



Gleeson Land

**Land North of Swindon Road, Royal
Wootton Bassett**

Flood Risk Assessment and Drainage Strategy

November 2025

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Purpose

This document has been prepared for Gleeson Land.

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The conclusions and recommendations contained herein are limited by the availability of background information and the planned use for the Site.

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CDM

The revised Construction (Design and Management) Regulations 2015 (CDM Regulations) came into force in April 2015 to update certain duties on all parties involved in a construction project, including those promoting the development. One of the designer's responsibilities under clause 9 (1) is to ensure that the client organisation, in this instance Gleeson Land, is made aware of their duties under the CDM Regulations.

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Executive Summary

- 1.1.1 PJA has been commissioned by Gleeson Land to prepare a Flood Risk Assessment (FRA) and Drainage Strategy to support an outline planning application with all matters reserved except for access for up to 135 dwellings, the creation of new vehicular access with footways from Swindon Road, provision of informal and formal open space, together with associated highways, landscape, earth works and level changes, foul and surface water drainage facilities, utilities provision and other associated and necessary infrastructure. The Site is located off Swindon Road (A3102), north-east of Royal Wootton Bassett.

Table 1-1: Executive Summary Table

Overview	
Site Location	Land North of Swindon Road (A3102), north-east of Royal Wootton Bassett. Approx. Postcode: SN4 8PA
Site Area	6.5ha
Development Proposal	Approx. 135 dwellings with associated greenspace and infrastructure.
Environment Agency Flood Zone(s)	Flood Zone 1
Vulnerability Classifications(s)	More Vulnerable
Fluvial Flood Risk	Low risk
Tidal Flood Risk	Very low risk
Surface Water Flood Risk	Low risk
Groundwater Flood Risk	Low risk
Sewer Flood Risk	Low risk
Canal Flood Risk	Very low risk
Reservoir Flood Risk	Very low risk
Surface Water Drainage	Surface water drainage strategy for the proposed residential development will be managed via an attenuation basin where it will then discharge at rate of 8.9l/s into the ordinary watercourse along the east of the Site. This provides a 30% betterment on the greenfield runoff rate (QBar). A conveyance swale has also been proposed along the northern extent of the Site's developable area, additional multifunctional SuDS features will be reviewed and incorporated into the development at the next design level to ensure that water quality standards are achieved.
Foul Water Drainage	The foul drainage strategy proposes two options subject to Wessex Water confirming a point of connection to the public foul sewer network. The preferred option: Option 1 proposes a gravity-led solution with a connection to an existing Manhole 4931; Option 2 proposes a pumped solution via a new onsite foul pumping station in the south-east of the Site. A new rising main will be required which will discharge into Wessex Water's foul sewer network at Manhole 9011.



Introduction

Terms of Reference

- 2.1.1 PJA has been commissioned by Gleeson Land. to prepare a Flood Risk Assessment (FRA) and Drainage Strategy to support an outline planning application with all matters reserved except for access for up to 135 dwellings, the creation of new vehicular access with footways from Swindon Road, provision of informal and formal open space, together with associated highways, landscape, earth works and level changes, foul and surface water drainage facilities, utilities provision and other associated and necessary infrastructure (herein referred to as 'the Site').

Scope of Works

Flood Risk Assessment (FRA)

- 2.2.1 This FRA provides information on the nature of identified existing and potential flood risk at the Site and follows Government guidance with regard to development and flood risk in line with the National Planning Policy Framework (NPPF) and supporting Planning Practice Guidance (PPG).

Drainage Strategy

- 2.2.2 The surface water drainage strategy aims to sustainably manage surface water from the Site and has been developed in accordance with current sustainable development best practices and the specific requirements of Wiltshire County Council as the Lead Local Flood Authority (LLFA).
- 2.2.3 A high-level foul water drainage strategy has also been developed for the proposed development Site.

Information Sources

- 2.3.1 This report comprises a review of readily available public information and other relevant information obtained from the following sources:
- Environment Agency (EA);
 - British Geological Survey (BGS);
 - Cranfield Soil and Agrifood Institute Soilscales;
 - DEFRA Magic Mapping;
 - Wessex Water
 - Wiltshire County Council

Site Details

Site Description

- 3.1.1 The proposed development Site, which is the focus of this FRA, is predominantly greenfield (undeveloped) in nature and currently used primarily for agriculture.
- 3.1.2 The Site is approximately 6.5 hectares in size and is located immediately north of Swindon Road (A3102), situated north-east of Royal Wootton Bassett, postcode SN4 8PA. The Churchill House Pub is located to the southeast of the Site, and a residential dwelling with its associated land bounds the west of the Site. All other areas surrounding the Site are considered greenfield and used for agricultural purposes. Rook Wood Solar Farm is located approximately 700m north-east of the Site.
- 3.1.3 The Site's OS co-ordinates are 408121, 183195.
- 3.1.4 A Site location plan is available in Figure 3-1 and Summary of Site is available in Table 3-1.

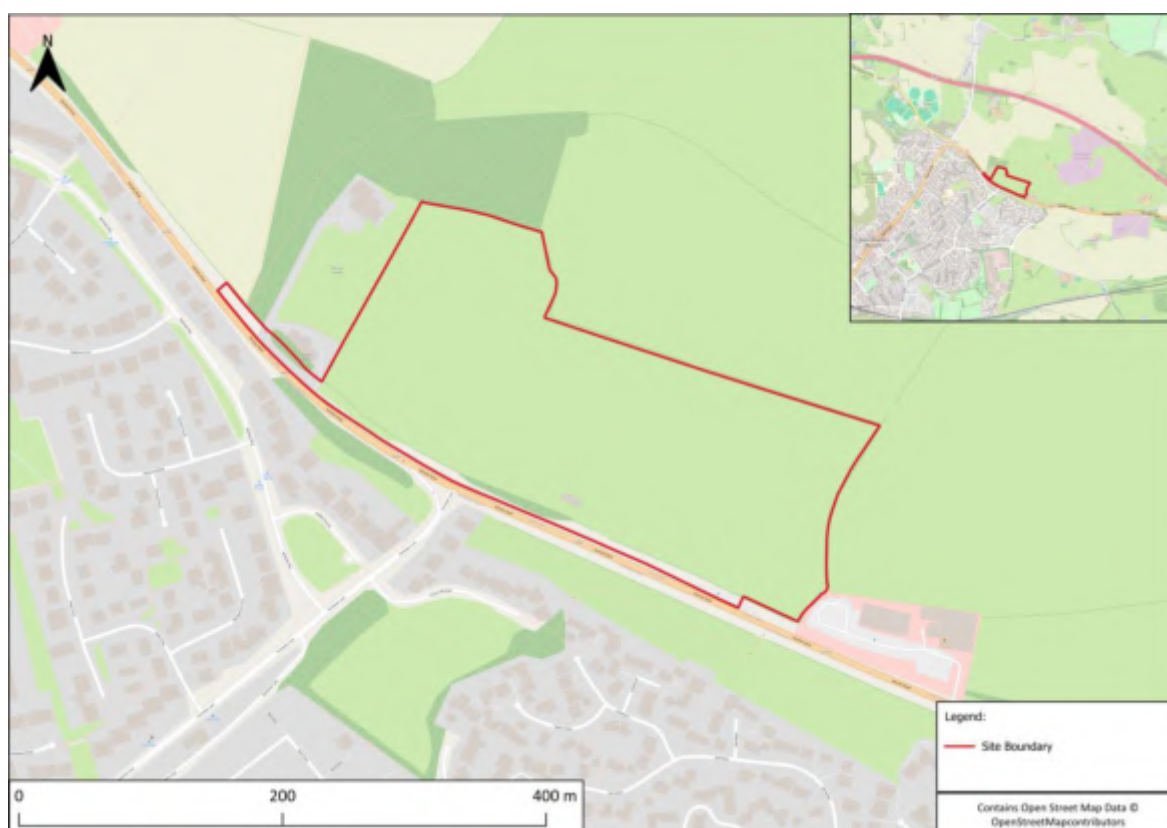


Figure 3-1: Site Location Plan

**Table 3-1: Summary of Site**

Site Address	Land north of Swindon Road (A3102), Royal Wootton Bassett, Wiltshire, Apprx. Postcode: SN4 8PA
Existing Land use	Agricultural land
Proposed Development Type	Residential
Site Area	6.5 ha
OS Co-ordinates	408121, 183195
County	Wiltshire County
Local Planning Authority	Wiltshire County Council
Lead Local Flood Authority	Wiltshire County Council
Local Water Authority	Thames Water and Wessex Water

Site Topography

- 3.2.1 The Site is greenfield (undeveloped) in nature and comprises agricultural fields. A topographical survey was undertaken for the Site in May 2025 by Corner Point Surveys Limited (Appendix A). The survey confirms the Site's topography falls to the south-west and to the east. The highest elevation is approximately 138.05 mAOD at a mound in the north of the Site and, excluding the mound, peak ground levels are identified at approximately 137.68 mAOD. The lowest elevation is approximately 122.64 mAOD which corresponds with a ditch along the eastern boundary of the Site.
- 3.2.2 The ditch present along the eastern boundary of the Site is recorded to average a depth between 0.35-0.84m, it is shown to be 0.84m deep at its most downstream point in the north-eastern corner of the Site.
- 3.2.3 An extract of the publicly available 1m DTM LiDAR providing an illustration of ground levels across the Site and is available in Figure 3-2.

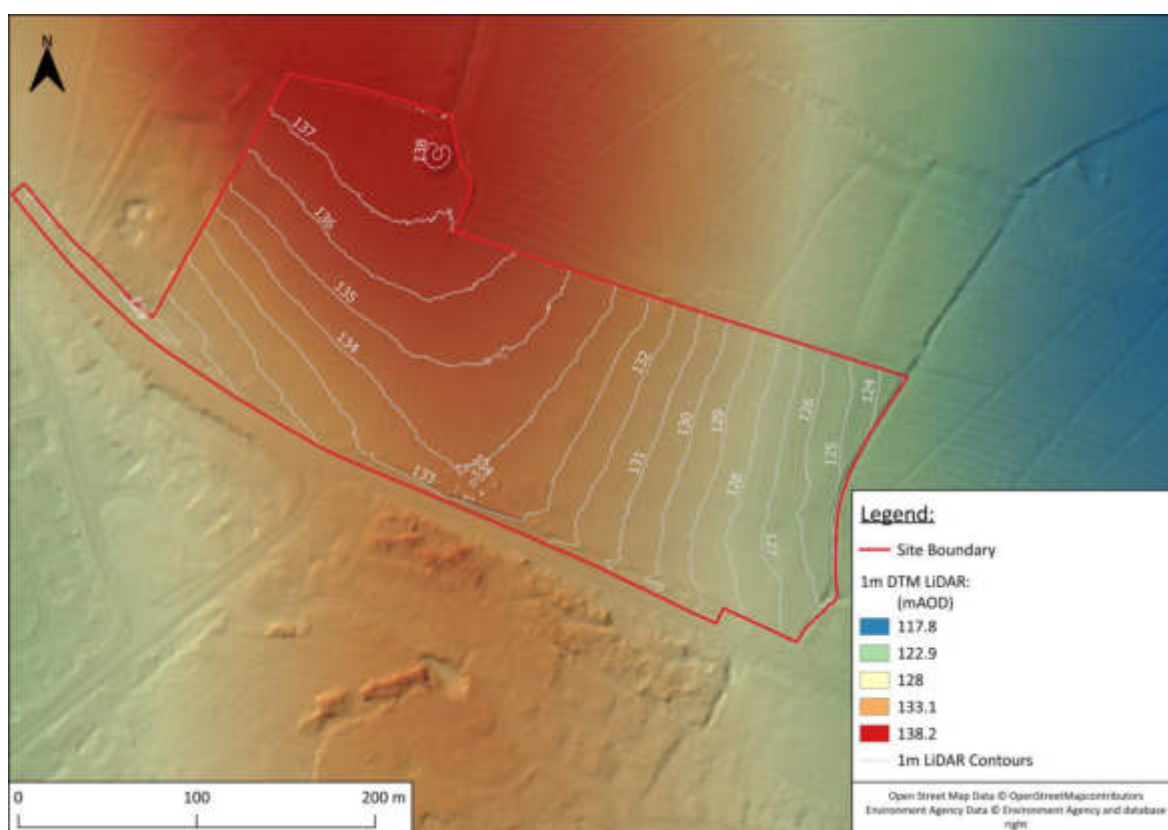


Figure 3-2: Publicly Available 1m DTM LiDAR Extract

Ground Conditions

BGS Mapping

- 3.3.1 From a review of the British Geological Survey (BGS) Geology of Britain viewer¹ the majority of the Site is shown to be underlain by Ampthill Clay Formation – Mudstone, with bands of Kimmeridge Clay Formation – Mudstone and Kimmeridge Clay Formation – Limestone situated towards the centre of the Site.
- 3.3.2 No superficial deposits are shown to be present.
- 3.3.3 The underlying bedrock geology suggests that infiltration potential is likely to be low for the Site.
- 3.3.4 An extract of the Site's BGS Bedrock Geology is available in Figure 3-3.

¹British Geological Survey. Geology of Britain Viewer.

<https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>



Figure 3-3: BGS Bedrock Geology

Cranfield Soilscape Viewer

- 3.3.5 The Cranfield University Soilscape viewer² describes the soils as ‘Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils’.

Hydrogeology

- 3.3.6 From review of the publicly available DEFRA Magic Mapping³, Aquifer Designation Map, the Site is not underlain by either a Superficial Drift or Bedrock aquifer.
- 3.3.7 It is also identified that the Site is wholly underlain by Groundwater Source Protection Zone 2c – Subsurface Activity, that is defined as “*the area around an abstraction point for domestic supply or for food production purposes*”.
- 3.3.8 A Geo-Environmental Site Investigation has been undertaken by BRD Environmental Ltd (Oct 2025) (ref. BRD4201-OR2-A) which confirms there are no licenced groundwater abstraction points within

²Cranfield Soil and Agrifood Institute. Soilscape Viewer. <http://www.landis.org.uk/soilscales/>

³ DEFRA Magic Map <https://magic.defra.gov.uk/MagicMap.aspx>



250m of the Site. This report will be submitted as a standalone document as part of the planning application.

- 3.3.9 The investigation indicated no superficial deposits were present across the Site. The bedrock geology which underlies the Site comprises Kimmeridge Clay Formation in the centre, and Ampthill Clay Formation in the east and west. In the higher elevations of the north of the Site, some limestone beds of the Kimmeridge Clay Formation were shown to be present.
- 3.3.10 The Preliminary Contamination Risk Assessment, provided as part of the Geo-Environmental Site Investigation, indicates that the majority of the Site is unlikely to be significantly contaminated. However, a potential low risk of pesticide contamination exists based on the historical agricultural activities at the Site. In addition to this, there is also potential contamination issues associated with the former buildings in the south of the Site and potentially infilled ponds present along the western boundary. These risks are considered localised but in light of their presence, a Phase 2 contamination assessment has been recommended by BRD Environmental Ltd.
- 3.3.11 Soakaway testing was undertaken at the Site as part of the Geo-Environmental Site Investigation. Testing was carried out in three trial pits (TP01, TP02, and TP03), as shown on Figure 3-4. One pit was located near the centre of the Site, with the remaining two positioned towards the eastern area where the Site is topographically lower. The tests did not yield any measurable soil infiltration rates over a five-hour period, as the soil permeability was too low to enable calculation of a valid rate. On this basis, the potential for utilising infiltration as a means of surface water disposal at the Site is considered to be low.
- 3.3.12 Groundwater monitoring was also undertaken across four days in September 2025. The resting levels had a maximum recorded range of 2.25m bgl to dry within the boreholes and a minimum of 3.51m bgl to dry. The shallowest monitored groundwater level of 2.25mbgl was recorded in WS02 in the north-eastern corner of the Site (Figure 3-4). The report concluded that most of the boreholes recorded standing water levels which are considered to be related to a combination of seepage from small pockets within the clay soils and surface water ingress from ground disturbances during the borehole drilling. Given the nature of clay soils, free movement of water is unlikely and so accumulates within the well. Thus, the recorded standing water levels are not considered to be representative of 'true' groundwater levels.
- 3.3.13 An extract of the Exploratory Point Plan for the Geo-Environmental Site Investigation is available in Figure 3-4.

