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Padnell Grange

Flood Risk Assessment and Surface Water Drainage Strategy

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1.0 INTRODUCTION

- 1.1.1 Conisbee have been appointed by Stonebond Properties (Guildford) Limited and the Borrow Foundation, to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for a Proposed Development at Padnell Grange, Waterlooville.
- 1.1.2 The site located in Flood Zone 1 of the Environment Agency Flood Map for Planning.
- 1.1.3 In accordance with Environment Agency requirements, a Flood Risk Assessment is required for planning as the site is greater than 1ha.
- 1.1.4 The purpose of this Flood Risk Assessment and Drainage Strategy (FRA & DS) is to demonstrate compliance with relevant national and local planning requirements.
- 1.1.5 As part of the development of this FRA & DS, a pre-planning consultation was held with Hampshire LLFA (Ref SWM-PRE/2025/0855, February 2026). A copy of their comments is provided in **Appendix A**. Within their comments, a checklist of information required as part of the FRA & DS was provided. A copy of this cross referencing to where the information can be found in this report is included within **Appendix A**.

1.2 Proposed Development

- 1.2.1 The Proposed Development is the full planning application for the demolition of existing buildings and the erection of 90 residential dwellings with upgraded access to Padnell Road, associated landscaping and other works
- 1.2.2 The Proposed Development plans are provided in **Appendix B**

1.3 Site Specific Documents

The following documents should be referred to as part of this report:

- **Appendix A:** LLFA Pre App Comments and Planning Checklist
- **Appendix B:** Proposed Development Plans
- **Appendix C:** Topographical Survey & Tree Protection Plan
- **Appendix D:** Geotechnical Site Investigation
- **Appendix E:** Infiltration test results
- **Appendix F:** Southern Water Asset Records
- **Appendix G:** Drainage Calculations
- **Appendix H:** SuDS Suitability Assessment
- **Appendix I:** Proposed Drainage Strategy Drawings
- **Appendix J:** SuDS Maintenance Strategy
- **Appendix K:** Southern Water Pre Development Enquiry (Capacity Check)
- **Appendix L:** Surface Water Flood Maps

2.0 EXISTING SITE

2.1 Site location

The site is located at Padnell Grange, Waterlooville PO8 8ED with the approximate coordinates at the centre of the site 469891, 111093.

The area surrounding the application site is predominantly residential with Waterlooville Golf Course to the east. Access is available from Padnell Road to the north.

A site location plan is shown in Figure 2.1.

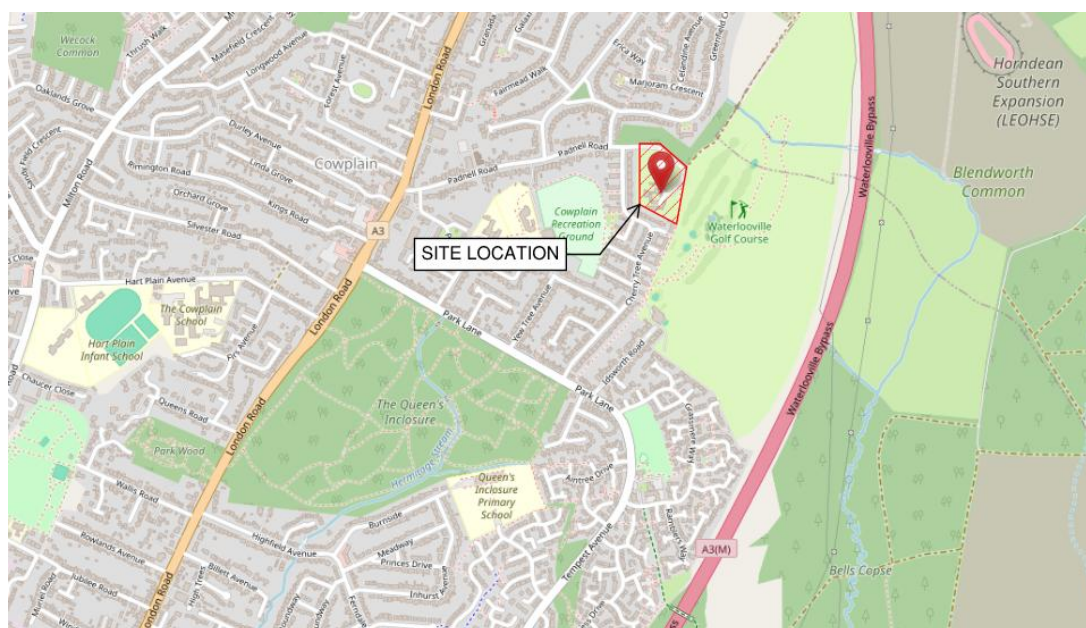


Figure 2.1 **Site location plan**

2.2 Existing Site and Topography

The Site is approximately 2.82 ha and is an existing brownfield site, consisting of a former home and farmhouse, most recently used as a commercial premises. The site contains the main building, ancillary structures and associated landscaping.

The site also includes many trees with extensive root protection zones as shown on the Site Constraints Plan. A copy of the Site Constraints Plan is provided in **Appendix B**.

A topographical survey has been undertaken at the proposed development. This shows the site to be gently sloping, falling approximately 8m from the northwest to the east. A copy of the survey is provided in **Appendix C**.

2.3 Geology

A Ground Investigation Report was carried out by Soils Limited in September 2025 (reference 22035/MIR Rev1.0). This includes trial holes extending to 20m below ground levels. It identifies that the ground conditions of the site to be structured as;

- Made ground associated with historic use as brick & tile works / topsoil, typically 0.5m thick
- Lambeth Group consisting of cohesive (sandy / desiccated clay) soils and granular (silty / clayey sand) soils. The layer extends below the end of the trial hole – the overall thickness is therefore not known.

Tree roots were also found throughout the site which is consistent with the existing site containing trees throughout (refer to site constraint for details on root protection zones).

British Geological Survey maps show the site to be situated on London Clay formation bedrock, however this was not encountered during site investigations.

A copy of the ground investigation is provided in **Appendix D**.

2.4 Hydrogeology

Aquifer geology maps published by the EA and accessible through the Magic Map application show the site is within Source Protection Zone 1c (subsurface activity), Figure 2.2. Areas within the sub-surface activity extents are areas with over 10m of protective cover to protected areas, however may be affected by activities such as deep drilling.

The Proposed Development does not include deep drilling. It is therefore considered the site is effectively not in a source protection zone.

There are no special considerations or requirements for surface water drainage as a result of this site classification.

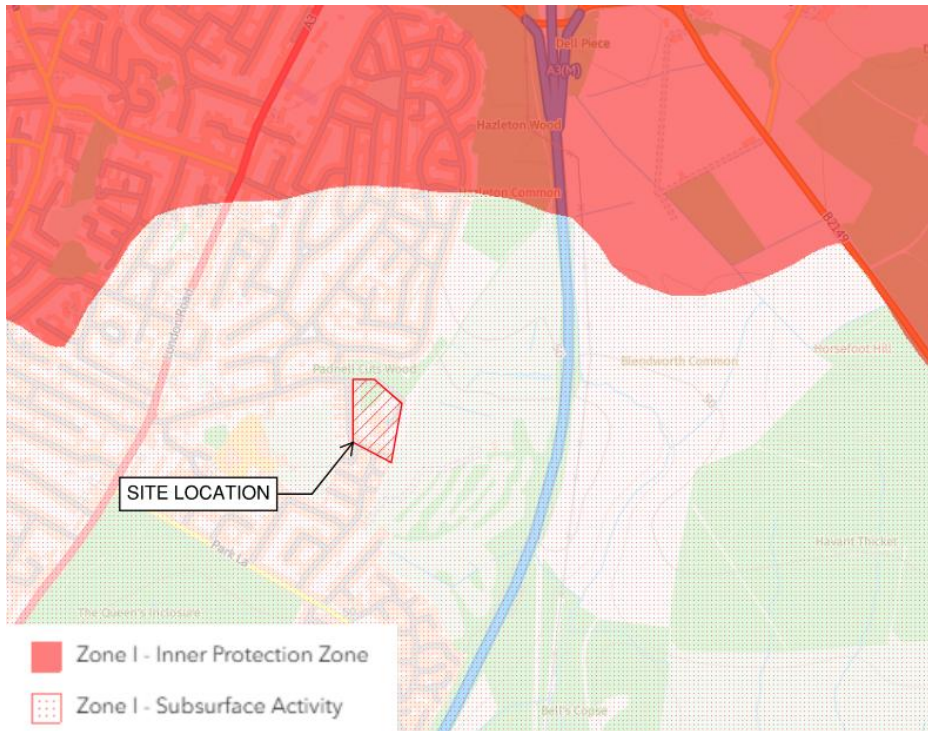


Figure 2.2 Groundwater Source Protection Zones

2.5 Groundwater

No groundwater was encountered on the site within any of the exploratory holes during site investigations. Groundwater can vary seasonally and is affected by the drilling of trial holes. Groundwater levels can only be established fully through long-term monitoring. At the time of writing, no long-term monitoring of levels has been undertaken.

As part of a previous development proposal at the Site (16362/GIR, April 2017), 2No. infiltration tests were undertaken. Both of these tests failed, with the water failing to drain during the test period (test terminated after 220 minutes). It is therefore considered the site is not suitable for drainage by infiltration. A copy of the test results extracted from the report are provided in **Appendix E**.

Notwithstanding this, the data has been extrapolated to estimate the infiltration rate. This has been calculated as 1.47×10^{-6} m/s. Although infiltration is not possible as a means of drainage discharge, this rate has been used when assessing the interception potential of the site (refer to Section 4.3.2).

2.6 Existing Site Drainage

Southern Water record drawings have been received for the development and are provided in **Appendix F**. These show various sewers in the streets surrounding the Proposed Development. No existing adopted sewers are on the site.

Historical information shows the existing site to contain various private drains, however these are not fully mapped and due to the layout of the Proposed Development, it is considered that none of these would be suitable for reuse and will be removed as part of the Proposed Development.

Based on historical information (including findings of previous FRA & DS's undertaken at the site and publicly available from the planning portal) and site visits, the existing surface water drainage is assumed as follows;

- The existing access road drains directly into the soft landscaping to the north of the site, towards the ditch running close to the site boundary.
- The existing buildings drain in part to the foul water sewer and in part directly overland following the site topography towards the ditches north of the Site.

Prior to construction of the Proposed Development, the surface water discharge receiving watercourse (ditch) will be fully surveyed to ensure unrestricted access and clear any blockages. The ditch should then be maintained by the relevant riparian owner to ensure continued free flow in the ditch. The existing ditch is not tidal in nature and it is therefore considered unlikely the outfall will be submerged.

2.7 Existing Site Characteristics

The existing surface water runoff rates from the Site have been estimated using Causeway Flow and the (i) Modified Rational Method (brownfield rate) and (ii) FEH Method (greenfield rate). A copy of the calculations is provide in **Appendix G**.

The existing hydrological characteristics for the site are as follows:

- Total Site Area = 2.82ha
- Total Existing Impermeable Area = 0.56ha
- Percentage Impermeable (PIMP) = 20%
- M5-60 (60 minute, 5 year storm) = 20mm
- Ratio 'r' = 0.3
- SAAR9120 = 919mm
- BFIHost19scaled = 0.269
- Hydrological Region = 7

Table 2.1 Existing Runoff Rates

Return period	Existing peak run off rate from impermeable areas (0.56ha impermeable)	Existing peak run off volume from impermeable areas (6 hour event)	Site greenfield run off rate (2.82ha greenfield)
	[l/s]	[m ³]	[l/s]
1 in 1 year	21	119	25
Qbar / 1 in 2 year	27	149	29
1 in 30 years	51	281	67
1 in 100 years	62	345	92

2.8 Existing overland flow paths

The existing overland flows routes for flows generated within the site follow the general falls of each site as shown on the topographic survey in **Appendix C** and as described in section 2.2.

3.0 POLICY CONTEXT

This flood risk assessment and drainage strategy refers to the following documents:

- National legislation and documentation
- Regional flood risk management policies
- Local planning policy
- Relevant local flood risk information
- Site specific documents

3.1 National Legislation and Documentation

3.1.1 National Planning Policy Framework (Ministry of Housing, Communities and Local Government (MHCLG), December 2024²) & Planning Practice Guidance - Flood Risk and Coastal Change (MHCLG, September 2025³)

The NPPF sets out government policy on development and flood risk. The aim is to ensure that flood risk is taken into account at all stages of the planning process and that inappropriate development is not undertaken within areas of flood risk.

3.1.2 Flood and Water Management Act (2010)

The Act sets out the responsibilities for statutory authorities involved in Flood Risk Management. The Act requires that the relevant Lead Local Flood Authority (LLFA) be responsible for co-ordinating surface water flood risk in the area. The LLFA is a statutory consultee in planning for all major development in relation to the management of surface water drainage.

3.1.3 Non-statutory technical standards for sustainable drainage systems

The Flood and Water Management Act sets out the government shall publish national standards, for the consideration of the approving body. The current national standards are “National standards for sustainable drainage systems (SuDS)”, July 2025⁴.

