
Project	Phase 1, Land Parcel 3, Ashton Park, Trowbridge	Date	January 2026
Note	National standards for SuDS Technical Note	Ref	629
Author	J Spicer		

Standard	Status
S1: Runoff Destinations	Achieved
S2: Management of Everyday Rainfall (Interception)	Partly Achieved
S3: Management of Extreme Rainfall and Flooding	Achieved
S4: Water Quality	Achieved
S5: Amenity	Achieved
S6: Biodiversity	Achieved
S7: Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity	Achieved

1. Introduction

- 1.1 The purposed of this technical note is to support the Reserved Matter application (ref: PL/2025/07352) and associated discharge of Condition 22 by Wiltshire Council in the outline planning permission which is detailed below:

‘No development in any particular Phase or sub Phase of the development or associated with the Yarnbrook and West Ashton Relief Road in isolation shall commence on site until a scheme for the discharge of surface water from the Phase or sub Phase or from the Relief Road in isolation, incorporating sustainable drainage details, and any related programme for delivery, has been submitted to and approved in writing by the Local Planning Authority. The development within the Phase shall not be first occupied and/or the Relief Road shall not be first used by non-construction traffic until surface water drainage has been constructed in accordance with the approved scheme(s) and related programme(s).

REASON: The application contained insufficient information to enable this matter to be considered prior to granting planning permission and the matter is required to be agreed with the Local Planning Authority before development commences in any phase in order that the development is undertaken in an acceptable manner, to ensure that the development can be adequately drained.’

- 1.2 The LLFA have provided the following comments on the Reserved Matters application:
- SuDs Principles Compliance: A detailed design statement is needed to confirm that SuDS principles-such as source control, interception, water quality, amenity and biodiversity-are applied consistently across all plots and road corridors.

- Hydraulic Modelling Data: a comprehensive hydraulic modelling report is required to demonstrate the drainage network's performance under critical storm conditions, including surcharging and flooding analysis.
 - Exceedance Routing and Modelling Outputs: An exceedance routing plan and 2D hydraulic modelling outputs are needed to confirm safe flow paths, ponding depths, and protection of properties and off-site receptors.
 - Additional Information on O&M and SWMP: While not required at Reserved Matters stage, future submission of O&M manuals, adoption strategy and construction-phase drainage plans will be necessary to secure long-term functionality.
- 1.3 This Technical Note addresses the first point raised in the LLFA comments. Hydraulic Modelling Data has been confirmed in later correspondence with the LLFA (dated 5th Dec 25) is no longer a requirement to provide under this RM. The third and final point above are addressed within the revised Reserved Matters application.
- 1.4 The National Standards for Sustainable Drainage Systems (SuDS) released in June 2025 introduces principles for surface water drainage strategies which are achievable by applying seven standards. These seven standards aim to deliver benefits through integrated SuDS features that will attain aspects such as flood risk reduction, water quality improvement, amenity and increase biodiversity.
- 1.5 Where one or more standard is not achievable due to specific circumstances or constraints, the potential to meet the standard shall be maximised. Consultation with the approving body will require justification for the unachieved standard and may approve a departure if it does not breach regulatory controls.
- 1.6 The national standards have utilised verbal forms to clarify the requirements which are defined below:
- must – this is a legislative or statutory requirement set out in regulations at national or international level
 - shall – this indicates a performance or method-based requirement of the standards which can only be varied through a departure agreed with the approving body
 - should – this is a recommendation, providing advice on how a requirement should be satisfied. A recommendation indicates that, among several different options, one is recommended as particularly suitable without mentioning or excluding others. A departure is not required to be agreed with the approving body provided that an appropriate justification is recorded
 - may – this is a permissible option or approach, providing clarity on specific options which are permitted to satisfy a requirement
 - can – this is a clarification of a concept or statement of fact, and is generally presented as a note

2. Planning History

- 2.1 The Site is subject to Outline Planning permission, granted 2nd October 2025 for mixed used development comprising up to **2,500 dwellings, 13.6ha employment land, 2no. primary schools, secondary school, 2no. local centres, ecology visitor centre and substantial public open space including 6.35ha of sports pitches, destination play areas and a Country Park.** The application also secures the **delivery of the Yarnbrook West Aston Relief Road.** The Site is an important allocation within Wiltshire's adopted Local Plan, providing significant and

crucial housing which is required to meet the Council's identified housing need and support the emerging Local Plan.