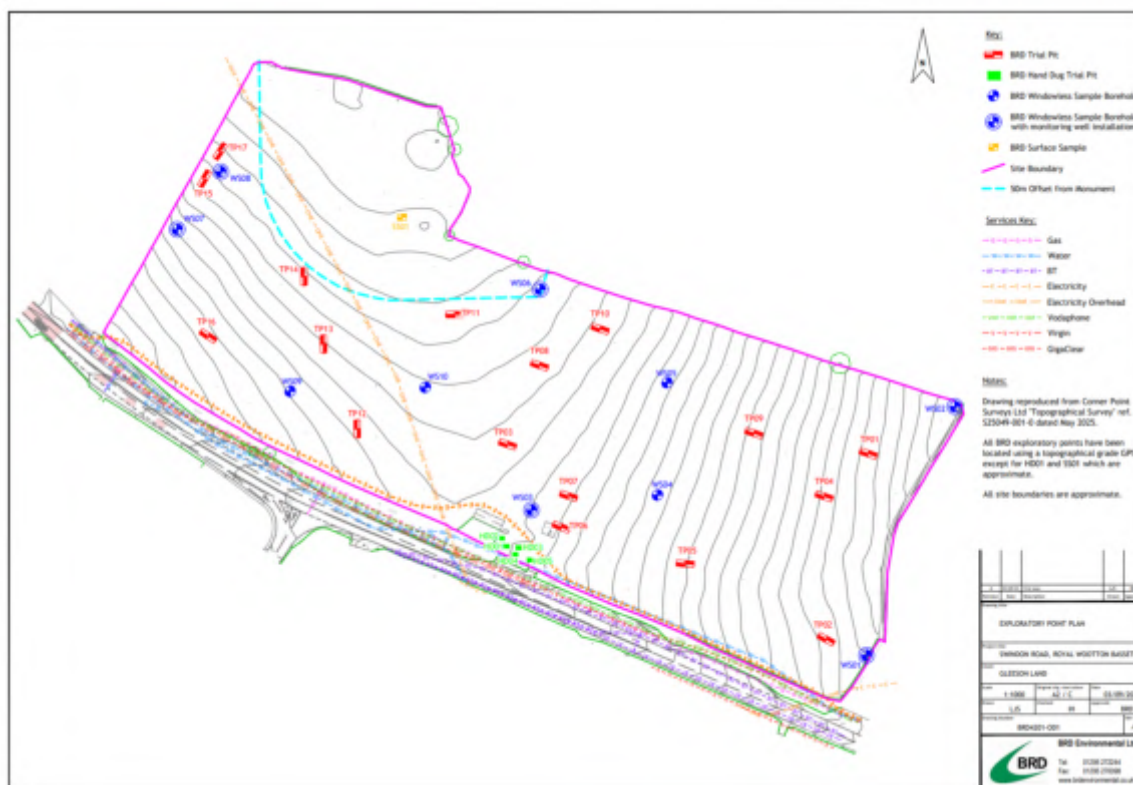


Figure 3-4: Extract of Exploratory Point Plan (BRD Environmental Ltd)

Existing Hydrological Regime

- 3.4.1 The Site is greenfield in nature and is not currently served by any surface water sewers. As such, surface water runoff follows the natural topography of the Site.
- 3.4.2 An ordinary watercourse, identified during the topographical survey and confirmed during a site visit conducted on 29th May 2025, is located along the eastern boundary of the Site, flowing in a northward direction. Given that much of the Site falls towards the east, it is expected that the majority of surface water runoff discharges into this watercourse. This watercourse forms part of the Lydiard Brook catchment located further north.
- 3.4.3 The western most section of the Site falls towards the south-west, in the direction of Swindon Road, where surface water runoff is assumed to be intercepted by the existing highway drainage network.
- 3.4.4 The Site's existing hydrological regime is illustrated in Figure 3-5.

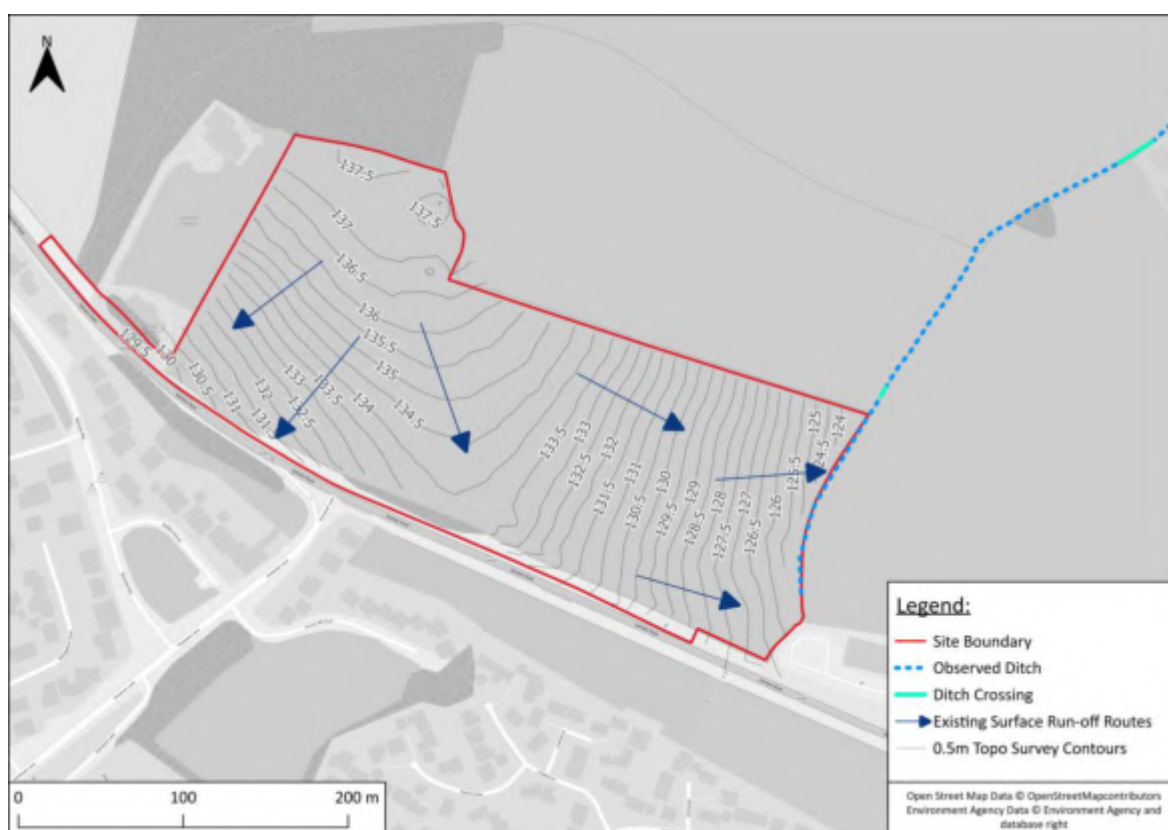


Figure 3-5: Existing Hydrological Regime

Existing Drainage Assets

- 3.5.1 Thames and Wessex Water sewer asset mapping (contained in Appendix C) shows there to be no public surface water sewers currently serving the Site.
- 3.5.2 Surface water at the Site currently drains via a ditch along the eastern boundary of the Site which generally flow towards the north where the ditch drainage system continues through agricultural fields north of the Site.

Site Proposals

- 3.6.1 Gleeson Land is submitting an outline planning application with all matters reserved except for access for up to 135 dwellings, the creation of new vehicular access with footways from Swindon Road, provision of informal and formal open space, together with associated highways, landscape, earth works and level changes, foul and surface water drainage facilities, utilities provision and other associated and necessary infrastructure.
- 3.6.2 The indicative Illustrative Masterplan is available in Appendix B and an extract is shown in Figure 3-6.



Figure 3-6: Illustrative Masterplan Extract



Planning Context

National Planning Policy Framework

- 4.1.1 The revised National Planning Policy Framework (NPPF) was published by the Ministry of Housing, Communities and Local Government, published in December 2024 and most recently updated in February 2025. The NPPF's Planning Practice Guidance (PPG) supports the Framework and is an online resource that is frequently updated.
- 4.1.2 Paragraph 181 of the NPPF identifies that Local Planning Authorities should ensure that flood risk is not increased elsewhere by development and where appropriate, applications should be supported by a Site-specific Flood Risk Assessment. Development should only be allowed where it can be demonstrated that:
- a within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
 - b the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;
 - c it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
 - d any residual risk can be safely managed; and
 - e safe access and escape routes are included where appropriate, as part of an agreed emergency plan.
- 4.1.3 Further to this, paragraph 182 of the NPPF sets out that applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should:
- a take account of advice from the lead local flood authority;
 - b have appropriate proposed minimum operational standards;
 - c have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.
- 4.1.4 A sequential approach has been taken to the proposed development in relation to flood risk which is set out in Section 5.11 of this report. Flood risk from all sources is reviewed in Section 5 and the approach to surface water management in Section 6.



Local Policy & Guidance

Wiltshire Council Local Development Framework – Core Strategy (2015)

- 4.2.1 The Wiltshire Core Strategy Development Plan is the county's current local plan, published in January 2015 by Wiltshire County Council and contains the overarching planning policy framework for the county.
- 4.2.2 The Royal Wootton Bassett and Cricklade Area Strategy outlines plans to build new housing and infrastructure in the area, with Royal Wootton Bassett to become an established market town, this is outlined in Core Policy 19.
- 4.2.3 Core Policy 67 'Flood Risk' states that developments proposed on Flood Zones 2 and 3 must refer to the Strategic Housing Land Availability Assessment to provide evidence that no low risk alternative sites are available. Additionally, new developments must seek to reduce surface water runoff rates and integrate SuDS wherever possible.
- 4.2.4 Core Policy 68 'Water Resources' establishes that developments should not contradict any relevant River Basin or Catchment Management Plan and seek to contribute towards their delivery where possible. Proposals within a Source Protection Zone, Safeguard Zone, or Water Protection Zone must assess and manage any risk to the groundwater throughout development.
- 4.2.5 Given this, a site-specific assessment of flood risk has been carried out in Section 5. This FRA shall also demonstrate how surface water can be managed.

Wiltshire Council Local Plan – Reg 19 Pre-Submission Draft 2020-2038 (Sept 2023)

- 4.2.6 The Wiltshire Draft Local Plan is under examination at time of writing and aims to inform and guide the delivery of 'sustainable development'.
- 4.2.7 Policy 95 'Flood Risk' states that, alongside following national policy and guidance around flood risk management, all major developments should achieve a 20% betterment on greenfield runoff rates. Following a Pre-Application enquiry with Wiltshire Council received in August 2024, it was emphasised that post-development runoff rates are required to include a 30% betterment up to the 1 in 100 year event.
- 4.2.8 Given this, a flood risk assessment of all sources is reviewed in Section 5 and the approach to surface water management in Section 6.

Wiltshire Council Strategic Flood Risk Assessment Level 1 (2019)



- 4.2.9 The Level 1 Strategic Flood Risk Assessment (SFRA) was published in May 2019 by JBA Consulting on behalf of Wiltshire Council. It supports the adopted Local Plan by providing detailed evidence on flood risk across the county to assist developers in assessing flood risk at site level.
- 4.2.10 The SFRA identifies that geology plays a key role in determining flood risk across Wiltshire, with the northern part of the county predominantly underlain by clay deposits, resulting in increased surface water runoff and a rapid flood response to rainfall for both fluvial and pluvial events.
- 4.2.11 However, it is anticipated that some of this evidence has since been superseded following recent updates to the Government's Flood Map for Planning (March 2025) and the Long-Term Flood Risk – Surface Water Flood Risk Maps (January 2025). Furthermore, Royal Wootton Bassett and its surrounding area are not specifically referenced within the current SFRA, and there has been no update to the 2019 SFRA evidence base prepared to support the draft Local Plan. Given this, a site-specific assessment of flood risk has been carried out in Section 5.
- 4.2.12 Accordingly, this report seeks to update the baseline evidence through a site-specific Flood Risk Assessment (FRA), as set out in Section 5.

Wiltshire Council Local Flood Risk Management Strategy (2015)

- 4.2.13 The Local Flood Risk Management Strategy (LFRMS) was published in April 2015 by Wiltshire County Council and aims to reduce and mitigate flood risk to communities within Wiltshire.
- 4.2.14 Royal Wootton Bassett is not mentioned within the LFRMS, nor catchment-wide mitigation measures around reducing flood risk across Royal Wootton Bassett.
- 4.2.15 Given this, a site-specific assessment of flood risk has been carried out in Section 5.

Consultation

- 4.3.1 Pre-application consultation has been undertaken with key stakeholders in relation to flood risk and drainage. A summary of their responses has been provided below and full responses included within Appendix H.

Wiltshire County Council Lead Local Flood Authority

- 4.3.2 Wiltshire County Council has been formally consulted through the pre-application consultation service. The LLFA's response set out a number of requirements to be addressed as part of a site-specific FRA which are set out in detail in Appendix H. As part of their response, the LLFA requested confirmation of whether the Site had been affected by any historic flooding incidents investigated by Wiltshire Council under Section 19 of the Flood and Water Management Act 2010. A review of these Section 19 Flood Investigation Reports confirmed that no such incidents have been recorded in the vicinity of the Site.



Environment Agency

- 4.3.3 A request was sent out to the Environment Agency for their Product 4, 5, 6 and 7 and they have confirmed that the Site lies entirely within Flood Zone 1 and therefore they do not hold any detailed flood modelling data that would impact the Site.

Wessex Water/Thames Water

- 4.3.4 Wessex Water was consulted regarding their historic sewer flood records near to the Site and have confirmed that they hold no historical flood records within the vicinity of the Site.
- 4.3.5 A Pre-Developer Enquiry was also submitted to Wessex Water which has identified two potential points of connection to the public foul sewer system. On this basis, PJA has produced two foul drainage strategy options utilising either a gravity-led or a pumped solution. The preferred sustainable option will be for the Proposed Development to drain by gravity, a point of connection for the Proposed Development will be confirmed through ongoing consultation with Wessex Water. The foul drainage strategy is discussed further in Section 7.



Assessment of Flood Risk

- 5.1.1 The flood risk to and from the Site has been assessed based on a review of publicly available information. A summary of the flood risk at the Site is provided in Table 5-1 and discussed in more detail in the chapter below.

Table 5-1: Potential Sources of Flood Risk

Source of Flooding	On Site Presence
Fluvial	✗
Surface Water	✓ (section 5.5)
Tidal	✗
Groundwater	✗
Sewers	✗
Reservoirs	✗
Canal	✗

Historic Flooding

- 5.2.1 There are no historic flood zones near the Site as identified by the Environment Agency's historic flood mapping.
- 5.2.2 Royal Wootton Bassett is not mentioned in the Wiltshire Council SFRA, thus, there is no data on historic flooding within the vicinity of the Site in the SFRA.
- 5.2.3 Wessex Water was consulted regarding historic flooding and confirmed that they have no records of sewer flooding within the vicinity of the Site.

Fluvial Sources

- 5.3.1 The Environment Agency, through the publicly available Flood Map for Planning service, categorises potential fluvial flood risk into Flood Zones, assuming no flood defences.
- 5.3.2 The proposed development Site is identified in the publicly available Flood Map for Planning as located wholly within Flood Zone 1, demonstrating that the fluvial flood risk is considered to have <0.1% Annual Exceedance Probability (AEP).
- 5.3.3 An extract of the Flood Map for Planning is contained in Figure 5-1.

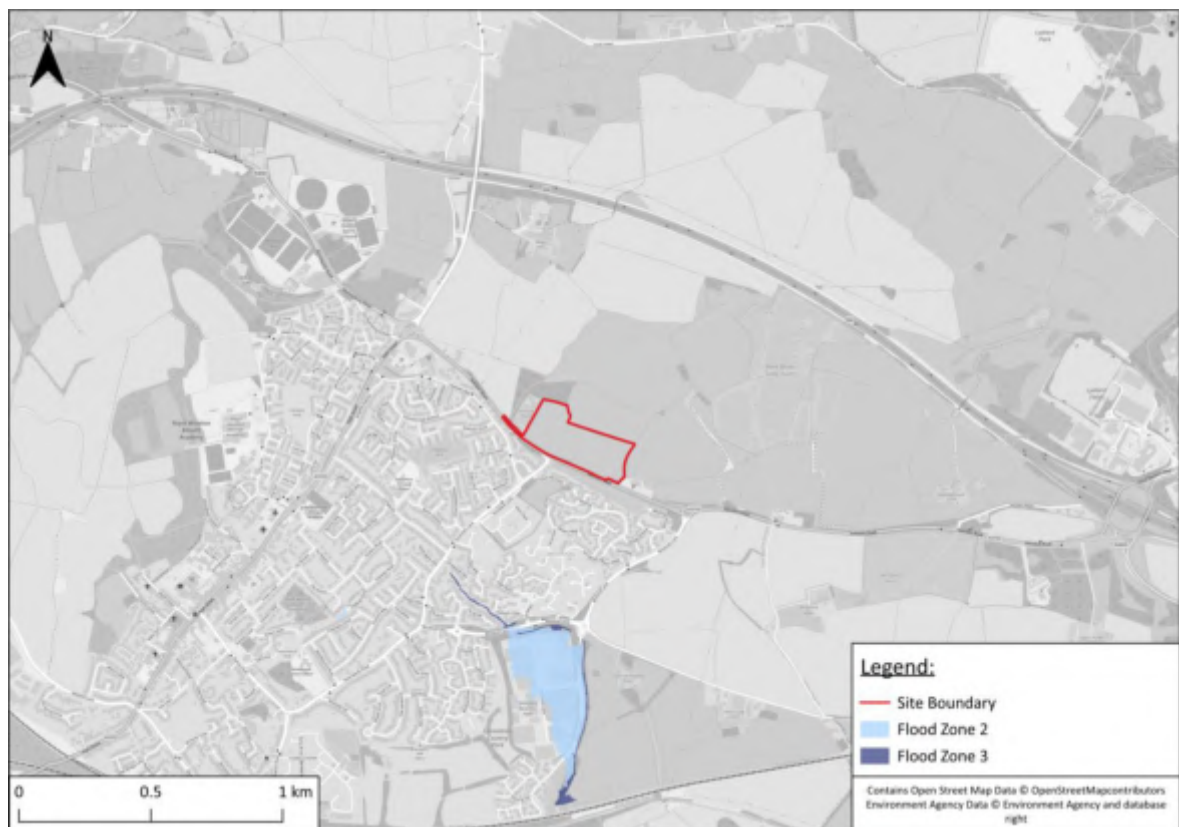


Figure 5-1: Publicly Available Flood Map for Planning Extract (downloaded June 2025)

- 5.3.4 The newly released publicly available Flood Map for Planning, Rivers and Sea, Flood Zone plus Climate Change mapping shows how the combined extent of Flood Zones 2 and 3 could increase with climate change, undefended.
- 5.3.5 The Site is identified to lie outside the combined Flood Zone extents with Climate Change with an extract of the Flood Map for Planning, Rivers and Sea, Flood Zone plus Climate Change mapping available in Figure 5-2.