This sets out 7 standards SuDS designs on new development should follow. Section 4.3 of this report sets out how the Proposed Development addresses each of these standards.

² [National Planning Policy Framework](#)

³ [Flood risk and coastal change - GOV.UK](#)

⁴ [National standards for sustainable drainage systems \(SuDS\) - GOV.UK](#)

3.2 Local planning policy

3.2.1 Havant Borough Council Local Plan

The Havant Borough Council Core Strategy (March 2011) is used to set planning policy in the borough.

Policy CS15 sets out local requirements for flood and water management for new development. This sets out;

- Limitations on development at risk of flooding
- All development will be required to ensure that there is no net increase in surface water runoff. Priority should be given to incorporating Sustainable Drainage Systems (SuDS) to manage surface water drainage, unless it is proven that SuDS are not appropriate. Where SuDS are provided arrangements must be put in place for their whole life management and maintenance.

The Core Strategy also includes land allocations marked for development. The Proposed Development is identified in the Core Strategy as site allocation W126. As part of the allocation, Southern Water have set out a drainage related policy

- Southern Water request connection to the sewerage system at the nearest point of adequate capacity; and Appropriate easement from existing sewage/waste infrastructure.

Section 4.5 of this report demonstrates capacity has been checked at the connection point for foul drainage. Where required, easements will be provided to adopted drainage.

3.3 Relevant Local Flood Risk information

3.3.1 Partnership for South Hampshire SFRA

Portsmouth City Council on behalf of ten planning authorities in South Hampshire commissioned a combined Strategic Flood Risk Assessment (SFRA) to assess the risk of flooding from all sources across the region. The SFRA also includes a series of Local Planning Authority specific reports and flood risk maps to supplement the main SFRA with more relevant local context and detail.

The main SFRA and Havant Borough Appendix have been used as part of the FRA to assess the flood risk and any relevant local policy requirements as related to managing the flood risk and surface water drainage/

3.3.2 Surface Water Checklist

- Hampshire County Council are the Lead Local Flood Authority for the area. They have produced a checklist to identify the information requirements for planning applications as related to drainage and flood risk. A copy of the checklist is provided in **Appendix A**.

4.0 PROPOSED DRAINAGE STRATEGY

4.1 Description

The Proposed Development will provide 90 No. new homes with associated landscaping and infrastructure.

4.2 Sustainable Drainage Systems (SuDS)

In accordance with the NPPF and Local Policy, the new development will incorporate a Sustainable Drainage System (SuDS) to manage rainfall on site and ensure that runoff is not increased elsewhere.

In accordance with the SuDS principles the proposed drainage will seek to mimic the natural environment and where possible prioritise open surface SuDS features where compatible with the proposed site layout. The SuDS features will target the 4 pillars of SuDS to **manage water quantity** by limiting the peak runoff rate, **manage water quality** by ensuring SuDS & drainage features manage any pollution risk associated with the surfaces the rainfalls on, **improving amenity** by incorporating the surface water management into the landscape & site and **improving biodiversity** by considering the placement of drainage and SuDS feature to complement local wildlife.

Guidance is given in CIRIA C753, The SuDS Manual on the specific benefits of each feature in contributing to these pillars. Further details are given in Section 5 of this report.

As part of the Proposed Development, a SuDS Suitability Assessment has been undertaken to determine what features may be suitable for the Proposed Development.

A copy of the assessment is provided in **Appendix H**.

4.2.1 Proposed SuDS

Based on the SuDS Suitability Assessment, SuDS will be provided on the Proposed Development. The suitability of SuDS in the landscaping needs to consider the site constraints including amongst other things. topography, root protection zones and proposed land uses. As shown on the Site Constraints Plan, the site is highly constrained by root protection zones, limiting where SuDS features can be located. SuDS features have been fitted into the site where possible to maximise their SuDS value whilst minimising the impact on existing trees.

The following SuDS features will be provided;

1. Trees provided as part of the landscaping
2. Attenuation basin

3. Hydrobrake flow controls to restrict runoff from the proposed development.
4. Downstream defender (or similar proprietary treatment) for ensuring final discharge quality of water to the ditch is suitable for discharge to a watercourse

The table below summarises the how the proposed SuDS features will contribute to the 4 SuDS Pillars.

Table 4.1 SuDS Strategy Benefits Summary

	Quantity	Quality	Amenity	Biodiversity
Trees	<p>Dependant on the type of tree and stage of growth, they can provide interception drainage by trapping water for evapotranspiration. However, this is highly variable and difficult to quantify, so whilst they are positive to include, any contribution to interception / quantity is not included in drainage calculations.</p> <p>Additional interception can be achieved from the tree pits, refer to bioretention systems.</p>	-	<p>Trees have a positive amenity value, enhancing the landscaping and have been proven to also provide an urban cooling effect, in addition to direct shade from the canopy.</p>	<p>Trees can play a critical role in enhancing urban wildlife, providing food, shelter and habitat for a range of species.</p>

	Quantity	Quality	Amenity	Biodiversity
Attenuation Basins	<p>Detention basins are landscaped areas that are depressed from the surroundings that are generally dry but provide a basin for the overland storage of water during storm events. They can be designed to manage all or only more severe events.</p>	<p>Vegetated detention basins can help retain runoff from small events through interception.</p> <p>They can also treat residual runoff, primarily through settlement of pollutants.</p> <p>Hard landscaped basins are unlikely to provide water treatment enhancements.</p>	<p>Detention basins can be important for public open spaces, offering a flexible space that can be used for a variety of activities during regular operation, but being water compatible to store water during storm events when they would not be in use for amenity. Basins can be designed to direct flow to dedicated areas for less severe events to allow for the continued use of them for amenity during less severe rainfall depending on the planned use.</p> <p>Where these are not accessible, they can provide amenity benefits through visual enhancements to the landscape.</p>	<p>Vegetated basins can include a variety of planting to contribute towards biodiversity of flora and fauna.</p>

4.3 Proposed Surface Water Drainage Strategy

The Proposed Drainage Strategy is shown on the drawings provided in **Appendix I**. This shows the main surface water sewer routes, SuDS structures & locations, flow controls and the site discharge arrangements.

4.3.1 Runoff Destinations – National Standards for SuDS Standard 1

The National standards for sustainable drainage systems (SuDS) states that “Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy”

Table 4.2 Drainage Discharge Hierarchy

Disposal Method	Comments
Collected for non-potable use	There are no suitable uses for water reuse on the site.
Infiltrated to ground	Not possible due to underlying site geology.
Discharged to above ground watercourse	Proposed discharge destination. An Ordinary Watercourse Consent for the headwall will be required from Hampshire County Council for the new headwall structure for the outfall to the watercourse.
Discharged to a surface water sewer, or another piped drainage system (e.g. culverted watercourse)	n/a
Discharge to a combined Sewer	n/a

4.3.2 Management of Everyday Rainfall ([Interception](#)) - National Standards for SuDS Standard 2

In accordance with National Standard for SuDS 2 and the Hampshire County Council guidance, the first 5mm of storm events should be managed through collection, infiltration or storage in SuDS.

In accordance with Table 1 of the Hampshire County Council Guidance, following the simplified calculation approach, the following features will provide interception on the Proposed Development.

A drawing showing the proposed features contributing to drainage interception is provided in **Appendix I**.

Table 4.3 Drainage Interception Potential

Feature	Interception Potential	Feature Area (m ²)	Interception Area (m ²)
Detention Basin	25x basin base area, based on infiltration rate $>1 \times 10^{-6}$.	275	6,875
Total Impermeable Area			11,519
Total Interception Area			6,875

Based on the site constraints, particularly from the extensive number of existing trees which have been retained as part of the wider sustainability and biodiversity considerations of the development, there is not enough space available to provide further interception features. The current proposal provides interception for ~59% of the impermeable area, which will still provide a large amount of interception for the first 5mm of any storm event.

Currently, the site is providing no interception for the 0.56 ha of impermeable area. As a result of the development, the site will reduce the impermeable area with no interception by 18%, to 0.46 ha, a betterment to the existing conditions.

4.3.3 Water Quantity – National Standards for SuDS Standard 3

The proposed surface water drainage network has been modelled using Causeway Flow drainage software to assess the 1yr, 30yr, 100yr and 100yr + climate change storm events.

Peak Flow: The Proposed Development will restrict peak flows to 29.0l/s (existing Qbar rate) for all storm events up to the 100yr + climate change allowance storm.

Climate Change: In accordance with EA guidance for the Site location, a climate change allowance of 45% has been used to reflect the expected change in rainfall over the lifetime of the Proposed Development.

Urban Creep:	Urban creep describes the situation where over the life of the development, paved areas increase due to changes made by building owners. In accordance with Local Policy, an urban creep allowance of 10% has been used for housing with private permeable amenity space on the Proposed Development. Within the calculations, this has been included by directly increasing the impermeable area applied to the drainage linked to private housing area.
Volumetric Coefficient:	A volumetric coefficient (PAF) of 1 has been applied to all proposed impermeable areas and a PAF of 0 applied to all permeable/porous areas in line with Section 24.6.2 of CIRIA C753, The SuDS Manual. This states that this approach is conservative for frequent (greater annual probability than 1 in 5 year return period) and acceptable for more severe events on typical developments. For calculating exceedance design, runoff from permeable areas has been considered to determine overland flow routes. Overall catchment factors (Cv) of 1 have been used for both winter and summer storms.
Cellweb:	In order to protect existing trees, where construction of roads is undertaken within root protection zones, a porous cellweb construction will be used. This will allow water to infiltrate through the pavement to the existing ground and tree roots. These areas have been treated as porous surfaces. Hampshire LLFA have confirmed acceptance of these areas to be treated as porous systems and therefore not contributing to the site impermeable area.

The calculation results (provided in **Appendix G**) demonstrate that all water for a 1 in 100-year storm plus 45% climate change is contained within the proposed drainage system and summarised below.

The proposed runoff characteristics are as follows:

- Proposed Impermeable Area = 1.152ha
- Percentage Impermeable (PIMP) = 41%
- No infiltration

Table 4.4 Proposed Site Permeability

	Porous area	Impermeable area	Urban Creep Allowance	Total Contributing Area
	[m ²]	[m ²]	[m ²]	[m ²]
Cellweb porous roads	812	-	0	-
Impermeable roads and paths	-	7,015	0	7,015
Buildings – individual houses	-	3,589	360	3,949
Buildings – Apartment Blocks	-	555	0	555
Total	-	11,159	360	11,519

Table 4.5 Proposed Runoff Rates

Return period	Existing peak run off rate ¹	Greenfield run off rate ²	Proposed peak run off rate ³	Betterment
	[l/s]	[l/s]	[l/s]	[%]
1 in 1 year	21.3	24.7	29	-
1 in 2 year / Qbar	26.8	29	29	-
1 in 30 years	50.6	66.7	29	43%
1 in 100 years	62.1	92.6	29	53%
1 in 100 years (+45%)	-	134.27	29	

Table 4.6 Proposed Runoff Volumes

Return period	Existing Discharge volume ⁴	Proposed Discharge volume ⁴
		[m ³]
1 in 1 year	119	242.6
1 in 2 year / Qbar	149	301.8
1 in 30 years	281	572.9
1 in 100 years	345	700.4
1 in 100 years (+40%)	-	821.5

¹ The existing run off rates were determined by analysing the existing drainage schematically in Causeway Flow drainage software; Volumetric run-off coefficient = 1 for impermeable areas, and 0 for permeable areas.

² Calculated based on IH 124 and 'Rainfall runoff management for developments' by the EA

³ From a Causeway Flow drainage model

⁴Based on Causeway Flow drainage model calculation results

Due to the increase in impermeable area, and unsuitability of the site for infiltration, it is not possible to reduce the runoff volume. However, as a result of the proposed SuDS strategy, the peak runoff rate from the site will be reduced by up to 78% and change the connection into a surface water sewer, removing all the surface water runoff on the site from the combined sewer network. This will reduce the risk of downstream flooding or combined sewer overflows and the resultant pollution risk to local watercourses.

Exceedance Management

In an event where the capacity of the surface water system is exceeded or otherwise blocked, water will be managed on the site and leave the site via overland flow. It is anticipated that any overland flow will be channelled along the road, between the kerbs and leave the site to the north into the woodland / watercourse or the east, over the golf course.

The proposed overland flow paths are shown on the drainage drawings provided in **Appendix I.**

4.3.4 Water Quality – National Standards for SuDS Standard 4

Runoff from paved surfaces can have increased pollution risk as compared to undeveloped land. To ensure protection of receiving bodies, the quality of the runoff should be managed, which can be achieved through the design of the SuDS system. Where the discharge is to a surface water body or groundwater, the SuDS Manual sets out an approach to calculate the pollutant load in runoff to be assessed against the treatment potential of SuDS features.

The Proposed Development includes residential roofs (very low risk) and low traffic roads (low risk).

The SuDS manual sets out a simplified index-based approach to assessing water quality based on the pollutant load from different land use types, and the treatment potential of SuDS features.

Where multiple features are provided in a treatment train, the effective pollutant removal of secondary treatment is reduced due to the lower concentration of pollutants in the runoff. In accordance with the approach, the treatment index is reduced by 50% to account for this on secondary features.