- 2.2 The Outline application was supported by a range of technical information which reflects the Site's complexities and local constraints and is underpinned by a viability assessment. The determination period was over 10 years and taken to Strategic Planning Committee on several occasions where a detailed set of Parameter Plans and a Design and Access Statement were agreed, which shape and regulate the Site's delivery. The approved plans include land use, road hierarchies, locations of open space within development parcels and strategic open space. The Outline does not include a planning condition requiring full compliance with the National SuDS Guidance, nor was full compliance with the Guidance considered within the Outline viability assessment.

3. Standard S1: Runoff Destinations

Requirement

- 3.1 A 'SuDS approach' shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.
- 3.2 Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:
- priority 1: collected for non-potable use
 - priority 2: infiltrated to ground
 - priority 3: discharged to an above ground surface water body
 - priority 4: discharged to a surface water sewer, or another piped surface water drainage system
 - priority 5: discharged to a combined sewer
- 3.3 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.
- 3.4 Where more than one final destination is utilised, each final destination's ability to accept runoff shall be maximised in order of priority.

Site Compliance

- 3.5 The technical feasibility to deliver priority 1 through large scale rainwater harvesting and recycling is not viable. Priority 1 was not a mandatory requirement in national standards during the planning process and application which was granted by Wiltshire on 2nd October 2025. Implementing priority 1 would require significant redesigns to the approved layout for large scale harvesting and reusing of rainwater onsite impacting the net developable area, housing delivery and viability of the scheme. Whilst cost implications are noted, they were not the primary or sole factor in this determination.
- 3.6 Priority 2 states that runoff shall discharge through infiltration to the ground. A site-specific Ground Investigation was carried out in March 2019 by Geo Environmental Group Ltd in accordance with BRE Digest 365. This confirmed infiltration to ground is unfeasible due to low infiltration rates with a summary of the infiltration test results shown below.

Table 1: Geo Environmental Group Ltd Infiltration Test Results (Table 3).

Location/Test Depth (m)	Test No.	Strata*	Effective Depth Reached	Time (mins)	Infiltration Rate (m/s)
IT01 (2.00)	1	HD	99%	311	N/A
IT02 (2.20)	1	HD	99%	205	N/A
IT03 (1.80)	1	HD	97%	211	N/A
IT04 (1.80)	1	HD	100%	322	N/A
IT05 (1.80)	1	OCF	100%	264	N/A
IT06 (1.73)	1	HD	94%	235	N/A
IT07 (2.10)	1	OCF	100%	137	N/A
IT08 (2.10)	1	HD/OCF	100%	213	N/A
IT09 (1.60)	1	OCF	100%	222	N/A
IT10 (1.90)	1	OCF	98%	255	N/A
IT11 (1.65)	1	OCF	102%*	196	N/A
IT12 (1.70)	1	OCF	100%	276	N/A
IT13 (2.10)	1	OCF	100%	250	N/A
IT14 (1.90)	1	OCF	100%	301	N/A
IT15 (1.85)	1	HEAD/OCF	101%*	234	N/A
IT16 (1.80)	1	OCF	100%	144	N/A
IT17 (2.00)	1	OCF	100%	220	N/A
IT18 (1.90)	1	OCF	100%	156	N/A
IT19 (1.70)	1	OCF	100%	217	N/A

- 3.7 The surface water strategy utilises priority 3, discharge to an above ground surface water body, by intercepting and attenuating rainwater on-site within basins before controlled discharge to an existing watercourse. The discharge will be restricted to greenfield runoff rates supported by the drainage strategy and Flood Risk Assessment (FRA).
- 3.8 The site is in accordance with Standard S1 through application of the runoff destinations hierarchy and investigation into priorities 1 and 2 prior to achieving priority 3.