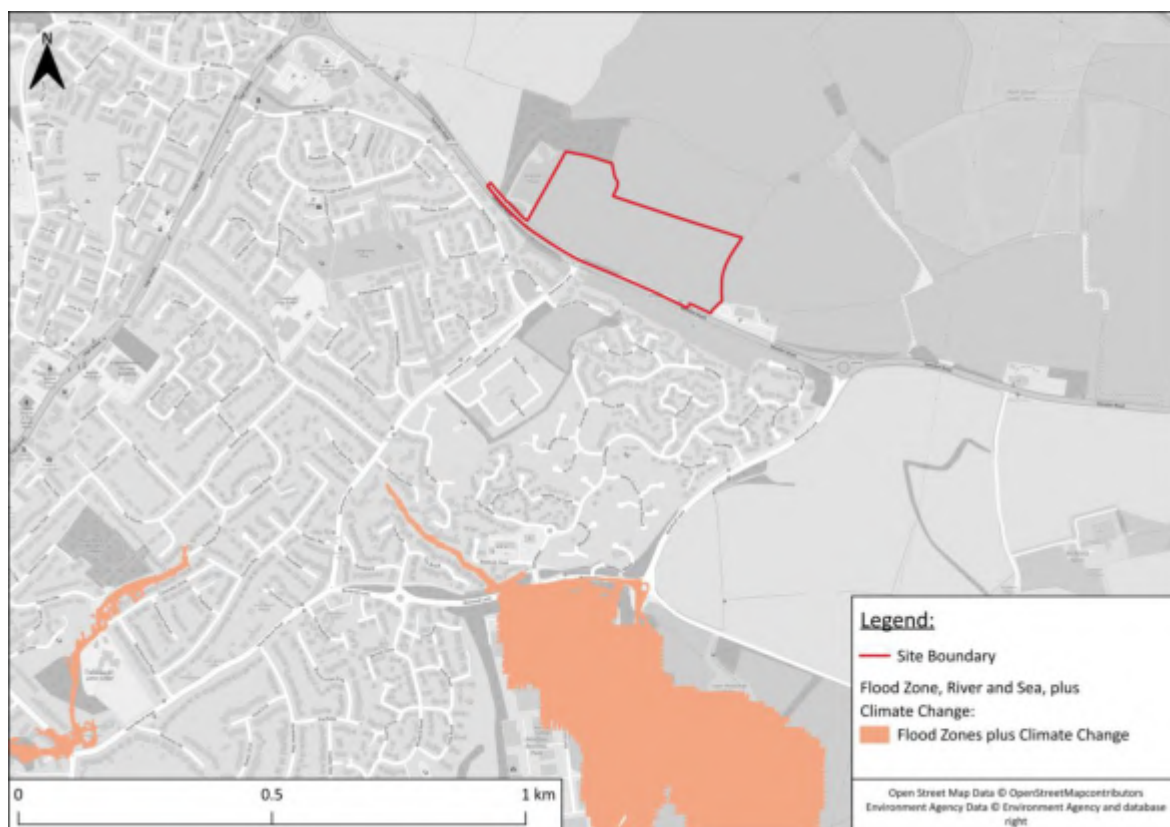


Figure 5-2: Publicly Available Flood Map for Planning, Flood Zone plus Climate Change Extract (downloaded in October 2025)

5.3.6 Given this, flood risk from fluvial sources may be considered to be low.

Tidal Sources

5.4.1 Given the in-land location of the Site, flood risk from this source is considered very low.

Surface Water Sources

5.5.1 The Long-Term Flood Risk Information, Flood Risk from Surface Water Map identifies the Site to partially lie in an area with 'low' and 'medium' surface water flood risk along the Site's eastern edge. This corresponds with the ditch identified along this side of the Site.

5.5.2 Furthermore, the Site's access road to the very west lies in an area of 'low' to 'high' surface water flood risk which is also the area of lowest elevation within the western half of the Site.

5.5.3 An extract of this mapping is provided in Figure 5-3.

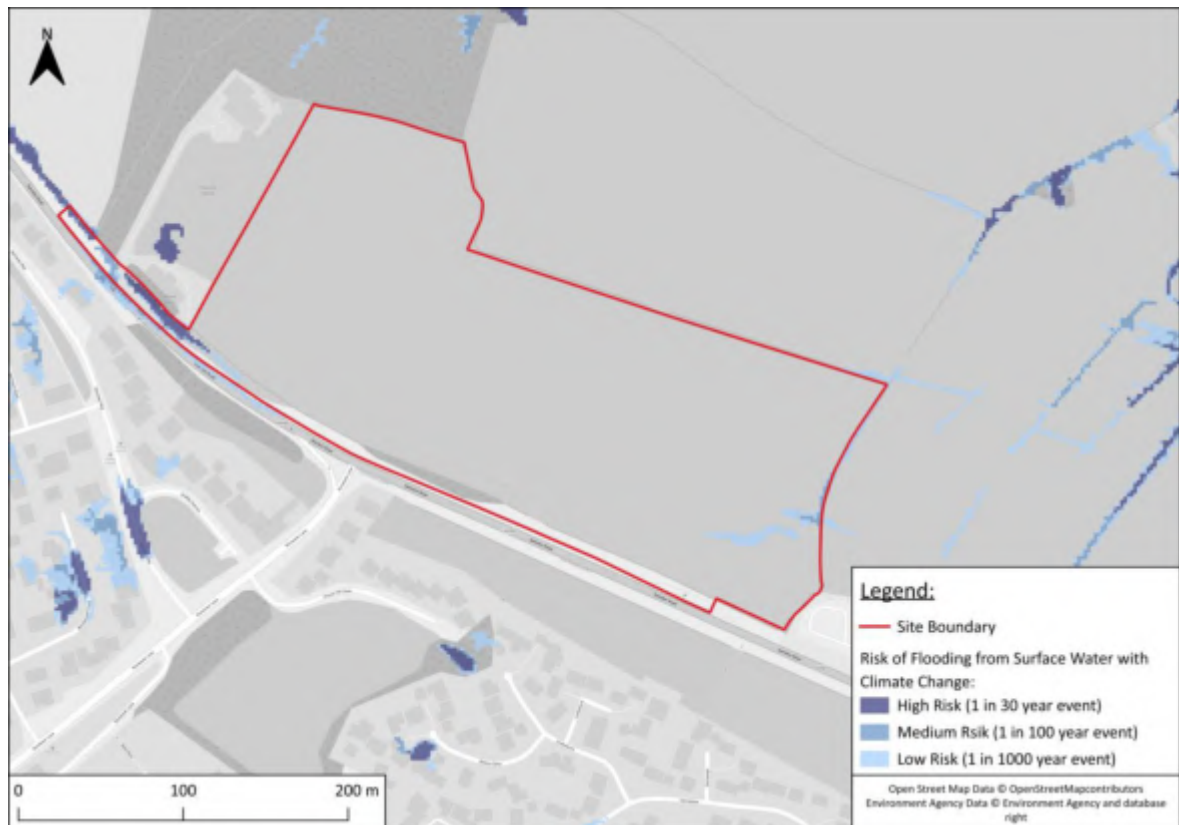


Figure 5-3: Risk of Flooding from Surface Water Climate Change Mapping Extract (downloaded April 2025)

- 5.5.4 The production of this mapping has been undertaken using national scale modelling and enhanced using compatible locally produced modelling from LLFAs (where available) to provide the generation of surface water flood risk mapping. The previous generations were primarily developed for regulator use as the approach and risk was refined. For example, the first did not include any allowance for sewers, whilst the second incorporated a national loss coefficient.
- 5.5.5 The current dataset presents the risk which takes account of the climate change allowances based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5 i.e. worse case scenario.
- 5.5.6 Although through the production of this mapping, LLFAs were approached for culvert asset datasets to be incorporated within the national scale model, these data sets may not be fully comprehensive. A 2m DTM has also been utilised in the national scale model, whilst this better represents topography in comparison to previous versions of the mapping, there is still opportunity for refinement on a local scale where finer DTM LiDAR data is available couple with site-specific topographic data.



- 5.5.7 As part of the final Site design, measures will be implemented to ensure there is negligible increase in surface water flood risk on- and off-Site and ensure that exceedance flows will be directed away from properties.

Groundwater Sources

- 5.6.1 Groundwater flooding is typically caused by high groundwater levels. It occurs where excess water emerges at the ground surface via springs or within manmade structures such as basements. The risk of groundwater flooding depends on the nature of the geological strata underlying the Site, as well as on the local topography.
- 5.6.2 The Wiltshire County SFRA associates areas affected by groundwater flooding with underlying chalk geology. The north of Wiltshire, where the Site is situated, is underlain predominantly by clay geology, therefore, the risk of groundwater flooding is considered not to be as significant when compared to the chalky south of the county.
- 5.6.3 The SFRA's 'Areas Susceptible to Groundwater Flooding' (AStGWF) data mapping is not available at this time, however, Wiltshire County Council have been consulted as LLFA to provide further flood risk information for the Site.
- 5.6.4 The Phase 1 Geo-Environmental Desk Study (ref. BRD4201-OR1-A) published by BRD Environmental Ltd highlights that any groundwater within the underlying limestone beds of the Kimmeridge Clay formation is likely to be limited, if at all present, given the small nature of the outcrop.
- 5.6.5 The rest of the Site is underlain by clay beds of Kimmeridge Clay and Ampthill Clay formations which are impermeable in nature with no groundwater present.
- 5.6.6 A Geo-Environmental Site Investigation (ref. BRD4201-OR2-A), was published in October 2025 by BRD Environmental Ltd and included groundwater monitoring across four days in September 2025. Groundwater resting levels had a maximum recorded range of 2.25m bgl to dry and a minimum of 3.51m bgl to dry. The shallowest groundwater levels recorded were in the north-eastern corner of the Site. The report concluded that most of the boreholes recorded standing water levels which are considered to be related to a combination of seepage from small pockets within the clay soils and surface water ingress from ground disturbances during the borehole drilling. Given the nature of clay soils, free movement of water is unlikely and so accumulates within the well. Thus, the recorded standing water levels are not considered to be representative of 'true' groundwater levels.
- 5.6.7 Given this, flood risk from groundwater is considered to be low.



Sewer Sources

- 5.7.1 As set out in Section 3.4, there are no public surface water, foul or combined sewers currently serving the Site.
- 5.7.2 Wessex Water have been consulted with regard to historic flood records and confirmed that they hold no records of flooding within the vicinity of the Site.
- 5.7.3 The Wiltshire County SFRA's sewer flood incident mapping is not available for review at the time of writing. The LLFA were consulted under pre-application consultation and provided no further information related to historic sewer flooding incidents at or within the vicinity of the Site.
- 5.7.4 The SFRA associated a link between sewer flooding and groundwater flooding, and as the Site is underlain by a geology that does not allow for significant groundwater flooding, sewer flooding is likely to be of less risk.
- 5.7.5 Given this, the Site is considered to be at low risk of sewer flooding.

Sources of Reservoir Failure

- 5.8.1 The publicly available Long-Term Flood Risk, Information, Flood Risk from Reservoirs Mapping identifies that the Site lies outside the maximum extent of flooding from reservoirs.
- 5.8.2 Given this, flood risk from reservoirs may be considered to be very low.

Canal Sources

- 5.9.1 There are no canals within the vicinity of the Site.
- 5.9.2 Given this, flood risk from canals may be considered to be very low.

Climate Change

- 5.10.1 In accordance with the NPPF and supporting Planning Practice Guidance an FRA should demonstrate how flood risk will be managed now and over the development's lifetime, taking climate change into account. Climate change will affect peak river flows and, consequently, the extent of fluvial flooding is likely to increase in the future.
- 5.10.2 On 19th February 2016, the Environment Agency released updated guidance on climate change allowances⁴ to support the NPPF, which was later revised for peak river flows in 2021 and for peak rainfall intensity in 2022.

⁴ Flood risk assessments: climate change allowances. Environment Agency 2016. <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>



- 5.10.3 Further to this, when undertaking a surface water drainage design, an allowance for climate change should also be applied to peak rainfall intensities in accordance with Environment Agency guidance (2070s epoch from 2061 to 2125). Further information on the surface water drainage design and how climate change allowances have been applied is included in Section 6.
- 5.10.4 The proposed development and surface water drainage strategy has been designed to sustainably manage the runoff from the critical 1 in 100-year storm event with a 45% allowance for climate change.
- 5.10.5 Consideration to the potential impact of climate change has been given in the proposed development, in particular with regard to locating built development outside of the maximum flood extents in climate change scenarios and exceedance flow routing, therefore potential flood risk from climate change may be considered to be low.

Sequential and Exception Test Requirements

National Policy and Guidance

- 5.11.1 Paragraph 174 and 175 of the NPPF states *“The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).”*
- 5.11.2 The PPG sets out the principles of the Sequential and Exception Tests and what is required to pass them when proposing new development in an area at risk of flooding. Paragraph 027 of the PPG states that *“In applying paragraph 175 a proportionate approach should be taken. Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied.”* The Sequential Test aims to promote development in areas of low flood risk. The Exception Test is triggered when development cannot be located within an area of suitably low risk flood risk.



- 5.11.3 The Exception Test requires a demonstration that flood risk to people and property can be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable Sites at lower risk of flooding are not available. Essentially, the Exception Test requires the proposed development to show that it will provide wider sustainability benefits to the community that outweigh flood risk, and that it will remain safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.

Local Policy and Guidance

- 5.11.4 Paragraph 180 of the NPPF States *“Where planning applications come forward on sites allocated in the development plan through the sequential test, applicants need not apply the sequential test again. However, the exception test may need to be reapplied if relevant aspects of the proposal had not been considered when the test was applied at the planmaking stage, or if more recent information about existing or potential flood risk should be taken into account”*.
- 5.11.5 As such, the below provides evidence that a sequential approach has been taken to the development Site itself.

Flood Risk Vulnerability & Flood Zone Incompatibility

- 5.11.6 Annex 3 of the NPPF, reprinted in Table 5-2, summaries the flood risk vulnerability classification for different types of development. The proposed residential development at the Site is classified as More Vulnerable development and amenity open space is classified as water-compatible development.

Table 5-2: Vulnerability Classification (Annex 3 NPPF Extract).

Class	Description
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.

Source: NPPF Annex 3: Flood Risk Vulnerability Classification

- 5.11.7 An extract of PPG Table 2 is provided in Table 5-3 which identifies that an Exception Test is not required for more vulnerable development located within Flood Zone 1.

Table 5-3: Flood Risk Vulnerability and Flood Zone ‘Incompatibility’ (Flood Risk & Coastal Change PPG Table 2)



	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water compatible
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

✓ Exception Test is not required

X Development should not be permitted

• This table does not show the application of the Sequential Test which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea:

• The Sequential and Exception Tests do not need to be applied to those developments set out in National Planning Policy Framework footnote 56. The Sequential and Exception Tests should be applied to 'major' and 'non major' development;

• Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

“†” In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

“*” In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

Site Specific Sequential Assessment of Flood Risk

5.12.1 Table 5-4 provides a breakdown of the percentage of each flood risk type that the Site is identified to be at risk from.

Table 5-4 – Sequential Approach Risk Rating

Flood Risk	% Site at Risk	% Proposed Built Development Area at Risk	Site Specific Assessment
Fluvial	0%	0%	The Site is identified to lie wholly within Flood Zone 1 and outside of the maximum extents of identified potential flooding during the 1% AEP event and 0.1% AEP event from any nearby main watercourse.
Tidal	0%	0%	Given the in-land location of the Site, flood risk from this source is considered very low.
Surface Water:			
1 in 30	0%	0%	
1 in 100	0%	0%	
1 in 1000	0.53%	0.33%	There is a very small percentage of the Site at risk of surface water flooding from any given return period.
Surface Water with CC:			
1 in 30	0%	0%	
1 in 100	0.16%	0%	
1 in 1000	0.87%	0.47%	The proposed developed area is only affected by the 1 in 1000-year event. However, this is still less than 1% of its area and is primarily associated with the existing watercourse located along the eastern boundary of the Site and the area of the proposed SuDS basin.



Flood Risk	% Site at Risk	% Proposed Built Development Area at Risk	Site Specific Assessment
			Overall, surface water flood risk is considered low.
Groundwater	Low	Low	The underlying geology identified in the BGS Geology mapping suggests infiltration of surface water is unlikely. This was confirmed in a site-specific Geo-Environmental Site Investigation (ref. BRD4201-OR1-A) which concluded that groundwater flooding is unlikely but the presence of small fissures within the geology could lead to slight seepage in the proposed basins. Therefore, the potential for groundwater flooding may be considered low.
Sewer	Low	Low	No historic sewer flood records have been identified within the vicinity of the Site according to consultation with Wessex Water.
Reservoir	0%	0%	The Site lies outside the maximum extent of flooding from reservoirs.
Canal	0%	0%	There are no canals within the vicinity of the Site.

Site-Specific Measures

5.13.1 Whilst areas of the Site may be considered to have a surface water flood risk, this will be mitigated through:

- Steering all vulnerable development and principal access/egress routes to be positioned outside corridors and areas identified as being affected by surface water flooding;
- Raising finished floor levels by a minimum of 150mm above surrounding ground levels;
- Implementation of a surface water drainage strategy which positively and sustainably manages surface water runoff from the Proposed Development to greenfield conditions up to and including the 1 in 100 year +45% climate change event; and
- Managing existing surface water flow routes through green-blue corridors.

Conclusion

5.14.1 It is therefore considered that a sequential approach has been applied to the proposed development Site and neither a formal Sequential Test, nor Exception Test, is required.



Surface Water Drainage Strategy

6.1.1 A Surface Water Drainage Strategy outlining the means of surface water management and disposal from the proposed development Site has been produced largely in line with the latest guidance as follows:

- CIRIA C753 “The SuDS Manual”, (CIRIA, 2015);
- CIRIA document C522 Sustainable Drainage Systems – design manual for England and Wales;
- CIRIA document C635 Designing for exceedance in urban drainage;
- Rainfall Runoff Management for Developments – SC030219 (Environment Agency, 2013);
- Wessex Water guidance notes relating to disposals of surface water;
- Environment Agency’s pollution prevention guidelines (PPGs); and
- Sewerage Sector Guidance – Design & Construction Guidance v2.3 (Water UK, Nov 2023); and
- National standards for sustainable drainage systems (SuDS) (19th June 2025).

