

Flood Risk Assessment & Drainage Strategy

Title	Lavant Drive, Havant
Client	Fed3 Projects Ltd
Location	Land north of Lavant Drive, Havant, Hampshire
Project number	26-0250
BIM reference	LDHA-BSP-XX-XX-T-W-0001-P04_Flood_Risk_Assessment
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Authorisation Sheet & Revisions Record

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Executive Summary

Introduction	BSP Consulting has been commissioned by Fed3 Projects Ltd to undertake a Flood Risk Assessment and Drainage Strategy for a proposed new care home development on land to the north of Lavant Drive, Havant, Hampshire. This Flood Risk Assessment has been prepared in accordance with the Technical Guidance to the National Planning Policy Framework.
Existing Site Conditions	The site is currently comprised entirely of unused, overgrown greenfield land. Site levels are shown comprise a gradual fall in a southerly south-westerly direction. Levels on-site are indicated to range from approximately 13.43m AOD in the northwestern corner of the site to approximately 12.23m AOD in the southeastern corner, and approximately 11.55m AOD towards the existing southwestern site access.
Development Description and Planning Context	The proposals are to develop the 0.5ha site to comprise a care home (within Class C2) with access, car parking, landscaping and other associated works. In accordance with the NPPF, the project falls under the more vulnerable category in terms of flood risk.
Definition of Flood Hazard	Lavant Stream is an EA Main River which is located approximately 70m to the east of the site at its closest point. Given the scale of the watercourse and its distance to the site, Lavant Stream does not present a risk of flooding to the site.
Probability (Rivers/fluvial)	The EA Risk of Flooding from Rivers and Sea mapping indicates that the proposed development site has less than a 1 in 1,000 annual probability of flooding from rivers or the sea. This map shows the indicative extent of the natural floodplain if there were no flood defences or certain other manmade structures.
Climate Change	The implications of climate change of up to 45% have been considered in this assessment and mitigation measures have been determined accordingly.
Development Proposals	The technical guidance to the NPPF states that developments of a more vulnerable category such as the proposed care home use are appropriate within Flood Zone 1, without being subject to the application of the Sequential Test, and that the proposed drainage strategy will ensure that the site will remain safe from current and future surface water flooding for the lifetime of the development without increasing flood risk elsewhere.
Flood Risk Management Measures	Due to potential flood risk from surface water, flood risk management measures will be required as outlined in the flood risk management section.

Off-Site Impacts	Surface water runoff will discharge from the proposed development at reduced rates via the provision of on-site attenuation. Therefore, the development will not increase flooding adjacent to or downstream of the site for the lifetime of the development.
Residual Risks	The investigations carried out as part of this flood risk assessment and flood risk management measures proposed have demonstrated that the development will be safe, without increasing flood risk elsewhere.
Recommendations	<ul style="list-style-type: none"> • In accordance with best practice, external ground levels should comprise falls away from buildings and towards drainage features. The design of surface water drainage features should be such that any surface water flow paths within the site are maintained and/or accommodated while ensuring that buildings remain free from flooding without increasing risk elsewhere. • The proposed surface water drainage system should be designed to accommodate the 1 in 30-year rainfall event without any surface water flooding and should be capable of retaining the 1 in 100-year plus climate change (45%) storm event on site without flooding any buildings. • Due to the indicated geology on-site, as well as the presence of a SPZ1 aquifer, the use of soakaways will not be feasible for this site. • It is proposed to restrict surface water runoff to 3.0l/s for all storms up to and including the 1 in 100-year (1% AEP) plus 45% climate change return periods. In order to achieve this discharge rate, an attenuation volume of approximately 160m³ will need to be provided. This will be in the form of a subsurface geocellular attenuation tank before a discharge into the public surface water sewer network. • It is recommended that source control methods should be utilised where possible. These include the use of permeable paving for parking spaces and private pedestrian footways, and the creation of bioretention gardens along the curtilage of the primary access road or the installation of hydroplanter features along some of the rainwater down pipes where appropriate. • A foul sewer connection will need to be sought for the proposed development, possibly utilising existing connection points. A public 150mm diameter foul sewer is suitably located within Lavant Drive to the south of the site to receive foul flows from the development via gravity.

1.0 Introduction

1.1 Terms of Reference

- 1.1.1 BSP Consulting has been commissioned by Fed3 Projects Ltd to undertake a Flood Risk Assessment and Drainage Strategy for a proposed new care home development on land to the north of Lavant Drive, Havant, Hampshire.
- 1.1.2 This Flood Risk Assessment has been prepared in accordance with the Department for Communities and Local Government (DCLG) Planning Practice Guidance website section on 'Flood Risk and Coastal Change' and the Site-Specific Flood Risk Assessment Checklist.
- 1.1.3 This report has been produced on behalf of the Client, Fed3 Projects Ltd, and no responsibility is accepted to any third party for all or any part. This report should not be relied upon or transferred to any other parties without the express written authorisation of BSP Consulting. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and the authors owe them no duty of care or skill.