4. Standard S2: Management of Everyday Rainfall (Interception)

Requirement

- 4.1 Apply a 'SuDS approach' 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.
- 4.2 Evidence shall be provided that the approach to managing runoff from 'everyday' rainfall has been developed alongside and in support of the management of runoff quality (standard 4) and the delivery of amenity and biodiversity benefits (standards 5 and 6).

General Requirements

- 4.3 For developments that incorporate rainwater harvesting so no runoff leaves the development for lower order design storm events, the surface water drainage system is deemed compliant with standard 2. Evidence of this approach shall be provided in the form of calculations to BS EN 16941s.
- 4.4 For developments that infiltrate entirely to ground so no runoff leaves the development for storm events with a 1 in 1 or greater chance of occurring each month, the surface water

drainage system is deemed compliant with standard 2. Evidence of this approach shall be provided in the form of calculations and infiltration testing results.

- 4.5 Interception shall be delivered within the development 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).
- 4.6 Evidence shall be provided to demonstrate that the runoff from each positively drained surface, for at least 5mm of rainfall, is either collected for use, infiltrated into the ground, or else captured, conveyed and stored within SuDS features. These features shall naturally absorb or retain runoff and from these the runoff will be 'lost' to soils or the atmosphere and will not discharge off the site.
- 4.7 Demonstration of compliance should be provided with the use of industry recognised guidance, adherence to relevant policies that are within adopted publications, and using hydraulic models, which model infiltration and evapotranspiration, to demonstrate the effectiveness within any drainage design for meeting the interception requirements.
- 4.8 When undertaking the assessments where hydraulic modelling software is not being utilised, a simplified approach to delivering interception may be acceptable with the agreement of the approving body. Where an individual feature or a combination of features listed below are delivered, this shall be considered compliant with standard 2.
- 4.9 In circumstances where individual SuDS features do not provide adequate capacity for interception on their own, additional capacity can be provided by downstream features. Detailed calculations shall be provided to demonstrate compliance in these circumstances.
- 4.10 The interception methods below shall be considered to be compliant for zero runoff for the first 5mm rainfall for 80% of events during the summer and 50% in winter, with the following presumptions for each system.

Permeable surfaces

- 4.11 All permeable surfaces, whether lined or not, shall be assumed to comply provided there is no additional area drained to the permeable pavement.
- 4.12 Where the surface also drains an adjacent impermeable area, compliance shall be assumed for all soil types where the system is unlined if the additional impermeable area is no greater than the permeable area.
- 4.13 Where the infiltration capacity of the ground below the permeable surface is greater than 1×10^{-6} m/s and unlined, up to 5 times the permeable surface area may be added as additional contributing area. For example, to comply with standard 2 for an impermeable surface area of 100m^2 , the area of the permeable surface shall be 20m^2 .
- 4.14 Where the permeable surface also drains an adjacent impermeable area and is lined, compliance shall not be deemed to have been achieved, and additional downstream interception features will be required.

Swales

- 4.15 As a minimum, where the longitudinal gradient of a swale is less than 1:100 and has at least 500mm of suitable base material, swales are suitable for interception for impermeable surface areas up to 5 times the base of the vegetated surface area receiving the runoff, whether lined or unlined. For example, to comply with standard 2 for an impermeable surface area of 100m², the area of the vegetated base shall be 20m².
- 4.16 Any swale which is unlined and has a longitudinal fall which is less than 1:100 and an infiltration capability greater than 1x10⁻⁶ m/s shall be assumed to comply with interception for a contributing area up to 25 times the base area of the swale. For example, to comply with standard 2 for an impermeable surface area of 500m², the area of the vegetated base shall be 20m².
- 4.17 Swales with longitudinal falls steeper than 1:100 shall not be deemed to provide interception unless additional effective interception design can be demonstrated.
- 4.18 Interception shall not be deemed to have been provided for impermeable areas draining to an unlined swale within 5m from the swale outlet, unless the swale is flat and has a slightly raised outlet to create a temporary storage zone to encourage infiltration before runoff takes place.
- 4.19 Greater interception capacity may be achieved by providing flat swales with greater temporary storage and infiltration, but these require detailed design based on the use of appropriate modelling.