Highway Drainage

In accordance with the SuDS Manual guidance, roads are classed as medium pollutant risk.

Pollution Land use	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Pollution load (based on Table 26.2 of the SuDS Manual)			
Roads	0.7	0.6	0.7
Treatment provided (based on Table 26.3 of the SuDS Manual)			
Attenuation basin	0.5	0.5	0.6
Total Treatment	Fail – proprietary treatment needed		

Residential roofs

In accordance with the SuDS Manual guidance, residential roofs are classed as very low pollutant risk. The SuDS Manual does not give specific guidance on non-roof areas of residential areas, but these are assumed to be similarly low risk.

Pollution Land use	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Pollution load (based on Table 26.2 of the SuDS Manual)			
Residential roofs	0.2	0.2	0.05
Treatment provided (based on Table 26.3 of the SuDS Manual)			
Attenuation basin	0.5	0.5	0.6
Total Treatment	Pass		

Individual property driveways

In accordance with the SuDS Manual guidance, individual property driveways are classed as low pollutant risk.

Pollution Land use	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Pollution load (based on Table 26.2 of the SuDS Manual)			
Individual property driveway	0.5	0.4	0.4
Treatment provided (based on Table 26.3 of the SuDS Manual)			
Attenuation basin	0.5	0.5	0.6
Total Treatment	Pass		

The proposed SuDS features cannot adequately treat all the runoff from the highway. It is not possible to include additional SuDS features to provide this treatment due to (i) insufficient space in the landscaping and (ii) the need for the road drainage to be adoptable which limits the acceptability of SuDS in the adoptable parts of the network.

The extents of adoption are to be confirmed, however the design is based on adoption up to the outfall into the attenuation basin. To provide the residual treatment needed, a proprietary treatment system (Hydo Downstream Defender or similar) will be provided downstream of the basin on the non-adoptable part of the drainage network.

4.3.5 Amenity & Biodiversity – National Standards for SuDS Standard 5 & 6

Table 4.1 summarises the proposed SuDS contribute to the amenity and biodiversity of the Proposed Development. This should be read in conjunction with the specialist landscaping and ecology reports which give fuller details on how the site will deliver in this to enhance the local area. A full description of how SuDS benefits amenity can be found in The SuDS Manual.

4.3.6 Maintenance Strategy – National Standards for SuDS Standard 7

All proposed SuDS and drainage are to be maintained for the duration of the development by the developer or an agent on their behalf.

A proposed maintenance strategy, in line with the CIRIA SuDS Manual, is provided in **Appendix J**.

4.4 Proposed Foul Drainage

The proposed foul water drainage layout is shown on the Drainage Strategy Drawings provided in **Appendix I**.

The nearest Southern Water sewer accessible without crossing private third-party land is located to the north-west of the site in Padnell Road. Due to the site topography, a pumped connection would be required to connect to this location. Further, Southern Water have advised there is not currently capacity in this sewer for the Proposed Development.

Alternate connection points are located in the roads to the south of the site, however this will require a new sewer to be constructed through the golf course to the east of the Site. The Developer is in consultation with the golf course to agree private access over their land to construct the sewer under a Section 104 Agreement. Should this not be successful, Southern Water will requisition a sewer under a Section 98 Agreement through the golf course.

4.5 Public Sewer Capacity and Connections

4.5.1 Sewer Capacity

Southern Water have been contacted to confirm there is capacity for the proposed foul water flows from the proposed development in the sewers to the south of the Proposed Development.

Southern Water have confirmed capacity at the proposed connection location. A copy of the confirmation is provided in **Appendix K**.

4.5.2 Sewer Connections

All new direct and indirect connections to the Southern Water sewer are subject to a Water Industry Act Section 106 Agreement with Southern Water.

All new sewers in third party land will be subject to a Section 104 Agreement where access can be agreed with the landowner or a Section 98 Requisition Agreement if Southern Water are required to requisition the route on behalf of the Proposed Development.

Any sewers on the site to be adopted by Southern Water or a NAV adopting authority will be subject to technical approval and a Section 104 Agreement. The exact extent of adoption is to be confirmed as part of the detailed design.

5.0 FLOOD ZONE, SEQUENTIAL AND EXCEPTION TEST

5.1 Flood Zone

The EA has derived flood maps of England, from which it is possible to initially identify whether a site is located within an area that is at risk of fluvial/tidal flooding. The maps, which are available on the UK Government website, show that the site is located within Flood Zone 1, which is defined as land having a less than 1 in 1,000 annual probability of flooding from rivers or seas.

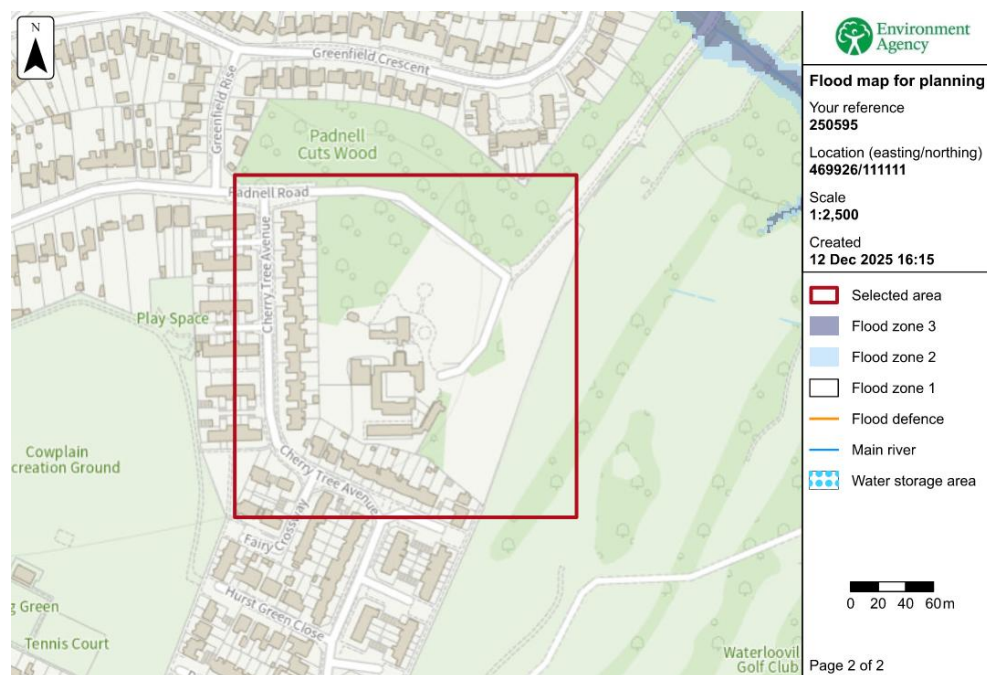


Figure 5.1 “Flood Map for Planning” from Environment Agency

The site therefore considered to be at **low** risk of flooding from rivers and seas.

5.2 Vulnerability Classification

According to “[Table 2: Flood Risk Vulnerability Classification](#)” in the NPPF Practice Guidance (Flood Risk and Coastal Change) the intended use as residential has a Vulnerability Classification of ‘More Vulnerable’.

5.3 Sequential Test

The National Planning Policy Framework (NPPF) encourages a sequential risk-based approach to determine the suitability of land for development in flood risk areas. It advises local planning authorities to demonstrate that there are no reasonably available sites in areas with a lower probability of flooding that would be appropriate to the type of development or land use proposed.

Table 5.1 Flood Risk Vulnerability Classification (after Table 3 NPPF Practice Guide Flood Risk and Coastal Change)

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

In accordance with Table 5.1, the Proposed Development's vulnerability classification is suitable for the Site's Flood Zone – the sequential test is passed

5.4 Exception Test

The NPPF advises that for the Exception Test to be passed it must be demonstrated that the development will meet the following requirements:

- The development provides wider sustainability benefits to the community that outweigh flood risk.
- A Flood Risk Assessment must demonstrate that the development will be safe without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

The flood management and mitigation measures proposed as part of this flood risk assessment in Section 7 will ensure that the development can be occupied and operated safely with there being no increase in the level of flood risk to the site or neighbouring sites.

In accordance with Table 5.1, the Proposed Development's vulnerability classification is suitable for the Site's Flood Zone – the sequential test is passed, and the exemption test is not required.

Notwithstanding this, the Site is allocated in the Local Plan and was assessed as part of the Strategic Flood Risk Assessment by the LLFA and is therefore assumed to pass the Exemption Test.

6.0 DEFINITION OF THE FLOOD HAZARD

6.1 Sources of Flooding

The Partnership for South Hampshire SFRA (SFRA) summarises the risk the risk of flooding from the following sources;

- Fluvial (rivers and sea)
- Pluvial (surface water)
- Groundwater
- Artificial sources (reservoirs)

These sources of flooding, and how they relate to the site, are discussed below:

6.1.1 Fluvial (rivers and sea)

The SFRA states

“Flooding from rivers occurs when water levels rise higher than bank levels, causing floodwater to spill

across adjacent land (floodplain). The main reasons for water levels rising in rivers are:

- Intense or prolonged rainfall causing runoff rates and flows to increase in rivers, exceeding the capacity of the channel. This can be exacerbated by wet conditions and where there is significant groundwater base flow.
- Constrictions in the river channel causing flood water to back up.
- Constrictions preventing discharge at the outlet of the river e.g., locked flood gates.”

The flood maps confirmed that the site is located within Flood Zone 1 and not affected by these rivers.

It is concluded that the site is currently at **low** risk of flooding from fluvial sources.

6.1.2 Pluvial (surface water)

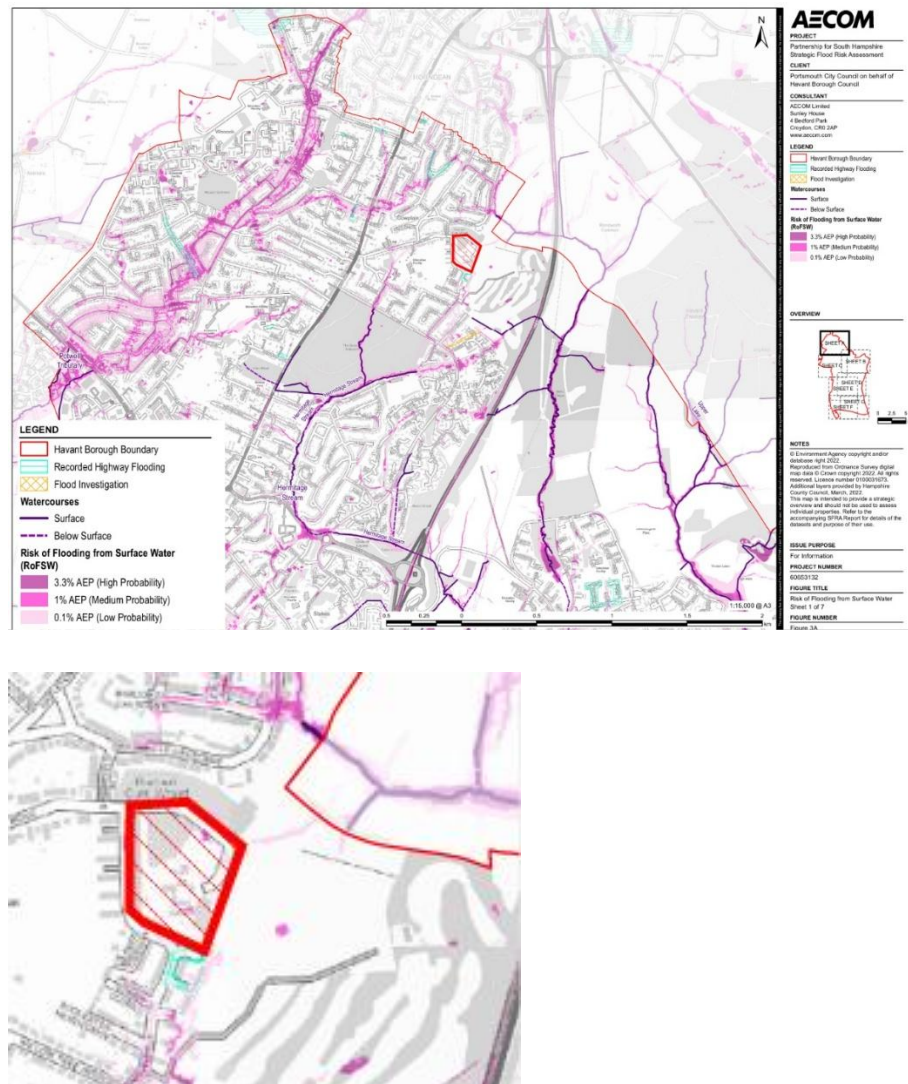
Strategic Flood Risk Assessment (SFRA)

The SFRA states

“Overland flow and surface water flooding typically arise following periods of intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems. It can run quickly off land and result in localised flooding. The PPG states that an SFRA should identify areas at risk from surface water flooding and drainage issues, taking account

of climate change and of the surface waterflood risk published by the Environment Agency as well other available information.”