6.1.2 In accordance with the National standards for sustainable drainage systems (SuDS) (published June 2025), the proposed surface water drainage strategy should meet the following seven standards:

- 1 Runoff destinations
- 2 Management of Everyday Rainfall (Interception)
- 3 Management of Extreme Rainfall and Flooding
- 4 Water Quality
- 5 Amenity
- 6 Biodiversity
- 7 Desing of Drainage for Construction, Operation, Maintenance and Structural Integrity

Existing Surface Water Drainage Features

6.2.1 The Site is currently greenfield with Thames Water and Wessex Water sewer asset mapping identifying no sewers serving the Site.

6.2.2 The existing topography shows the majority of the Site falls to the east and it is therefore expected that most surface water on Site will discharge into the existing ordinary watercourse which runs from south to north along the east of the Site. The western most area of the Site falls to the south-west so any surface water from this area of the Site is assumed to drain towards the A3102 and discharge into the existing highway drainage system.



Proposed Surface Water Drainage Features

- 6.3.1 The proposed Surface Water Drainage Strategy aims to sustainably manage surface water runoff without increasing flood risk to on- or off-Site, nor adversely impacting on water quality through the use of Sustainable Drainage Systems (SuDS).
- 6.3.2 SuDS aim to mimic the natural processes of surface water drainage by allowing water to flow along natural flow routes ensuring that runoff rates and volumes during storm events are not increased above the Greenfield values. SuDS also aim to provide water treatment, biodiversity, and amenity benefits within blue and green corridors.
- 6.3.3 There are typically three design storm events which should be considered when designing the SuDS system and managing flows and volumes:
- 1 in 1 year storm event, on sloping Sites without basements, where surcharging above soffits of any surface water drainage pipework is not permitted.
 - 1 in 30 year storm event, where surface water flooding of the site does not occur at this frequency.
 - 1 in 100 year storm event with allowances for future climate change, where runoff from the site should be controlled to the greenfield rate using SuDS attenuation features to manage flows and volumes within the extents of the development Site.
- 6.3.4 Further to this, dedicated overland flow routes should be identified through the development to convey any exceedance flows in events greater than the 1 in 100-year plus climate change event or in the event of system failure. The Site is currently agricultural land, therefore, surface runoff is assumed to follow the Site's natural topography and drain via a ditch along the eastern border of the Site.

Standard I: Runoff Destination

- 6.4.1 In accordance with SuDS guidance, surface water should be sustainably managed and designed in accordance with the discharge hierarchy; collect for re-use; infiltrate to ground; discharge to watercourse; discharge to surface water sewer, highway drain or another drainage system; and lastly discharge to a combined sewer.

Table 6-1: Drainage Hierarchy

Discharge Location	Suitability	Comments
Collect for Re-Use	✓ / ×	Water butts and rainwater harvesting systems can collect rainwater for non-potable uses e.g. within gardens and other non-potable uses. The potential to incorporate rainwater harvesting and re-use measures will be considered further at the next stage of design subject to a viability assessment.
Infiltration	×	Based on the BGS geological mapping for the site, comments received through the LLFA in their pre-application response and infiltration testing undertaken, it



Discharge Location	Suitability	Comments
		is understood that drainage via infiltration is low or negligible due to the impermeable nature of the bedrock geology and underlying clayey soils. Infiltration testing was carried out using BRE 365 soakaway tests in three trial pits as part of the Geo-Environmental Site Investigation (ref. BRD4201-OR1-A). All three soakage tests failed due to the low permeability of the underlying soils. Given this, an infiltration-led drainage strategy is unfeasible due to the cohesive nature and low permeability of the underlying soils.
Watercourse	✓	There is an ordinary watercourse present along the eastern boundary, which the proposed development has a riparian right to discharge to. The proposed surface water drainage strategy proposes to discharge into the existing ordinary watercourse to the east. Minor earthworks shall be undertaken at the detailed design stage to raise the south-west of the Site, which currently falls to the south, which will ensure all surface water drains to one point for the proposed development.
Surface Water Sewer	×	There are no public surface water sewers within the Site, but there are existing Wessex Water sewers serving the neighbouring pub and existing residential development surrounding the Site. Due to the ability to discharge to the ordinary watercourse along the Site boundary, there are no plans to discharge to this sewer network.
Combined Sewer	×	There are no combined sewers within the vicinity of the Site.

- 6.4.2 In accordance with the above search sequence, it is proposed to discharge surface water runoff to the existing ordinary watercourse along the Site's eastern boundary.
- 6.4.3 It is recognised that the Site is located in an 'area of serious water stress' and the potential to incorporate rainwater harvesting and re-use measures will be considered further at the next stage of design should such measures be assessed as viable.

Standard 2: Management of Everyday Rainfall Events

- 6.5.1 Standard two requires a 'SuDS' approach to be applied so that at least the first 5mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.
- 6.5.2 Interception is required to be delivered for the first 5mm of rainfall for the majority of rainfall events, for both winter and summer seasons. This is to prevent runoff from the Site for the majority of small (frequent) rainfall events and for the initial depth of rainfall for larger events. For compliance to be demonstrated, 80% interception shall be achieved during the summer (May to



October) and 50% in winter (November to April). This can be achieved through the implementation of SuDS.

- 6.5.3 Open conveyance and storage features in the form of a swale are proposed in addition to an attenuation basin. Depending on their longitudinal gradient and base widths, these features will contribute to meeting the development's surface water interception requirements. Other SuDS features, as outlined in Table 6-6, will be considered further at the next design stage to enhance the proposed development's blue/green infrastructure provision wherever possible, improving amenity, biodiversity, and water quality.

Standard 3: Management of Extreme Rainfall Events

- 6.6.1 Standard 3 requires a 'SuDS approach' to be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep to:

- Protect people and property on the development from flooding of the surface water drainage system
- Mitigate any increased flood risk to people and property adjacent to or downstream of the development
- Protect the receiving water body from morphological damage or minimise the impact on sewer capacity

Pre-Development Surface Water Runoff Rates

- 6.6.2 Greenfield runoff rates for the Site have been calculated utilising HR Wallingford FEH Statistical runoff tool, the results are contained in Appendix E and summarised in Table 6-2.

Table 6-2: Greenfield Runoff Rates

Event	1ha	30% betterment
1 in 1 Year	4.20	2.94
QBar	5.00	3.50
1 in 30 Year	11.40	7.98
1 in 100 Year	15.80	11.06

- 6.6.3 Based on the Site's topography and size, and taking proposed minor earthworks for the south-west of the Site into account, the proposed development forms a single drainage catchment. The greenfield runoff estimate from the catchment has been provided in Table 6-3. In accordance with Wiltshire County Council local guidance and consultation response (Appendix H), the Site should limit discharge to no greater than the QBar discharge rate with a 30% betterment for all events up to the 1 in 100 plus climate change.

**Table 6-3: Proposed Discharge Rates**

Catchment	Proposed Developable Area [ha]	Total Impermeable Area (ha)	Total Impermeable Area Including 10% (ha)	Proposed Discharge Rate (QBar [l/s])
A	3.65	2.548	2.767	8.9

Development Creep

- 6.6.4 Over the lifetime of a development, it is possible that the overall impermeable area within the Site could increase by as much as 10% through the house buyers undertaking activities such as property extensions and introducing paved gardens.
- 6.6.5 Table 6-4 identifies the potential increase in impermeable area as a result of urban creep over the lifetime of the development. As such the total impermeable area of 2.767 ha has been applied to determine the maximum discharge rate from the proposed development and respective volume of attenuation required for all storm events up to and including the 1 in 100 year plus climate change.

Table 6-4: Development Creep Assessment

Catchment	Impermeable Area (ha)	10% Creep (ha)	Total Impermeable Area
A	2.548	0.219	2.767

Climate Change Impact

- 6.6.6 In line with the climate change allowances recommended by the Environment Agency in their February 2016 guidance, updated May 2022, the impact of climate change on the peak rainfall intensities in urban drainage designs should be assessed by Management Catchment and increased accordingly.
- 6.6.7 The Site lies between two management catchments which include the Gloucestershire and the Vale Management Catchment (Table 6-5) and the Avon Bristol and North Somerset Streams Management Catchment (Table 6-6). The peak rainfall intensity allowances for both management catchments have therefore been reviewed for the 3.3% and 1% annual exceedance probability rainfall events.

**Table 6-5: Gloucestershire and the Vale Management Catchment Peak Rainfall Allowances****3.3% Annual Exceedance Rainfall Event**

	Central Allowances	Upper End Allowances
2050s	20%	35%
2070s	25%	35%

1% Annual Exceedance Rainfall Event

	Central Allowances	Upper End Allowances
2050s	20%	40%
2070s	25%	40%

Table 6-6: Avon Bristol and North Somerset Streams Management Catchment Peak Rainfall Allowances**3.3% Annual Exceedance Rainfall Event**

	Central Allowances	Upper End Allowances
2050s	20%	35%
2070s	25%	40%

1% Annual Exceedance Rainfall Event

	Central Allowances	Upper End Allowances
2050s	25%	40%
2070s	25%	45%

- 6.6.8 The proposed surface water drainage strategy has been designed to sustainably manage surface water runoff during the critical 1 in 100-year storm event (1%AEP) with a 45% allowance for climate change.
- 6.6.9 The design of the proposed development has considered the potential impacts of climate change, particularly in relation to locating built development outside the maximum flood extents under climate change scenarios and ensuring appropriate exceedance flow routing.

Proposed Surface Water Drainage Strategy

- 6.6.10 The proposed Surface Water Drainage Strategy design is shown on the Indicative Surface Water Drainage Strategy drawing (Ref. 09071-WR-0500), included in Appendix D.
- 6.6.11 Surface water runoff from roofs and hard surfaces across the development will drain to a new surface water drainage network incorporating SuDS components to control discharge to the receiving watercourse, provide attenuation storage on-Site and provide treatment to runoff. The surface water drainage system will be designed to convey the runoff from the critical 1 in 100-year (+45% climate change allowance) storm event without flooding.
- 6.6.12 To ensure maximum peak discharge is maintained at greenfield runoff rates with 30% betterment, for all storm event up to and including the 1 in 100 year event plus 45% climate change event, on-Site attenuation will be required. At this initial stage of design, it is proposed that surface water runoff is strategically attenuated and discharged from an attenuation basin located within the eastern extents of the Site. A conveyance swale following the northern edge of the development parcel is also proposed to intercept surface water runoff from a portion of the development and convey flows into the attenuation basin to the east. The attenuation basin has been designed to



subsequently discharge surface water runoff to the receiving watercourse at a maximum discharge rate of 8.9l/s via a flow control device.

- 6.6.13 The extents of the drainage catchment (assuming a proportion of impermeable surfacing based on the illustrative masterplan), the estimated contributing areas, and proposed SuDS features are shown together with their required storage capacity on the Indicative Surface Water Drainage Strategy drawing in Appendix D. A summary table for the proposed attenuation is provided in Table 6-7 which also identifies the impermeable area assumed for the development parcel.
- 6.6.14 The proposed attenuation basin has been sized in Causeway Flow to ensure that the proposed system will be capable of conveying runoff from the design storm event without flooding. Refer to Appendix F for the Causeway Flow model output.

Table 6-7: SuDS Summary

Assumed Catchment	Proposed Discharge Rate (l/s)	Proposed Impermeable Area with 10% Urban Creep [ha]	Proposed Attenuation Volume Required [m ³]
A	8.9	2.77	3085

- 6.6.15 The proposed attenuation basin has been primarily designed as a dry feature, with a permanently wetted pool located below the existing drainage invert level on the southern side of the basin. The basin is designed to be 1.5 m deep with 1:4 side slopes. In light of the monitored groundwater levels in the vicinity of the basin (2.25 m bgl), albeit the site specific ground investigation concluded this was not considered to be true resting ground water level, it is considered that there is sufficient freeboard (0.75m) between the proposed bed level of the basin (that will provide attenuation) and potential groundwater level.

Available SuDS Options

- 6.6.16 Proposed SuDS features as part of the final design will aim to provide multiple functions as amenity and biodiversity assets, which may include additional proposed permanent wet features, particularly if such features are required to improve the Biodiversity Net Gain (BNG) scoring of the development and to provide a carbon store. Other aspects of the proposed strategy which reduce the developments carbon footprint compared to traditional drainage include:
- Reduced surface water pumping, wastewater pumping/treatment, leading to reduced energy use and associated carbon emissions (if Option 1 is adopted);
 - Embodied carbon (avoided) as a result of reduced consumption (e.g. due to rainwater harvesting); and
 - Cooling/shading of buildings, leading to reduced energy use and associated carbon emissions.⁵

⁵ <https://www.susdrain.org/delivering-suds/using-suds/benefits-of-suds/Carbon-reduction-and-sequestration>



- 6.6.17 Water butts will be available for all households to provide an opportunity for water re-use. However, as the attenuation capacity for the water butts cannot be guaranteed during a rainfall event, these have not been accounted for within drainage strategy attenuation calculations.
- 6.6.18 The proposed Surface Water Drainage Strategy implements SuDS in the form of an attenuation basin and swales. A summary of additional SuDS features that will be considered at the next stage of design has been provided in 6-8.

Table 6-8: Summary of SuDS Feature Selection

Feature	Description	Selection
Green Roofs	Green roofs are systems which cover a building's roof with vegetation. They are laid over a drainage layer, with other layers providing protection, waterproofing and insulation.	× Due to the proposed residential nature of the development, green roofs have not been proposed.
Filter Strips	These are wide, gently sloping areas of grass or other dense vegetation that treat runoff from adjacent impermeable areas.	✓ Filter strips have not been proposed at this stage of development but could be considered at the later stages of design.
Pervious Surfaces	Pervious surfaces allow rainwater to infiltrate through the surface into an underlying storage layer, where water is stored before infiltration to the ground, reuse, or release to surface water.	✓ Permeable paving has not been proposed at this stage of the design but could be proposed on driveways and shared access/parking areas at the next stage of design.
Swales	Swales are broad, shallow channels covered by grass or other suitable vegetation. They are designed to convey and/or store runoff, and can infiltrate the water into the ground (if ground conditions allow).	✓ Conveyance features, such as swales, have been incorporated within the surface water drainage strategy to convey water away from properties and towards the attenuation basin.
Infiltration Basins	Infiltration basins are depressions in the surface that are designed to store runoff and infiltrate the water to the ground. They may also be landscaped to provide aesthetic and amenity value.	× Based on the BGS Geology mapping and site-specific percolation testing, the Site is not suitable for an infiltration-led drainage strategy.
Basins / Ponds	Wet ponds are basins that have a permanent pool of water for water quality treatment whereas basins are usually dry for a larger period of time outside storm events. They provide temporary storage for storm runoff. These features may provide amenity and wildlife benefits.	✓ An attenuation basin has been proposed for use on-Site which will outfall into the ordinary watercourse along the east of the Site. Part of the basin has been proposed as a permanent ponded area.
Underground Attenuation	Underground attenuation structures are below-ground attenuation features. These are typically formed using crates which provide a high void space for attenuation and water quantity control.	× Underground attenuation is not proposed for use within this Site.
Bioretention / raingardens	Bioretention systems or rain gardens are areas of vegetation into which rainwater and runoff can be directed. These are particularly affected at providing water quality improvements.	✓ Rain gardens/pocket street gardens could be incorporated along the primary access route of the proposed development, subject to local highway authority approval at a later design stage.



Feature	Description	Selection
Filter Drains	Filter drains are gravel filled trenches that collect and move water. They also treat pollution. The trench is filled with free draining gravel and often has a perforated pipe in the bottom to collect the water	✓ Due to the use of swales as conveyance features, filter drains are not currently incorporated within the drainage strategy, but could be considered as the detailed design progresses.
Water Butts	Water butts are water tanks which are used to collect and store rainwater runoff, typically from roof tops via pipes. Overflows will still enter the site surface water drainage system.	✓ Water butts for individual residential dwellings will be considered at a later design stage.

6.6.19 The surface water drainage strategy is based upon the site masterplanning details at the time of production. Changes to the site development profile, impermeable areas across the site or other such aspects of the scheme will result in the need to revise the calculations.

Design for Exceedance

6.6.20 During a rainfall event with a return period well in excess of that for which the surface water drainage system was designed (in this case a 1 in 100 year plus 45% climate change allowance), or in the event of a blockage, the capacity of the surface water drainage system may be exceeded, resulting in localised flooding in the areas affected. This is considered to be a residual risk.

6.6.21 However, the layout and landscaping of the proposed development should be designed and will be developed to ensure that exceedance flood flow paths are routed away from vulnerable development and toward landscaped areas, areas of open attenuation or surrounding green infrastructure.

6.6.22 In line with Building Regulations the finished floor levels of the properties will be set at least 150mm above the surrounding ground levels to prevent surface water ingress through doorways. Location of buildings in ground depressions will be avoided to prevent water ponding around dwellings.

6.6.23 Minor modifications to topography, the profile of the access road, footpath or kerb and strategically placed green infrastructure will be developed to ensure that exceedance flood flows are managed and there is little or no risk of property flooding or unacceptable ponding within the highway.

Standard 4: Water Quality

6.7.1 Standard 4 requires the application of a 'SuDS approach' that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development.

Principles of Water Quality Assessment

6.7.2 The general principles are to mitigate against adverse impacts on water quality in the receiving water environment is described in the CIRIA C753 "The SuDS Manual" (2015). This document



recommends the following steps to determine the required water quality management for discharges to surface waters and groundwaters based on the risk posed:

- 1 Interception: Prevent runoff and associated pollutants from the Site to receiving surface waters for the majority of small rainfall events;
- 2 Determine the pollution hazard level associated with the given type of development;
- 3 Select a risk assessment approach based on receiving water environment and the pollution hazard level; and
- 4 Undertake a detailed risk assessment for each outfall or discharge point taking into account the pollution hazard level, the status of the receiving water environment and effectiveness of the proposed SuDS techniques.