Swales

- 4.20 Areas of the development drained to unlined bioretention features shall be assumed to comply where the impermeable surface area is up to 5 times the vegetated surface area of the bioretention component receiving the runoff. For example, to comply with standard 2 for an impermeable surface area of 100m², the area of the unlined bioretention feature shall be 20m².

Site Compliance

- 4.21 The strategy utilises local source-control SuDS features to intercept and retain the first 5mm of rainfall from connected impermeable areas which will promote evaporation, transpiration, and limited infiltration where practical. The main features in the drainage strategy are:
- Rain gardens: Proposed in communal green spaces near plots providing vegetated depressions of storage and natural absorption from connected impermeable areas.
 - Swale: Providing conveyance and retention, located southwest of the site adjacent to the main spine road.
 - Permeable paving: Proposed in shared driveways, for rainfall to filter and evaporate. These features are maximised but not site wide.
- 4.22 These SuDS features have been developed alongside S4, S5 and S6:
- S4 Water quality: Rain gardens, swales and permeable paving are vegetated features which provide either sedimentation, filtration, or pollutant uptake. Total suspended solids, metals and hydrocarbons from driveways and residential roofs will be mitigated by the features.
 - S5 Amenity: Proposed in visible, multi-functional spaces, providing visual enhancement and water management.

- S6 Biodiversity: Native planting in rain gardens and swales to support habitat creation, species diversity, and connectivity.
- 4.23 A SuDS approach has been designed to manage rainfall interception for rainfall events up to the 1 in 100-year +45% plus urban creep. The drainage strategy incorporates source-control features with management of runoff quality, amenity and biodiversity benefits. This will deliver interception for the first 5mm of rainfall where practical, in line with the 'shall' requirement and the potential to meet the standard is maximised.
- 4.24 Additional SuDS features such as permeable paving, rain gardens and swales have been proposed to intercept the initial rainfall in parts of the site. The size of the interception features has been maximised as advised by the National Standards. However, incorporating additional roadside features would reduce the net developable area (NDA) as additional features will lead to a loss in units and higher construction costs. A viability assessment on a similar scheme indicated that additional SuDS features led to a 14% loss of units in order to achieve the standard. As the individual SuDS features do not provide adequate capacity for interception on their own for the first 5mm of rainfall, additional capacity is provided by the attenuation basin downstream in accordance with paragraph 2.6.3 in the National Standards.
- 4.25 The proposed SuDS features have been maximised to a total area of 1,747.5m² which will manage the first 5mm of rainfall for 6,310.5m² of the drained impermeable area. This is equivalent to 30% of the total surfaces drained on site which has been calculated through the ratios provided by the National Standards below paragraph 2.7. Poor infiltration rates limits the capacity of the SuDS features with the permeable paving ratio restricted to 2:1 and the enhanced 25:1 ratio for swales cannot be applied. The attenuation basin provides additional capacity downstream as followed in paragraph 2.6.3 in the National Standards. The calculations for interception capacity are shown in **Table 2** below.

Table 2: Interception capacity calculations.