The SFRA and accompanying flood risk maps does not specifically identify Critical Drainage Areas known to be at particular risk of surface water flooding.



Risk of Flooding from Surface Water (RoFSW) Maps

The EA publishes and maintains the national Risk of Flooding from Surface Water (RoFSW). This aims to represent flooding caused by surface runoff from precipitation and is based on a high-resolution ground model and simulated rainfall for return periods up to the 1 in 1000-year event. The model picks up depressions in the surface where flooding would occur and identifies the overland flood flow paths. The EA model typically does not account for flow within sewers and the linked nature of surface water and sewer flooding during a severe rainstorm.

The surface water flood risk maps provided in the SFRA and Hampshire LLFA's pre-application comments, based on the Environment Agency (EA) RoFSW maps, show the site to have localised areas at high (greater than 1 in 30 year) risk of surface water flooding.

Conisbee have obtained the digital records of the RoFSW maps to assess the impact of this flooding on the site plan. A sketch provided in **Appendix L** shows the location and depth of the flooding predevelopment. The maximum depth of flooding is up to 300mm based on the maps. As shown on the sketch provided in the appendix, all units in areas at risk of surface water flooding will be above the maximum modelled level. Notwithstanding this, the risk of surface water flooding will be reduced by the implementation of a drainage strategy on the site, which includes suitable falls in the Proposed Development to direct runoff to interception devices and into the drainage network. All flood risk is localised to the site, with no off-site sources.

Gov.UK Long Term Flood Risk Assessment

The Gov.uk website also provides a summary of long-term flood risk at properties. The website identified the site as low risk of annual flooding currently, and during the 2040's – 2060's.

It is concluded that whilst there are areas of high flood risk from pluvial sources, this is in limited areas and will be managed through the implementation of an appropriate drainage strategy. The overall risk to the site of pluvial flooding is considered to be **low**.

6.1.3 Groundwater

The SFRA states

'Areas Susceptible to Groundwater Flooding' is a national dataset produced by the Environment Agency which shows the proportion of 1km squares where geological and hydrogeological conditions show that groundwater might emerge. It does not show the likelihood of groundwater flooding occurring but provides a useful tool to identify where further studies may be useful.

The figures below show the susceptibility to groundwater flooding based on EA data and British Geological Survey. As indicated, the site is shown to be in areas of low susceptibility.

Additionally, the proposed development does not include basements areas where groundwater flooding would be of concern. Notwithstanding this, any below ground structure (attenuation tank, building foundation etc) should be designed and constructed in accordance with the site specific ground investigation where they may be within the water table.

It is therefore not considered necessary to undertake a detailed groundwater flood risk study.

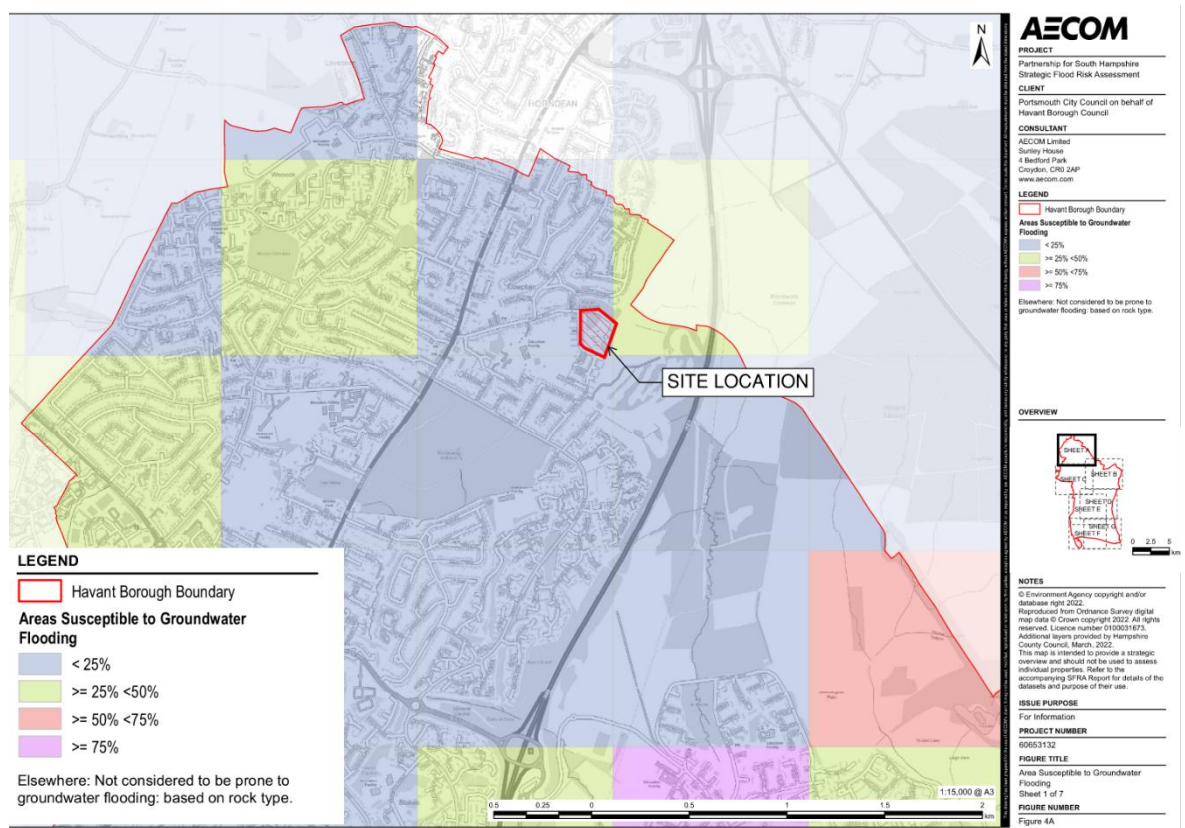


Figure 6.2 Groundwater flooding susceptibility (EA data)

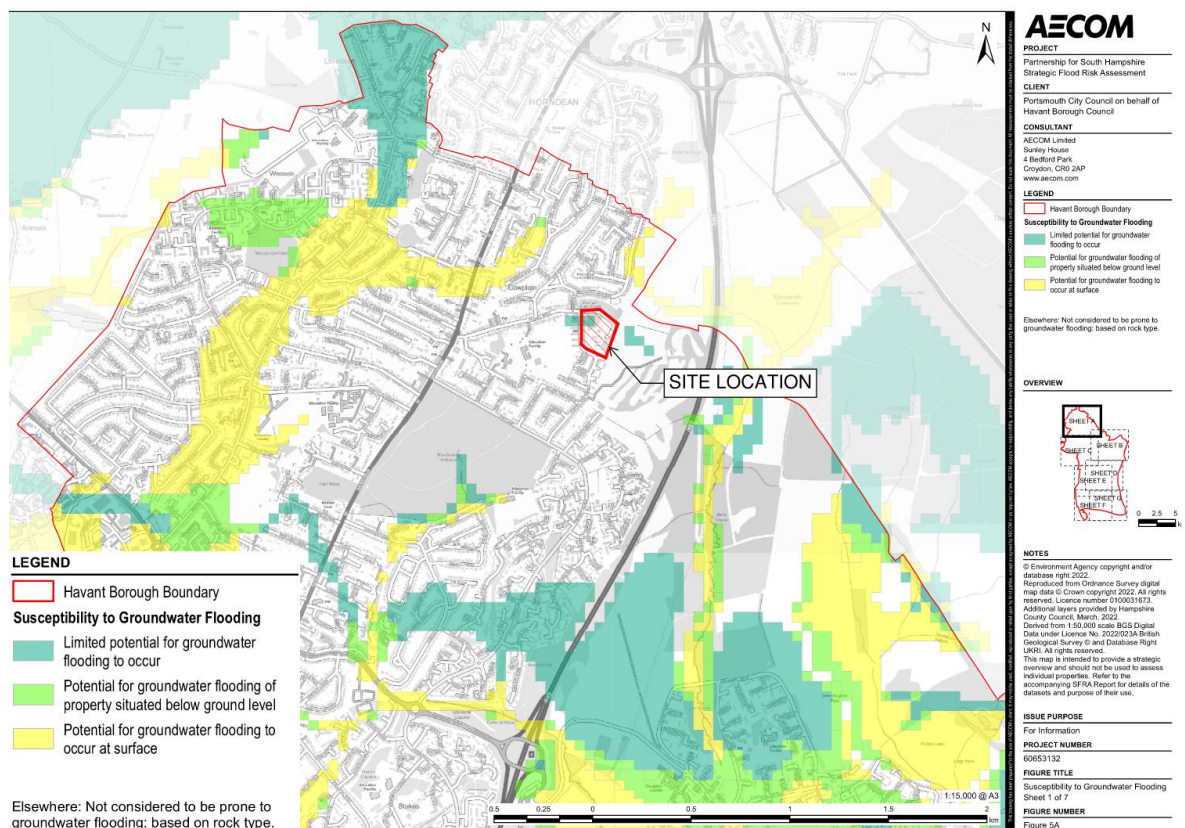


Figure 6.3 Groundwater flooding susceptibility (EA data)

It is concluded that the site is currently at **low** risk of flooding from groundwater sources.

6.1.4 Sewer Flooding

Since the late 1970s, and with the publication of Sewers for Adoption in 1980, sewer networks are designed to cope with storm events up to and including the 1 in 30 year storm event. If this storm event is exceeded then surface water flooding is likely to occur.

Sewer flooding occurs in the absence of severe weather due to under capacity of the sewer system or localised blockage. There are no records of widespread flooding occurring from these causes however there have been instances during periods of severe weather where surface water flooding has become contaminated with foul water, likely due to misconnection or localised combination of the two systems.”

The SFRA includes maps of historic flooding from all sources. This does not show any recorded sewer flooding at the site.

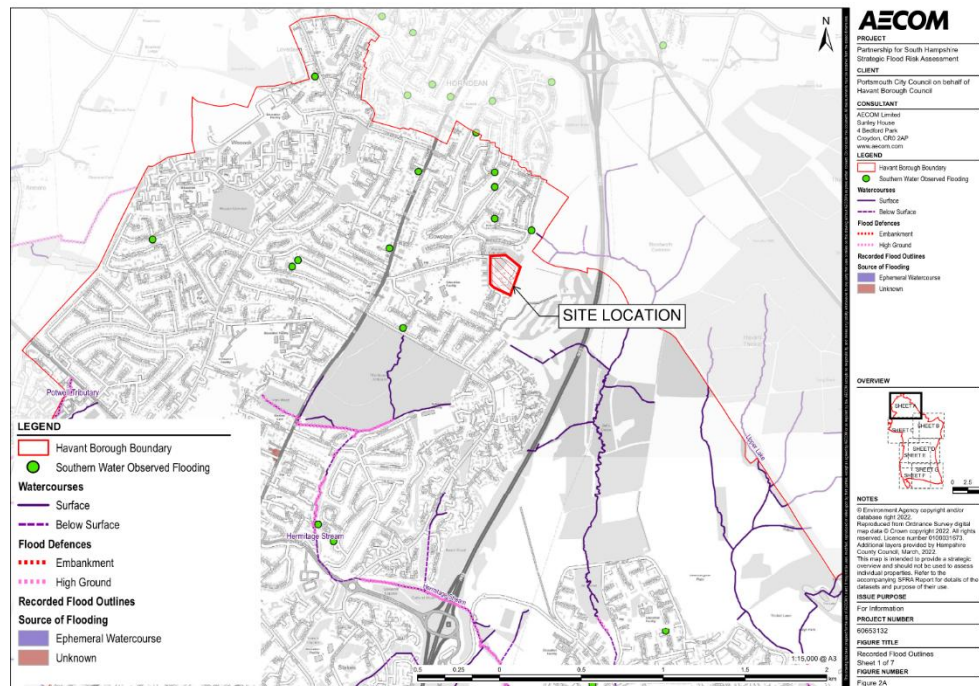


Figure 6.4 Historic flooding (all sources)

6.1.5 Flooding from Artificial Sources

Artificial water bodies, such as reservoirs, canals, etc. could pose a flood risk in the event of a structural failure such as a breached reservoir dam.

The SFRA includes maps of flooding from artificial sources. This shows the site to be outside of any reservoir flood extents.