6.7.3 The extent of the treatment required will depend on the water quality status of receiving watercourses, land use, the level of pollution prevention in the catchment and for groundwater, the natural protection afforded by underlying soil layers. The pollution hazard level of the development type should be identified.

6.7.4 Residential roofs are noted as having 'very low' pollution hazard level and require removal of gross solids and sediments only. Residential car parks, access roads, driveways and non-residential car parking with infrequent change (e.g., schools) are shown to present 'low' pollution hazard level.

6.7.5 Low pollution hazard levels require application of a 'simple index approach' for water quality risk assessment for discharges to surface and ground waters.

Existing Water Quality of the Proposed Receiving Watercourses

6.7.6 The Site discharges into the Environment Agency's Thames River Basin which covers a land area of over 16,200km². And extends from north Oxfordshire southwards to Surrey and from Gloucester in the west to the Thames Estuary and parts of Kent in the east. The Thames Basin can be divided into 20 management catchments, of which the Site discharges into the Gloucester and the Vale Management Catchment.

6.7.7 Within the Gloucester and the Vale Management Catchment, the majority of the Site discharges into the Thames Upper Operational Catchment, and within that, the Lydiard Brook Water Body Catchment. The watercourse is 5.7 km in length with a catchment area of approximately 1,328 ha. The waterbody has a hydromorphological designation of 'not designated artificial or heavily modified' with an overall ecological status (2022) of 'moderate' and a chemical status (2019) of 'fail'.

6.7.8 Reasons for not achieving 'good' status include:

- Urbanisation;



- Sewage Discharge;
- Natural Conditions, including Drought;
- Physical Modifications for Arable Land Use;
- Polybrominated diphenyl ethers (PBDE); and
- Mercury and Its Compounds.

6.7.9 As such the Environment Agency will be seeking improvements to the water quality of the local watercourse system to achieve a target status of Good by 2027.

6.7.10 The LLFA's validation checklist highlights that developments within some specific catchment areas may be required to complete a Nutrient Neutrality Calculator in order to mitigate phosphorus and nitrogen pollution. From a review of the Environment Agency's Catchment Data Explorer, the Site does not lie within the catchment areas as specified in the validation checklist (and listed below) for phosphorus and nitrogen mitigation:

- Hampshire Avon
- River Test and the River Lambourn
- The Somerset Levels and Moors

6.7.11 The principles of the SuDS Management Train should be incorporated into the proposed surface water drainage schemes for new development, to reduce the risk of further pollutants entering watercourses via runoff from roofs and paved areas.

6.7.12 SuDS components can reduce pollution in runoff through filtering out pollutants or reducing flow rates to encourage deposition of any contaminants. Suitable components could include:

- permeable paving;
- filter drains;
- swales;
- attenuation basins;
- wetlands; and
- proprietary treatment systems.

6.7.13 To protect biodiversity and amenity assets, polluted surface water runoff will not be discharged directly into permanent ponds but treated through an appropriate treatment train. Where possible, interception storage should be included as part of the treatment train to manage pollutants at source. Later stages of treatment in the train should incrementally reduce the level of pollution in runoff before discharge to the receiving water body.

Contamination and Water Quality



- 6.7.14 The proposed development will utilise SuDS Management Trains across each network to ensure treatment of runoff and removal of pollutants prior to discharge.
- 6.7.15 This is likely to include a mixture of components across the Site, specified according to the opportunities/constraints presented by:
- the likely pollution hazard of the runoff;
 - the available surface space; and
 - the proposed ground levels/falls across areas of hardstanding.
- 6.7.16 Treatment components within each SuDS Management Train may include:
- permeable pavement (for car parking areas);
 - channel drains;
 - catchpits;
 - trapped gullies;
 - attenuation basins incorporating pre-treatment (such as a sediment forebay) and low flow channels;
 - bioretention areas in greenspace around the Site;
 - swales and linear wetlands;
 - filter drains bordering paved areas such as roads and yards; and
 - proprietary treatment systems (such as downstream defenders).
- 6.7.17 The arrangement and composition of each management train will be confirmed at the detailed design stage.
- 6.7.18 The proposed uses at the Site will comprise residential roofs and individual driveways. Roofs are classified as a 'very low' pollution risk and individual driveways are classed as a 'low' pollution risk level in Table 26.2 of CIRIA C753 The SuDS Manual. 'Low' hazard pollution levels require application of a 'simple index approach' for water quality risk assessment for discharge to surface and groundwaters. The "pollution hazard indices" for a low pollution hazard Site are given in Table 6-9 below.

Table 6-9: Pollution Hazard Indices for a Low Pollution Hazard Site

Total Suspended Solids (TSS)	Metals	Hydrocarbons
0.5	0.4	0.4

- 6.7.19 The surface water drainage system should provide a sufficient level of water quality treatment to prevent pollution of the receiving waterbodies.
- 6.7.20 Table 6-10 provides the indicative SuDS mitigation indices for the proposed SuDS features for the Site. It demonstrates that the mitigation index for the swale and basin with a permanent ponded



area are greater than the “*pollution hazard index*” for each pollutant type. Therefore, the strategy is deemed to comply with the water quality requirements of the SuDS standards.

Table 6-10: Indicative SuDS Mitigation Indices

SuDS component	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Detention basin	0.5	0.5	0.6
Ponds	0.7	0.7	0.5
Swale	0.5	0.6	0.6

Standard 5: Amenity

- 6.8.1 This standard requires that the design of the surface water management system should maximise amenity benefits.
- 6.8.2 The primary amenity focus of the SuDS scheme should be to improve the health and well-being of the residents. The scheme will need to be based on natural forms that mimic natural landscapes found within the region and the vegetated swales and detention pond areas are designed with natural slope forms, safe and accessible paths and locally contextual species that will encourage natural colonisation. Other key amenity benefits should include improving air quality around the development, increasing carbon sequestration and improving water quality through removal of pollutants via vegetated swales and attenuation basins.
- 6.8.3 The proposed basin is designed as dry feature with a permanent ponded area in the southern half of the basin.
- 6.8.4 The proposed swale and basin with a permanent pond will help to improve surface water runoff through the removal of pollutants while also improving the visual aesthetic of the Site.

Standard 6: Biodiversity

- 6.9.1 This standard requires that the surface water management system should maximise biodiversity benefits.
- 6.9.2 The SuDS scheme biodiversity strategy should centre around the creation of significant and varied habitats to increase the overall biodiversity of the site and ecological value. The inclusion of plant species that will enhance the general eco system and simultaneously act as a water filtration system to clean pollutants and contaminants should be used and where possible provide meandering swales and a large attenuation basin to maximise the variety of habitats available.



- 6.9.3 The proposed swale and basin with a permanent pond provide an opportunity to create habitats for wildlife. The addition of micro-SuDS in the form of bio-retention features within the Site shall be considered in a later design stage in order to further improve the Site's biodiversity benefits.

Standard 7: Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity

- 6.10.1 A 'SuDS approach' has been proposed to be adopted to ensure that surface water drainage systems are designed so they can be easily and safely constructed, operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment.

Surface Water Drainage System

- 6.10.2 Responsibility for the maintenance of the main surface water drainage networks and SuDS features may be offered to Wessex Water for adoption under S104 of the Water Industry Act 1991. To meet the requirements for adoption, the proposed infrastructure must be designed and constructed according to Sewerage Sector Guidance – Design & Construction Guidance v2.3 (Water UK, November 2023).
- 6.10.3 DEFRA recommended implementation of Schedule 3 of the Flood and Water Management Act in 2023. This legislation, when enacted, will require SuDS Approval Bodies (SABs) to be formed in England who will review the design of SuDS and will likely be responsible for the future operation and maintenance. As the layout of the development evolves it is recommended that the surface water drainage design seeks to comply with this legislation when it comes forward ensuring that the SuDS proposed are designed and built in accordance with the SAB's requirements and may be offered for adoption to the SAB, if required.
- 6.10.4 A typical maintenance schedule of the attenuation basin / pond, flow control device and swale proposed on Site are shown in Table 6-11, Table 6-12 and Table 6-13.

Table 6-11: Attenuation Basin / Pond Indicative Maintenance Schedule

FRQUENCY	ACTION
Monthly	- Litter and debris removal. - Mow grasses (where required to promote lateral runoff inflow) and remove resultant clippings (during growing season only). - Remove nuisance and invasive vegetation (as listed in section 29.6.2 of the CIRIA SuDS Manual (2015)) (for 12 months following installation). - Inspect / check all inlets, outlets, surface and overflows (where required) to ensure that they are in good condition, free from blockages and operating as designed. Take action where required.
Six Monthly	Remove nuisance and invasive vegetation (as listed in section 29.6.2 of the CIRIA SuDS Manual (2015)).
Annually	- Remove all dead growth prior to the start of growing season. - Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, where required. - Inspect and document the presence of wildlife.



FRQUENCY	ACTION
	- Remove sediment from inlets, outlets and forebay. - Manage wetland plants, where required.
As Required	- Prune and trim trees and remove cuttings. - Remove sediment from forebay, when 50% full and from micropools if volume reduced by more than 25%. - Repair erosion or other damage by re-turfing or reseeding. - Re-level uneven surfaces and re-instate design levels (typically once every 60 month period). - Remove and dispose of oils or petrol residues using safe standard practices.
Following All Significant Storm Events	Inspect and carry out essential recovery works to return feature to full working order.

Table 6-12: Flow Control (e.g. Hydrobrake) Indicative Maintenance Schedule

FRQUENCY	ACTION
Monthly	Inspect and identify any areas that are not operating correctly. If required, take remedial action (for three months following installation).
Six Monthly	- Inspect and identified ant area that are not operating correctly. If required, take remedial actions. - Remove sediment from any pre-treatment structures.
Annually	N/A
Following All Significant Storm Events	Inspect and carry out essential recovery works to return the feature to full working order.

Table 6-13: Swale Indicative Maintenance Schedule

FRQUENCY	ACTION
Monthly	- Litter and debris removal - Mow grasses (where required to promote lateral runoff inflow) and remove resultant clippings (during growing season only) - Remove nuisance and invasive vegetation (as listed in section 29.6.2 of the CIRIA SuDS Manual (2015)) (for 12 months following installation) - Inspect / check all inlets, outlets, surface and overflows (where required) to ensure that they are in good condition, free from blockages and operating as designed. Take action where required.
Six Monthly	Remove nuisance and invasive vegetation (as listed in section 29.6.2 of the CIRIA SuDS Manual (2015))
Annually	- Check for poor vegetation growth due to lack of sunlight or dropping of leaf litter, and cut back adjacent vegetation where required - Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, where required - Inspect and document the presence of wildlife
As Required	- Repair erosion or other damage by re-turfing, reseeding or replacing filter materials. - Re-level uneven surfaces and re-instate design levels (typically once every 60 month period) - Remove and replace top 300 – 500mm of gravel, clean and replace where required (typically every 60 month period) - Remove and dispose of oils or petrol residues using safe standard practices
Following All Significant Storm Events	Inspect and carry out essential recovery works to return feature to full working order



- 6.10.5 The proposed maintenance regimes for the devices should be largely in accordance with The SuDS Manual (CIRIA C753) and other best practice guidelines and in accordance with manufacturer's recommendations. This will ensure the design performance, structural integrity and where applicable- appearance of each feature is maintained throughout its lifetime.
- 6.10.6 Further details will be provided on the maintenance requirements of the proposed SuDS components across the development as the detailed design is developed. The details of the party responsible for maintenance of each feature should be confirmed prior to occupation of the proposed development.

Construction Management Plan

- 6.10.7 A document outlining the site phasing strategy and demonstrating how surface water runoff and water quality will be sustainably managed throughout construction will be prepared to inform the Construction Environmental Management Plan (CEMP). These documents will include a phase-specific checklist setting out the requirements for surface water management, as well as the necessary mitigation and intervention measures to ensure compliance across all stages of the construction programme.
- 6.10.8 At this stage, as the detailed phasing and site-specific design information are not yet finalised, it is proposed that this requirement be secured through an appropriately worded planning condition.



Foul Water Drainage Strategy

Existing Foul Drainage

- 7.1.1 Wessex Water is the statutory water authority in the area; their Asset Mapping identifies foul Manhole 9011 (pumped solution), at Stoneover Lane approximately 200m south of the Site, and Manhole 4931 (gravity solution), 170m east of the Site along the A3102, as potential points of connection for foul drainage from the proposed development. Wessex Water's asset mapping is included in Appendix C.

Proposed Foul Drainage Strategy

- 7.2.1 An initial response from Wessex Water following the submission of a developer enquiry identified Manhole 9011, approximately 200m to the south of the Site in Stoneover Lane as a potential point of connection for the proposed development Site (refer to Appendix G). Due to the level difference between the Site and the foul drainage system in Stoneover Road a pumped solution would be required.
- 7.2.2 Subsequent investigations undertaken by Wessex Water have since identified an alternative point of connection at Manhole 4931, 170m east of the Site along the A3102, which would enable the proposed development to drain by gravity.
- 7.2.3 As such a foul water drainage strategy has been proposed which presents two alternative approaches to discharging foul flows to Wessex Water's sewer network. As summarised below:

Option 1 – Preferred Option

- 7.2.4 Option 1 – proposes a gravity foul sewer system that will discharge flows from the Site to the identified connection point at Manhole 4931, located east of the Site. Discussions with Wessex Water are ongoing to confirm and agree this as the formal point of connection for the proposed development. However, this is subject to an additional survey by Wessex Water to better understand connectivity, capacity and condition of the sewer network the foul drainage strategy is proposing to connect to.

Option 2 – Pumped Solution

- 7.2.5 Option 2 proposes the use of an on-site pumping station, located within the south-eastern part of the Site, discharging via a new rising main to the public sewer system in Stoneover Lane with a proposed connection to Manhole 9011, 200m south of the Site.
- 7.2.6 The indicative Foul Drainage Strategy drawings for either option (Ref. 09071-WR-0504 Gravity Solution, 09071-WR-0504 Pumped Solution) are included in Appendix D.



Adoption & Future Maintenance

- 7.3.1 The proposed foul sewer network may be offered to Wessex Water for adoption under Section 104 of the Water Industry Act 1991. To meet the requirements for adoption, the proposed infrastructure must be designed and constructed according to Sewerage Sector Guidance – Design & Construction Guidance v2.3 (Water UK, November 2023).



Conclusion & Recommendations

Conclusion

- 8.1.1 PJA has been commissioned by Gleeson Land to prepare a Flood Risk Assessment and Drainage Strategy for the outline planning application with all matters except for access for up to 135 dwellings, the creation of new vehicular access with footways from Swindon Road, provision of informal and formal open space, together with associated highways, landscape, earth works and level changes, foul and surface water drainage facilities, utilities provision and other associated and necessary infrastructure at the allocated Site '*Land north of Swindon Road, Royal Wootton Bassett*'.
- 8.1.2 This Flood Risk Assessment has been undertaken in accordance with current national and local flood risk policy requirements. This report assesses the existing and future flood risk at the Site, including an assessment of the potential effects of the proposed development on flood risk on- and off-Site.
- 8.1.3 The assessment concludes that the Site is considered at either very low or low risk of flooding from the sources assessed (fluvial, tidal, reservoirs, canals, surface water, groundwater and sewers).
- 8.1.4 In addition to the NPPF, the proposed surface water drainage strategy complies with local policy and Site-specific requirements.
- 8.1.5 A Surface Water Drainage Strategy has been prepared to demonstrate that a sustainable drainage solution can be provided for the proposed development. The Surface Water Drainage Strategy has been designed largely in accordance with current sustainable development best practice and meets the requirements of Wiltshire County Council (as the LLFA).
- 8.1.6 The proposed surface water drainage systems aims to mimic the hydrological regime of the existing Site by discharging runoff to the existing ordinary watercourse present along the east of the Site. A Geo-Environmental Site Investigation (ref. BRD4201-OR1-A) confirmed, via percolation testing, that infiltration is not a feasible method of surface water drainage. The catchment used to design the proposed drainage strategy takes into account minor earthworks proposed to raise the south-west of the Site. Discharge from the proposed catchment will be controlled to the equivalent greenfield Qbar rate with a 30% betterment by vortex flow control devices. Strategic attenuation and conveyance will be achieved through open SuDS features, including an attenuation basin (incorporating a permanently wetted pond area) and an open swale. Additional SuDS measures may be introduced as the proposed development progresses through the detailed design stage, providing further benefits in terms of water quality, amenity, and biodiversity. Water butts may be used to store water for re-use within feasible locations, but these have not been included within attenuation calculations as the capacity availability cannot be guaranteed.
- 8.1.7 The responsibility for the operation and maintenance of each SuDS feature will be confirmed prior to the commencement of construction. The SuDS used on Site should be maintained in accordance

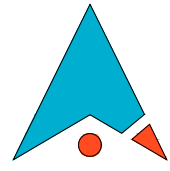


with manufacturer's recommendations and current best practice and guidelines to ensure routine operation.

- 8.1.8 It is recognised that the Site is located within an 'area of serious water stress' and the potential to incorporate rainwater harvesting and re-use measures will be considered further at the next stage of design subject to a viability assessment.
- 8.1.9 A Foul Drainage Strategy has been prepared presenting two solutions. Foul flows from the proposed development will discharge via a new gravity connection (Option 1) to Manhole 4931 to the east of the Site - as a preferred option - or a pumped solution (Option 2), to the existing public foul sewer located in Stoneover Road via a proposed rising main. Discussions with Wessex Water are ongoing to confirm and agree this as the formal point of connection for the proposed development
- 8.1.10 Safe access and egress will be available to and from the Site for events up to and including the 1 in 100 year plus climate change flood events.
- 8.1.11 This report demonstrates that the proposed development can be delivered sustainably and that, with the implementation of the proposed drainage strategy, flood risk will not be increased on-site or elsewhere, satisfying the requirements of the NPPF.



Appendix A Topographic Survey



E 182700.00

E 182750.00

E 182800.00

E 182850.00

E 182900.00

E 182950.00

E 183000.00

E 183050.00

E 183100.00

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N 183190.00

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N 183260.00

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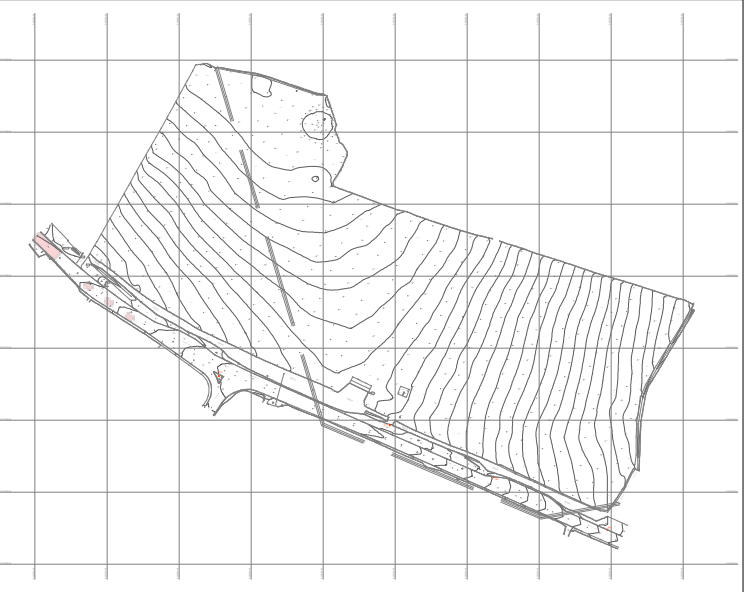
N 183000.00

GENERAL NOTES

- The contractor is to check and verify all buildings and site dimensions and levels, including existing sewer invert levels, before works start on site. The contractor is to comply in all aspects with the current building legislation, British Standards, building regulations etc.
- Positions of existing services/statutory undertakers apparatus adjacent to or crossing proposed excavations are to be checked by the contractor prior to starting work. Utility locations shown are to be verified by the contractor prior to commencement of work.
- This drawing is to be read in conjunction with and checked against all other drawings, engineering details, specifications and any structural, geotechnical or other specialist document provided.
- Any anomaly or contradictions between any of the above is to be reported immediately to Corner Point Surveys Ltd.
- This survey has been undertaken to OS National Grid & Datum (OSTN15) with a calculated local scale factor for this location.

LEGEND

	CARRY	CPY	EV	EAVES
BUILDING	DOWNSPE	OP	GUT	GUTTER
	DOORLINE	DL	PFL	ROOF LINE
	WINDOW LINE	WOL	VP	VENT PIPE
BOUNDARIES	ARCO BARRIER	AB	YB	HOARDING / HEDGE
	BARRIER	BAR	RFW	PORT & RAIL FENCE
	BRICK WALL	BW	FWF	POST & RAIL FENCE
	CLOSE BOARD FENCE	CBF	RW	RETAINING WALL
	HEDGE	HE	SW	STONE WALL
TOPOGRAPHY	BANK BASE	BB	CS	TREE CLUSTER
	BANK TOP	BT	VED	VEGETATION
	BOLLARD	BO	TP	TELECOM POST
STREET	LAMP POST	LP	KB	HERB BASE
FURNITURE	TACTILE PAVING	TPV	LP	LAMP POST
	DROP KERB	DKB	FO	FOOTPATH
	FOOTPATH	FP	RP	REFLECTOR POST
	ROAD SIGN	RS	TRW	TACTILE PAVING
	AC/DRAIN	ACD	OV	MANHOLE
	BT MANHOLE	BT	IC	INSPECTION CHAMBER
UTILITIES	ELECTRICITY BOX	EB	SDR	SLOT DRAIN
	EARTH ROD	ER	ST	STOP VALVE
	FIRE HYDRANT	PH	WM	WATER METER
	GAULT	GU		
STRUCTURE	COLUMN	CON	BT	CONTAINER
	CONCRETE PLINTH	CP	ST	SEWER
	APPROXIMATE	RL		ROSE LEVEL
	APRX LEVEL	AL	SDP	SCOFF LEVEL
	BED LEVEL	BL	UTL	UNABLE TO LIFT
	COVER LEVEL	CL	UTS	UNABLE TO SURVEY
GENERAL	SAVES LEVEL	EL	WL	WATER LEVEL
	FLOOR LEVEL	FFL	4	CONTROL STATION
	HEIGHT	HT	Q	DWATER
	INVERT LEVEL	IL		GATE



Rev	Date	Description	By
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Dimensions to be verified on site.
This drawing should not be scaled. Use figures
Dimensions only.
Any discrepancies should be referred to the Engineer
prior to work being put in hand.
This drawing is copyright.



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Oakton Road, Village Way
Greenwood Business Park
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020 32 985 183
cardiff@cornerpointsurveys.co.uk
www.cornerpointsurveys.co.uk



Project
ROYAL WOOTTON BASSET

Title
TOPOGRAPHICAL SURVEY

Information

Surveyed by	Presented by	Checked by	Date	Scale & A4 size
JPW	JPW	ACV	MAY25	1:500
Project No	Drawing No	Revision		
S25049	001	0		

File Name: S25049-001-000.dwg



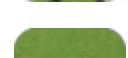
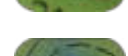
Appendix B Proposed Masterplan



The scaling of this drawing cannot be assured

Revision	Date	Drn	Ckd
F	14.10.25	I.M.	T.L.

Illustrative Masterplan Update to Include Additional Play Area

-  Site Boundary
- 6.50Ha / 16.07Ac
-  Built Form
-  Garden
-  Primary Road
-  Shared Surface
-  Private Drive
-  Parking
-  Footpath
-  Open Space
-  Play Area
-  Interpretation Board
-  Attenuation
-  Swale
-  Pumping Station

Project
Royal Wootton Bassett

Drawing Title
Illustrative Masterplan

Date	Scale	Drawn by	Check by
08.08.25	1:2,500 @A3	J.W.	T.L.
Project No	Drawing No	Revision	
333102301	STN-GEN-SW-DR-MP-06F		





Stantec

DRAFT



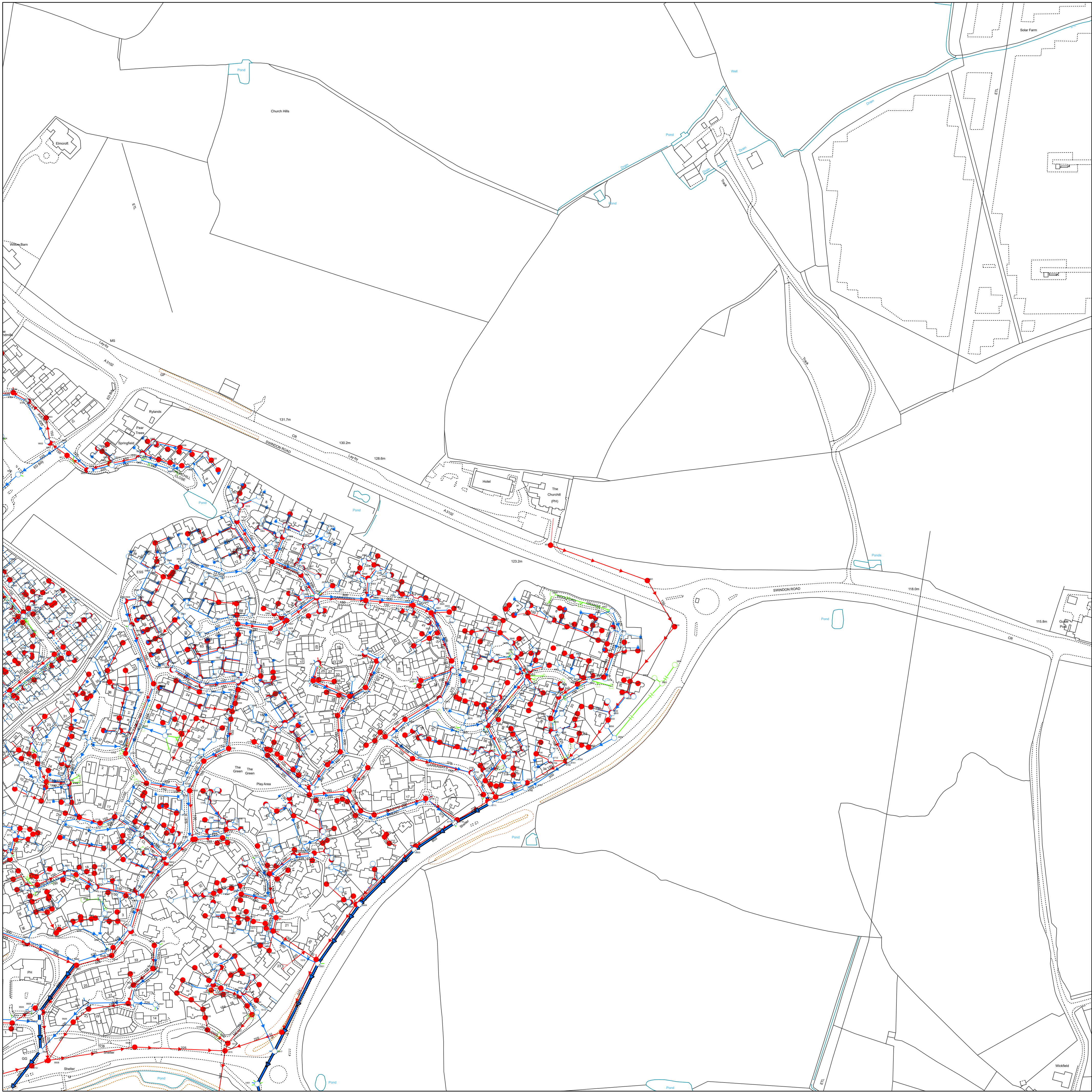
Stantec UK Limited
The Blade
Abbey Square
Reading
RG1 3BE
T: 0118 9430 000

stantec.com\uk



Appendix C Sewer Asset Mapping

V Dev Map SU08SE/ 234 Land North of Swindon Road, RWB 135 dwellings



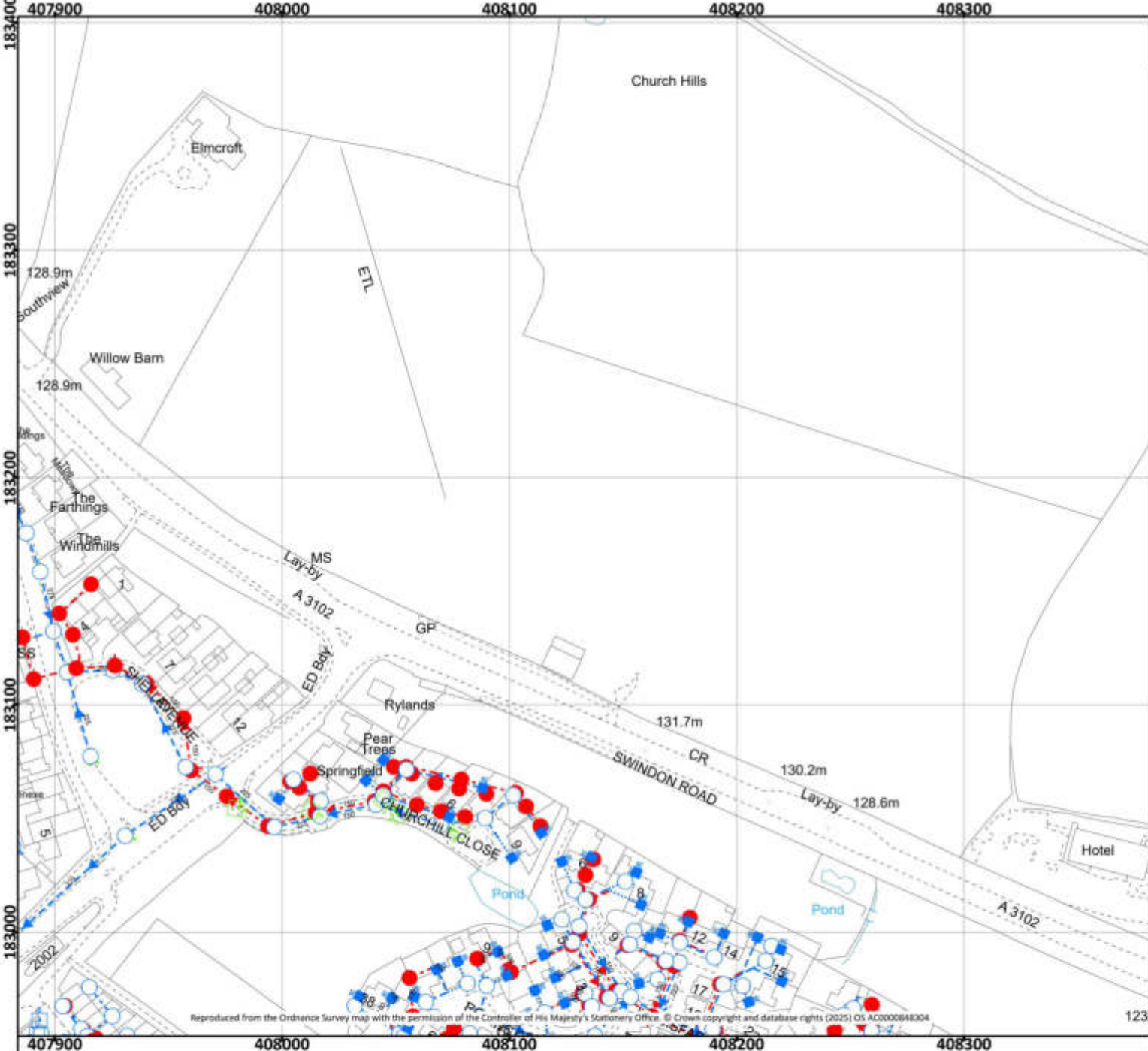
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WATER MAINS	SEWERS	STRATEGIC	PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES	NON-WESSEX / UNKNOWN
Distribution	Foul	Surface	Combined	Abandoned	Rising Mains	Standby Rising Mains	Private Rising Mains
Washout	Surface	Combined	Abandoned	Abandoned	Effluent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

Information in this map is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.

Wessex Water
YTL GROUP

Date: 16/10/2025
Centre: 408414E, 182976N
Scale: 1:1,768
(when printed at A1 size)



WASTE

PUBLIC SEWERS

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Rising Main
- Standby Rising Main
- Syphon
- Overflow
- Use Unknown

OTHER STRUCTURES

- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor
- Thrust Block
- Kiosk

NON-PUBLIC SEWERS & PIPELINES

- Private Sewer/Drain
- Highway Drain
- Culverted Watercourse
- Abandoned Sewer
- Status Unknown
- Section 104 - Foul
- Section 104 - Surface
- Section 104 - Combined
- Private Rising Main
- Effluent Disposal Main
- Cable

STRUCTURES

- Manhole - Foul
- Manhole - Surface
- Manhole - Combined
- Outfall
- Inlet
- Lamphole
- Bifurcation - Foul
- Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow
- Pumping Station - Surface
- Pumping Stn - Foul/Combined
- Gully
- Vent Column
- Telemetry Point

- Rodding Eye
- Catchpit
- Flushing Chamber
- Soakaway
- Non Return Valve
- Air Valve
- Washout
- Hatch Box

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

SUPPLY

WATER MAINS

- Distribution Main
- Washout Main
- Raw Water Main
- Abandoned Main
- Private Main

FITTINGS

- Fire Hydrant
- Washout Hydrant
- Other Fitting

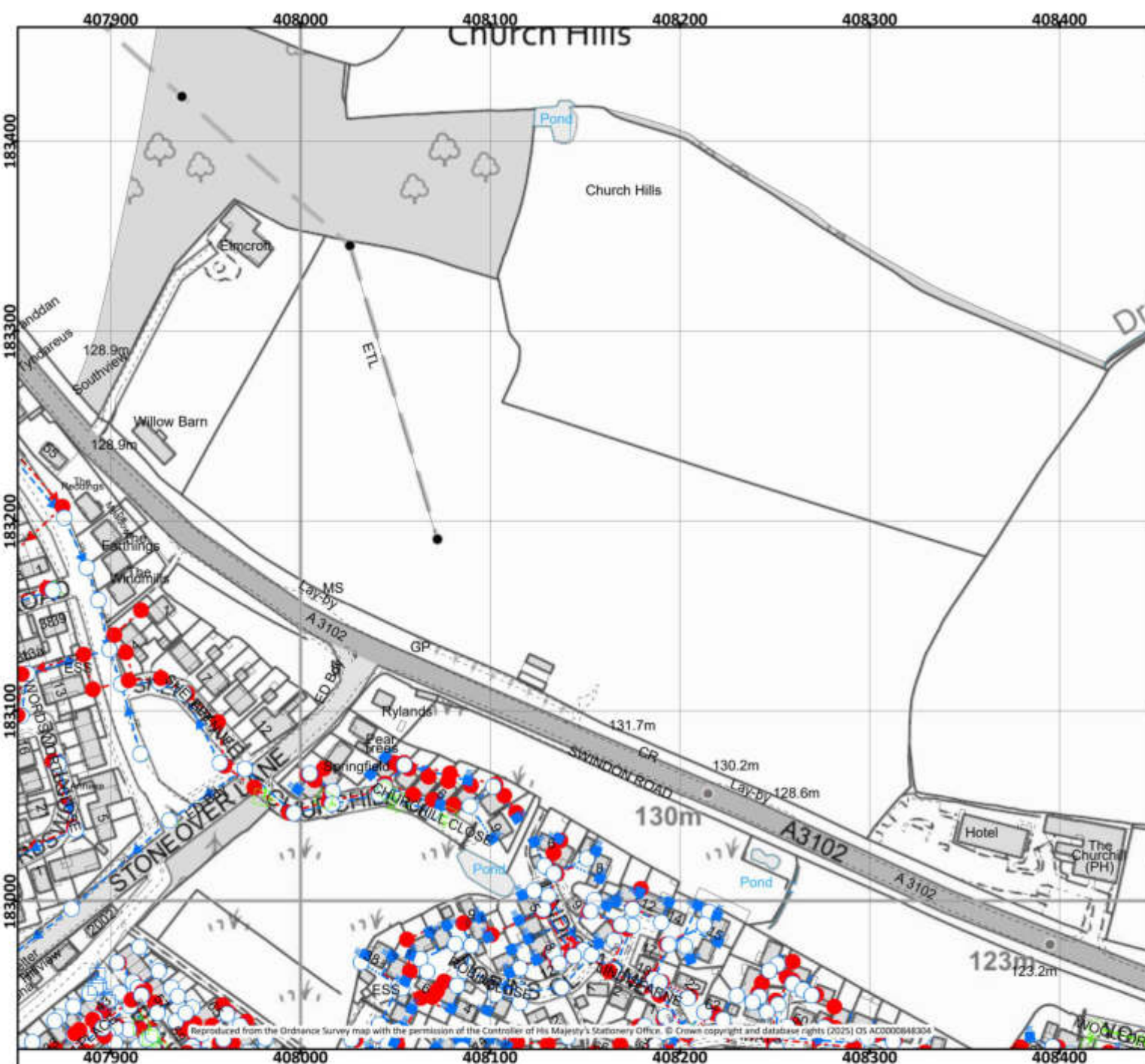
Wessex Water

YTL GROUP

Printed: 22/04/2025

Map Scale - 1:2,500

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WASTE

PUBLIC SEWERS

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Rising Main
- Standby Rising Main
- Syphon
- Overflow
- Use Unknown