Feature Type	Total Feature Area (m ²)	Ratio Applied	Impermeable Area Managed (m ²)	Notes / Assumptions
Permeable Paving	860	2:1	1,720	Unlined where possible; Low ratio due to low infiltration
Rain Gardens	182	5:1	910	Unlined bioretention; vegetated surface area
Swales	14.6	5:1	73	Base vegetated area
Attenuation Basin	740 (base area)	5:1	3,700	Flat unlined detention; downstream supplementation
Total Proposed	1,747.5	–	6,403	–
Site Total Impermeable Area	–	–	21,154	From Impermeable Area Plan
Percentage Managed	–	–	30%	Maximised interception capacity

- 4.26 The management of the first 5mm of rainfall was not a mandatory requirement in national standards during the Outline planning process and as such, is not considered within the approved plans and DAS. Management of the first 5mm of rainfall would require significant changes to the drainage strategy with SuDS features for interception suitable for impermeable surface areas up to 5 times the base of the vegetated surface area receiving the runoff. Meeting this standard would require considerable layout changes impacting the net developable area, housing delivery and viability of the scheme. .
- 4.27 Paragraph 2.5 of the National Standards states, 'Interception shall be delivered within the development for the first 5mm of rainfall for the majority of rainfall events, for both winter and summer seasons.' The verbal form 'shall' is used, this highlights that the performance requirement of the standard can be varied through a departure agreed with Wiltshire Council. Whilst cost implications are noted, they were not the primary or sole factor in this determination.
- 4.28 The partial achievement of S2 is based on practicality and performance of the SuDS features to promote S4, S5 and S6. Due to these circumstances, the standard S2 has not been met in full, however the potential to meet the standard has been maximised and can be agreed through consultation with Wiltshire Council to approve the departure.

5. Standard S3: Management of Extreme Rainfall and Flooding

Requirement

- 5.1 A 'SuDS approach' shall 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
- 5.2 When discharging to an infiltration feature, the system shall be appropriately sized to accommodate the design event based on ground conditions and contributing areas.
- 5.3 When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff (rate and volume) for the 1% annual exceedance probability (AEP) event shall be controlled to ensure the runoff from the development does not increase flood risk elsewhere.
- 5.4 When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff rate for the 50% AEP event shall be controlled to ensure development runoff from an event of this magnitude has no negative impact.
- 5.5 Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.
- 5.6 Any flooding from off-site sources for the 1% AEP event should be managed on site or safely routed through the site, ensuring any downstream risks are not increased compared to the pre-development scenario.

- 5.7 The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be appropriately managed.

Site Compliance

- 5.8 The drainage strategy has adopted a SuDS approach to manage extreme rainfall and flooding in compliance with Standard S3. It incorporates an attenuation basin with a piped drainage network and controlled discharge to an above ground surface water body. Climate change allowances provided by the Environment Agency guidance has been applied in the hydraulic modelling to include future rainfall volumes. Impermeable areas of plots and driveways include 10% urban creep to account for additional hardstanding in the future.
- 5.9 The attenuation basin has been designed and modelled for the 1 in 100-year (1% AEP) event including climate change allowance of 45% with no flooding to properties or infrastructure. A flow control chamber limits the discharge to agreed greenfield runoff rates with a 30% betterment to not increase flood risk downstream. The maximum discharge rate of 16.26l/s has been modelled with the correlated water levels and storage volumes designed to CIRIA SuDS Manual (C753) guidance. For rainfall events exceeding the 1 in 100-year +45% plus urban creep, flooding is managed within the site through designated flow paths along roads without increasing downstream risks.
- 5.10 Full compliance with Standard S3 has been met by managing extreme rainfall and flooding through a robust drainage strategy with hydraulic modelling that includes climate change and urban creep.

6. Standard S4: Water Quality

Requirement

- 6.1 Apply 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.
- 6.2 The proposed SuDS management train(s) shall be based on a robust water quality risk assessment, appropriate to the pollution hazard and sensitivity of receiving waters, reflecting industry recognised guidance or other quantitative assessment as agreed with the approving body and permitting requirements.