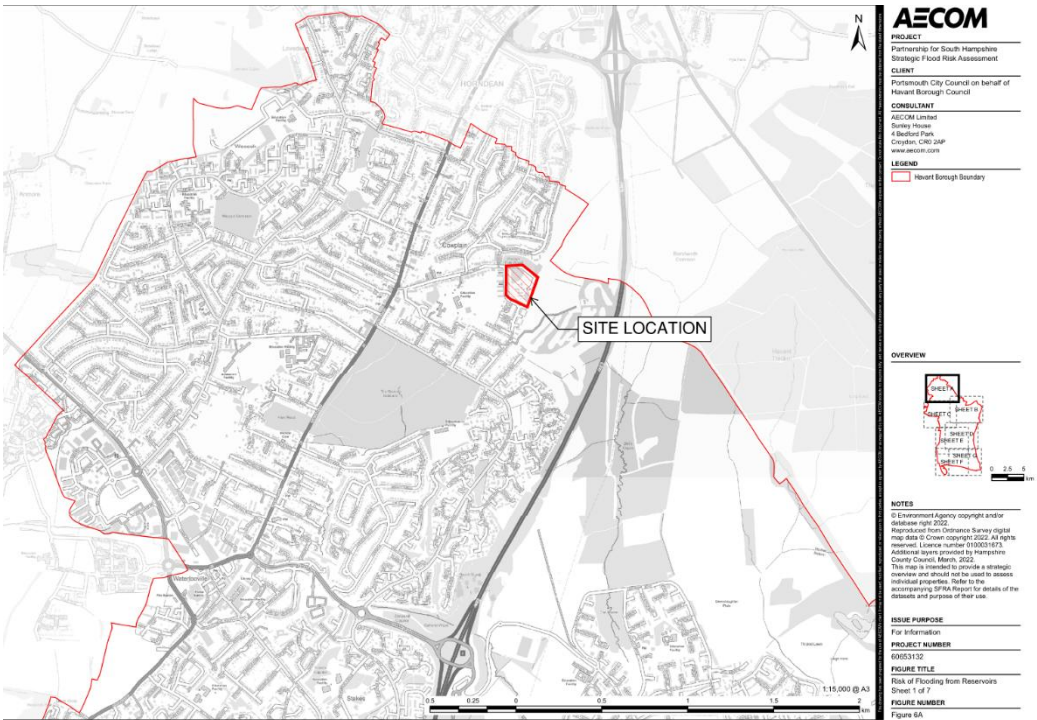


Figure 6.5 EA Map of Risk of flooding from artificial sources.

The site is considered to be at low risk of flooding from artificial sources.

6.1.6 Historic Flooding

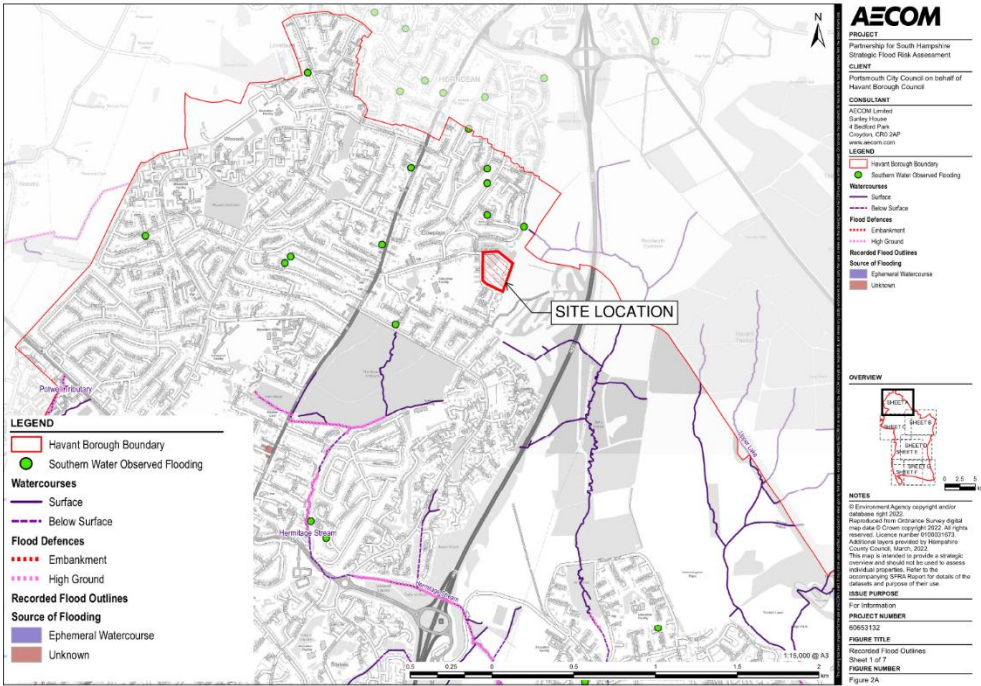


Figure 6.6 Historic flooding (all sources)

6.2 Probability of Flooding

Overall the probability of the site flooding from the sources described above is **low**.

Based on the flood risk maps showing sources of flooding, there is no evidence of flooding from off-site sources.

6.3 Flood Risk due to Climate Change

The effect of climate change will be to increase the intensity and duration of rainfall events, thus increasing the likelihood of localised flooding. In accordance with the National Planning Policy Framework (NPPF) practice guidance an additional 45% has been added to rainfall profiles during design to accommodate future increases due to Climate Change.

6.4 Residual Risks

The residual risk is thought to be very low providing that the drainage systems are adequately maintained.

6.5 Off Site Impacts

As discussed in Section 4, the proposed development will reduce runoff compared to pre-development rates. The development is not thought to impact existing flood flow paths or groundwater flows. Overall, the proposals have a positive impact on flood risk elsewhere by reducing runoff into existing sewers.

7.0 CONCLUSIONS

The Proposed Development will redevelop the existing brownfield site to provide 90No. new homes and associated landscaping and infrastructure.

The Proposed Development is located in Flood Zone 1 and is considered to have areas at risk of surface water flooding and be at low risk of flooding from other reviewed sources.

The Proposed Development will provide a surface water drainage network on the site which will manage runoff from proposed impermeable areas and mitigate the existing flood risk. Buildings will also be located above existing surface water flood risk levels.

As a residential development, the site is classed as 'more vulnerable'. In accordance with the NPPF the site Flood Zone is suitable for this classification of development and the 'exemption test' is not required.

The proposed surface water drainage has been designed in accordance with the SuDS Principles and will enhance the local area. SuDS have been provided to manage, treat and enhance the water on the site, an attenuation basin and proprietary treatment system. The surface water will discharge to an existing ditch to the north of the Site. The peak runoff will be limited to the greenfield Qbar rate, 29/s.

An ordinary watercourse consent will be obtained from Hampshire LLFA for the new headwall. A survey of the ditch will be undertaken to ensure the free discharge of water from the site and along the ditch.

A new foul water sewer through the neighbouring golf course will be required to discharge foul water into the existing Southern Water network. Southern Water have been contacted to confirm capacity in their network for the foul water discharge from the Proposed Development and have confirmed capacity.

APPENDIX A LLFA PRE APP COMMENTS AND PLANNING CHECKLIST

Site Reference:	SWM-PRE/2025/0855	
Review Date:	05/02/2025	
Reviewer:	WB	
Authorised:	SR	
Total No. Pages	5	

Proposal Description:
<p>Full application for new 88 unit housing and associated roads on existing site.</p>

Site Background			
Pre-development status	Brownfield		
Modelled Flood Risk		Historic Flooding - split by data owner	
Fluvial Flood Zone 2	N	Highways	N
Fluvial Flood Zone 3	N	LLFA	N
Surface Water High	Y	Environment Agency	N
Surface Water Medium	Y	Watercourses	
Surface Water Low	Y	Main River	N
Groundwater risk zone	N	Ordinary Watercourse	Y
Priority Area	Y	Predominant Geology	London Clay

Name of Documents Reviewed	Document reference No.
Site Layout	24143 / SK08

LLFA Technical Notes available at:
<https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/planning>

Summary of submission, key points requiring assessment, response to specific developer queries

This application is for a residential development on an existing site which proposes to drain to a watercourse beyond the northern boundary. The main considerations for this proposal are:

- management of the surface water flood risk to the south of the access road,
- capture of surface water run off from the access road and inclusion in calculations and treatment,
- confirmation of permission to discharge to the off site watercourse and maintenance agreement for the outfall,
- catchment diagrams demonstrating existing arrangements are mimicked and no downstream sensitive receptors are affected by changes in runoff locations,
- enhanced measures due to the site's location in Hampshire Priority Area: Lavant - Horndean East.

Review of Proposals

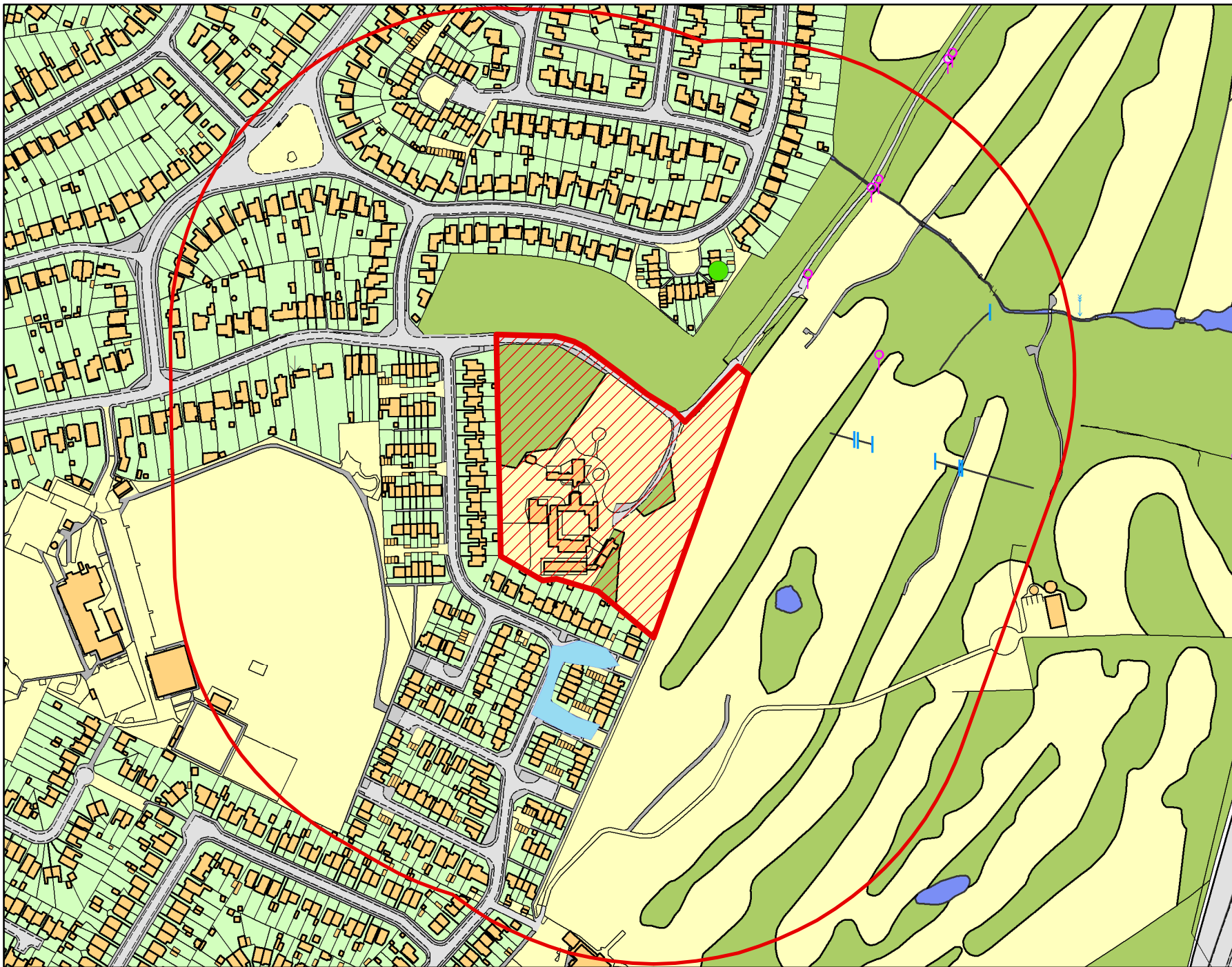
The following sections review the information provided in line with our guidance and checklist and provide commentary as to the suitability of the information if it was submitted for planning. If no relevant information is provided then guidance is included on what should be submitted for planning. Any key issues identified are highlighted for further discussion however this is based solely on the information submitted