OTHER STRUCTURES

- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor
- Thrust Block
- Kiosk

NON-PUBLIC SEWERS & PIPELINES

- Private Sewer/Drain
- Highway Drain
- Culverted Watercourse
- Abandoned Sewer
- Status Unknown
- Section 104 - Foul
- Section 104 - Surface
- Section 104 - Combined
- Private Rising Main
- Effluent Disposal Main
- Cable

STRUCTURES

- Manhole - Foul
- Manhole - Surface
- Manhole - Combined
- Outfall
- Inlet
- Lamphole
- Bifurcation - Foul
- Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow
- Pumping Station - Surface
- Pumping Stn - Foul/Combined
- Gully
- Vent Column
- Telemetry Point
- Rodding Eye
- Catchpit
- Flushing Chamber
- Soakaway
- Non Return Valve
- Air Valve
- Washout
- Hatch Box

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow) styles of line are shown on the key in sample/typical colours.

SUPPLY

WATER MAINS

- Distribution Main
- Washout Main
- Raw Water Main
- Abandoned Main
- Private Main

FITTINGS

- Fire Hydrant
- Washout Hydrant
- Other Fitting

Information in this plan is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown, in carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. Building over or near Wessex Water's apparatus is not normally permitted.



Appendix D Drainage Strategy Drawings

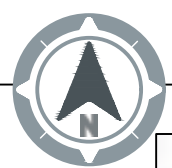


Figure 2: Example of a swale (Susdrain, July 2012).



Figure 3: Example of an attenuation basin (Susdrain, September 2012).



Figure 1: Example of pocket rain / street garden (Greener Grange in Cardiff (Susdrain / CIRIA July 2018)).

Key:

- Site Boundary
- Indicative Location of Proposed Attenuation Basin with Earthworks Buffer and 3m Maintenance Easement
- Indicative Location of Proposed Swales (4m total width)
- Indicative Location of Proposed Surface Water Sewer
- Indicative Location of Flow Control Device
- Indicative Location of Proposed Headwall
- Drainage Catchment
- High Risk of Surface Water Flooding (1 in 30-Year Event)
- Medium Risk of Surface Water Flooding (1 in 100-Year Event)
- Low Risk of Surface Water Flooding (1 in 1000-Year Event)
- Root Protection Zone
- Existing Ditch with 5m easement either side
- Utilities
 - Gas
 - Thames Water Water Main
 - BT
 - SSE 33kV Electric Underground Cables with 6m Easement
 - SSE 11kV Electric Overhead Cables
 - Vodafone
 - Virgin
 - Gigaclear

CDM Note

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9.

Notes:

- This drawing is not to be reproduced in any part or form without the consent of PJA Environment Ltd. All copyright reserved.
- An indicative assessment of earthworks for the proposed attenuation basin has been undertaken at this time, however this may be subject to change as the masterplan develops.
- No consideration of constraints including; arboricultural, ecology, or utilities has been undertaken at this time.
- Drawing should be read in conjunction with all other relevant drawings.
- Drawing includes:
 - Topographic Survey provided by Corner Point Surveys Limited in May 2025.
 - OS Mapping provided by Stantec in May 2025.
 - Site Layout provided by Stantec in October 2025 (Ref. 333102301-STN-GEN-SW-DR-MP-PS01D - Illustrative Masterplan)
- Surface Water Flood Risk Extents provided by the Environment Agency in May 2025.
- Consideration has not been given to the impacts of a surcharged outfall.
- Indicative Surface Water Drainage Strategy assumes:
 - Attenuation Basin 01 is 1.5m deep with 1:4 side slopes (including 300mm freeboard).
 - 3m maintenance easement provided around the proposed attenuation basin.
 - 60% impermeable for residential area, 100% impermeable for proposed attenuation basin.
 - 10% additional allowance applied to residential impermeable areas to account for urban creep.
 - 300mm freeboard provided for the attenuation basin up to and including the 1 in 100-year plus 45% climate change event.
 - FEH 22 Data
 - Cv value of 1 applied.
 - Qbar Rate of 5.0l/s/ha has been calculated for the Site, a discharge rate of 3.5l/s/ha is proposed for the Site based on Wiltshire Council Guidance which requires a 30% Betterment on Qbar rates for discharge.

P7	22/10/2025	Drainage Strategy Revised	CE	AN	AN
P6	29/09/2025	Proposed Layout Revised	CE	AN	AN
P5	11/09/2025	Drainage Strategy Revised	CE	AN	AN
P4	28/08/2025	New Layout Included and DS Revised	CE	SF	SF
P3	23/07/2025	Additional SuDS Features Adjusted	CE	AN	AN
P2	16/07/2025	Additional SuDS Features Added	CE	AN	AN
P1	18/06/2025	Flow Restriction Revised	CE	AN	AN
P0	20/05/2025	FIRST ISSUE	CE	AN	AN
Rev	Date	Revision Note	Drw	Chk	App

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Client
Gleeson Land

Project
Land north of Swindon Road, Royal Wootton Bassett

Title
Indicative Surface Water Drainage Strategy

Drawing Issue Status
For Planning

PJA Ref 09071 Scale @ A1 1:750 Date Oct. 2025

Drawing No. 09071-WR-0500 Revision P7

Primary Contact
Andrea.Nelmes@pja.co.uk

Catchment	Developable Area (ha)	Total Impermeable Area (ha)	Total Impermeable Area including 10% (ha)	Proposed Discharge Rate (l/s)	Proposed Attenuation Volume (m3)	Proposed Attenuation Area (m2)
1.000	3.65	2.548	2.767	8.9	3085	3580
Total	3.65	2.548	2.767	8.9	3085	3580



Key:

- Site Boundary
- Proposed Direction of Foul Flows
- Proposed Foul Water Sewer
- Proposed Foul Rising Main
- Indicative Location of Proposed Foul Water Pumping Station with 15m Cordon Sanitaire
- Indicative Location of Existing Wessex Water Foul Sewer
- Indicative Location of Existing Wessex Water Surface Water Sewer
- Root Protection Zone
- Indicative Location of Proposed Attenuation Basin with Earthworks Buffer and 3m Maintenance Easement
- Indicative Location of Proposed Swales (4m total width)
- Existing Ditch with 5m Easement Either Side

Utilities

- Gas
- Thames Water Water Main
- BT
- SSE 33kV Electric Underground Cables with 6m Easement
- SSE 11kV Electric Overhead Cables
- Vodafone
- Virgin
- Gigaclear

CDM Note

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Notes:

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- An indicative assessment of earthworks for the proposed attenuation basin has been undertaken at this time, however this may be subject to change as the masterplan develops.
- No consideration of constraints including; arboricultural, ecology, or utilities has been undertaken at this time.
- Drawing should be read in conjunction with all other relevant drawings.
- Drawing includes:
 - Topographic Survey provided by Corner Point Surveys Limited in May 2025.
 - OS Mapping provided by Stantec in May 2025.
 - Site Layout provided by Stantec in October 2025 (Ref. 333102301-STN-GEN-SW-DR-MP-PS01D - Illustrative Masterplan)
- Foul strategy based on information available at the time of writing and is subject to masterplanning and Wessex Water information.
- Foul pumping station to be designed to Wessex Water design guidance and to be adopted.
- The exact location, depth and condition of all sewers is to be confirmed via survey prior to detailed design.
 - Rising main subject to detailed design and is shown indicatively.

Rev	Date	Revision Note	Drw	Chk	App
P3	21/10/2025	Layout Revised	CE	AN	AN
P2	29/09/2025	Layout Revised	CE	AN	AN
P1	09/09/2025	Layout Revised	CE	AN	AN
P0	16/07/2025	FIRST ISSUE	CE	AN	AN

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Client

Gleeson Land

Project

Land north of Swindon Road,
Royal Wootton Bassett

Title

Indicative Foul Water Drainage Strategy
- Pumped Solution

Drawing Issue Status

For Planning

PJA Ref	Scale @ A1	Date
09071	1:750	Oct. 2025

Drawing No.	Revision
09071-WR-0503	P3

Primary Contact

Andrea.Nelmes@pja.co.uk



Key:

- Site Boundary
- Proposed Direction of Foul Flows
- Proposed Foul Water Sewer
- Indicative Location of Existing Wessex Water Foul Sewer
- Indicative Location of Existing Wessex Water Surface Water Sewer
- Root Protection Zone
- Indicative Location of Proposed Attenuation Basin with Earthworks Buffer and 3m Maintenance Easement
- Indicative Location of Proposed Swales (4m total width)
- Existing Ditch with 5m Easement Either Side

Utilities

- Gas
- Thames Water Water Main
- BT
- SSE 33kV Electric Underground Cables with 6m Easement
- SSE 11kV Electric Overhead Cables
- Vodafone
- Virgin
- Gigaclear

CDM Note

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9.

Notes:

- This drawing is not to be reproduced in any part or form without the consent of PJA Environment Ltd. All copyright reserved.
- An indicative assessment of earthworks for the proposed attenuation basin has been undertaken at this time, however this may be subject to change as the masterplan develops.
- No consideration of constraints including; arboricultural, ecology, or utilities has been undertaken at this time.
- Drawing should be read in conjunction with all other relevant drawings.
- Drawing includes:
 - Topographic Survey provided by Corner Point Surveys Limited in May 2025.
 - OS Mapping provided by Stantec in May 2025.
 - Site Layout provided by Stantec in October 2025 (Ref. 333102301-STN-GEN-SW-DR-MP-PS01D - Illustrative Masterplan)
- Foul strategy based on information available at the time of writing and is subject to masterplanning and Wessex Water information.
- The exact location, depth and condition of all sewers is to be confirmed via survey prior to detailed design.

P3	22/10/2025	Layout Revised	CE	AN	AN
P2	29/09/2025	Layout Revised	CE	AN	AN
P1	09/09/2025	Layout Revised	CE	AN	AN
P0	16/07/2025	FIRST ISSUE	CE	AN	AN
Rev	Date	Revision Note	Drw	Chk	App

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Client

Gleeson Land

Project

Land north of Swindon Road,
Royal Wootton Bassett

Title

Indicative Foul Water Drainage Strategy
- Gravity Solution

Drawing Issue Status

For Planning

PJA Ref 09071 Scale @ A1 1:1000 Date Oct. 2025

Drawing No. 09071-WR-0504 Revision P3

Primary Contact
Andrea.Nelmes@pja.co.uk



Appendix E Greenfield Run Off Calculations

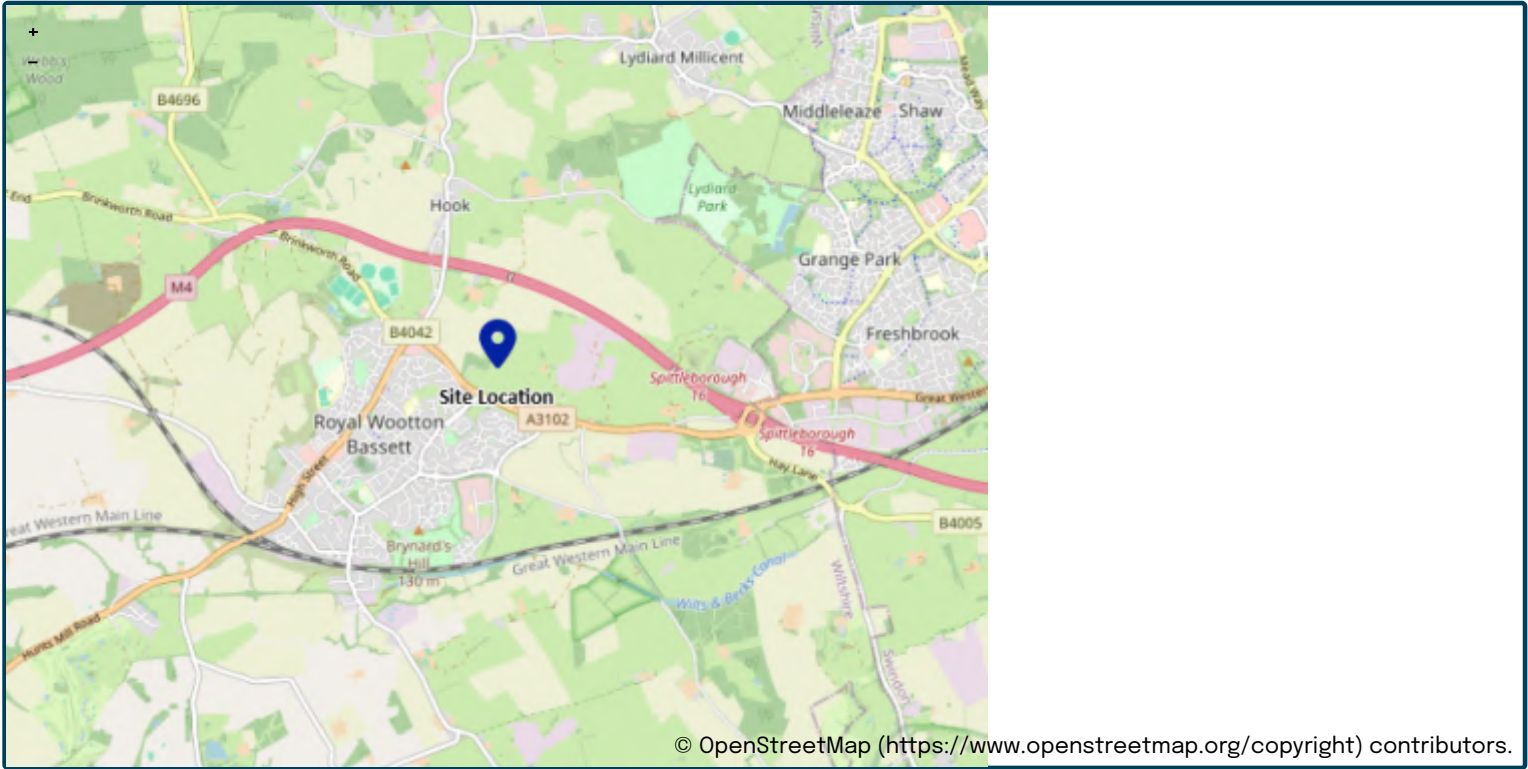
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	19/05/2025
Calculated by	CE
Reference	
Model version	2.0.1

Location

Site name	Royal Wootton Bassett
Site location	



Site easting	408176
Site northing	183170

Site details

Total site area (ha)	1	ha
----------------------	---	----

Greenfield runoff

Method

Method	FEH statistical
--------	-----------------

FEH statistical

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	705 mm	☒	705
BFIHOST	0.356		
QMed-QBar conversion	1.136	☐	1.136
QMed (l/s)	4.37 l/s		
QBar (FEH statistical) (l/s)	5 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	FEH statistical	
Flow rate 1 year (l/s)	4.2 l/s	
Flow rate 2 year (l/s)	4.4 l/s	
Flow rate 10 years (l/s)	8 l/s	
Flow rate 30 years (l/s)	11.4 l/s	
Flow rate 100 years (l/s)	15.8 l/s	
Flow rate 200 years (l/s)	18.6 l/s	

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.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.uksuds.com/terms-conditions) (<https://www.uksuds.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.



Appendix F

Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Basin 01	2.767	5.00	124.600	25.181	64.253	1.500

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
30	45	0	0
100	0	0	0
100	45	0	0

Node Basin 01 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	123.100	Product Number	CTL-SHE-0135-8900-1200-8900
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.9	Min Node Diameter (mm)	1200

Node Basin 01 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	123.100
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	1950.0	0.0	1.500	3580.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	Basin 01	660	123.318	0.218	44.8	450.4531	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
960 minute summer	Basin 01	Hydro-Brake®	8.5	397.3

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Basin 01	930	123.733	0.633	79.2	1452.3060	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
60 minute summer	Basin 01	Hydro-Brake®	8.9	146.6

Results for 30 year +45% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Basin 01	1410	124.041	0.941	83.5	2315.5330	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
15 minute summer	Basin 01	Hydro-Brake®	8.9	131.5

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Basin 01	1410	123.936	0.836	74.0	2008.5820	0.0000	OK
Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)				
120 minute winter	Basin 01	Hydro-Brake®	8.9	166.3				

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Basin 01	1410	124.289	1.188	107.3	3084.8940	0.0000	OK

Link Event (Outflow)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Basin 01	Hydro-Brake®	8.9	735.4



Appendix G Thames/Wessex Water Developer Enquiry

David Gardner

From: DEVELOPER.SERVICES@THAMESWATER.CO.U
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sent: 02 July 2025 17:19
To: David Gardner
Cc: Scarlett Cameron; Darren Mace
Subject: RE: RE: Royal Wootton Bassett - Foul Query

Dear David,

Site: Royal Wootton Bassett

Thank you for your email. According to our sewer records, we have no sewers near the development which could serve as a point of connection. The nearest mapped sewers we have are still roughly 2 kilometres away from your development.