1.2 Legislation & Guidance

National Planning Policy Framework

- 1.2.1 The National Planning Policy Framework (NPPF) was published on 27 March 2012, with the latest update published in August 2026.
- 1.2.2 Planning Practice Guidance to the NPPF regarding Flood Risk and Coastal Change has been published and this site-specific Flood Risk Assessment is written in compliance with this guidance.
- 1.2.3 The NPPF, and supporting technical guidance, can be downloaded free of charge from the internet at the following link:

<http://www.communities.gov.uk/publications/planningandbuilding/nppf>

National Standards for Sustainable Drainage Systems

- 1.2.4 The National Standards for SuDS were published on 19 June 2025 and are intended to provide guidance on the design of surface water drainage systems for new infrastructure and development, with accompanying requirements providing detail on how to interpret, deliver and evaluate each standard.

Flood & Water Management Act

- 1.2.5 The Flood & Water Management Act (F&WMA) was passed in 2010 and aims to reduce the flood risk associated with extreme weather, compounded by climate change. This act established the EA as responsible for flood risk related to Main Rivers. In this instance, Hampshire County Council, as Lead

Local Flood Authority (LLFA), are responsible for local sources of flood risk (that being from ordinary watercourses, surface water run-off and groundwater). As Local Planning Authority, Havant Borough Council has due regard for drainage and flood risk in accordance with local and national guidance and responses from statutory consultees.

2.0 Background Information

2.1 Site Details

2.1.1 Figure 2.1 below indicates the location of the site. A range of sources have been used to assess the local topography, local watercourses and current site use. A more detailed site location plan is included in **Appendix A**.

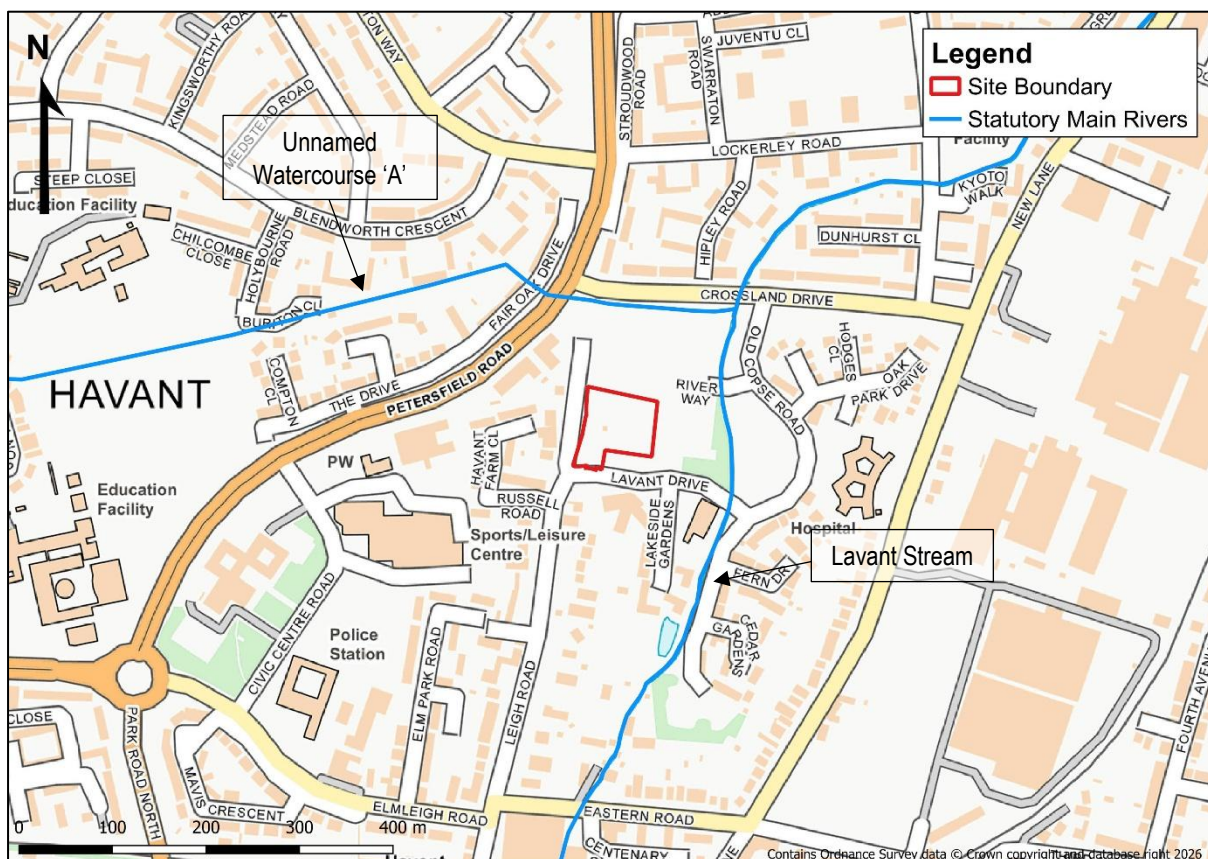


**Figure 2.1 Lavant Drive, Havant
 – Site Location Plan**

- 2.1.2 The proposed development site is located within the northern area of Havant, to the northeast of Portsmouth, centred on OSGR 471985E, 107091N, and occupies an area of approximately 0.5ha.
- 2.1.3 The site is bound by existing disused greenfield land to the north and east, an existing car park and Lavant Drive to the south, and Leigh Road to the west.