Site Compliance

- 6.3 The FRA produced by PFA Consulting Ltd in September 2017 follows The SuDS Manual and CIRIA C687 guidance on SuDS management trains which manages the quality and quantity of runoff at all stages in drainage systems. This management train is broken down into a hierarchy of techniques with prevention, source control, site control and regional control. The drainage strategy follows the concept of a SuDS management train.
- 6.4 Expanding on the FRA, a water quality assessment has been undertaken using the Simple Index Approach as detailed in the CIRIA SuDS Manual. This method identifies the pollution hazards from various site sources including roofs, roads, and drives. The drainage strategy includes SuDS management trains through source control in permeable paving and rain gardens, conveyance through swales, and region control provided by the attenuation basin. The SuDS

features provide a form of sedimentation, filtration, or pollutant uptake that mitigate pollution hazards.

- 6.5 The pollution hazard levels of the site range from very low to low which are mitigated by the management train. The SuDS features provide sufficient mitigation indices for the pollution sources from the development and provide adequate water quality for the watercourse.

Table 3: Pollution hazard indices for different land use classifications (The SuDS Manual, Table 26.2)

Land Use	Pollution Hazard Level	TSS	Metals	Hydrocarbons
Pollution Index (Residential Roofs)	Very Low	0.2	0.2	0.05
Pollution Index (Driveways, Residential Roads)	Low	0.5	0.4	0.4
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4

Table 4: Indicative SuDS mitigation indices for discharges to surface waters (The SuDS Manual, Table 26.3)

	Mitigation Indices		
Type of SuDS component	TSS	Metals	Hydrocarbons
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Pond	0.7	0.7	0.5

- 6.6 The SuDS features provide a management train in full compliance with S4 by identifying the land use pollution hazard and proposing components with suitable mitigation indices to manage the water quality.

7. Standard S5: Amenity

Requirement

- 7.1 A 'SuDS approach' shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

Site Compliance

- 7.2 The SuDS features form part of a multi-functional landscape across both public and private realms, creating a varied and visually rich environment while managing surface water more sustainably. Above-ground SuDS elements are proposed as an integrated component of the focal green space, enhancing its character and sense of place.
- 7.3 A specific grass sward selection has been proposed to tolerate a wide range of site conditions, from periods of waterlogging to drought, as well as variations in temperature. In other areas of the scheme, the SuDS response is delivered through a series of rain gardens.
- 7.4 These vary in size and incorporate an appropriate mix of grass sward and herbaceous planting, adding visual interest and providing habitat opportunities for local wildlife. All SuDS features are designed and delivered in accordance with The SuDS Manual (CIRIA C753).
- 7.5 Full compliance is met with Standard S5 by maximising amenity through visible and multi-purpose SuDS integration.

8. Standard S6: Biodiversity

Requirement

- 8.1 A 'SuDS approach' shall be adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle.
- 8.2 The surface water drainage system shall add biodiversity value by:
- creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity
 - supporting and promoting natural local habitat and species, for example, through local nature recovery strategies (LNRS)
 - contributing to the delivery of local biodiversity strategies
 - contributing to habitat connectivity

Site Compliance

- 8.3 Features are designed to support local species, enhance habitats and contribute to net gains in biodiversity. The attenuation basin, rain gardens and swale will contribute to the delivery of local biodiversity objectives, habitat connectivity and a resilient ecosystem. Providing a range of vegetation types with structural diversity will promote ecological resilience for different groups of plants and animals over time.
- 8.4 Full compliance is met with Standard S6 by delivering enhanced and connected features which promotes biodiversity.
- 8.5 The proposed SuDS features are designed to support local species, enhance habitats, and contribute to net gains in biodiversity. Swales and rain gardens will help deliver local

biodiversity objectives, improve habitat connectivity within the development and beyond, and reinforce the resilience of the local ecosystem.

- 8.6 The provision of a range of carefully selected vegetation types with structural diversity will promote ecological resilience over time, supporting a wide variety of plant and animal species.