As such, the most practical solution is to connect into the Wessex Water sewer network, and Thames Water would have no objection to this proposal.

If you have any queries, please do not hesitate to contact me.

Yours sincerely,

Celso De Freitas
Connection Engineer
Developer Services – Connections Team

Thames Water - Developer Services – Ground Floor East - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk - Web: www.developerservices.co.uk

Original Text

From: David Gardner <DavidGardner@btsgb.com>
To: DEVELOPER.SERVICES@THAMESWATER.CO.U <developer.services@thameswater.co.uk>
CC: Scarlett Cameron <ScarlettCameron@btsgb.com>; Darren Mace <darrenmace@btsgb.com>
Sent: 27.06.25 15:37:28
Subject: RE: Royal Wootton Bassett - Foul Query

This e-mail originated from outside of Thames Water. Do not click links, open attachments or reply, unless you recognise the sender's e-mail address and know the content is safe. If in doubt, contact the Digital Service Desk. Report Phishing via the Report Message option.

Good afternoon,

Response to: Developer email: Daniel.Pickering@mjgleeson.com			
Planning Ref:		Our Ref: SU08SE/ 234	Our Email: planning.liaison@wessexwater.co.uk
Proposal:	Development of Up to 135 dwellings		
Location:	Land North of Swindon Road,RWB	DATE	02/07/2025

Thank you for your pre-development enquiry. Extracts from our records showing the approximate location of our apparatus within the vicinity of the site are attached.

We have reviewed documents submitted in support of the enquiry. We have following comments to make:

Please note that the site is on the boundary of two Water Authorities Wessex Water and Thames Water so the comments provided in the below response are only relevant to Wessex Water.

Foul Sewerage – Point of Discharge

Development of this scale requires a minimum 150mm foul sewer connection.

Wessex Water will accommodate domestic type foul flows in the public foul sewer with connections made on a size for size basis, Developers fund the cost of connecting to the nearest 'size for size' sewer and Wessex Water will manage the sewer network to accommodate foul flows from granted development. We fund this through our infrastructure charging arrangements.

There is limited capacity in the public sewer network. We are also aware of cumulative developments at this location.

We acknowledge that a developer can connect to the local public sewers on a size for size basis and we advise that upon grant of planning Wessex Water will carry out a review of the network and undertake any necessary improvements (at our cost) to accommodate permitted development.

Capacity Appraisal:

Capacity in the network is limited, and as such a capacity appraisal and detailed process review will be required to assess the impacts of the additional loading in the system, this appraisal will identify what, if any, capacity improvements will be necessary to accommodate the flows.

We don't have capacity improvement schemes readily prepared for sites that do not have planning permission. Upon any grant of planning permission for this site, it will be necessary to undertake a modelling assessment and, if it is deemed necessary, plan, design and construct a scheme of capital works to meet the catchment growth.

In such circumstance, we advise that it will be necessary to reach an agreement with the applicant and the Local Planning Authority upon the timetable if a scheme of capacity works is required. In that circumstance the development should not proceed until Wessex Water has confirmed that capacity can be made available for these new connections.

The point of connection to the public network is by application and agreement with Wessex Water.

Point of Connection Discharge

The nearest point of connection appears to be the existing 150 mm dia foul sewer in Stoneover Lane.

However this would require a pumped connection, and due to limited sewer capacity it is likely that we would require a Telemetry Inhibit and increased storage at the development's new pumping station. This would be confirmed via modelling and by application.

Point of connection to the public network is by application and agreement with Wessex Water and subject to satisfactory engineering proposals constructed to current adoptable standards. The developer should contact the local development team development.north@wessexwater.co.uk to agree proposals for the Section 104 adoption and submit details for technical review prior to construction.

Please Note: No surface water runoff or land drainage will be accepted into the foul sewer either directly or indirectly

Proposed Surface Water Sewerage

Surface water must be disposed of via the SuDS Hierarchy which is subject to Building Regulations and NPPF.

No surface water runoff, land drainage or ground water will be accepted into a public sewer that carries sewerage, either directly or indirectly.

The National Planning Policy Framework (NPPF) mandates that Sustainable Drainage Systems (SuDS) must be incorporated into new developments to manage surface water runoff, mitigate flood risks, and provide additional benefits, including enhanced water quality and green spaces.

In line with the drainage hierarchy outlined in Approved Document H of the Building Regulations, Planning Practice Guidance, and the necessity to address water scarcity, all surface water runoff should aim to be discharged as high up the surface water discharge hierarchy as feasible.

Last week Defra announced new national standards for SuDS. The national surface water hierarchy has been updated and runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- collected for non-potable use (water re-use)
- infiltrated to ground
- discharged to an above ground surface water body
- discharged to a surface water sewer, or another piped surface water drainage system

Note: To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable. Higher cost alone shall not be a reason to utilise lower priority final destinations.

Wessex Water statement on surface water discharge can be accessed via the following link:

<https://developerservices.wessexwater.co.uk/media/m4rjrfmg/wwds-dev063p-rainwater-drainage-policy.pdf>

We note presence of land drainage features in vicinity of the site (south east corner of the site in Swindon Road and to the north west of the site). Surface water discharge should be considered for re-use and to watercourses.

Surface Water drainage strategy to be agreed with the LLFA.

Adoption

Wessex Water can adopt SuDS features as part of a surface water sewer network, SuDS schemes will be required to have full S104 technical approval and full planning approval before construction work begins. All drainage design requirements for the site (discharge rates, attenuation, climate change etc.) must be agreed, in consultation with the Local Planning Authority / Lead Local Flood Authority, prior to the submission of a formal S104 application. Adoption is by agreement with Wessex Water. More detailed information and guidance for adoptable standards can be found on our Developer Services Web Pages Sector guidance on sewerage and water adoption agreements (wessexwater.co.uk)

Water Supply – Point of Connection

Contact Thames Water

New Appointments and Variations (NAVs)

The NAV Market enables developers to choose their water or sewerage undertaker for a specific geographic area. For developers wishing to consider an alternative supplier or seeking further information, a full list of appointees and further guidance can be found on the Developing a new site (wessexwater.co.uk) and Ofwat website.

If you are making a NAV enquiry, there is a Wessex Water dedicated wholesale team that deal with NAV enquiries. Full details are on our website including guidance notes, our policy and contact details.

<https://developerservices.wessexwater.co.uk/new-appointments-and-variations>

I trust that you will find the mapping and initial comments of use.

Note: These comments are based upon known circumstances prevailing at the time of writing. A review of the contents of this email is required where 18 months or more have elapsed since issue, or in the light of

significant changes likely to impact on our response such as development numbers or phasing. Please email review requests to planning.liaison@wessexwater.co.uk



Appendix H Pre-Application Correspondence

<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:

[Risk of Flooding from Surface Water](#)

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

1. **‘Planning Practice Guidance’** - provides information about planning considerations in areas at risk of flooding.
<https://www.gov.uk/government/collections/planning-practice-guidance>
2. ‘Planning applications: assessing flood risk’ - information about completing Flood Risk Assessments. <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>
3. **‘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>
4. **‘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.

Kind Regards

Customers and Engagement Team – Thames Area

Rebecca Miller

From: Planning Liaison <planning.liaison@wessexwater.co.uk>
Sent: 17 June 2025 15:10
To: Rebecca Miller
Subject: RE: [PJA: 09071] Historic Sewer Flood Records - Royal Wootton Bassett

Dear Rebecca,

Thank you for your email.

We do not hold historic flood records as such.

I can confirm that we do not have any records of sewer flooding in the vicinity of the development site that you are enquiring about.

With kind regards and many thanks.

Hayley Freeman
Planning Liaison Technician



Wessex Water
Operations Centre, Claverton Down, Bath BA2 7WW

Email Hayley.Freeman@wessexwater.co.uk
Web ytl.com | wessexwater.co.uk



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This email is being sent to you on behalf of Wessex Water Limited, a company registered in England and Wales with number 02366633. Its registered office is Wessex Water Operations Centre, Claverton Down Road, Claverton Down, Bath, BA2 7WW.

From: Rebecca Miller <rebecca.miller@pja.co.uk>
Sent: 16 June 2025 10:42
To: Planning Liaison <planning.liaison@wessexwater.co.uk>
Subject: [PJA: 09071] Historic Sewer Flood Records - Royal Wootton Bassett

Dear Sir/Madam,

PJA have been appointed to provide flood risk and drainage advice for a proposed development north of Swindon Road, Royal Wootton Bassett (approx. postcode: SN4 8PA). OS Co-ordinates: 408140 , 183188. Please find attached site plan:



We would be grateful if you could provide us with any historic sewer flood records or historic sewer information you hold for the site.

If you have any questions or thoughts, please do not hesitate to contact me.

Kind regards,

Rebecca Miller

Rebecca Miller

Graduate Flood Risk and Drainage Engineer

Bristol

1st Floor, St Thomas Court, Thomas Lane, Bristol, BS1 6JG, UK

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Wiltshire Council Planning Consultation Response

04 August 2025

Wiltshire Council Drainage Engineer
Technical Services Drainage Engineer
Wiltshire Council

Officer's Name: Oliver Phippen
Direct Line: 01225 713955

Application No: ENQ/2025/01114
Pre-Application enquiry
Outline Planning Application with all matters reserved except the main points of access to the site for up to 135 dwellings.
Land North of Swindon Road, Royal Wootton Bassett, Swindon, SN4 8ER

Pre-Application Advice: Flood Risk

As a result of the scale of the proposed development, a site-specific Flood Risk Assessment (FRA) is required for this application. The site-specific FRA should demonstrate that the site is not adversely affected by flood risk from different sources, and how the flood risk from **all sources** will be managed without increasing flood risk to the development itself or elsewhere. It should also outline the proposed drainage strategy for the site. The applicant is referred to the Environment Agency's [advice](#) on how to prepare an FRA, as well as their standing [advice](#) for vulnerable developments

The applicant shall review all published Section 19 reports on historic flooding within Wiltshire and incorporate these into their holistic assessment of flood risk, and historic flood events. These reports can be found on the council website here: [Flooding - Wiltshire Council](#)

Pre-Application Advice: Drainage Strategy / Drainage Design

Based on BGS Mapping, the site is indicated to be underlain by Kimmeridge/Amphill Clay Formation - Mudstone
The suitability of infiltration to dispose of surface water will need to be assessed by the applicant.

Based on DEFRA Magic Maps ([UK Gov SPZ Mapper](#)), this site falls within Source Protection Zone II - Subsurface Activity

The applicant should note that in all instances the preference should be to utilise blue-green SuDS which provide multi-faceted benefits to the site (in terms of water quantity, quality, amenity and biodiversity); for example, for attenuation features preference should be given to use of swales/ponds/detention basins (if technically feasible) instead of attenuation tanks. The applicant should adopt a holistic approach to planning the site, and sufficient space for SuDS features should be provided at an early stage in order to fulfil the requirements of NPPF; the LLFA will not accept statements that there is insufficient space for SuDS or that SuDS have not been utilised due to cost.

The applicant must comply with the [National standards for sustainable drainage systems \(SuDS\) guidance](#) published on 19th June 2025, when preparing the drainage strategy, apart from where Wiltshire Council requirements below introduce more stringent requirements. Given that the proposed development will comprise dwellings, it is anticipated that there will be a significant demand for water. Therefore, we expect that rainwater harvesting will be fully considered for non-potable uses within the development, in accordance with the current National Standards for Sustainable Drainage Systems (SuDS).

The LLFA would consider this to be a greenfield site for the purposes of planning

The applicant should note the [EA's updated climate change guidance](#) (dated 27 May 2022) when preparing the Flood Risk Assessment / Drainage Strategy.

The developer should provide the following information as part of future planning applications:

Drainage Strategy

- Evidence that SuDS have been selected, wherever possible, to provide a wide range of benefits including amenity, biodiversity and maintaining water quality.
- Evidence that SuDS source control measures to manage water quantity and maintain water quality have been implemented wherever possible and throughout the management train so the development is not reliant upon large attenuation features close to the points of discharge.
- Existing greenfield runoff rates for the site.
- Post development runoff rates in accordance with Wiltshire Council's betterment policy:
 - *With regards the control of surface water discharges from new development, Wiltshire Council requires post development discharges from greenfield sites to provide 30% betterment over pre-development discharges for all storm events between the 1 in 1year and 1 in 100year return period events.*
 - *For greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.*
- Evidence demonstrating how the surface water disposal hierarchy has been applied and how all other options have been exhausted. The hierarchy is set out below (as per the Sewerage Sector Guidance, paragraph C.3.12):
 - Surface water runoff is collected for use.
 - Discharge into the ground via infiltration.
 - Discharge to a watercourse or other surface water body.
 - Discharge to surface water sewer or other drainage system, discharging to a watercourse or other surface water body.
 - Discharge to a combined sewer.
- The drainage strategy does not increase flood risk, as a result of catchment transfer.
- A detailed plan showing the existing drainage features on the site and how the proposed drainage strategy will be implemented.
- If infiltration is proposed, it is implemented in manner that does not create an offsite impact, particularly if there are reports of groundwater flooding in the area.
- Surface water can be safely managed within the proposed development, up to and including a 1 in 100 year plus climate change event.
- Existing flood flow routes through the site have been maintained or where they will be affected, adequate measures to intercept and safely control flows through the site have been provided to ensure flood risk is not increased elsewhere.
- The strategy mimics the existing drainage characteristics of the site by retaining and utilising any existing drainage features.
- Measures to prevent pollution of the receiving groundwater and/or surface waters.
- A clearly labelled drainage layout plan showing the pipe networks and any attenuation ponds. The plan should show any pipe node numbers referred to within the drainage calculations.

Ground Investigations

- Geotechnical factual and interpretive reports, including infiltration tests in accordance with British Research Establishment (BRE) Digest 365 – Soakaway Design.
- Groundwater level monitoring (taking into account seasonal variations).
- The applicant is referred to Wiltshire Council's [Surface Water Soakaway Guidance](#) for the standards that must be met for planning approval and adoption of infiltration drainage features.

Detailed Drainage calculations

- Calculations and drawings for the drainage system design showing designated holding areas and conveyance routes based on no flooding on site for a 1 in 30 year plus climate change rainfall event.
- Calculations and drawings for the drainage system design showing designated holding areas and conveyance routes based on no flooding on site for a 1 in 100 year plus climate change rainfall event in respect to a building (including basement) or utility plant susceptible to water within the development.

- Calculations should include an allowance for increased surface water runoff, as a result of urban creep, in accordance with National SuDS Standards.
- Hydraulic Models should set the MADD factor / additional storage volume factor to $0\text{m}^3 / \text{ha}$ in order to prevent an overestimation of storage capacity in the proposed drainage network.
- If the drainage model includes runoff from the full site (both permeable and impermeable areas), the default Cv values of 0.75 (summer) and 0.84 (winter) may be used. If runoff is only included from impermeable catchment areas within the drainage model, a Cv value of 1 must be used.
- If attenuation tanks are proposed that an allowance for reduced attenuation volume due to silt ingress (as per Section 21.9.9 of the SuDS Manual CIRIA C753)

Design Drawings

- A plan showing the cross sections and design of any attenuation pond and its components.
- Drawings showing conveyance routes for flows exceeding the 1 in 100 year plus climate change rainfall event that minimise the risk to people and property.

Third party consent

- Consent for any outfalls from the proposed drainage systems into a public sewer or other drainage system not owned by the applicant.

Ownership and Management

- Details of how the proposed and existing drainage features on the site will be maintained and managed after completion with confirmation from the relevant authority that they will adopt any systems that are being offered for adoption.

Construction

- Adequate measures during construction to control pollution to existing watercourses and groundwater.
- A construction management plan.

Informatives:

The table below stipulates the information typically required at each application stage. Provision of the correct information will expedite the processing of applications by the drainage team.

Pre-app	Outline	Full	Reserved matters	Discharge of conditions	Document to be submitted
✓	✓	✓			Flood Risk Assessment / Statement
✓	✓	✓			Drainage Strategy / Statement & sketch layout plan
	✓				Preliminary layout drawings
	✓				Preliminary "Outline" hydraulic calculations
	✓				Preliminary landscape proposals
	✓				Ground investigation report (for infiltration)

Pre-app	Outline	Full	Reserved matters	Discharge of conditions	Document to be submitted
	✓	✓			Evidence of third party agreement for discharge to their system (in principle/ consent to discharge)
		✓		✓	Maintenance program and on-going maintenance responsibilities
		✓	✓		Detailed development layout
		✓	✓	✓	Detailed flood & drainage design drawings
		✓	✓	✓	Full Structural, hydraulic & ground investigations
		✓	✓	✓	Geotechnical factual and interpretive reports, including infiltration results
		✓	✓	✓	Evidence of measures to prevent pollution of the receiving groundwater and/or surface waters
		✓	✓	✓	Drawings showing conveyance routes for flows exceeding the 1 in 100 year plus climate change
		✓	✓	✓	Detailed landscaping details
		✓	✓	✓	Discharge agreements (temporary and permanent)
		✓	✓	✓	Development Management & Construction Phasing Plan

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 Abhishek Nandan (Atkins) working on behalf of Wiltshire Council Drainage.