Required information:		Commentary
Existing Site Conditions		
Topographic survey plan		<p>Site levels.</p> <p>Existing drainage features (including outside of the boundary particularly in relation to connecting watercourses adjoining the site).</p>
Flood risk assessment/statement (Planning Practice Guidance)		<p>Extents of flood risk areas and flow routes (considering all sources of flooding) including those from offsite locations.</p> <p>Assessment of the flood risk vulnerability of the proposed development and its suitability in relation to the flood risk at the site. Development must be steered to areas of lowest risk and a sequential approach taken in relation to layout. There should be no impediment to flow paths and areas at risk of flooding (from all sources) must be avoided.</p>
Evidence for built development in flood risk areas		<p>Site specific modelling may be required to demonstrate more accurate extent of flood risk if development considered in areas shown at risk from national modelling., e.g. updated flood risk modelling results using an appropriate methodology. Refer to the flood modelling technical note. This is particularly relevant to the area of high surface water flood risk to the south of the access road where houses are proposed.</p> <p>Appropriate mitigation, e.g. flood compensation areas (see technical note).</p>
Assessment of existing drainage systems (National Standards for SuDS 3.39.2)		<p>Locations, dimensions, and condition assessments of existing drainage features. The access road currently allows unrestricted and untreated runoff on to adjacent land. The proposal will need to capture surface water runoff from all impermeable areas within the site boundary, including the access road. The spatial constraints are lessened by the no-dig development of the road and it is felt that the desired density of the development should not reduce requirement for treatment of road runoff and restriction to greenfield rates.</p> <p>Extents of existing drainage catchments including a downstream assessment of the discharge point to confirm continuity beyond the site.</p> <p>Standing water levels in watercourses (risk of submerged outfalls). Modelling the drainage system with a submerged outfall may be required where frequently submerged outfalls are likely e.g. tidal, groundwater flooding prone watercourses etc. For Main Rivers, the Environment Agency may be able to advise on peak levels.</p>
Assessment of pre-development runoff rates and volumes (National Standards for SuDS 3.26, 3.31)		<p>Greenfield runoff rates and volumes for the following storm events:</p> <ul style="list-style-type: none"> 1 in 100 years (1% AEP) 1 in 30 years (3.3% AEP) 1 in 2 years (approximately Qbar) 1 in 1 year (100% AEP) <p>Discharge volumes should be calculated using the 1 in 100 6-hour storm (National Standards for SuDS 3.19).</p> <p>An appropriate statistical method should be used</p>
Site investigation report (National Standards for SuDS 1.15, 1.17, 3.11, 3.14, 3.39.2, 4.16.1)		<p>Borehole logs showing geology.</p> <p>Results of sufficient infiltration testing to demonstrate adherence to the drainage hierarchy where the proposal is to discharge to a watercourse. While this may have been undertaken, the results need to be included within the planning submission</p>

		Results of groundwater measurements to ensure appropriate management of groundwater flood risk. Please see infiltration testing and groundwater monitoring technical note for additional details. If infiltration is not required, information in relation to groundwater is only required to determine if there is a need to consider to bouyancy and construction impacts.
Detailed Drainage Strategy Required information:		Where layout is fixed To include:
Detailed drainage strategy/ Technical Note	N/A	<p>A detailed written surface water drainage strategy, following the drainage heirarchy, with references to drawings and calculations that is compliant with policy, demonstrating that the site can be suitably drained without increasing the risk of flooding.</p> <p>In addition to the above, reserved matters applications should provide a technical note summarizing what was agreed at outline, any overarching phasing plans, and how this application fits with the wider site drainage.</p>
Detailed drainage layout plan		<p>A detailed surface water drainage layout showing a full drainage network of sufficient capacity, in appropriate locations with due regard to flood risk areas, overland flow routes and connectivity to discharge locations taking into account final site levels.</p> <p>A plan showing flooded extents and depths managed effectively within the site, where they exist for the 1 in 100-year storm event.</p> <p>Easements or access provision must be provided to retain access to SuDS features and watercourses for maintenance with sufficient information provided to demonstrate maintenance can be undertaken appropriately. Designs must consider access requirements for maintenance machinery (e.g. basin slopes).</p> <p>Culverting of watercourses must be restricted to where access is required <u>only</u>, and consent sought from the relevant authority.</p> <p>Please review our consenting guidance at www.hants.gov.uk/changewatercourse for more information. Please note, consent is a separate process from planning, and the granting of a planning application does not guarantee that ordinary watercourse consent will be granted.</p>
Detailed hydraulic calculations (National Standards for SuDS 3.3 - 3.9, 3.32-3.37).		<p>Detailed hydraulic calculations produced using industry-standard software , the most up-to-date rainfall data, demonstrating sufficient capacity in the drainage network and that post-development runoff rates and volumes (where appropriate) do not exceed pre-development runoff rates and volumes (where appropriate) will be managed in accordance with the minimum requirements of the national standards. Simulation results should be presented for the following storm events:</p> <ul style="list-style-type: none"> • 1 in 100 years (1% AEP) • 1 in 30 years (3.3% AEP) • 1 in 2 years (approximately Qbar) • 1 in 1 year (100% AEP) <p>Appropriate climate change allowances for peak rainfall intensity must be applied to the 1 in 30 year and 1 in 100-year storm events. Peak rainfall allowances must be applied in accordance with the location of the site and the design life of the development.</p> <p>Appropriate allowances for urban creep must be applied to all impermeable areas within residential curtilages (excluding flats and apartments).</p> <p>The drainage network should be sized to contain all contributing permeable and impermeable areas.</p> <p>Any flooding anticipated for the 1 in 100 storm event plus a peak rainfall climate change allowance must be demonstrated to be safely managed within the site. Flooding of buildings, utility plants, or safe access and escape routes will not be accepted.</p>
Interception (National Standards for SuDS- Standard 2)		<p>Provide a plan with interception features, associated contributing areas, and design parameters. Include calculations proving interception storage for the full impermeable area and any contributing permeable areas. Interception must be able to store ⁵mm rainfall. Hand calculations are usually sufficient; complex sites may use modelling.</p> <p>See the rainfall interception technical note for more information.</p>

<p>Agreement in principle for asset connection</p> <p>(National Standards for SuDS 1.20, 1.28)</p>		<p>If draining to a third-party asset (e.g. adopted sewer), obtain agreement in principle from the asset owner and submit this with the application. A capacity check will identify the maximum discharge rate however we will still require greenfield equivalent rates regardless of additional capacity being available within the sewer / watercourse.</p>
<p>Water Quality</p> <p>(National Standards for SuDS 4.1 – 4.8, 7.16)</p>	N/A	<p>An assessment of the pollution hazard of the development and proposed mitigation offered by the SuDS features using the methodology in the SuDS Manual C753 unless stated otherwise in local plans). SuDS treatment trains are expected as standard.</p> <p>Evidence of manufacturer's technical specifications if proprietary treatment systems (items not listed in the simple index approach tables) are proposed.</p> <p>Discharge to the foul sewer will only be accepted where justified by pollution risks. See pollution prevention for businesses.</p> <p>Potential pollution/ water quality impacts during blockage, pump failures scenarios etc should also be identified.</p>
<p>Flood exceedance flow route plan</p> <p>(National Standards for SuDS 3.6, 3.38 – 3.40, 7.3, 7.16).</p>		<p>A plan showing how exceedance flows will be managed appropriately through the site when the capacity is exceeded and mimic the pre-development situation. Blockage and pump failure risks should be considered and managed.</p> <p>Details of how flow routes are prevented from entering buildings, such as road camber and kerbs, and finished floor levels of buildings.</p> <p>Temporary flooding of roads or recreational areas etc should consider the risks during flooding and rehabilitation post flooding. Road flooding should be no greater than low hazard as per FD2320/TR2 and should not pose a risk to identified safe access and egress routes.</p>
<p>Existing flood routes through site</p> <p>National Standards for SuDS 3.6, Principal 8</p>		<p>Offsite floodwater from events up to a 1-in-100-year probability, as indicated by the surface water flood map or LLFA data, must be safely routed through the site. This routing should avoid increasing flood risk or interfering with the site's drainage system and must be shown on a plan. If interaction with the proposed drainage system cannot be avoided, appropriate mitigation measures must be implemented.</p>
<p>SuDS management and maintenance details</p> <p>(National Standards for SuDS 4.5.1 & 4.10, 7.8)</p> <p>Standard 7</p>	N/A	<p>A schedule of maintenance tasks, to include descriptions, frequencies, role of the drainage system, design life/replacement frequencies of components and the responsible parties for maintaining each part of the drainage system (including any adoption agreements) and any watercourses is required. This should identify features prone to blockage and actions to take if blockages or a pollution incident occurs. Rehabilitation requirements following a flood.</p> <p>A plan showing where different parties have responsibility for maintaining SuDS and watercourses, including easements. Colour coding by maintenance responsibilities is recommended. See the maintenance plan technical note.</p> <p>Details of how drainage features will be protected during the construction period, what silt management and rehabilitation would be required before site occupation</p> <p>A phasing management plan is required to address construction risks where drainage systems serve different parts of the site and are implemented at different times. The plan must also include remediation measures to ensure the drainage system meets its intended design condition before the development is occupied.</p> <p>Construction Risk Mitigation: Identify vulnerable drainage features and mitigation measures during construction. It should be clear how the drainage system will be protected during construction from risk that may affect the functioning of drainage system and refer to Construction Risk Technical Note for guidance.</p>

		<p>Construction Drainage Plan: Include an annotated drawing showing temporary drainage to be installed at the start of construction and any mitigation to protect the drainage during construction</p>
<p>Verification report in Catchment Priority Areas: Lavant - Horndean East</p>		<p>A statement written by a suitably qualified person that confirms the adequacy and quality of the installed drainage system. Qualification to be listed.</p> <p>Survey evidence such as CCTV surveys of pipe networks and invert levels of control structures.</p> <p>Photographs in situ, as-built drawings, and hydraulic calculations for the installed drainage system. Design changes during construction must be shown not to impact drainage performance.</p> <p>A summary of any works affecting watercourses.</p> <p>GIS shapefile of the red line boundary with as-built drainage plans.</p>
<p>As built details (outside a Priority Area)</p>	N/A	<p>Provide via planning condition as-built drawings for the drainage system and a GIS shapefile of the red line boundary.</p>
<p>Amenity Statement</p> <p>(Standard 5- National Standards for SuDS)</p>		<p>Where public access is involved, SuDS should also offer amenity. Use LPA landscape guidance, landscape character assessments, green infrastructure strategies, design policies and design codes to inform design. See the amenity and biodiversity technical note for more information.</p> <p>Label amenity features on drainage drawings</p> <p>Explain the amenity provision via a SUDS section in the Design and Access Statement.</p> <p>If amenity isn't practical or required by LPA policy, state the reason.</p>
<p>Biodiversity Statement.</p> <p>(Standard 6- National Standards for SuDS)</p>		<p>SuDS should support biodiversity. SuDS should be a means for delivering already required biodiversity value. This is not an additional biodiversity requirement. See the amenity and biodiversity technical note for more information.</p> <p>Label biodiversity supporting SUDS features on drainage plans.</p> <p>Provide a section within the biodiversity statement demonstrating the suitability of the SUDS design for supporting biodiversity.</p> <p>If not feasible (e.g. a biodiversity provision is not required by LPA policy or National Policy), justify in the biodiversity statement.</p>



Legend

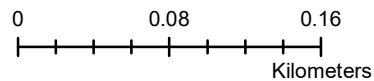
- Site
 - 250m Buffer
 - Recorded Highway Flooding
 - Recorded Highway Flooding in Hampshire
- Hampshire Flood Enquiries**
- enq_status_name
- Resolved Flood Enquiry

Surface Water Management Pre-app Request

Historic Flooding Record

Padnell Grange,
Waterlooville

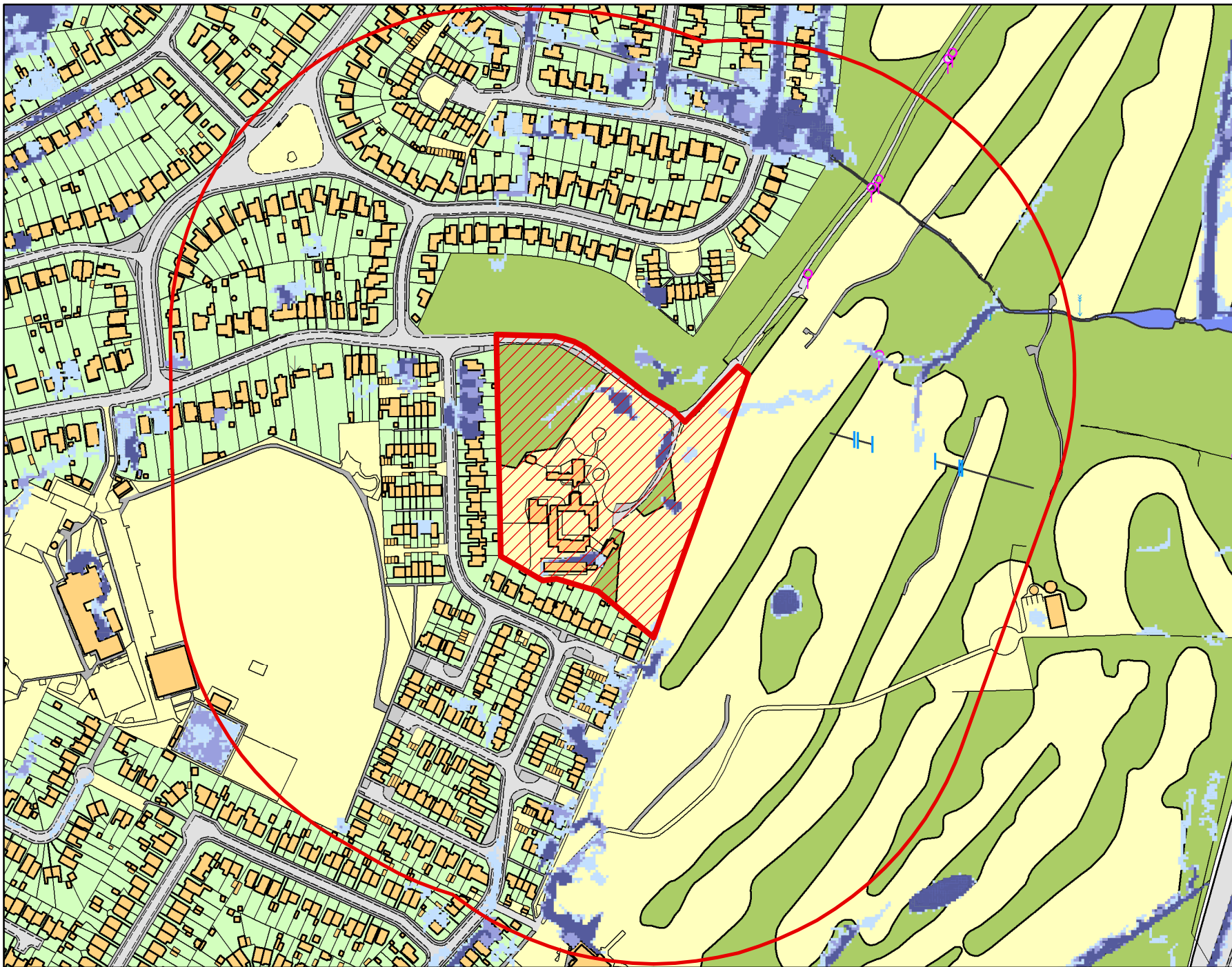
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Revision:	1	Initials:	PDB



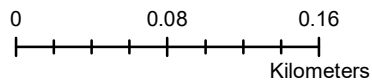
- Legend**
- 250m buffer
 - Site
 - Flood Maps for Surface Water (High)
 - Flood Maps for Surface Water (Medium)
 - Flood Maps for Surface Water (Low)

**Surface Water
Management Pre-app
Request**

Flood Map for Surface Water

**Padnell Grange,
Waterlooville**

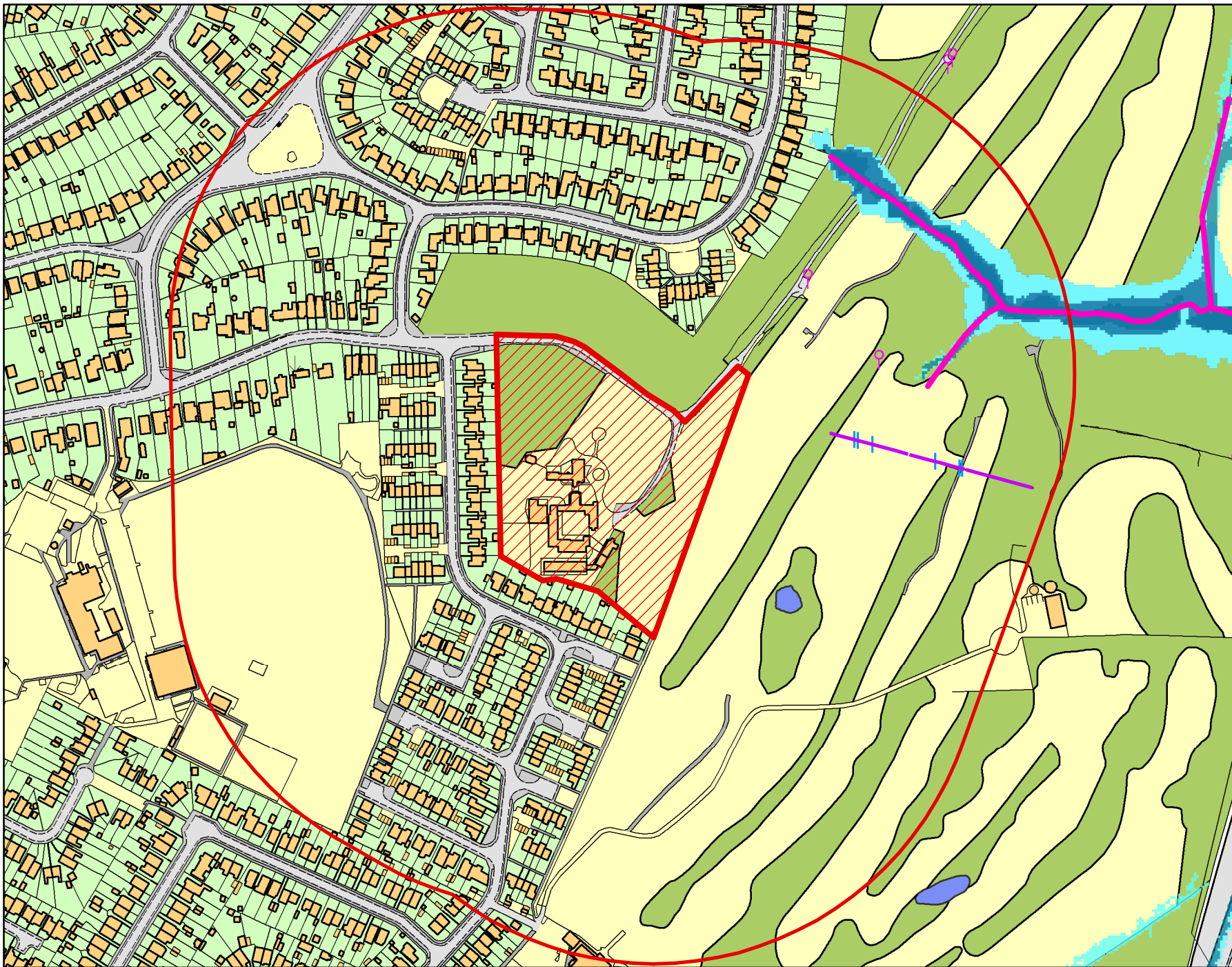
Notes:



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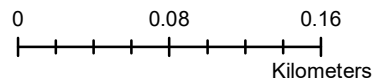
- Site
- 250m Buffer
- non main river
- Detailed River Network - Offline Drainage
- Flood Zone 3
- Flood Zone 2

Surface Water Management Pre-app Request

EA Flood Zones and Detailed River Network

Padnell Grange,
Waterlooville

Notes:



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Revision:	1	Initials:	PDB

Adam Prais

From: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Sent: 25 February 2026 07:59
To: Adam Prais; FWM Statutory SWM Consultee mailbox
Cc: Emma Ward MRICS; Russell Dawkins (russell.dawkins@stonebondltd.com); 'Paul Carnell'
Subject: RE: [EXTERNAL] SWM-PRE/2025/0855 Padnell Grange
Categories: Site / Project Information

Warning: Unusual link

This message contains an unusual link, which may lead to a malicious site. Confirm the message is safe before clicking any links.

Morning Adam,

Thank you for getting in touch.

1. Apologies for the oversight. As confirmed in the meeting: Post development run off rate is to be based on greenfield Qbar rate.
2. We would have no objection to treating the cellweb as a porous system where required due to root protection zones.

Kind regards
Will

William Bartlett
Flood and Water Management Officer
SWM.consultee@hants.gov.uk

Flood and Water Management : Universal Services : Hampshire County Council
Elizabeth II Court, The Castle, Winchester, Hampshire, SO23 8UJ

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Flood and Water Management Officer
william.bartlett@hants.gov.uk

Flood and Water Management : Universal Services : Hampshire County Council
Elizabeth II Court, The Castle, Winchester, Hampshire, SO23 8UJ

[Contact the Council | About the Council | Hampshire County Council \(hants.gov.uk\)](#)

From: Adam Prais <adam.prais@conisbee.co.uk>
Sent: 24 February 2026 12:27
To: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>
Cc: Emma Ward MRICS <emma.ward@stonebondltd.com>; Russell Dawkins (russell.dawkins@stonebondltd.com) <russell.dawkins@stonebondltd.com>; 'Paul Carnell' <PCarnell@ecephanning.com>
Subject: RE: [EXTERNAL] SWM-PRE/2025/0855 Padnell Grange

EXTERNAL EMAIL - This email was sent by a person outside the organisation. Do not open any links or attachments if you were not expecting them. If in doubt, contact the IT Service Desk.

Good afternoon,

Thank you for sending that over. I have reviewed the report and am a little disappointed with the content provided. The report has been sent later than the advised response period and the information is very generic with little comment to address the questions and specific challenges of the site which were discussed in the pre-app meeting. Specifically, we would like the report to confirm;

1. Post development run off rate to be based on greenfield Qbar rate
2. Areas constructed using cellweb/similar (where required due to root protection zones) are to be treated as porous systems allowing the water to drain directly into the subgrade as per the requirements of this construction in root protection zones

Kind regards,
Adam

Adam Prais

Senior Civil Engineer
DD: 020 7697 7220
M: 07395 280 310

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From: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>

Sent: 24 February 2026 09:30

To: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>; Adam Prais <adam.prais@conisbee.co.uk>

Cc: Emma Ward MRICS <emma.ward@stonebondltd.com>; Russell Dawkins (<russell.dawkins@stonebondltd.com> <russell.dawkins@stonebondltd.com>; 'Paul Carnell' <PCarnell@ecephanning.com>

Subject: RE: [EXTERNAL] SWM-PRE/2025/0855 Padnell Grange

External sender <swm.consultee@hants.gov.uk>

Make sure you trust this sender before taking any actions.

Please find your pre-app report attached.

Please accept my apologies for the delay in getting the report to you.

Kind regards

Philippa

Flood and Water Management

Universal Services,
Hampshire County Council,
The Castle, Winchester, Hampshire, SO23 8UD.

Email: swm.consultee@hants.gov.uk



From: FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>

Sent: 20 February 2026 15:34

To: Adam Prais <adam.prais@conisbee.co.uk>; Booth, Philippa <Philippa.Booth2@hants.gov.uk>; Bartlett, William <William.Bartlett@hants.gov.uk>

Cc: Emma Ward MRICS <emma.ward@stonebondltd.com>; Russell Dawkins (<russell.dawkins@stonebondltd.com> <russell.dawkins@stonebondltd.com>); 'Paul Carnell' <PCarnell@eceplanning.com>

Subject: RE: [EXTERNAL] SWM-PRE/2025/0855 Padnell Grange

Dear Adam

Thank you for your email. The case officer is on leave this week which is why there's been a slight delay.

I'll ask him to prioritise this on his return on Monday

Regards

Sarah

Sarah Reghif
Flood and Water Management - Technical

Universal Services
Hampshire County Council
The Castle
Winchester
Hampshire
SO23 8UD

E-mail: SWM.consultee@hants.gov.uk



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From: Adam Prais <adam.prais@conisbee.co.uk>

Sent: 20 February 2026 12:08

To: Booth, Philippa <Philippa.Booth2@hants.gov.uk>; Bartlett, William <William.Bartlett@hants.gov.uk>; FWM Statutory SWM Consultee mailbox <SWM.Consultee@hants.gov.uk>

Cc: Emma Ward MRICS <emma.ward@stonebondltd.com>; Russell Dawkins (russell.dawkins@stonebondltd.com) <russell.dawkins@stonebondltd.com>; 'Paul Carnell' <PCarnell@eceplanning.com>

Subject: RE: [EXTERNAL] SWM-PRE/2025/0855 Padnell Grange

EXTERNAL EMAIL - This email was sent by a person outside the organisation. Do not open any links or attachments if you were not expecting them. If in doubt, contact the IT Service Desk.

Good morning Phillipa / William,

Resending to include SWM.consultee@hants.gov.uk in Phillipa's absence.

Further to our consultation a couple of weeks ago, we were anticipating the pre-app advice report would be sent within 2 weeks.

The pre-app meeting was now over two weeks ago, please can you send over the report or advise when we should expect to receive it.

Kind regards,
Adam

Adam Prais

Senior Civil Engineer

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BUSINESS 2025**

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-----Original Appointment-----

From: Booth, Philippa <Philippa.Booth2@hants.gov.uk>

Sent: 18 December 2025 07:32

LLFA PRE APP COMMENTS RESPONSE FINDER

Required information:	LLFA Comments	FRA and DS Report Section / Reference
Topographic survey plan	Existing drainage features (including outside of the boundary particularly in relation to connecting watercourses adjoining the site).	FRA Report Section 2.2
Flood risk assessment/statement (Planning Practice Guidance)	<ol style="list-style-type: none"> 1. Extents of flood risk areas and flow routes (considering all sources of flooding) including those from offsite locations. 2. Assessment of the flood risk vulnerability of the proposed development and its suitability in relation to the flood risk at the site. Development must be steered to areas of lowest risk and a sequential approach taken in relation to layout. There should be no impediment to flow paths and areas at risk of flooding (from all sources) must be avoided. 	<ol style="list-style-type: none"> 1. Section 6.1 & 6.2 2. FRA Report Section 6 & 7
Evidence for built development in flood risk areas	Site specific modelling may be required to demonstrate more accurate extent of flood risk if development considered in areas shown at risk from national modelling., e.g. updated flood risk modelling results using an appropriate methodology. Refer to the flood modelling technical note. This is particularly relevant to the area of high surface water flood risk to the south of the access road where houses are proposed. Appropriate mitigation, e.g. flood compensation areas (see technical note).	Section 6.1.2

Required information:	LLFA Comments	FRA and DS Report Section / Reference
<p>Assessment of existing drainage systems (National Standards for SuDS 3.39.2)</p>	<ol style="list-style-type: none"> Locations, dimensions, and condition assessments of existing drainage features. The access road currently allows unrestricted and untreated runoff on to adjacent land. The proposal will need to capture surface water run off from all impermeable areas within the site boundary, including the access road. The special constraints are lessened by the no-dig development of the road and it is felt that the desired density of the development should not reduce requirement for treatment of road run off and restriction to greenfield rates. Extents of existing drainage catchments including a downstream assessment of the discharge point to confirm continuity beyond the site. Standing water levels in watercourses (risk of submerged outfalls). Modelling the drainage system with a submerged outfall may be required where frequently submerged outfalls are likely e.g. tidal, groundwater flooding prone watercourses etc. For Main Rivers, the Environment Agency may be able to advise on peak levels. 	<ol style="list-style-type: none"> Existing site drainage – Section 2.6. Road drainage in root protection zones – Proposed Drainage Section 4.3.3 Existing site drainage – Section 2.6. Existing site drainage – Section 2.6.
<p>Assessment of pre-development runoff rates and volumes (National Standards for SuDS 3.26, 3.31)</p>	<p>Greenfield runoff rates and volumes for the following storm events:</p> <ul style="list-style-type: none"> 1 in 100 years (1% AEP) 1 in 30 years (3.3% AEP) 1 in 2 years (approximately Qbar) 1 in 1 year (100% AEP) <p>Discharge volumes should be calculated using the 1 in 100 6-hour storm (National Standards for SuDS 3.19).</p> <p>An appropriate statistical method should be</p>	<p>Section 2.7</p>

Required information:	LLFA Comments	FRA and DS Report Section / Reference
	used.	
Site investigation report (National Standards for SuDS 1.15,1.17, 3.11, 3.14, 3.39.2, 4.16.1)	Borehole logs showing geology. Results of sufficient infiltration testing to demonstrate adherence to the drainage hierarchy where the proposal is to discharge to a watercourse. While this may have been undertaken, the results need to be included within the planning submission Results of groundwater measurements to ensure appropriate management of groundwater flood risk. Please see infiltration testing and groundwater monitoring technical note for additional details. If infiltration is not required, information in relation to groundwater is only required to determine if there is a need to consider to bouyancy and construction impacts.	Section 2.3
Detailed drainage strategy / Technical Note	A detailed written surface water drainage strategy, following the drainage hierarchy, with references to drawings and calculations that is compliant with policy, demonstrating that the site can be suitably drained without increasing the risk of flooding. In addition to the above, reserved matters applications should provide a technical note summarizing what was agreed at outline, any overarching phasing plans, and how this application fits with the wider site drainage.	FRA & DS Report

Required information:	LLFA Comments	FRA and DS Report Section / Reference
Detailed drainage layout plan	<p>A detailed surface water drainage layout showing a full drainage network of sufficient capacity, in appropriate locations with due regard to flood risk areas, overland flow routes and connectivity to discharge locations taking into account final site levels.</p> <p>A plan showing flooded extents and depths managed effectively within the site, where they exist for the 1 in 100- year storm event.</p> <p>Easements or access provision must be provided to retain access to SuDS features and watercourses for maintenance with sufficient information provided to demonstrate maintenance can be undertaken appropriately.</p> <p>Designs must consider access requirements for maintenance machinery (e.g. basin slopes).</p> <p>Culverting of watercourses must be restricted to where access is required <u>only</u>, and consent sought from the relevant authority.</p> <p>Please review our consenting guidance at <u>www.hants.gov.uk/changewatercourse</u> for more information. Please note, consent is a separate process from planning, and the granting of a planning application does not guarantee that ordinary watercourse consent will be granted.</p>	<p>Drainage Strategy Drawings</p> <p>Section 4.4.1</p>
Detailed hydraulic calculations (National Standards for SuDS 3.3- 3.9, 3.32-3.37).	<p>Detailed hydraulic calculations produced using industry-standard software, the most up-to-date rainfall data, demonstrating sufficient capacity in the drainage network and that post-development runoff rates and volumes (where appropriate) do not exceed pre-development runoff rates and volumes (where appropriate) will be managed in accordance with the minimum requirements of the national standards. Simulation results should be presented for the following storm events:</p> <ul style="list-style-type: none"> • 1 in 100 years (1% AEP) 	Section 4.4.2

Required information:	LLFA Comments	FRA and DS Report Section / Reference
	<ul style="list-style-type: none"> • 1 in 30 years (3.3% AEP) • 1 in 2 years (approximately Qbar) • 1 in 1 year (100% AEP) <p>Appropriate climate change allowances for peak rainfall intensity must be applied to the 1 in 30 year and 1 in 100- year storm events. Peak rainfall allowances must be applied in accordance with the location of the site and the design life of the development.</p> <p>Appropriate allowances for urban creep must be applied to all impermeable areas within residential curtilages (excluding flats and apartments).</p> <p>The drainage network should be sized to contain all contributing permeable and impermeable areas.</p> <p>Any flooding anticipated for the 1 in 100 storm event plus a peak rainfall climate change allowance must be demonstrated to be safely managed within the site. Flooding of buildings, utility plants, or safe access and escape routes will not be accepted.</p>	
Interception (National Standards for SuDS- Standard 2)	<p>Provide a plan with interception features, associated contributing areas, and design parameters. Include calculations proving interception storage for the full impermeable area and any contributing permeable areas. Interception must be able to store 5 mm rainfall. Hand calculations are usually sufficient; complex sites may use modelling.</p> <p>See the rainfall interception technical note for more information.</p>	Section 4.3.2
Agreement in principle for asset connection National Standards for SuDS 1.20,1.28)	<p>If draining to a third-party asset (e.g. adopted sewer), obtain agreement in principle from the asset owner and submit this with the application.</p> <p>A capacity check will identify the maximum discharge rate however we will still require</p>	n/a

Required information:	LLFA Comments	FRA and DS Report Section / Reference
	greenfield equivalent rates regardless of additional capacity being available within the sewer / watercourse.	
Water Quality National Standards for SuDS 4.1 – 4.8, 7.16)	<p>An assessment of the pollution hazard of the development and proposed mitigation offered by the SuDS features using the methodology in the SuDS Manual C753 unless stated otherwise in local plans). SuDS treatment trains are expected as standard.</p> <p>Evidence of manufacturer's technical specifications if proprietary treatment systems (items not listed in the simple index approach tables) are proposed.</p> <p>Discharge to the foul sewer will only be accepted where justified by pollution risks. See pollution prevention for businesses.</p> <p>Potential pollution/ water quality impacts during blockage, pump failures scenarios etc should also be identified.</p>	Section 4.3.4
Flood exceedance flow route plan National Standards for SuDS 3.6, 3.38 – 3.40, 7.3, 7.16	<p>A plan showing how exceedance flows will be managed appropriately through the site when the capacity is exceeded and mimic the pre-development situation. Blockage and pump failure risks should be considered and managed.</p> <p>Details of how flow routes are prevented from entering buildings, such as road camber and kerbs, and finished floor levels of buildings.</p> <p>Temporary flooding of roads or recreational areas etc should consider the risks during flooding and rehabilitation post flooding. Road flooding should be no greater than low hazard as per FD2320/TR2 and should not pose a risk to identified safe access and egress routes.</p>	Section 4.3.3
Existing flood routes through site National Standards for SuDS 3.6,	Offsite floodwater from events up to a 1-in-100-year probability, as indicated by the surface water flood map or LLFA data, must be safely routed through the site. This routing should avoid	Section 6.2

Required information:	LLFA Comments	FRA and DS Report Section / Reference
Principal 8	increasing flood risk or interfering with the site's drainage system and must be shown on a plan. If interaction with the proposed drainage system cannot be avoided, appropriate mitigation measures must be implemented.	
SuDS management and maintenance details (National Standards for SuDS 4.5.1 & 4.10, 7.8) Standard 7	<p>A schedule of maintenance tasks, to include descriptions, frequencies, role of the drainage system, design life/replacement frequencies of components and the responsible parties for maintaining each part of the drainage system (including any adoption agreements) and any watercourses is required. This should identify features prone to blockage and actions to take if blockages or a pollution incident occurs.</p> <p>Rehabilitation requirements following a flood.</p> <p>A plan showing where different parties have responsibility for maintaining SuDS and watercourses, including easements. Colour coding by maintenance responsibilities is recommended. See the maintenance plan technical note.</p> <p>Details of how drainage features will be protected during the construction period, what silt management and rehabilitation would be required before site occupation</p> <p>A phasing management plan is required to address construction risks where drainage systems serve different parts of the site and are implemented at different times. The plan must also include remediation measures to ensure the drainage system meets its intended design condition before the development is occupied.</p> <p>Construction Risk Mitigation: Identify vulnerable drainage features and mitigation measures during construction. It should be clear how the drainage system will be protected during construction from risk that may affect the</p>	Section 4.3.6

Required information:	LLFA Comments	FRA and DS Report Section / Reference
	functioning of drainage system and refer to Construction Risk Technical Note for guidance	

Please Note: This surface water checklist is only valid until the 31st of December 2025. From January 2026 the [National SuDS Standards will apply](#).

This document should be read in conjunction with the Surface Water Checklist Guidance document located on our website

SURFACE WATER SUBMITTED INFORMATION

Some applications have a considerable number of documents associated with them. To make sure we are reviewing the correct documentation, please ensure the following table is completed.

Document / Drawing Title	Document / Drawing Reference (and revision)
Flood Risk Assessment and Drainage Strategy	250595-CON-XX-XX-RP-C-0001
Drainage Maintenance Schedules	250595-CON-XX-XX-RP-C-0002
Proposed Drainage Layouts	250595-CON-XX-XX-DR-C-1000 – 1010, 1040
Proposed Permeability Plan	250595-CON-XX-XX-DR-C-1100
Proposed Interception Plan	250595-CON-XX-XX-DR-C-1101
Proposed Attenuation Basin Sections	250595-CON-XX-XX-DR-C-1200
Proposed SuDS Details	250595-CON-XX-XX-DR-C-1301

PRE-APPLICATION / PREVIOUS PLANNING APPLICATIONS

If this site was subject to a previous planning application i.e. an outline application in relation to a wider strategic site, pre-application enquiry or if you are reliant on information previously submitted, please provide the relevant reference numbers below.

Planning / Pre-app Titles	Reference Number
LLFA Pre-app meeting	SWM-PRE-2025-0855 - Padnell Grange Report

ORDINARY WATERCOURSE CONSENTING – to be completed and signed by the applicant

I confirm that I have reviewed the site and there are no watercourses / ditches / flow routes that will be affected or amended by the works. I understand that works to any of these features without consent constitutes a criminal offence and breaches the Land Drainage Act 1991.

Or (delete as appropriate).

I confirm that I have reviewed the site and there are watercourses / ditches / flow routes that will be affected or amended by the works. I understand that these works require Ordinary Watercourse Consent under the Land Drainage Act 1991 and confirm that applications will be made for these works prior to works starting on site.

Name:..... **Job Title:**.....

Signature:.....

30/09/2025

SURFACE WATER CHECKLIST

Site Name		Padnell Grange, Waterloooville		Planning ref		TBC	
Ref	SURFACE WATER REQUIREMENTS		PLANNING STAGE		SUBMISSION CHECKLIST		
			OUTLINE PLANNING	DETAILED PLANNING	Included Yes/Not	DOCUMENT Ref	
	EXISTING INFORMATION		X	X			
1	Topographical Survey.		X	X		78296TVLS_01 15/08/2025	
2	Existing Drainage		X	X		78296TVLS_01 15/08/2025	
3	Discharge Rates and Volumes		X	X		250595-CON-XX-XX-RP-C-0001	
4	Existing Overland Flow Paths		X	X		78296TVLS_01 15/08/2025	
5	Site Investigations		X	X		22035 Padnell Grange MIR	
	OUTLINE DRAINAGE STRATEGY						
6	Confirmation of a discharge location		X	X		250595-CON-XX-XX-RP-C-0001	
7	Outline Surface Water Calculations		X				
8	Flood Risk Assessment / Drainage Strategy		X	X		250595-CON-XX-XX-RP-C-0001	
9	Potential Flood Risk		X	X		250595-CON-XX-XX-RP-C-0001	
10	Outline Drainage Layout Plan		X				
	DETAILED DRAINAGE STRATEGY			X			
11	Detailed Drainage Assessment			X		250595-CON-XX-XX-RP-C-0001	
12	Detailed Drainage Layout Drawings			X		250595-CON-XX-XX-DR-C-1000 - 1010	
13	Detailed Hydraulic Calculations			X		250595-CON-XX-XX-RP-C-0001	
14	Water Treatment			X		250595-CON-XX-XX-RP-C-0001	
15	Exceedance Flows			X		250595-CON-XX-XX-DR-C-1000 - 1010	
16	Urban Creep			X		250595-CON-XX-XX-RP-C-0001	
17	Maintenance			X		250595-CON-XX-XX-RP-C-0002	

APPENDIX B PROPOSED DEVELOPMENT PLANS



KEY

- Site boundary
- Site access



Coloured Site Layout
Padnell Grange, Waterlooville

24143 / C101

Scale 1:500 @ A1 March 2026