9. Standard S7: Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity

Requirement

- 9.1 A 'SuDS approach' shall 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.
- 9.2 The designer shall provide a management and maintenance plan that supports the design objectives detailed in standards 1 to 6 and ensures the performance of the surface water drainage system with regards to runoff destinations, everyday and extreme rainfall, water quality, amenity and biodiversity is maintained throughout the lifetime of the development.
- 9.3 Surface water drainage design shall examine for the likelihood and consequences of potential failure scenarios that may occur during the operation phase and safely manage the associated risks.
- 9.4 The surface water drainage system shall be designed to ensure structural integrity of all components under anticipated loading conditions for the design life of the development so that it does not affect the structural integrity of any existing or proposed components within, or adjacent to, the development.

Site Compliance

- 9.5 The design of drainage for construction, operation, maintenance, decommissioning and structural integrity is in full compliance with Standard S7. The drainage network is designed to appropriate materials, loading considerations and gradients per the Design and Construction Guidance (DCG) by Water UK. Decommissioning is included in the design for minimal disruption, aligned with the DCG guidance on long-term operability.
- 9.6 The FRA details the operation and maintenance requirements of SuDS features in accordance with the The SuDS Manual (CIRIA C753). These maintenance regimes include outlining schedules for inspections, vegetation management, sediment removal, jetting of pipes and repairs to maintain performance. Maintenance paths provide access to the features for maintenance and reduce the environmental impact during operations. The operation and maintenance requirements are set out in **Appendix A**.
- 9.7 Failure scenarios have been reviewed and mitigated with exceedance flow paths, emergency overflows, flow control chambers, and resilient design. This is further demonstrated through the drainage strategy drawing, supported by hydraulic modelling, and a maintenance plan part of the Section 104 adoption agreements.
- 9.8 Full compliance with Standard S7 by delivering a lifetime focused design that establishes long-term SuDS performance, safety, and adoptability.

10. Conclusion

- 10.1 This technical note demonstrates full compliance with six of the seven National Standards for Sustainable Drainage Systems. The drainage strategy includes a multifunctional SuDS approach that manages runoff, extreme rainfall and flooding, water quality, amenity, biodiversity and continued operation/maintenance.
- 10.2 In regard to Standard S2, while full achievement has not been possible due to circumstances, the proposed drainage strategy has maximised interception SuDS features such as rain gardens, swales, and permeable paving. Partial interception of the first 5mm of rainfall will occur, supported by downstream attenuation capacity in line with paragraph 2.6.3. The additional SuDS features will contribute to the co-benefits of Standards S4, S5, and S6.
- 10.3 This technical note provides clear justification for the partial compliance of Standard S2, includes evidence of maximised potential, with plans to consult with Wiltshire Council for approval of a departure where required. The strategy aligns with the National Standards of SuDS released in June 2025 and therefore supports the discharge of Condition 22 of the Reserved Matters application (ref: PL/2025/07352).

Appendix A

Pond

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)
	Cut the meadow grass	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (first 3 years)	Monthly at start, then as required
	Inspect inlets, outlets, banksides, structures and pipework for blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May–October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options	Half yearly
	Check any mechanical devices (e.g., penstocks)	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1 m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1 m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay	Every 1–5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays.	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of large ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, eg every 25–50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair/rehabilitate inlets, outlets and overflows	As required

Swales

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required

	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half-yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required, or if bare soil exceeds 10% of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseed	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration, break up silt deposits and prevent compaction	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils/petrol residues using safe standard practices	As required

Rain Gardens

Maintenance schedule	Required action	Typical frequency
Regular inspections	Inspect infiltration surface for silting/ponding; record de-watering time and check standing water levels in underdrain (if present) to determine if maintenance is needed	Quarterly
	Check operation of underdrains by inspecting flows after rain	Annually
	Assess plants for disease/poor growth/invasive species and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter, surface debris and weeds	Quarterly (or more frequently for tidiness/aesthetics)
	Replace any plants to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required (typically > 20 years)

Permeable Paving

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing materials	As required
	Rehabilitate surface and upper substructure by remedial sweeping if infiltration performance has reduced due to significant clogging	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly; 48 h after large storms in the first six months
	Inspect silt accumulation rates and set appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually