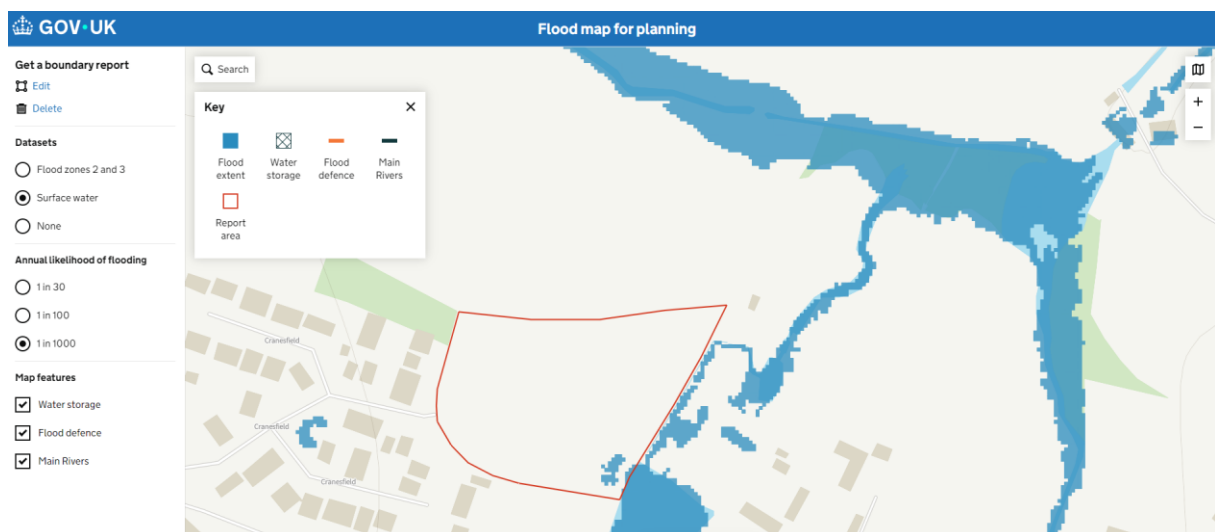
Surface Water - 1 in 30 year



Surface Water - 1 in 100 year

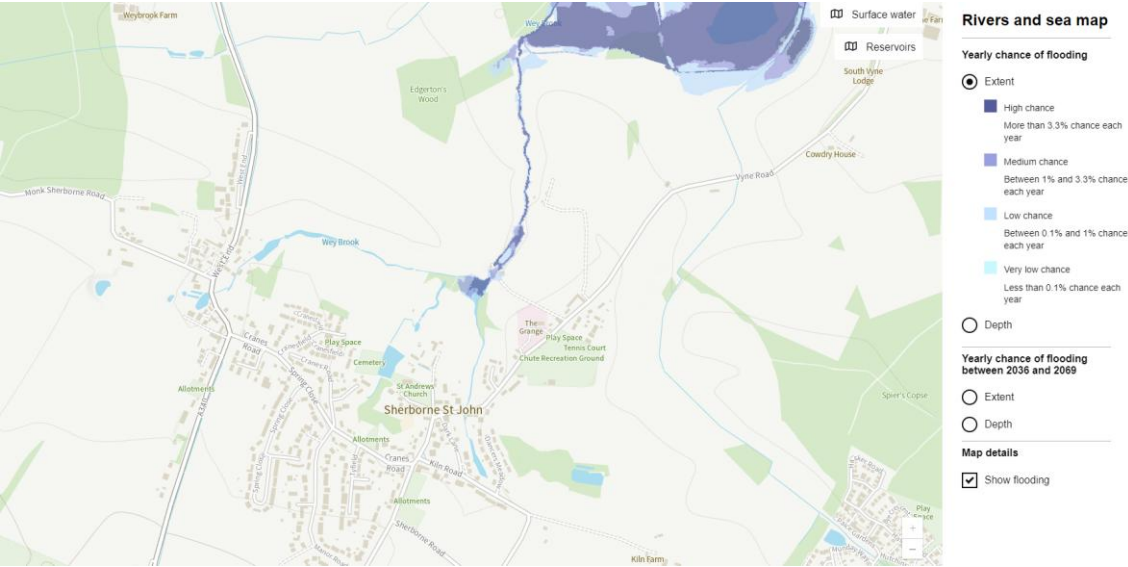


Surface Water - 1 in 1000 year

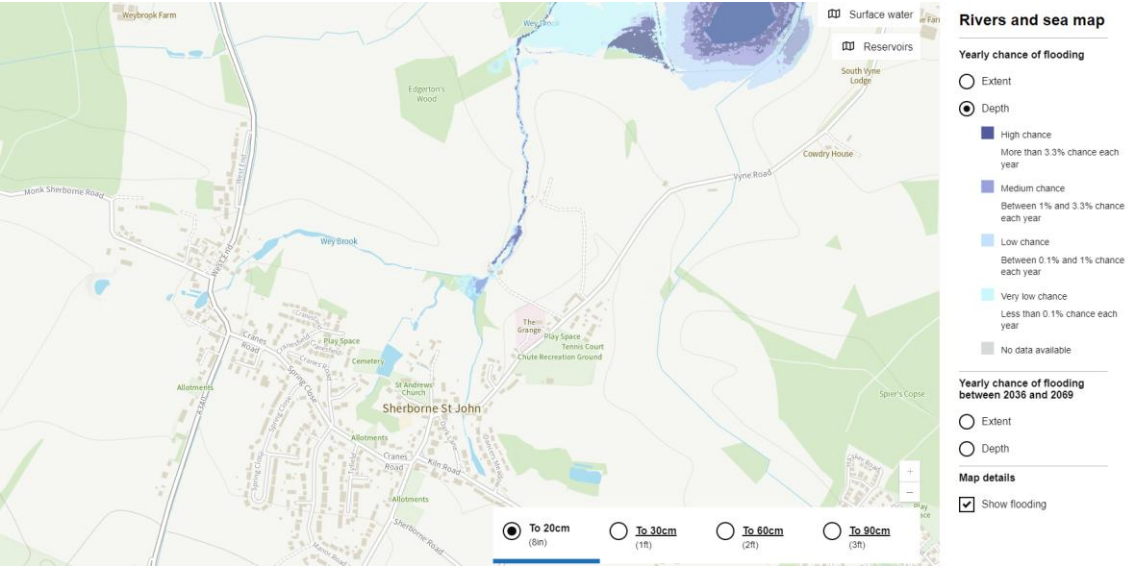


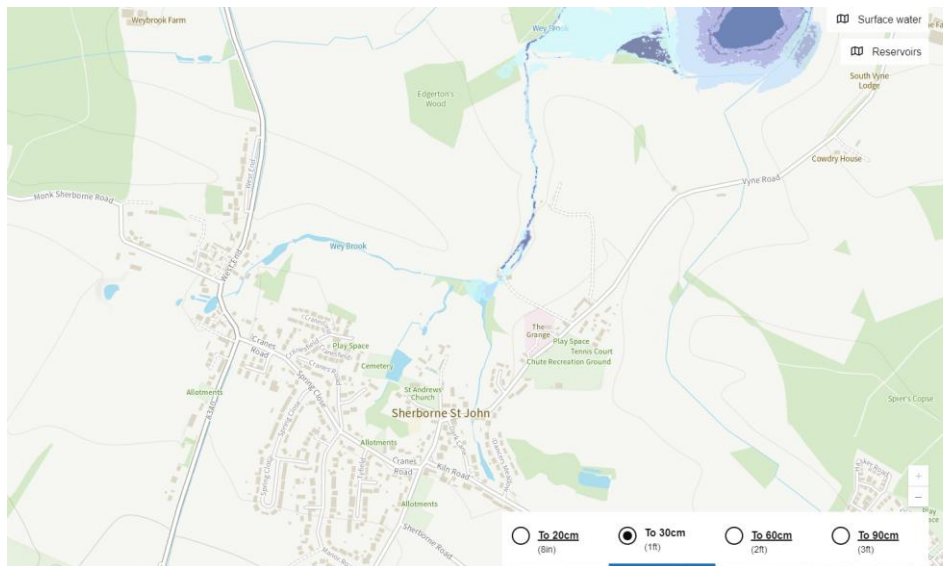
LONG-TERM FLOOD RISK MAPS

Rivers and Sea Flooding Extents (Present Day)



Rivers and Sea Flooding Depths (Present Day)





Rivers and sea map

Yearly chance of flooding

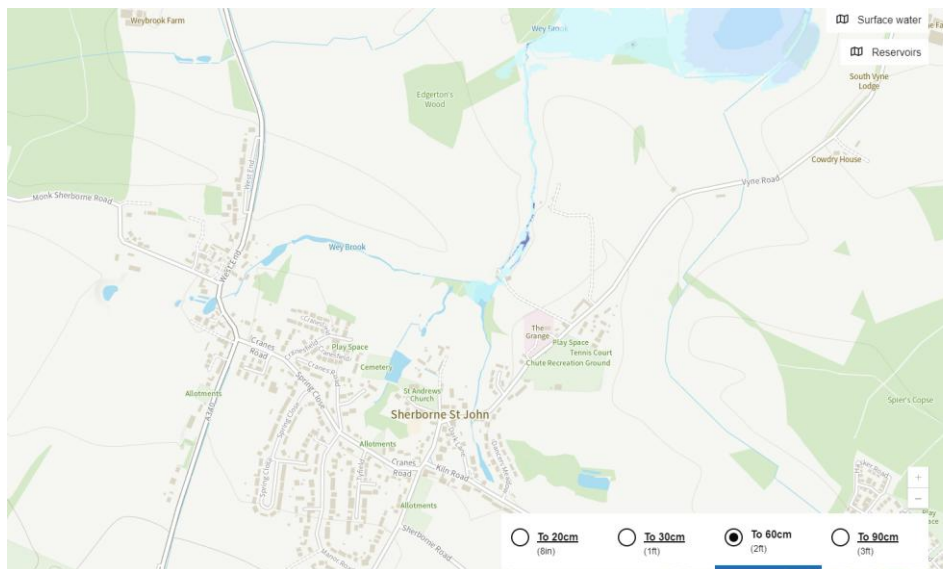
- ☐ Extent
- ☒ Depth
 - High chance
More than 3.3% chance each year
 - Medium chance
Between 1% and 3.3% chance each year
 - Low chance
Between 0.1% and 1% chance each year
 - Very low chance
Less than 0.1% chance each year
 - No data available

Yearly chance of flooding between 2036 and 2069

- ☐ Extent
- ☐ Depth

Map details

- ☒ Show flooding



Rivers and sea map

Yearly chance of flooding

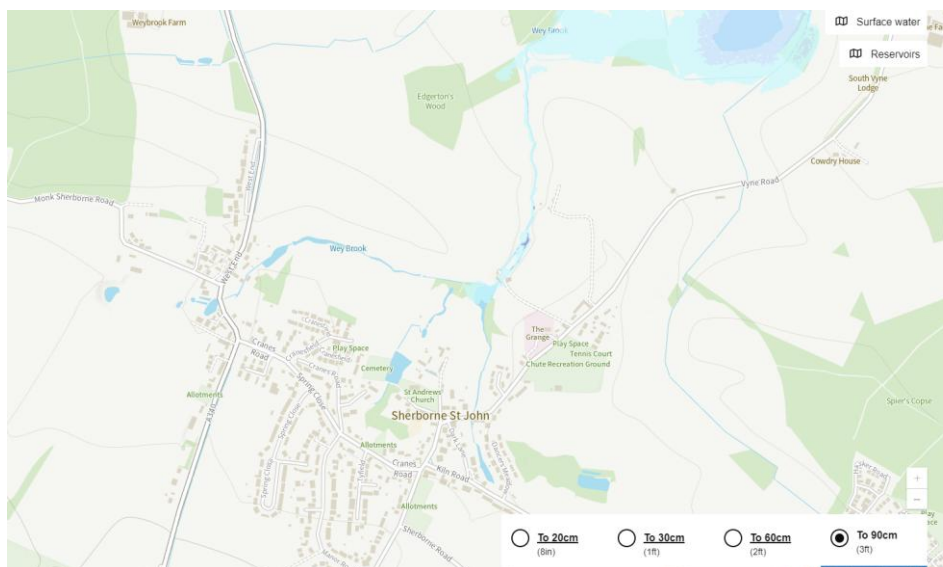
- ☐ Extent
- ☒ Depth
 - High chance
More than 3.3% chance each year
 - Medium chance
Between 1% and 3.3% chance each year
 - Low chance
Between 0.1% and 1% chance each year
 - Very low chance
Less than 0.1% chance each year
 - No data available

Yearly chance of flooding between 2036 and 2069

- ☐ Extent
- ☐ Depth

Map details

- ☒ Show flooding



Rivers and sea map

Yearly chance of flooding

- ☐ Extent
- ☒ Depth
 - High chance
More than 3.3% chance each year
 - Medium chance
Between 1% and 3.3% chance each year
 - Low chance
Between 0.1% and 1% chance each year
 - Very low chance
Less than 0.1% chance each year
 - No data available

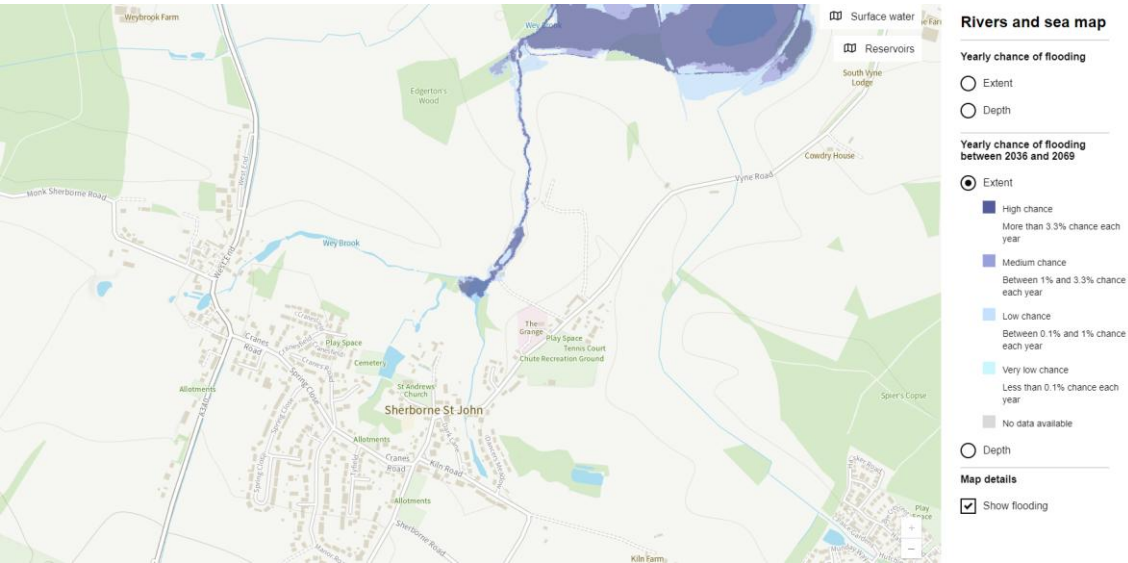
Yearly chance of flooding between 2036 and 2069

- ☐ Extent
- ☐ Depth

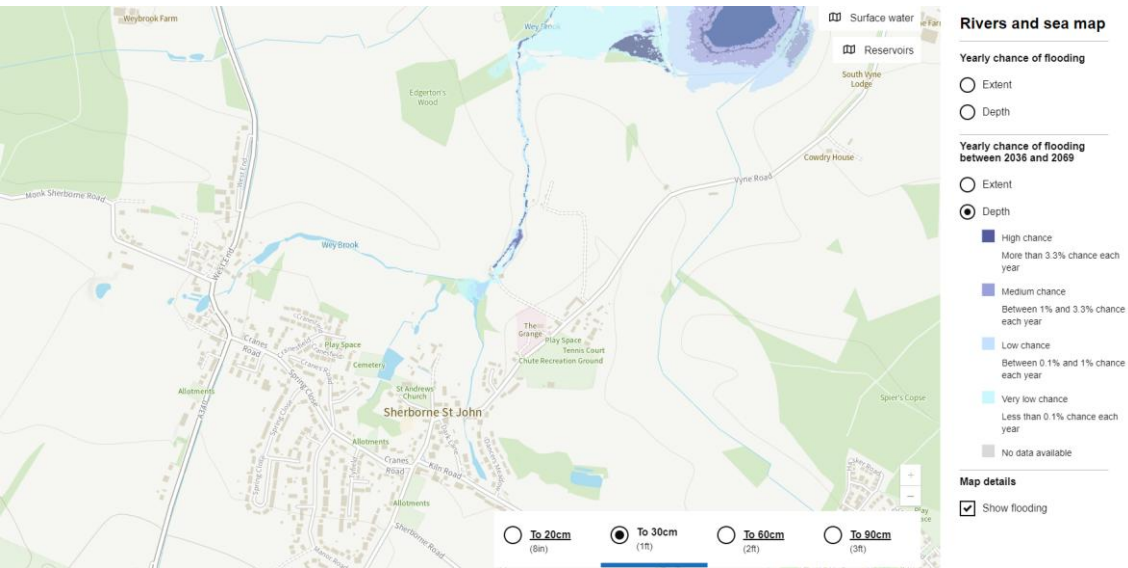
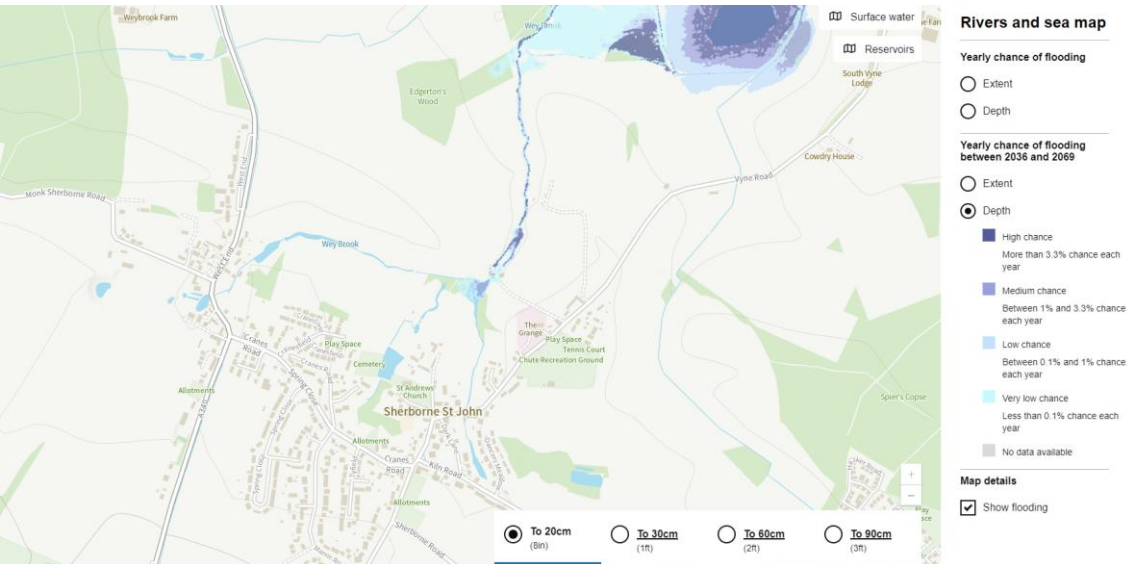
Map details

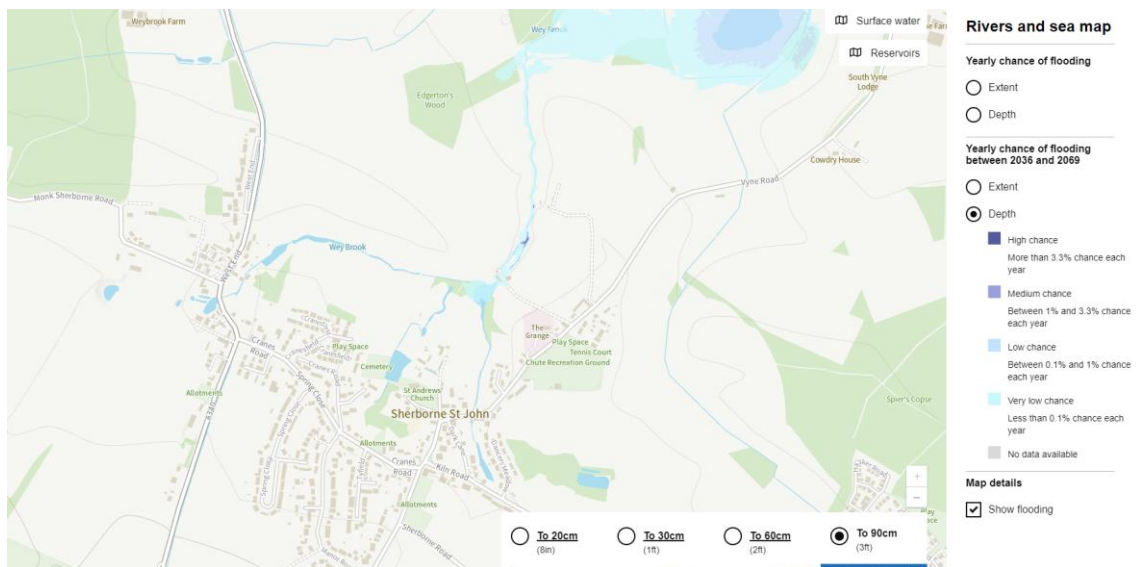
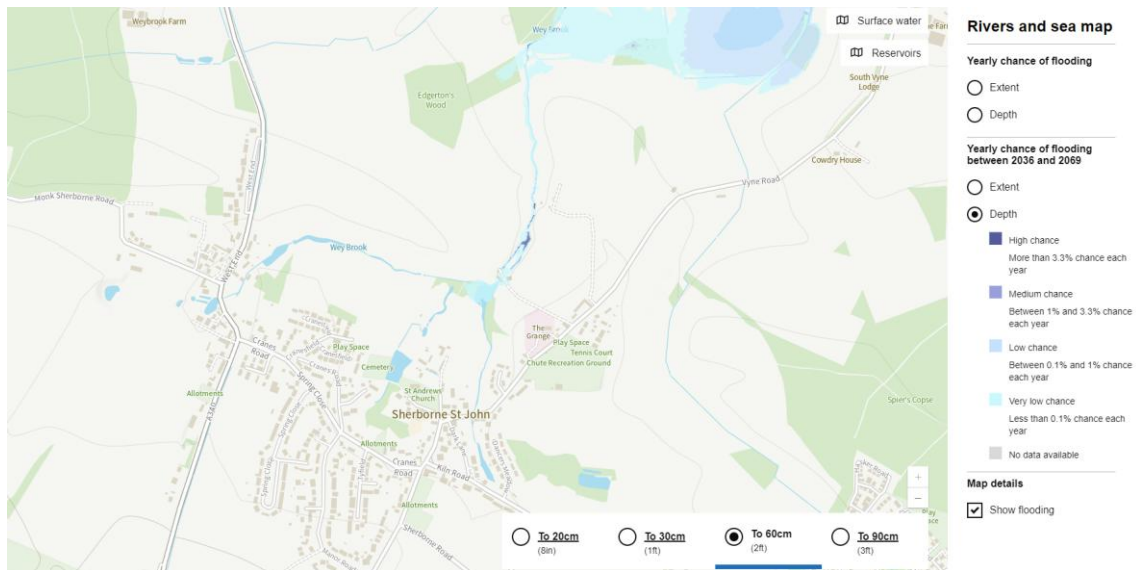
- ☒ Show flooding

Rivers and Sea Flooding Extents (2036 to 2069)



Rivers and Sea Flooding Depths (2036 to 2069)

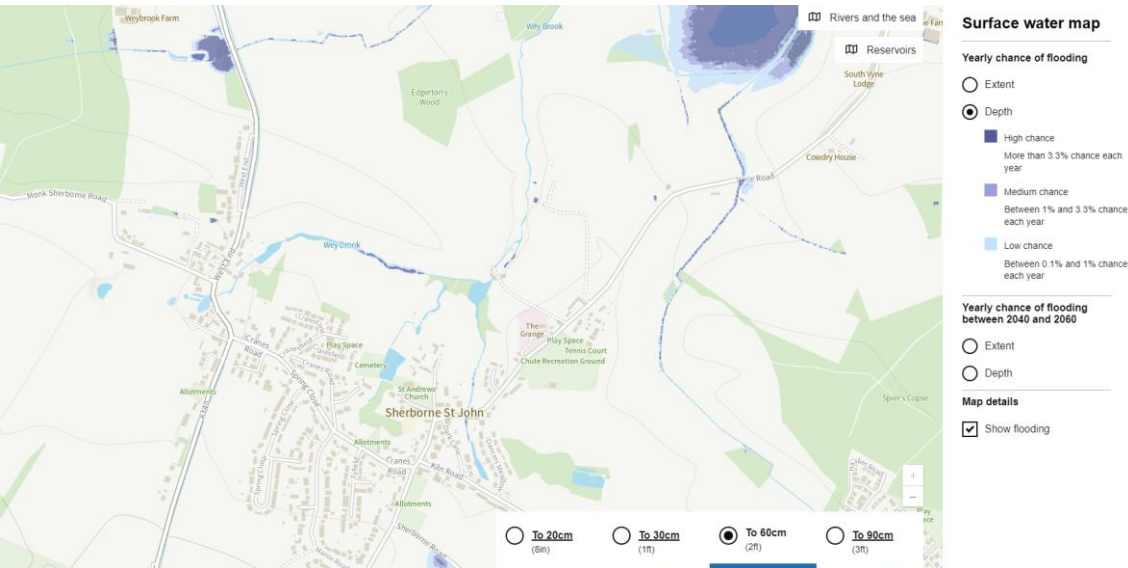
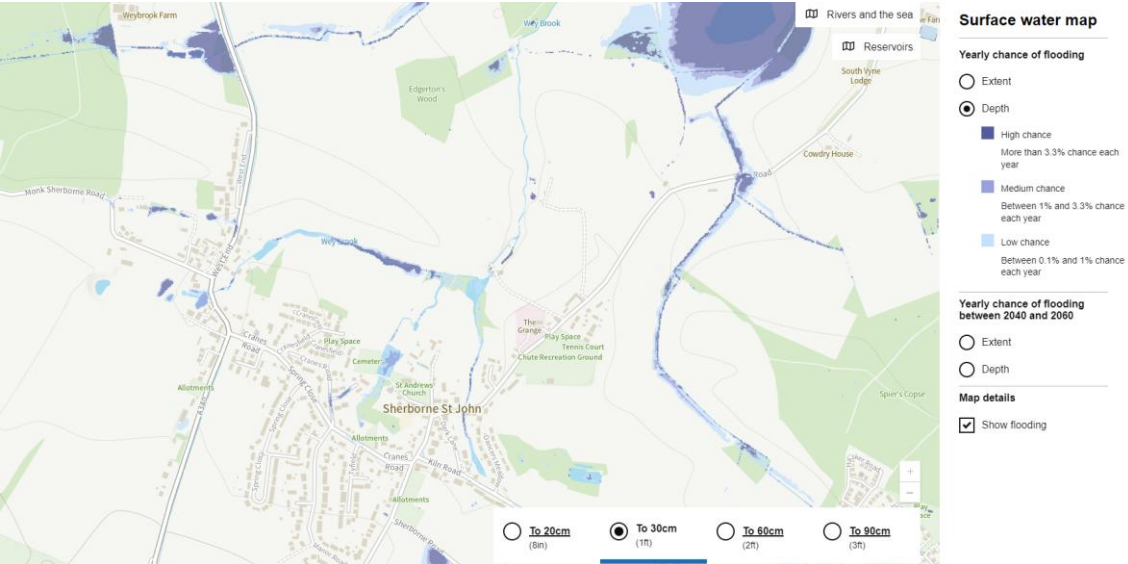
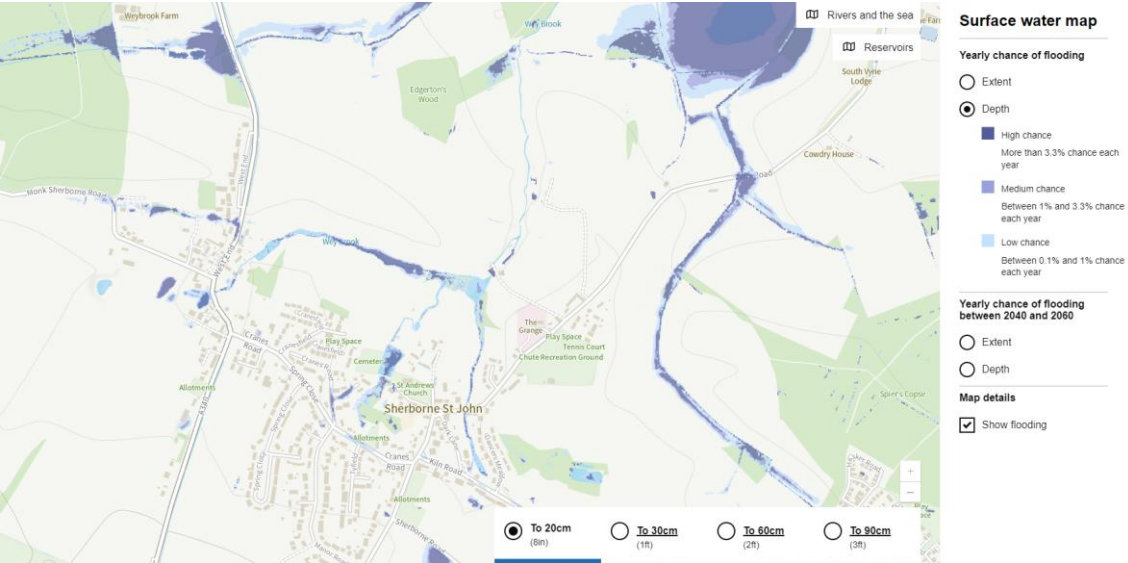


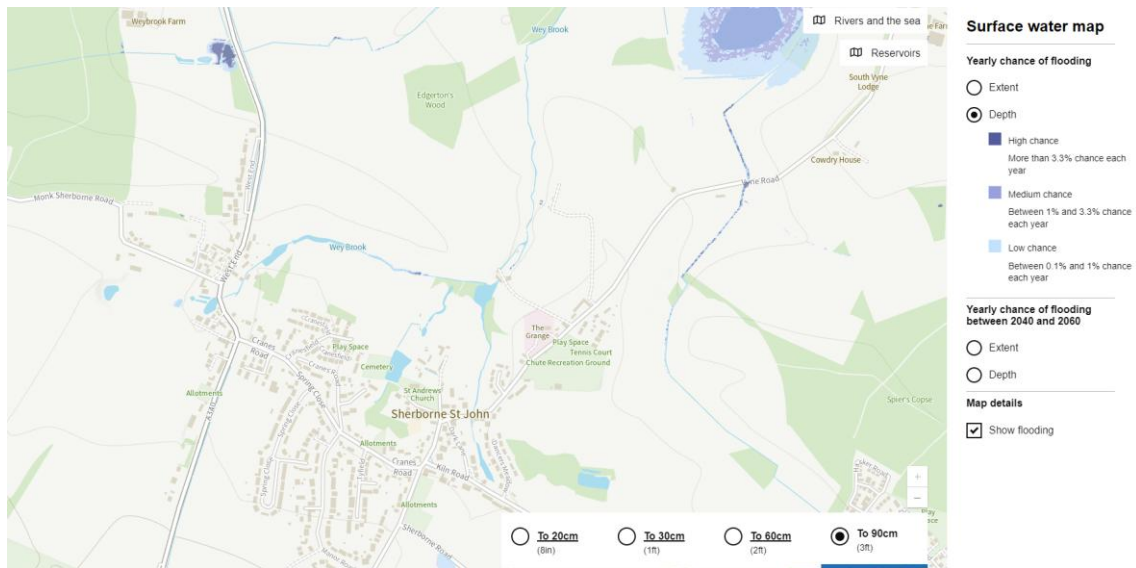


Surface Water Flooding Extents (Present Day)



Surface Water Flooding Depth (Present Day)

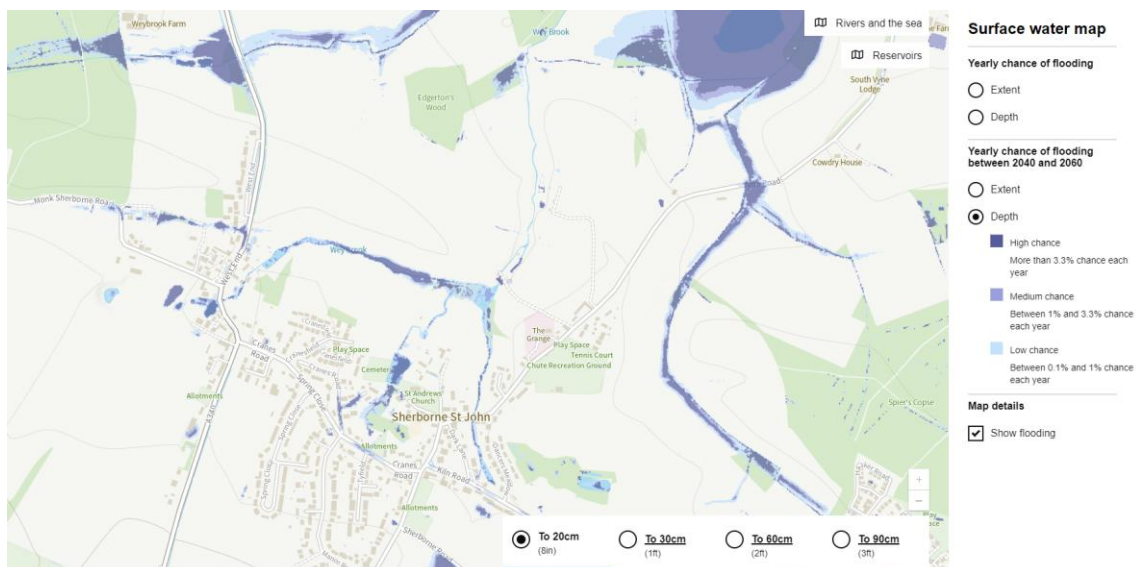


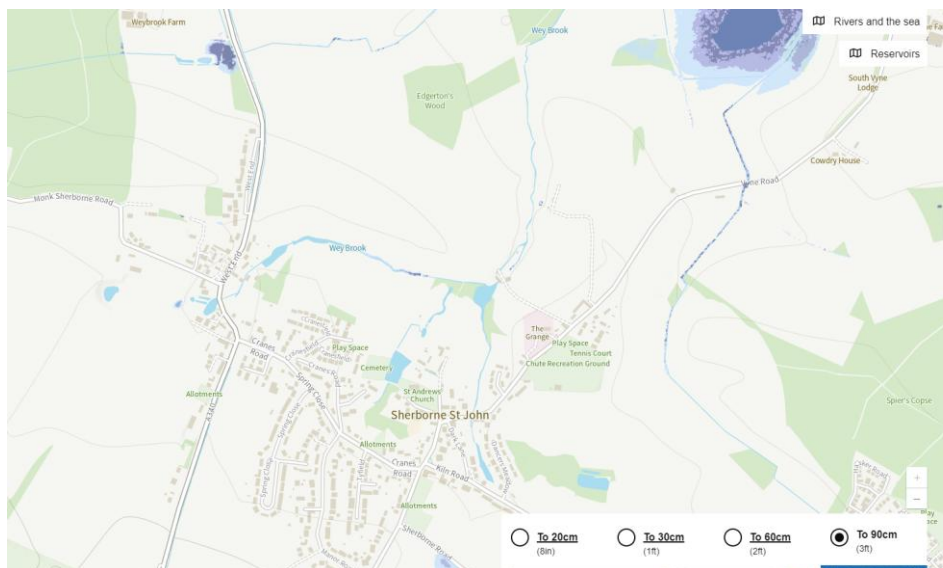
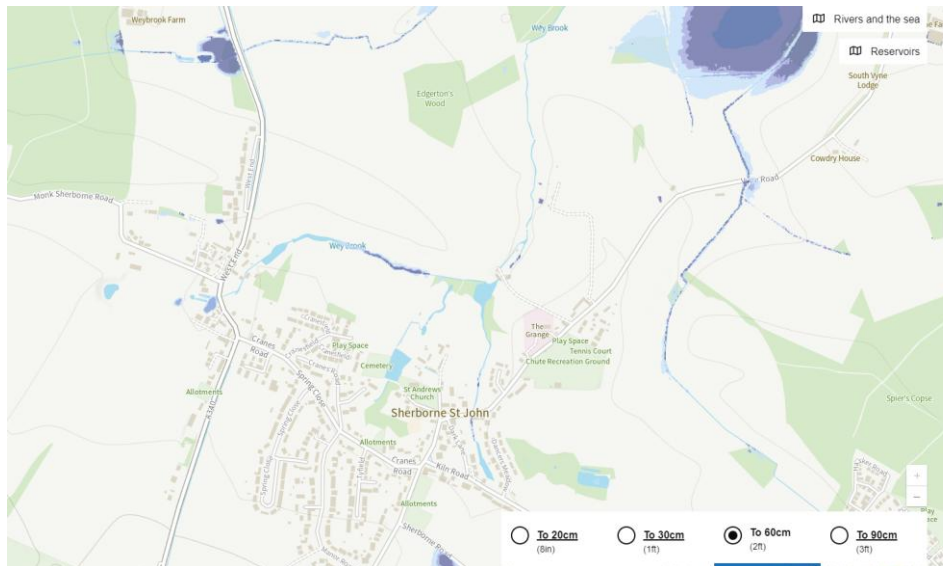
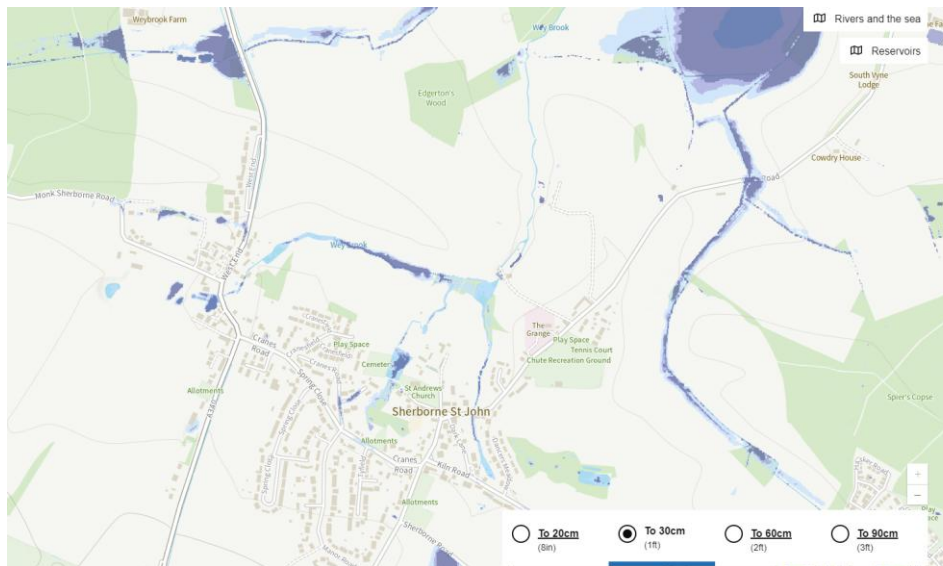


Surface Water Flooding Extents (2040 to 2060)

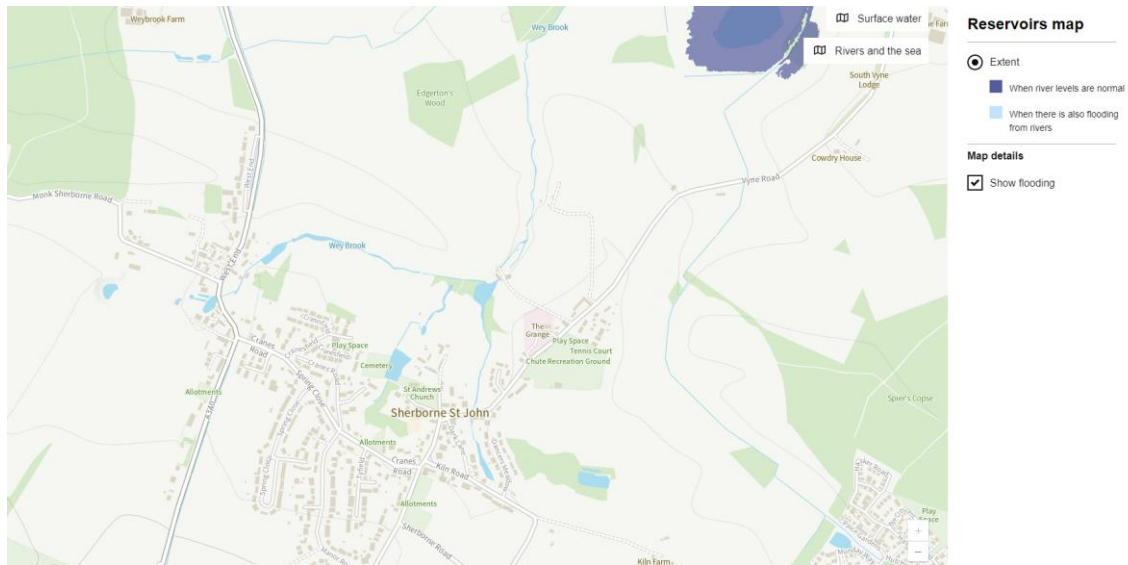


Surface Water Flooding Depths (2040 to 2060)





Reservoir Flooding Extents

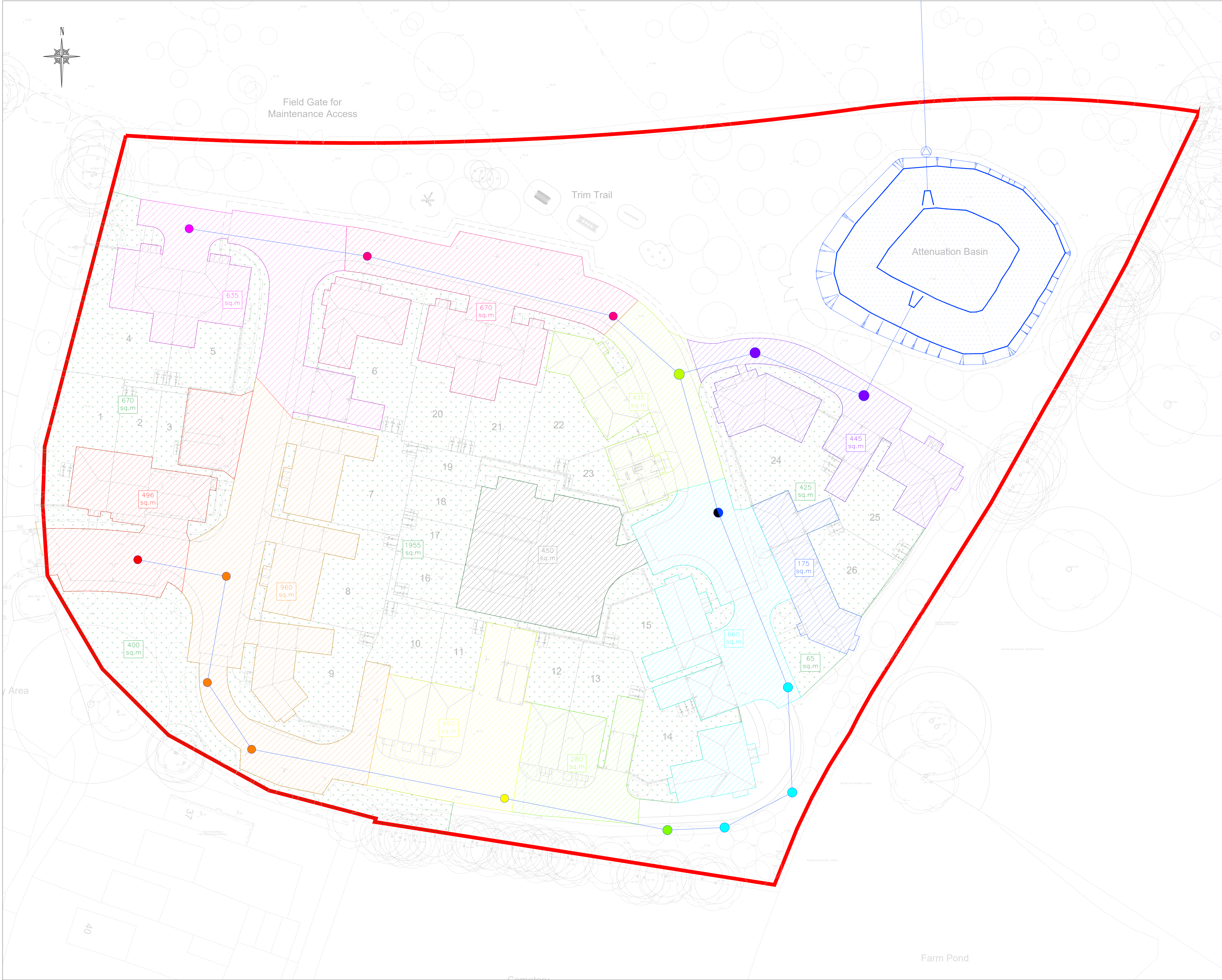


All map extracts taken November 2025.

Flood Risk Assessment

Appendix 7

- C3701-DS003 Surface Water Catchment Plan
- Pre-development Greenfield Runoff Calculations
- Hydraulic Surface Water Calculations
- C3701-DS001 Drainage Strategy Plan
- C3701-SK03 Indicative Headwall Detail
- C3701-DS002 Overland Flow Plan



- General Notes**
1. The purpose of this drawing is to illustrate the contributing catchment areas discharging into the proposed surface water drainage network.
 2. outline foul and surface water drainage strategy.
 3. Do not scale. All dimensions shown are in metres unless noted otherwise.
 4. This drawing is not provided as a design for construction nor is it to be used for setting out purposes until all Client and Regulator approvals have been obtained and it has been subject to all necessary co-ordination.
 5. Existing information has been reproduced from Survey Solutions Topographical Survey undertaken in January 2025 (ref. 74301BW(S-01)).
 6. Proposed information is reproduced from B.Yond Homes Ltd site layout drawing dated 11.07.2025 (reference H0123-FA-02).
 7. This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors details. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings, the Engineer should be informed PRIOR to construction on site.
 8. The information shown and which originates from others may have been simplified for clarity. Refer to the originators details for additional information.
 9. Impermeable catchment areas shown include a 10% uplift for urban creep.
 10. Permeable areas draining onto impermeable catchments have also been included in the hydraulic drainage model pro-rata with a 20% impermeability factor applied.

- Key to Proposals**
- Approximate site boundary
 - Proposed Drainage
Manholes highlighted to indicate contributing area
 - ▨ Impermeable Surface Water Catchments - colour coordinated with receiving manholes
*Catchment areas include 10% uplift for urban creep
 - ▨ Permeable areas draining into proposed network
Included in hydraulic model with 20% impermeability factor

Total Site Area (red-line boundary): 1.33ha
Proposed impermeable area: 0.52ha
Adjusted impermeable area (incl. 10% urban creep): **0.57ha**
Residual permeable area post-development: 0.79ha
Permeable areas contributing to surface water drainage strategy: 0.35ha
Adjusted permeable area (20% impermeability factor applied): **0.07ha**
Total area contributing to proposed surface water drainage network: **0.64ha**

-	CJ	18.11.25	First Issue	PD
REV	BY	DATE	DETAILS	CKD

STATUS	S2 - INFORMATION
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CLIENT

B.Yond Homes Ltd

PROJECT

Land at Cranesfield
Sherborne St John
Basingstoke

TITLE

Surface Water
Catchment Plan



Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555 www.hspsconsulting.com

SCALE	PROJECT NO.	SHEET
1:250	C3701	SIZE A1

DATE	DRAWN	CHECKED
18.11.2025	CJ	PD

DRAWING NO.	REV
C3701-DS003	-

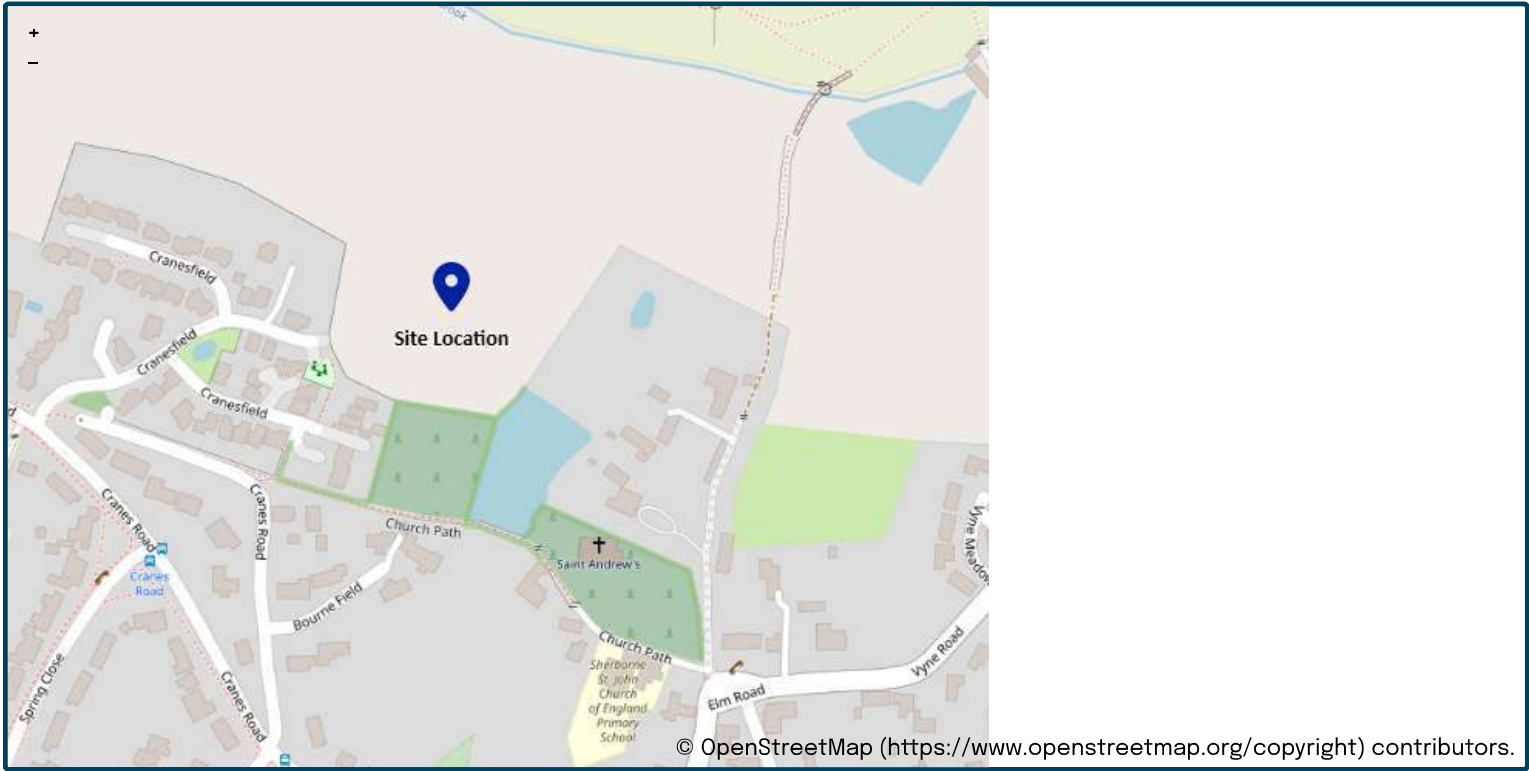
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	20/11/2025
Calculated by	C Jeffrey
Reference	C3701
Model version	2.2.2

Location

Site name	Land at Cranesfield
Site location	Sherborne St John



Site easting (British National Grid)	462263
Site northing (British National Grid)	155698

Site details

Total site area (ha)	0.64	ha
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Greenfield runoff

Method

Method	IH124
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IH124

	<u>My value</u>	☐	<u>Map value</u>
SAAR (mm)	733		733
How should SPR be derived?	WRAP soil type		
WRAP soil type	4	☐	4
SPR	0.47		
QBar (IH124) (l/s)	3.3		l/s

Growth curve factors

	<u>My value</u>	☐	<u>Map value</u>
Hydrological region	6		6
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	IH124	
Flow rate 1 year (l/s)	2.8	l/s
Flow rate 2 year (l/s)	2.9	l/s
Flow rate 10 years (l/s)	5.3	l/s
Flow rate 30 years (l/s)	7.5	l/s
Flow rate 100 years (l/s)	10.4	l/s
Flow rate 200 years (l/s)	12.2	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (<https://www.uknuts.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uknuts.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.900
Time of Entry (mins)	2.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
18	0.053	2.00	79.663	450	462202.596	155691.485	1.163
17	0.036	2.00	79.527	450	462215.343	155689.095	1.977
16	0.035	2.00	79.610	1200	462212.620	155673.798	2.435
15	0.041	2.00	79.496	1200	462218.989	155664.192	2.496
14	0.052	2.00	78.693	1200	462255.415	155657.114	2.293
13	0.031	2.00	78.082	1350	462278.881	155652.554	1.897
12	0.025	2.00	77.958	1350	462287.115	155652.929	1.813
11	0.026	2.00	77.842	1350	462296.849	155657.974	1.747
10	0.028	2.00	77.970	1350	462296.234	155673.108	1.945
9	0.068	2.00	78.286	1350	462286.203	155698.262	2.461
22	0.070	2.00	79.349	450	462209.997	155739.147	1.149
21	0.041	2.00	78.977	450	462235.654	155735.180	1.977
20	0.037	2.00	78.620	1200	462271.071	155726.552	2.545
8	0.047	2.00	78.480	1350	462280.568	155718.190	2.750
7	0.026	2.00	78.323	1350	462292.260	155720.982	2.648
6	0.026	2.00	78.036	1350	462307.174	155715.111	2.436
5	0.000	2.00	77.026	1200	462314.986	155729.801	1.500
4	0.000	2.00	77.000	1200	462316.402	155742.549	1.500
3	0.000	2.00	77.000	1350	462316.138	155750.220	1.550
2	0.000		76.500	450	462314.145	155808.092	2.200
1	0.000		73.550	150	462311.719	155878.555	0.600

Links (Input)

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	18	17	12.969	0.600	78.500	77.550	0.950	13.7	225	2.06	50.0
1.001	17	16	15.537	0.600	77.550	77.250	0.300	51.8	225	2.20	50.0
1.002	16	15	11.526	0.600	77.175	77.000	0.175	65.9	300	2.30	50.0
1.003	15	14	37.107	0.600	77.000	76.400	0.600	61.8	300	2.61	50.0
1.004	14	13	23.905	0.600	76.400	76.260	0.140	170.8	300	2.94	50.0
1.005	13	12	8.243	0.600	76.185	76.145	0.040	206.1	375	3.05	50.0
1.006	12	11	10.964	0.600	76.145	76.095	0.050	219.3	375	3.20	31.0
1.007	11	10	15.146	0.600	76.095	76.025	0.070	216.4	375	3.41	31.0
1.008	10	9	27.080	0.600	76.025	75.900	0.125	216.6	375	3.78	50.0
1.009	9	8	20.709	0.600	75.825	75.730	0.095	218.0	450	4.03	31.0
3.000	22	21	25.962	0.600	78.200	77.000	1.200	21.6	225	2.15	50.0
3.001	21	20	36.453	0.600	77.000	76.075	0.925	39.4	225	2.44	50.0
3.002	20	8	12.654	0.600	76.075	75.955	0.120	105.5	225	2.61	50.0
1.010	8	7	12.021	0.600	75.730	75.675	0.055	218.6	450	4.17	50.0
1.011	7	6	16.028	0.600	75.675	75.600	0.075	213.7	450	4.37	50.0
1.012	6	5	16.638	0.600	75.600	75.526	0.074	224.8	450	4.57	50.0

Links (Input)

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)
1.013	4	3	7.676	0.600	75.500	75.450	0.050	153.5	375	2.09	50.0
1.014	3	2	57.906	0.600	75.450	74.300	1.150	50.4	150	2.77	50.0
1.015	2	1	70.505	0.600	74.300	72.950	1.350	52.2	150	3.61	31.0

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

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 %)
1	0	0	0
30	35	0	0
100	40	0	0

Node 3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	75.450	Product Number	CTL-SHE-0083-3300-1250-3300
Design Depth (m)	1.250	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.3	Min Node Diameter (mm)	1200

Node 4 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	12.826
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	75.500	Main Channel Slope (1:X)	500.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.300

Inlets

5

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	197.6	0.0	1.500	636.8	0.0	1.501	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	18	9	78.530	0.030	5.6	0.0326	0.0000	OK
15 minute summer	17	9	77.607	0.057	9.4	0.0296	0.0000	OK
15 minute summer	16	9	77.240	0.065	13.1	0.0924	0.0000	OK
15 minute summer	15	9	77.070	0.070	17.4	0.1025	0.0000	OK
15 minute summer	14	9	76.505	0.105	22.7	0.1670	0.0000	OK
15 minute summer	13	9	76.303	0.118	23.5	0.2067	0.0000	OK
15 minute summer	12	10	76.267	0.122	25.4	0.2084	0.0000	OK
15 minute summer	11	10	76.219	0.124	27.5	0.2141	0.0000	OK
15 minute summer	10	10	76.149	0.124	30.0	0.2126	0.0000	OK
15 minute summer	9	10	75.950	0.125	33.6	0.2470	0.0000	OK
15 minute summer	22	9	78.239	0.039	7.4	0.0538	0.0000	OK
15 minute summer	21	9	77.057	0.057	11.7	0.0325	0.0000	OK
15 minute summer	20	9	76.165	0.090	15.5	0.1273	0.0000	OK
15 minute summer	8	10	75.894	0.164	49.4	0.2915	0.0000	OK
15 minute summer	7	10	75.837	0.162	51.3	0.2644	0.0000	OK
15 minute summer	6	10	75.760	0.160	53.0	0.2638	0.0000	OK
360 minute winter	5	272	75.740	0.214	12.1	0.2421	0.0000	OK
360 minute winter	4	280	75.740	0.240	12.9	0.2710	0.0000	OK
360 minute winter	3	288	75.744	0.294	7.6	0.4202	0.0000	SURCHARGED
360 minute winter	2	280	74.337	0.037	3.2	0.0058	0.0000	OK
360 minute winter	1	272	72.987	0.037	3.2	0.0000	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 summer	18	1.000	17	5.6	1.067	0.040	0.0715	
15 minute summer	17	1.001	16	9.4	1.235	0.130	0.1183	
15 minute summer	16	1.002	15	13.1	1.103	0.096	0.1370	
15 minute summer	15	1.003	14	17.3	1.007	0.122	0.6417	
15 minute summer	14	1.004	13	20.7	0.989	0.244	0.5045	
15 minute summer	13	1.005	12	23.4	0.772	0.168	0.2495	
15 minute summer	12	1.006	11	25.9	0.825	0.192	0.3441	
15 minute summer	11	1.007	10	28.2	0.890	0.208	0.4796	
15 minute summer	10	1.008	9	29.3	0.968	0.216	0.8235	
15 minute summer	9	1.009	8	33.0	0.783	0.151	0.9119	
15 minute summer	22	3.000	21	7.4	1.224	0.066	0.1612	
15 minute summer	21	3.001	20	11.7	1.055	0.140	0.4108	
15 minute summer	20	3.002	8	14.9	1.066	0.295	0.1772	
15 minute summer	8	1.010	7	49.7	0.957	0.228	0.6244	
15 minute summer	7	1.011	6	51.4	1.025	0.233	0.8186	
15 minute summer	6	1.012	5	53.3	1.813	0.248	0.5341	
360 minute winter	5	Flow through pond	4	12.9	0.009	0.003	52.4240	
360 minute winter	4	1.013	3	7.6	0.322	0.047	0.6398	
360 minute winter	3	Hydro-Brake®	2	3.2				
360 minute winter	2	1.015	1	3.2	0.963	0.130	0.2340	93.5

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.33%

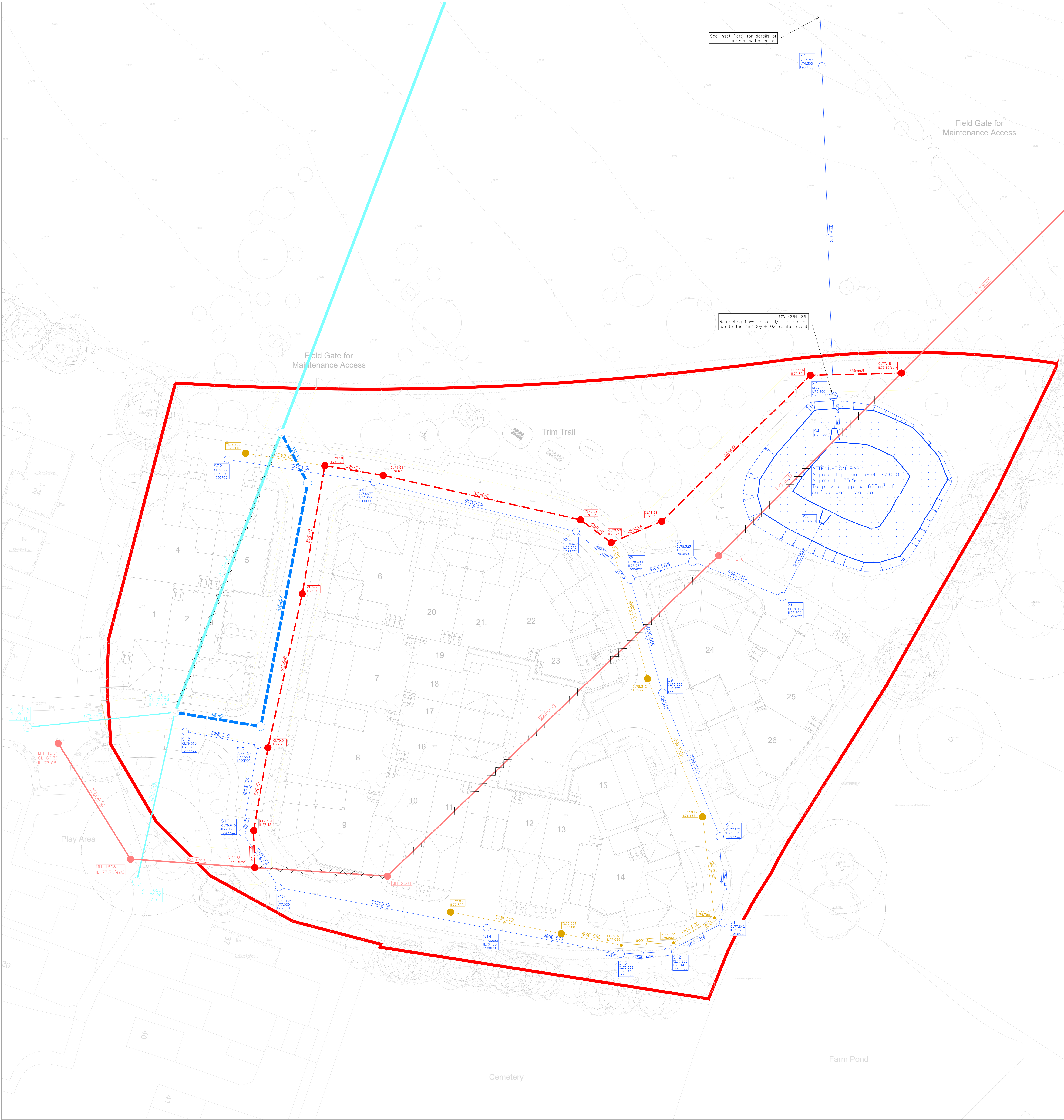
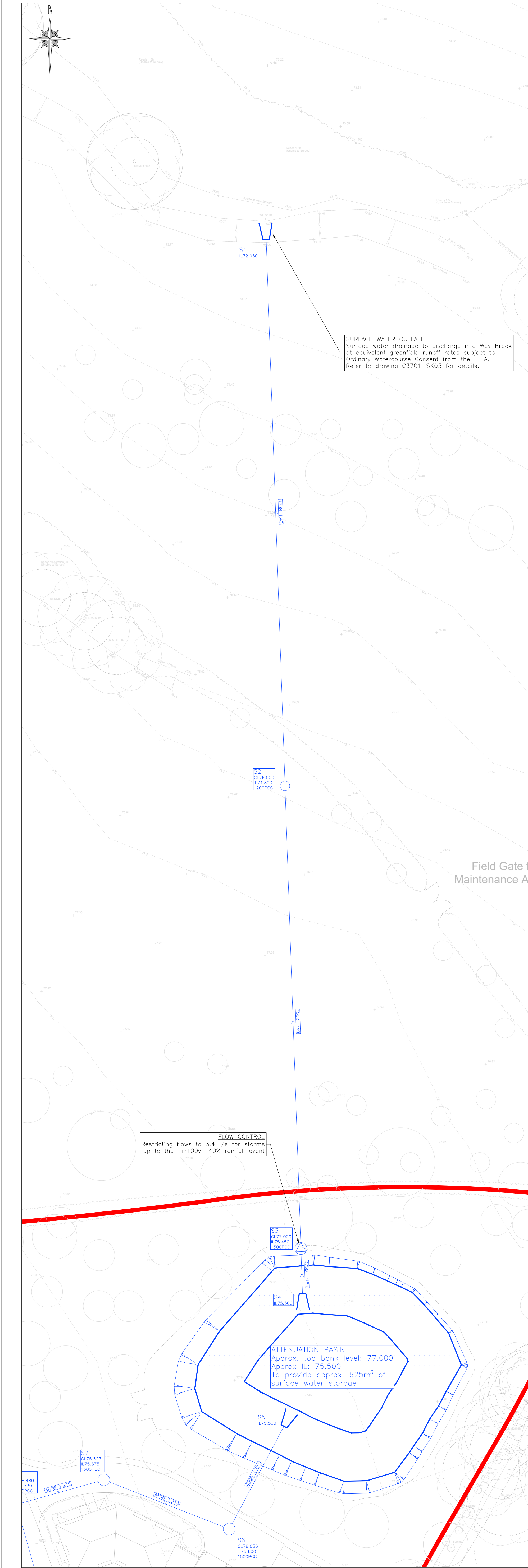
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	18	9	78.579	0.079	37.6	0.0844	0.0000	OK
15 minute summer	17	10	77.950	0.400	63.2	0.2092	0.0000	SURCHARGED
15 minute summer	16	10	77.810	0.635	81.7	0.8998	0.0000	SURCHARGED
15 minute summer	15	10	77.753	0.753	107.8	1.0985	0.0000	SURCHARGED
15 minute summer	14	10	77.507	1.107	132.3	1.7541	0.0000	SURCHARGED
15 minute summer	13	10	77.216	1.031	125.9	1.8125	0.0000	SURCHARGED
15 minute summer	12	10	77.152	1.007	133.6	1.7195	0.0000	SURCHARGED
15 minute summer	11	10	77.061	0.966	146.7	1.6702	0.0000	SURCHARGED
15 minute summer	10	10	76.926	0.901	160.8	1.5490	0.0000	SURCHARGED
15 minute summer	9	10	76.681	0.856	192.0	1.6977	0.0000	SURCHARGED
15 minute summer	22	9	78.305	0.105	49.7	0.1451	0.0000	OK
15 minute summer	21	10	77.612	0.612	77.8	0.3513	0.0000	SURCHARGED
15 minute summer	20	10	77.008	0.933	91.3	1.3267	0.0000	SURCHARGED
15 minute summer	8	10	76.565	0.835	298.4	1.4801	0.0000	SURCHARGED
480 minute winter	7	480	76.473	0.798	34.6	1.2989	0.0000	SURCHARGED
480 minute winter	6	472	76.473	0.873	35.8	1.4354	0.0000	SURCHARGED
480 minute winter	5	472	76.472	0.946	35.6	1.0703	0.0000	OK
480 minute winter	4	472	76.472	0.972	19.4	1.0997	0.0000	SURCHARGED
480 minute winter	3	472	76.472	1.022	6.4	1.4629	0.0000	SURCHARGED
600 minute summer	2	270	74.337	0.037	3.2	0.0059	0.0000	OK
600 minute summer	1	270	72.987	0.037	3.2	0.0000	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 summer	18	1.000	17	37.7	1.622	0.266	0.3348	
15 minute summer	17	1.001	16	56.8	1.870	0.785	0.6179	
15 minute summer	16	1.002	15	78.6	1.633	0.573	0.8117	
15 minute summer	15	1.003	14	95.4	1.466	0.674	2.6130	
15 minute summer	14	1.004	13	107.4	1.526	1.267	1.6834	
15 minute summer	13	1.005	12	122.9	1.115	0.885	0.9092	
15 minute summer	12	1.006	11	135.7	1.231	1.008	1.2093	
15 minute summer	11	1.007	10	149.1	1.352	1.099	1.6706	
15 minute summer	10	1.008	9	163.5	1.482	1.206	2.9868	
15 minute summer	9	1.009	8	195.8	1.236	0.897	3.2812	
15 minute summer	22	3.000	21	48.7	1.864	0.434	0.7530	
15 minute summer	21	3.001	20	65.1	1.676	0.783	1.4498	
15 minute summer	20	3.002	8	82.9	2.084	1.638	0.5033	
15 minute summer	8	1.010	7	301.6	1.904	1.383	1.9046	
480 minute winter	7	1.011	6	34.3	0.692	0.155	2.5395	
480 minute winter	6	1.012	5	35.6	0.904	0.166	2.6362	
480 minute winter	5	Flow through pond	4	19.4	0.014	0.004	324.2800	
480 minute winter	4	1.013	3	6.4	0.323	0.040	0.8466	
480 minute winter	3	Hydro-Brake®	2	3.2				
600 minute summer	2	1.015	1	3.2	0.966	0.131	0.2356	135.1

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.33%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	18	10	79.059	0.559	50.1	0.5984	0.0000	SURCHARGED
15 minute summer	17	10	78.995	1.445	83.4	0.7556	0.0000	SURCHARGED
15 minute summer	16	10	78.778	1.603	103.2	2.2730	0.0000	SURCHARGED
15 minute summer	15	10	78.696	1.696	111.2	2.4738	0.0000	SURCHARGED
15 minute summer	14	10	78.339	1.939	141.5	3.0726	0.0000	SURCHARGED
15 minute summer	13	10	77.917	1.732	152.6	3.0455	0.0000	FLOOD RISK
15 minute summer	12	10	77.826	1.681	161.2	2.8692	0.0000	FLOOD RISK
15 minute summer	11	10	77.695	1.600	176.6	2.7672	0.0000	FLOOD RISK
15 minute summer	10	10	77.503	1.478	193.5	2.5410	0.0000	SURCHARGED
15 minute summer	9	10	77.151	1.326	233.5	2.6314	0.0000	SURCHARGED
15 minute summer	22	10	78.869	0.669	66.3	0.9217	0.0000	SURCHARGED
15 minute summer	21	10	78.599	1.599	99.8	0.9179	0.0000	SURCHARGED
15 minute summer	20	10	77.666	1.591	109.8	2.2622	0.0000	SURCHARGED
15 minute summer	8	10	76.980	1.250	366.4	2.2167	0.0000	SURCHARGED
480 minute winter	7	480	76.692	1.017	43.4	1.6551	0.0000	SURCHARGED
600 minute winter	6	585	76.693	1.093	37.4	1.7975	0.0000	SURCHARGED
600 minute winter	5	600	76.692	1.166	37.3	1.3191	0.0000	OK
600 minute winter	4	600	76.692	1.192	20.1	1.3484	0.0000	SURCHARGED
600 minute winter	3	585	76.692	1.242	6.8	1.7777	0.0000	SURCHARGED
600 minute winter	2	600	74.337	0.037	3.3	0.0059	0.0000	OK
600 minute winter	1	600	72.987	0.037	3.3	0.0000	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 summer	18	1.000	17	49.4	1.573	0.349	0.5158	
15 minute summer	17	1.001	16	70.1	1.781	0.968	0.6179	
15 minute summer	16	1.002	15	74.7	1.541	0.545	0.8117	
15 minute summer	15	1.003	14	98.7	1.407	0.697	2.6130	
15 minute summer	14	1.004	13	129.0	1.832	1.520	1.6834	
15 minute summer	13	1.005	12	147.1	1.334	1.059	0.9092	
15 minute summer	12	1.006	11	162.1	1.469	1.203	1.2093	
15 minute summer	11	1.007	10	179.6	1.628	1.324	1.6706	
15 minute summer	10	1.008	9	197.3	1.789	1.456	2.9868	
15 minute summer	9	1.009	8	237.3	1.498	1.087	3.2812	
15 minute summer	22	3.000	21	61.0	1.912	0.543	1.0325	
15 minute summer	21	3.001	20	77.3	1.945	0.931	1.4498	
15 minute summer	20	3.002	8	102.8	2.586	2.032	0.5033	
15 minute summer	8	1.010	7	369.7	2.334	1.696	1.9046	
480 minute winter	7	1.011	6	43.2	0.681	0.196	2.5395	
600 minute winter	6	1.012	5	37.3	0.883	0.174	2.6362	
600 minute winter	5	Flow through pond	4	20.1	0.014	0.004	436.5959	
600 minute winter	4	1.013	3	6.8	0.305	0.042	0.8466	
600 minute winter	3	Hydro-Brake®	2	3.3				
600 minute winter	2	1.015	1	3.3	0.972	0.134	0.2392	148.6



General Notes

- The purpose of this drawing is to illustrate the outline foul and surface water drainage strategy.
- Do not scale. All dimensions shown are in metres unless noted otherwise.
- This drawing is not provided as a design for construction nor is it to be used for setting out purposes until all Client and Regulatory approvals have been obtained and it has been signed by a suitably qualified professional.
- Existing information has been reproduced from Survey Solutions Topographical Survey undertaken in January 2023 (ref: 7430-BHA-S-01).
- Proposed information is reproduced from B.Yond Homes Ltd site layout drawing dated 11.07.2023 (reference 19123-PA-02).
- This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors details. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings, the Engineer should be informed PRIOR to construction on site.
- The information shown and which originates from others may have been amplified for clarity. Refer to the originators details for additional information.
- Further survey works pertaining to the existing public sewer are required to confirm the drainage proposals.
- Other connections may be apparent into the diverted sewer network which will require diversion as part of the proposals.
- All sewer diversion works and connections into the existing sewer network are subject to technical approval from the local sewerage undertaker.

Key to Proposals

- Approximate site boundary
- Existing public surface water sewer (taken from public sewer records)
- Existing public foul water sewer (taken from public sewer records)
- Existing public sewer to be abandoned/diverted
- Proposed surface water sewer diversion
- Proposed foul water sewer diversion
- Proposed surface water drainage
- Proposed foul water drainage
- Sewer easement for retained and diverted sewers (Required offsets vary, dependent on sewer depths - notional 3 m either side of pipe if indicated)

Drainage Notes

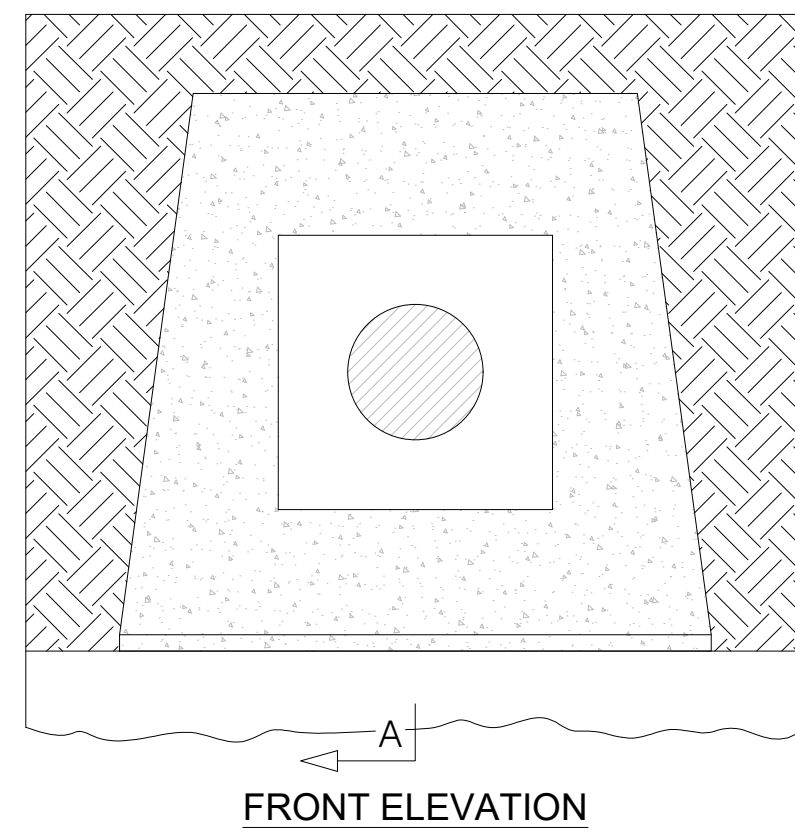
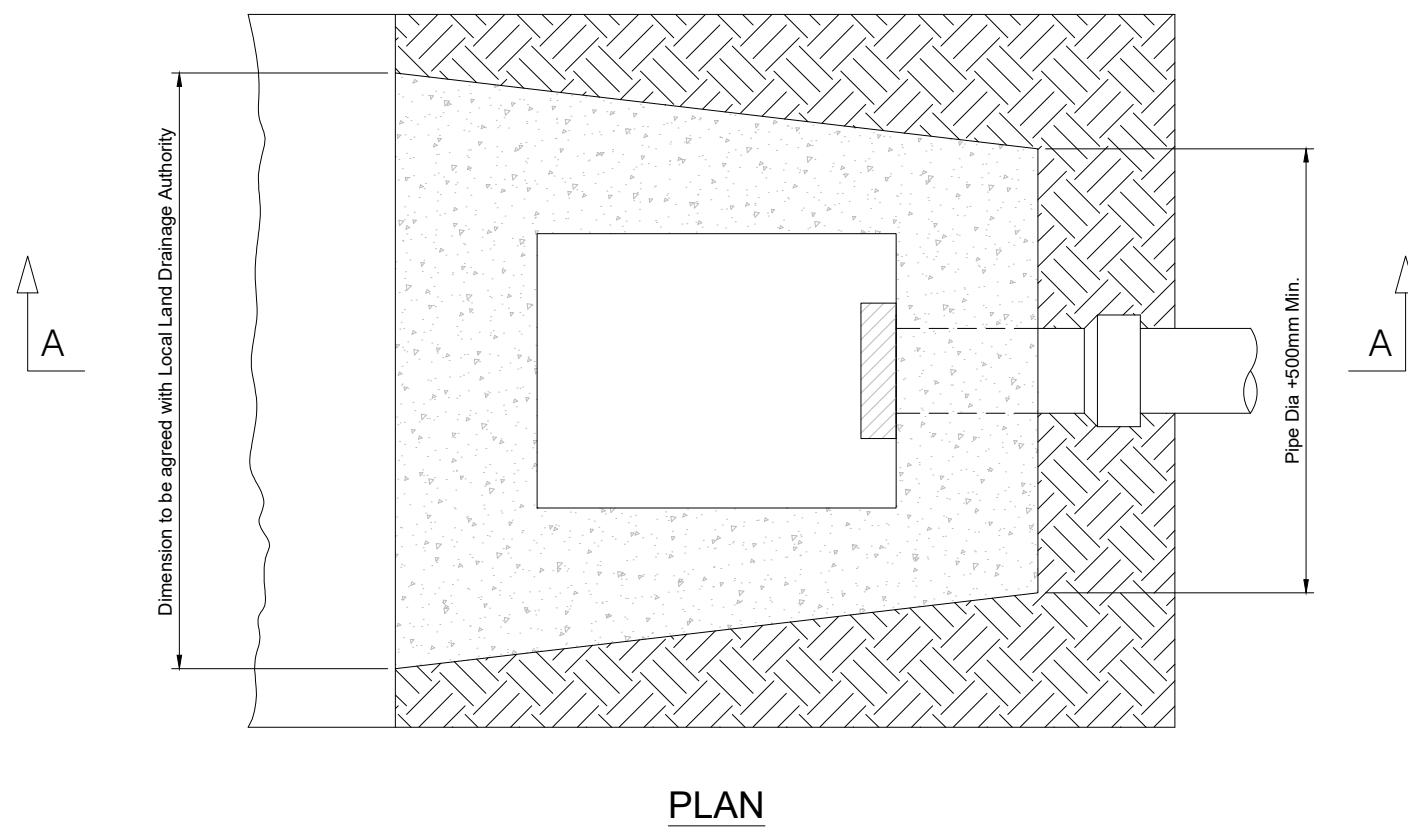
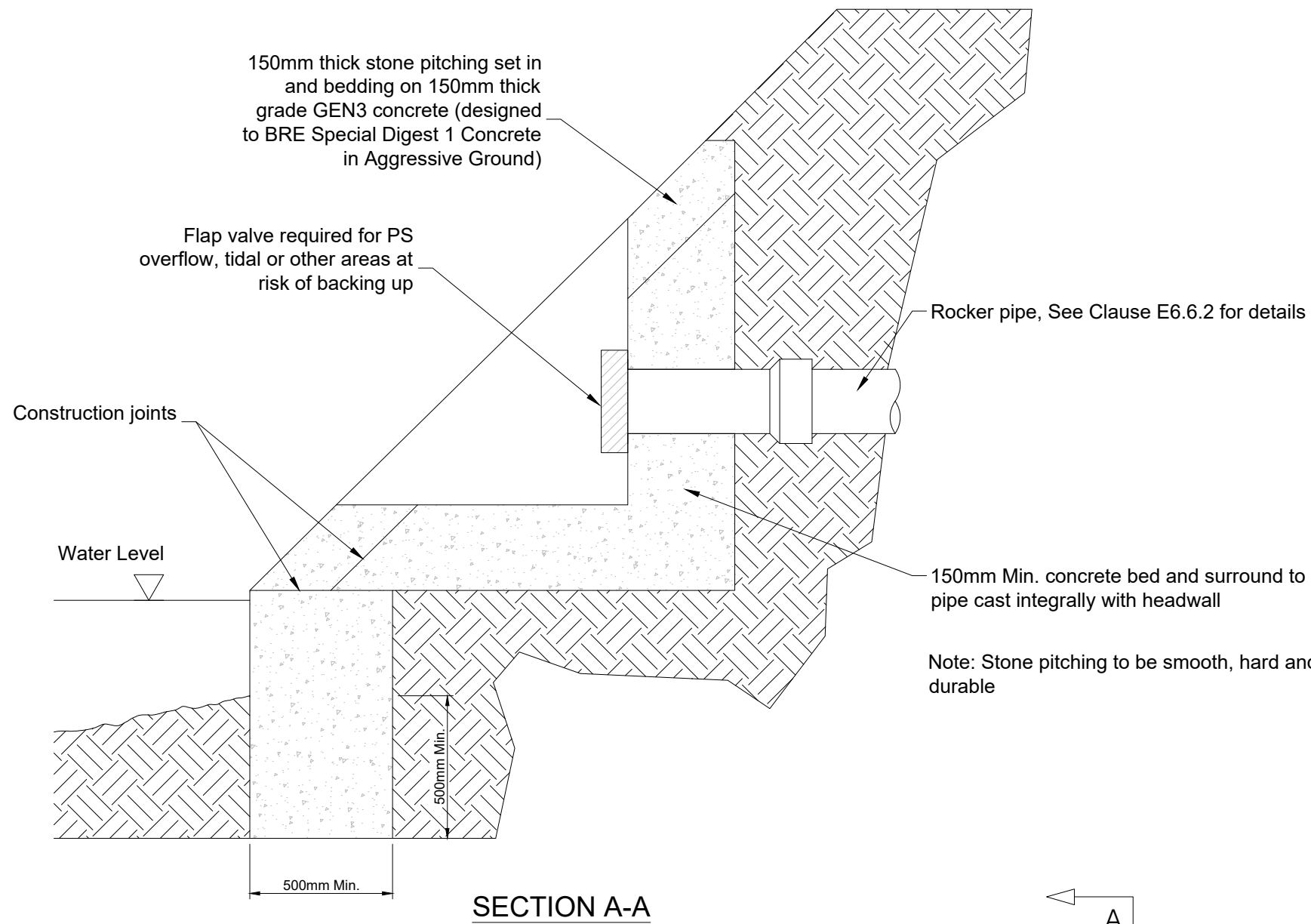
- All drainage works shall be carried out in accordance with WSA Sewers for Adoption (8th Edition), Civil Engineering Specification for the Water Industry, Highways Authority Specification and/or NHBC specification, whichever is appropriate.
- The position of all internal surface and foul water drainage connections to be confirmed by the Architect.
- The following summarises the foul water drainage strategy.
 - A public foul sewer is present within the site boundary and will require diversion. Invert levels along the proposed diversion route have been estimated based upon public sewer records. Further survey works are required to confirm chamber locations and indicate their sizes.
 - It is proposed to discharge foul water into the diverted foul sewer.
 - Private dwelling drainage and internal foul water connection points are to be confirmed.
- The following summarises the surface water drainage strategy.
 - It is proposed to discharge surface water runoff into the Wey Brook, an ordinary watercourse located approximately 120m to the north, subject to Ordinary Watercourse Consent from the LLFA.
 - Discharge rates will be restricted to 3.4 l/s. That is, the equivalent greenfield runoff rate for all events up to the 1 in 100 year plus 40% climate change allowance rainfall event.
 - Excess flows are to be attenuated within a detention basin.
 - Permissible and impermeable catchment areas contributing to the proposed surface water drainage network are indicated on drawing C3701-SK003.
 - A public surface water sewer passes through the site and will require diversion. Existing invert levels are currently unknown and further survey works will be required to confirm invert levels along the proposed diversion route.
- The surface water disposal rate is to be agreed with the Lead Local Flood Authority.
- Additional groundworks, saffles, manholes etc. may be required during the detailed design. Only key strategic information is shown here.
- All connections to be formed in the direction of flow using pipe bends.
- All polypropylene inspection chambers shall be in accordance with BS EN 15956:2009.
- It is assumed that the Owner or Occupier of the development will provide access to the local sewerage undertaker of the location to communicate flows to the public sewer, as required by The Water Industry Act (1991) as amended.
- All drains to be tested prior to backfilling and upon completion of hard landscaping. In addition, all drains to be inspected by CCTV methods prior to hard landscaping.
- All drainage works within retained tree canopy are to be constructed using special protection measures in accordance with SFAG; namely, polyethylene sponework and welded joints.
- Flow controls to be vortex control/hydrant or equivalent.
- All drainage proposals (layout, discharge methodology and rates) are subject to approval from the sewerage undertaker and local planning authority.

H	CJ	19.11.25	Drainage updated to suit LLFA comments	PD
G	CJ	16.07.25	Drainage layout revised	MB
F	CJ	03.07.25	Site layout updated. Pipe inverts & sizes added	MB
E	CB	27.08.25	Basin position adjusted	CB
D	CJ	02.08.25	Site layout updated	CJ
C	SA	13.02.25	Maximum allowable discharge rate reduced	PD
B	PD	14.03.22	Site layout updated	SA
A	RD	28.01.22	Site layout updated	PD
REV	BY	DATE	DETAILS	CKD

STATUS	S2 - INFORMATION
CLIENT	B.Yond Homes Ltd
PROJECT	Land at Cranesfield Sherborne St John Basingstoke
TITLE	Drainage Strategy

Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 5SB
Tel: 01773 535555
www.hspconsulting.com

SCALE	PROJECT NO.	SHEET
1:250	C3701	SIZE A0
DATE	DRAWN	CHECKED
21.10.2021	SA	PD
DRAWING NO.	REV	
C3701-DS001	H	



General Notes

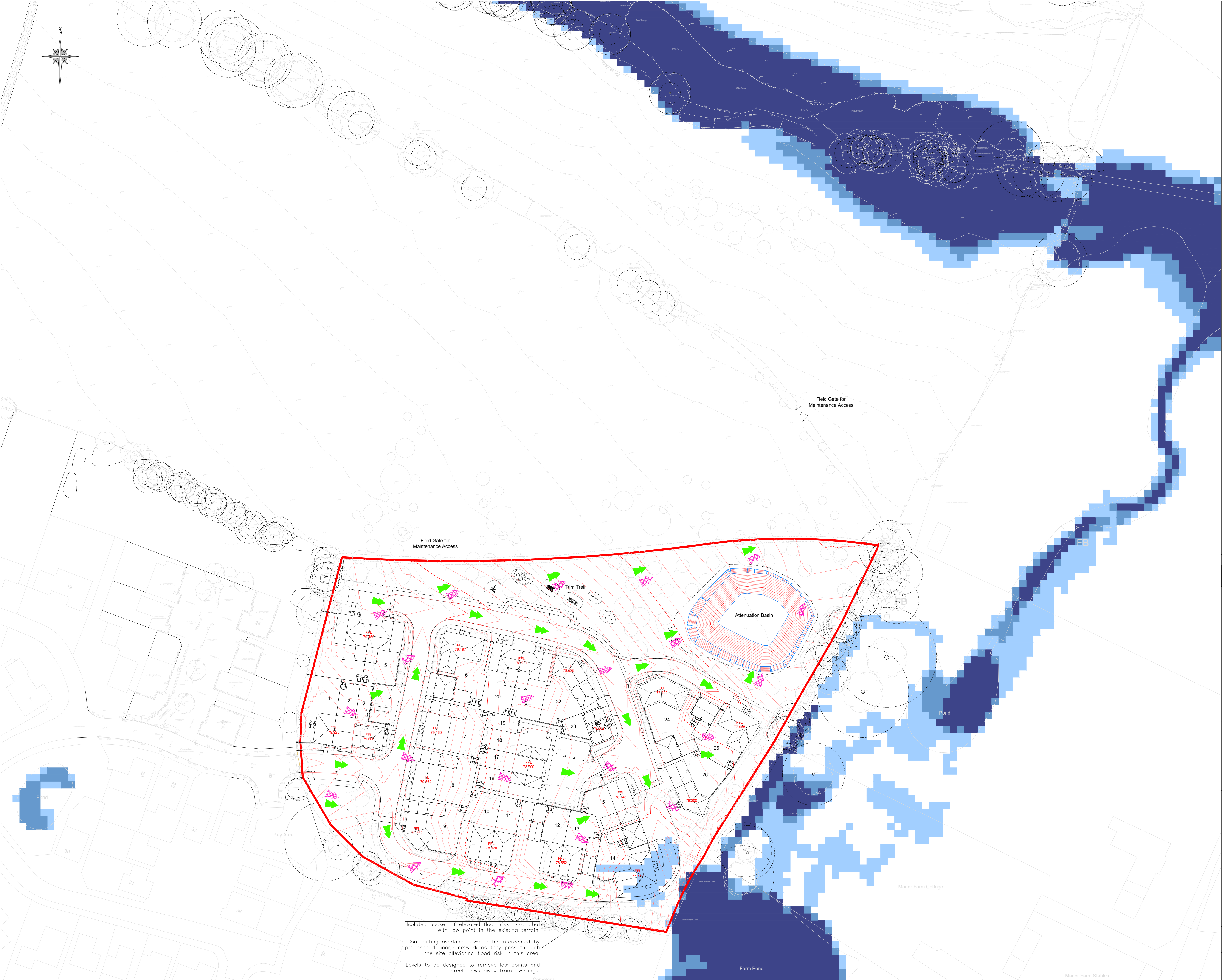
1.

This detail is intended to be indicative and has not been provided as a design for construction.

2.

Detail taken from Sewerage Section Guidance Appendix C - Design and Construction Guidance.

-	CJ	19.11.25	First Issue	PD
REV	BY	DATE	DETAILS	CKD
STATUS		S1 - COORDINATION		
CLIENT				
B.Yond Homes Ltd				
PROJECT				
Land at Cranesfield Sherborne St John Basingstoke				
TITLE				
Typical Headwall Detail				
h s p consulting Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB Tel: 01773 535555www.hspconsulting.com				
SCALE		PROJECT NO.		SHEET
1:10		C3701		SIZE A3
DATE		DRAWN		CHECKED
19.11.2025		CJ		PD
DRAWING NO.				REV
C3701-SK03				-



- General Notes**
1. The purpose of this drawing is to illustrate notional overland flow directions and to show the extent of surface water flooding (climate adjusted) in relation to the proposed site layout.
 2. Do not scale. All dimensions shown are in metres unless noted otherwise.
 3. This drawing is not provided as a design for construction nor is it to be used for setting out purposes until all Client and Regulator approvals have been obtained and it has been subject to all necessary co-ordination.
 4. Existing information has been reproduced from Survey Solutions Topographical Survey undertaken in January 2025 (ref. 74301BWL-S-01).
 5. Proposed information is reproduced from B.Yond Homes Ltd site layout drawing dated 11.07.2025 (reference H0123-FA-02).
 6. This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors details. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings, the Engineer should be informed PRIOR to construction on site.
 7. The information shown and which originates from others may have been simplified for clarity. Refer to the originators details for additional information.

- Key to Proposals**
- Application boundary
 - Existing contours (mAO)
Reproduced from topographical survey
Shown in 0.5m intervals
 - Notional proposed landform
Based on Architect's outline levels
Shown in 0.1m intervals (1m prominent)
 - Indicative direction of existing watershed
 - Indicative direction of proposed watershed
 - Risk of Flooding from Surface Water Map
Yearly chance of flooding between 2040 and 2060
 - High Chance
More than 3.3% chance each year
 - Medium Chance
Between 1% and 3.3% chance each year
 - Low Chance
Between 0.1% and 1% chance each year

- Overland Flow Notes**
1. The information shown has been generalised for illustration purposes. Localised low points will be present; for example within access roads/driveways which will be serviced by gullies.
 2. Existing
 - 2.1. The trend in the existing terrain is for a fall from west to east/northeast towards an existing ditch which runs along the eastern site boundary.
 - 2.2. The terrain is reasonably regular. However, a depression exists in the southeast corner.
 - 2.3. Exceedance flows are expected to enter the site from an existing housing estate to the west. Drainage infrastructure is evident within the estate roads.
 3. Proposed
 - 3.1. The (indicative) contours shown are generalised and have been produced based upon finished floor levels and road levels provided by the Architect. This indicates that the current landform trend will be maintained.
 - 3.2. The potential for standing water within the site cannot be eliminated. However, in outline terms, watershed will be directed away from the proposed building entrances.
 - 3.3. The layout offers potential for flow between structures.
 - 3.4. It is considered unlikely that exceedance events will impact upon the proposed structures.
 4. In addition to the above, the following summarises objectives for overland flow routing which should be delivered during the detailed design process:
 - 4.1. All doorways are to be elevated above the adjacent surroundings.
 - 4.2. Flow to be directed away from doorways.
 - 4.3. Preferential routes directing water away from buildings should be incorporated.
 - 4.4. Localised low spots to be avoided where practicable. Where present, the depth of water should be relatively shallow before 'over spilling' away from dwelling entry points.

-	CJ	17.11.25	First Issue	PD
REV	BY	DATE	DETAILS	CKD

STATUS	S2 - INFORMATION
--------	------------------

CLIENT

B.Yond Homes Ltd

PROJECT

Land at Cranesfield
Sherborne St John
Basingstoke

TITLE

Overland Flow Plan

hsp
consulting

Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555 www.hspsconsulting.com

SCALE 1:500	PROJECT NO. C3701	SHEET SIZE A1
DATE 17.11.2025	DRAWN CJ	CHECKED PD
DRAWING NO. C3701-DS002	REV -	

Appendix 8 ■ Example Drainage Maintenance Strategy

Manholes and Inspection Chambers

Description

Manholes providing rodding and jetting access to pipe work.

Typically manholes, in distinction to inspection chambers, are designed to allow for operatives to access. Manholes should only be accessed following a risk assessment, and the specification of the safe system of work, paying regard to confined space risks.

Maintenance Issues

Manholes are unlikely to present maintenance issues in themselves. However, they provide access to the drainage infrastructure and allow visual inspection from the surface of any major maintenance issues.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Lift covers and ensure that there are no blockages. Inspect and identify any parts that are not operating correctly and remediate.	For 3 months following installation
	Ensure covers are in a good state of repair.	Monthly
	Inspect manholes, and inspection chambers, to ensure that the drainage is running freely.	Six Monthly and every autumn after leaf fall
Occasional maintenance	Suction sweeping and cleansing (to WRC Jetting Code of Practice) and CCTV where necessary.	Every 2 – 4 Years
Remedial maintenance	• Silt removal. • Inlet/outlet repair. • Erosion repairs. • System rehabilitation following a pollution event. • Manhole Cover Replacement. • Repairs to brickwork or concrete. • Chanel repair.	As required (tasks to repair problems due to wear, damage or vandalism).

Catchpits

Description

Catchpits are similar to manholes but include a sump to the base which is designed to capture silt and prevent it reaching other parts of the drainage network. Catchpits provide a convenient location to remove silt for drainage networks. Catchpits should only be accessed following a risk assessment, and the specification of the safe system of work, paying regard to confined space risks.

Maintenance Issues

If the silt captured in catchpits is not removed regularly it will cause silt to migrate downstream to other part of the drainage network, some of which may be less accessible, or inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Lift manhole covers and ensure that there are no blockages.	For 3 months following installation
	Inspect and identify any parts that are not operating correctly and remediate.	
	Inspect silt storage in sump. Remove silt as required using subcontractor with vacuum extraction plant.	
	Ensure covers are in a good state of repair. Repair/replace as necessary.	Monthly
	Inspect catchpits to ensure that the drainage is running freely, and free of debris.	Six Monthly and every autumn after leaf fall
	Inspect silt storage in sump. Remove silt as required using subcontractor with vacuum extraction plant.	
Occasional maintenance	Suction sweeping and cleansing (to WRC Jetting Code of Practice) and CCTV where necessary.	Every 2 – 4 Years
	Remediate any chamber structural defects, or any defects that may reduce the free flow of water.	
Remedial maintenance	• Silt removal. • Inlet/outlet repair. • Erosion repairs. • System rehabilitation following a pollution event. • Manhole Cover Replacement. • Repairs to brickwork or concrete.	As required (tasks to repair problems due to wear, damage or vandalism).

Linear Drains

Description

Surface Water is drained over impermeable areas towards grated, or slot-type linear drains at low points and water is conveyed to below ground pipework.

Maintenance Issues

Linear drains can become blocked by silt or debris, causing flooding.

Linear drains often include silts traps at outlets which can cause siltation of downstream drainage infrastructure if not maintained adequately.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Inspect linear drains to ensure that there are no blockages at surface level.	For 3 months following installation
	Lift covers to outflow boxes and check for blockages or siltation.	
	Inspect and identify any parts that are not operating correctly and remediate.	
	Inspect linear drains to ensure that there are no blockages at surface level.	Monthly
	Lift covers to outflow boxes and check for blockages or siltation.	Six Monthly and every autumn after leaf fall
Occasional maintenance	Jetting of linear drains and suction vacuuming of outlet boxes (to WRC Jetting Code of Practice). CCTV where necessary.	Every 1 – 2 Years
Remedial maintenance	• Silt removal. • Inlet/outlet repair. • Erosion repairs. • System rehabilitation following a pollution event. • Linear drain cover replacement. • Chancel repair. • Ensure that impermeable surfaces surrounding linear drains have not settled below top of linear drain level, causing ponding.	As required (tasks to repair problems due to wear, damage or vandalism).

Gullies

Description

Surface Water is drained over impermeable areas towards grated gullies at low points, from where water is conveyed to below ground pipework.

Maintenance Issues

Gullies can become blocked by silt or debris, causing flooding.

Gullies include integral silt traps which can cause siltation of downstream drainage infrastructure if not adequality maintained.

Gullies often include a trapped outlet which prevents liquids lighter than water (ie oil and fuel) leaving the gully. If silt and light liquids are not removed regularly silt and oil will migrate downstream to other part of the drainage network, some of which may be less accessible, or inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Inspect to ensure that there are no blockages at surface level, and that the outfall is operating effectively.	For 3 months following installation
	Inspect and identify any parts that are not operating correctly and remediate.	
	Ensure that there are no blockages at surface level.	Monthly
	Lift covers to check for blockages or siltation.	Six Monthly and every autumn after leaf fall
Occasional maintenance	Remove oil and silt using specialist vacuum extraction plant.	Every 1 – 2 Years
Remedial maintenance	• Silt removal. • Inlet/outlet repair. • Erosion repairs. • System rehabilitation following a pollution event. • Cover replacement. • Structural failure of gully pot. • Ensure that impermeable surfaces surrounding linear drains have not settled below top of gully cover level, causing ponding.	As required (tasks to repair problems due to wear, damage or vandalism).

Pipework

Description

Below ground drainage pipework connects drainage inlets (gullies, linear drains etc) to manholes and also provides connections between manholes.

Maintenance Issues

Pipes can become blocked by silt, debris fat, grease, or suffer structural collapse. It is also possible for pipe joints to become displaced or for roots to grow from the surrounding ground into pipes.

These factors cause a reduction in, or loss of, the hydraulic capacity of the pipes which can in turn cause flooding to land and buildings.

Defects in pipes can also cause a reduction in stability to ground underlying foundations, which can cause settlement and damage to buildings and external surfaces.

The material of pipes and associated couplings can be degraded if aggressive liquids are passed through the pipes.

It is recommended that trees are not planted within 3m of pipes to minimise the risk of root ingress.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Inspect and identify any parts that are not operating correctly and remediate.	For 3 months following installation
	Monitor working of drainage at ground level. Evidence of damage to pipework may include localised flooding or emission of smells.	Monthly
	Lift manholes covers to check for blockages.	Six Monthly
Occasional maintenance	CCTV pipework, clean to WRC Sewer Jetting Code of Practice. Remediate as necessary.	Every 1 – 2 Years
Remedial maintenance	• Silt removal. • Fat and Grease removal. • Erosion repairs. • Joint displacement. • Structural failure, cracking or collapse. • System rehabilitation following a pollution event.	As required (tasks to repair problems due to wear, damage or vandalism).

Vortex Controls

Description

Vortex controls, often called Hydrobrakes, are installed in some manholes to restrict the rate of flow. Vortex controls are usually constructed in steel and are installed in a manhole with a sump.

Maintenance Issues

Vortex controls can become blocked by debris, plastic bags or other sheet material. If silt is allowed build up in the sump the operation of the device can be hampered causing flooding upstream.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Refer to manufacturer's specification.	For 3 months following installation
	Inspect and identify any parts that are not operating correctly, consult supplier and remediate as required.	
	Monitor working of drainage at ground level.	Monthly
	If there is localised flooding check the condition of all system elements.	
	Lift manholes covers to check for blockages.	Six Monthly and every autumn after leaf fall
	Remove sediment from pre-treatment structures, gullies, catchpits etc.	
Occasional maintenance	Clean to WRC Sewer Jetting Code of Practice. Remediate as necessary.	Every 1 – 2 Years
Remedial maintenance	Inspect, and carry out remediation works to ensure that the features are in fully working order.	As required (tasks to repair problems due to wear, damage or vandalism).

Geocellular Attenuation Storage

Description

Geocellular storage systems are modular plastic units with a high porosity that can be used to efficiently create a below-ground structure for the temporary storage of surface water before being released.

Maintenance Issues

The main maintenance issue with geocellular attenuation storage is the prospective build up of silt within the units. It is imperative that the upstream and downstream catchpits are inspected and emptied regularly to prevent the ingress of silt into the system.

Maintenance Regime

Schedule	Action Required	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	For 3 months following installation, then annually.
	Remove debris from the catchment surface (where it may cause a risk to performance)	Monthly
	For systems where rainfall infiltrate into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary	Annually
	Remove Sediment from pre-treatment structures and/or internal forebays.	Annual, or as required
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every five years or as required

Petrol Interceptors/Oil Separators

Description

Petrol interceptors, also called oil separators, separate out light liquids, such as oil or fuel, and silt and grit. The purpose of the separation is to prevent oil and silt (which may contain heavy metals) polluting watercourses downstream.

Maintenance Issues

For a separator to operate effectively, and prevent pollutants leaving a site, it is necessary to remove the contained oil and silt on a regular basis. It is recommended that maintenance is proactive, rather than waiting for any installed alarm to highlight the need for emptying. The party responsible for maintenance, usually the owner or occupier, should consult the manufacturer to determine a suitable maintenance regime. Oil and silt should only be removed by a licenced contractor.

Maintenance Regime

Activity	Action Required	Frequency
Routine/regular maintenance (including inspections and monitoring)	Refer to manufacturer's specification.	For 3 months following installation
	Inspect and identify any parts that are not operating correctly and remediate.	
	Monitor working of drainage at ground level. If there is localised flooding check the condition of all system elements.	Monthly
Routine/regular maintenance (including inspections and monitoring)	• Check volume of sludge/silt. • Check thickness of light liquid. • Check function of automatic closure device. • Empty the separator, if required. • Check the coalescing material and clean or change if necessary (Class 1 only). • Check the function of the warning device (if fitted).	Six Monthly and every autumn after leaf fall
Occasional maintenance	• Consult manufacturer to obtain details of an approved separator maintenance contractor. • Check watertightness of system. • Check structural condition. • Check internal coatings. • Check built-in parts • Check electrical devices and installations. • Adjust automatic closure devices.	5 Yearly Maximum
Remedial maintenance	Inspect, and carry out remediation works to ensure that the features are in fully working order.	As required

Filter Strips

Description

Filter strips are uniformly graded and gently sloping strips of grass or dense vegetation that are designed to treat runoff from adjacent impermeable areas by promoting sedimentation, filtration and, where acceptable, infiltration.

Maintenance Issues

Filter strips have low maintenance requirements. They should be kept free from litter. Grass should be maintained at a length of between 75 – 150mm. All grass clippings should be removed from the filter strip. Sedimentation should be kept below a depth of 25mm.

Maintenance Regime

Activity	Action Required	Frequency
Regular Maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect filter strip surface to identify evidence of erosion, poor vegetation growth, compaction, ponding, sedimentation and contamination (eg oils)	Monthly (at start, then half yearly)
	Check flow spreader and filter strip surface for even gradients	Monthly (at start, then half yearly)
	Inspect gravel flow spreader upstream of filter strip for clogging	Monthly (at start, then half yearly)
	Inspect silt accumulation rates and establish appropriate removal frequencies	Monthly (at start, then half yearly)
Occasional maintenance	Reseed areas of poor vegetation growth; alter plant types to better suit conditions, if required	As required or if bare soil is exposed over > 10% of the filter strip area
Remedial actions	Repair erosion or other damage by re-turfing or reseeded	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

Filter Drains

Description

Filter drains are shallow trenches filled with stone/gravel that create temporary subsurface storage for the attenuation, conveyance and filtration of surface water. The stone may be contained in a simple trench lined with a geotextile, geomembrane or impermeable liner. Often filter drains have a 50mm-100mm depth of permeable material that is separated from the main gravel/stone trench by a permeable geotextile. This top layer is intended to be sacrificial, collecting silt over time and requiring replacement every 5 – 10 years, or as required if ponding is evident.

Maintenance Issues

Over time the top permeable material layer will trap silt and other materials. On a highway the trapped material may include heavy metals. The top layer, and associated geotextile, will become less permeable with time and should be replaced as set out below.

If the filter drain includes pipework it may become blocked over time. The pipe should be kept clear of silt and debris.

If the main filter material becomes silted up there may be a requirement to excavate and replace the entire filter drain.

Any material removed should be tested and may require disposal at landfill.

Maintenance Regime

Activity	Action Required	Frequency
Regular maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices	Monthly (or as required)
	Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage	Monthly
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies	Six monthly
	Remove sediment from pre-treatment devices	Six monthly, or as required
Occasional maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (eg NJUG, 2007 or BS 3998:2010)	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium. This may also be necessary where there are high silt loads.	Five yearly, or as required
	Clear perforated pipework of blockages	As required

Swales and Ditches

Description

Swales are shallow flat bottomed, vegetated open channels designed to convey, treat and often attenuate surface water runoff. Swales can include some planting, but this must be specified not to impede the flow in the channel.

Maintenance Issues

Sufficient access to the swales should be provided. The grass at the base of the swale should be cut to a length of between 75mm and 100mm. Grass clippings/cuttings should be removed to prevent nutrients/pollutants entering the drainage system.

Occasionally sediment will need to be removed (eg once deposits exceed 25mm in depth).

Maintenance Regime

Activity	Action Required	Frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range (typically 75-100mm)	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeded	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

Bioretention Systems

Description

Bioretention systems (including rain gardens) are shallow landscaped depressions that can reduce runoff rates and volumes, and treat pollution through the use of engineered soils and vegetation.

Maintenance Issues

Bioretention systems typically require 2-3 times more maintenance than ordinary landscape areas. Particular care should be paid to any surface clogging which will reduce the hydraulic performance of the system. The surface should be subjected to a frequent litter picking regime. Plants should be maintained regularly. A detailed maintenance regime should be provided by the designer.

Maintenance Regime

Activity	Action Required	Frequency
Regular inspections	Inspect infiltration surfaces for sitting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

Trees

Description

Trees can benefit surface water management through transpiration, interception, increased filtration and phytoremediation (the process of a tree taking up harmful chemicals). Trees are typically an addition to a SuDS component.

Maintenance Issues

Maintenance requirements of trees will be greatest during the first few years, when the tree is becoming established. Early maintenance should involve regular inspection, removal of invasive vegetation and irrigation, if required during long dry spells. Maintenance responsibility for a tree pit or planter should be placed with an appropriate organisation.

Maintenance Regime

Activity	Action Required	Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets and outlets	Inspect monthly
Occasional maintenance	Check tree health and manage tree appropriately	Annually
	Remove silt build-up from inlets and surface and replace mulch as necessary	Annually, or as required
	Water	As required (in periods of drought)
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly

Pervious Pavements

Description

Pervious pavements, together with their associated substructures, are an efficient means of managing surface water runoff close to its source – intercepting runoff, reducing the volume and frequency of runoff and providing a treatment medium.

Maintenance Issues

Pervious pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Typically sweeping once a year should be sufficient to maintain an acceptable infiltration rate on most sites. However, the frequency should be adjusted to suit site specific circumstances and should be informed by inspection reports.

Maintenance Regime

Activity	Action Required	Frequency
Regular maintenance	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 manufacturer's 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	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	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, 48hrs after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Detention Basins

Description

Detention basins are landscaped depressions that are normally dry except during, and immediately following, storm events. They can be on-line, where water is routed through the basin, or offline, where water is diverted into the basin on reaching a certain threshold.

Maintenance Issues

Detention basins have low maintenance requirements. They should be kept free from litter. Grass should be maintained at a length of between 75 – 150mm, where water is intended to run overland. All grass clippings should be removed from the detention basin. Sedimentation should be kept below a depth of 25mm.

Maintenance Regime

Activity	Action Required	Frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23 of the Ciria SuDS Manual C753)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseedling or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

Ponds and Wetlands

Description

Ponds and wetlands are features with a permanent pool of water that provide both attenuation and treatment of surface water runoff. They can support emergent and submerged aquatic vegetation along their shoreline and in shallow marshy wetland zones.

Maintenance Issues

Ponds and wetlands will require regular maintenance to ensure continuing operation to design performance standards.

Litter and debris removal should be undertaken as part of general landscape maintenance. Any invasive maintenance, such as silt or vegetation removal should be planned to be sympathetic to the requirement of wildlife.

Maintenance Regime

Activity	Action Required	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, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at 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 any forebay and in main body of the pond 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 eg penstocks	Hal yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include mas 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 (Note: tree maintenance is usually part of overall landscape management contract)	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 ponds without sediment forebays	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, eg every 25-50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required

	Repair/rehabilitate inlets, outlets and overflows	As required
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