- 2.1.4 The site is currently comprised entirely of unused, overgrown greenfield land. A topographical survey of the site has been included in **Appendix B**. Site levels are shown comprise a gradual fall in a southerly and south-westerly direction. Levels on-site are indicated to range from approximately 13.43mAOD in the northwestern corner of the site to approximately 12.23mAOD in the southeastern corner, and approximately 11.55mAOD towards the existing southwestern site access.

Table 2.1: Overall Catchment Context and Local Watercourse Classifications

Classification	Name	Description
Main Rivers	Lavant Stream	Lavant Stream is an EA Main River which drains in a southern direction towards Hermitage Stream and is located approximately 70m to the east of the site at its closest point.
	Hermitage Stream	Hermitage Stream is an EA Main River which drains in a southerly direction towards Langstone Channel and is located approximately 720m to the west of the site at its closest point.
	Unnamed Watercourse 'A'	Unnamed Watercourse 'A' is a culverted EA Main River which drains in a western direction from Lavant Stream to Hermitage Stream and is located approximately 90m to the north of the site at its closest point.
Ordinary Watercourses	N/A	There are no Ordinary Watercourses within close proximity to the site.
Manmade Watercourses	N/A	There are no Manmade Watercourses within close proximity to the site.

- 2.1.5 The locations of the above watercourses are indicated on Figure 2.1 above.

2.2 Approach to the Assessment

- 2.2.1 This study has been supplemented by information from the Environment Agency (EA), Southern Water (SW) and additional information contained on the British Geological Society (BGS) website, the DEFRA MagicMap website and the Cranfield Soil and Agrifood Institute Soilscales website.
- 2.2.2 This assessment seeks to draw together the relevant data information from these sources and to collate this with the findings of our investigations and discussions to assess the flood risk and drainage strategy for this site.

3.0 Flood Risk Assessment

3.1 Development Description and Planning Context

- 3.1.1 The development proposals are for the construction of a care home (within Class C2) with access, car parking, landscaping and other associated works. The proposed site plan is included in **Appendix C**.
- 3.1.2 The local area benefits from a Strategic Flood Risk Assessment. This assessment is the Partnership for South Hampshire Level 1 SFRA (2024) (PfSH SFRA). The PfSH SFRA notes the site to fall within Flood Zone 1.
- 3.1.3 In accordance with the NPPF, the proposed care home use falls under the **more vulnerable** category in terms of flood risk.

3.2 Sequential and Exception Tests

- 3.2.1 The Sequential Test is designed to steer development towards areas of lower flood risk and is required to be completed for development within Flood Zone 2 and 3. As the site is located within Flood Zone 1 the Sequential Test is not required.
- 3.2.2 The Exception Test is designed to require evidence of how flood risk will be managed on the proposed development site, ensuring that it is safe for its lifetime and will not increase flood risk elsewhere. Table 3.1 below indicates whether developments, based on their vulnerability classification, are permitted within each Flood Zone and whether the Exception Test is required. The NPPF states that developments of the more vulnerable category are suitable within Flood Zone 1 without the requirement of an Exception Test.

Table 3.1: Flood Risk Vulnerability and Flood Zone Compatibility (Source: NPPF)

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	X	Exception Test Required	✓
	Zone 3b Functional Floodplain	Exception Test Required	✓	X	X	X

3.3 Definition of Flood Hazard

The potential sources of flooding in the vicinity of the site are as detailed below:

Historic Flooding

- 3.3.1 The Environment Agency's Historic Flood Map indicates that the development site has not flooded previously. The dataset shows the maximum extent of all individual recorded flood outlines that have occurred as a result of flooding from rivers, the sea and groundwater sources since records began 1946. The dataset does not account for flooding from other sources, such as sewer flooding or surface water flooding, nor is it exhaustive as it may not include all previous flooding incidents and does not provide information regarding event dates. However, the dataset does provide an insight into the potential for flooding from nearby sources.

Fluvial Flood Risk

- 3.3.2 The EA Risk of Flooding from Rivers and Sea mapping indicates that the proposed development site has less than a 1 in 1,000 annual probability of flooding from Rivers and Sea. This map shows the indicative extent of the natural floodplain, if there were no flood defences or certain other manmade structures, such as surface water sewers, and channel improvements.
- 3.3.3 The only source of fluvial flooding locally is Lavant Stream, an EA Main River which is located approximately 70m to the east of the site at its closest point. Given the scale of the watercourse and its distance to the site, Lavant Stream does not present a risk of flooding to the site. As indicated in Figure 3.1 below, no flooding is predicted to encroach within the site boundary even during the modelled 2070 – 2115 climate change event.

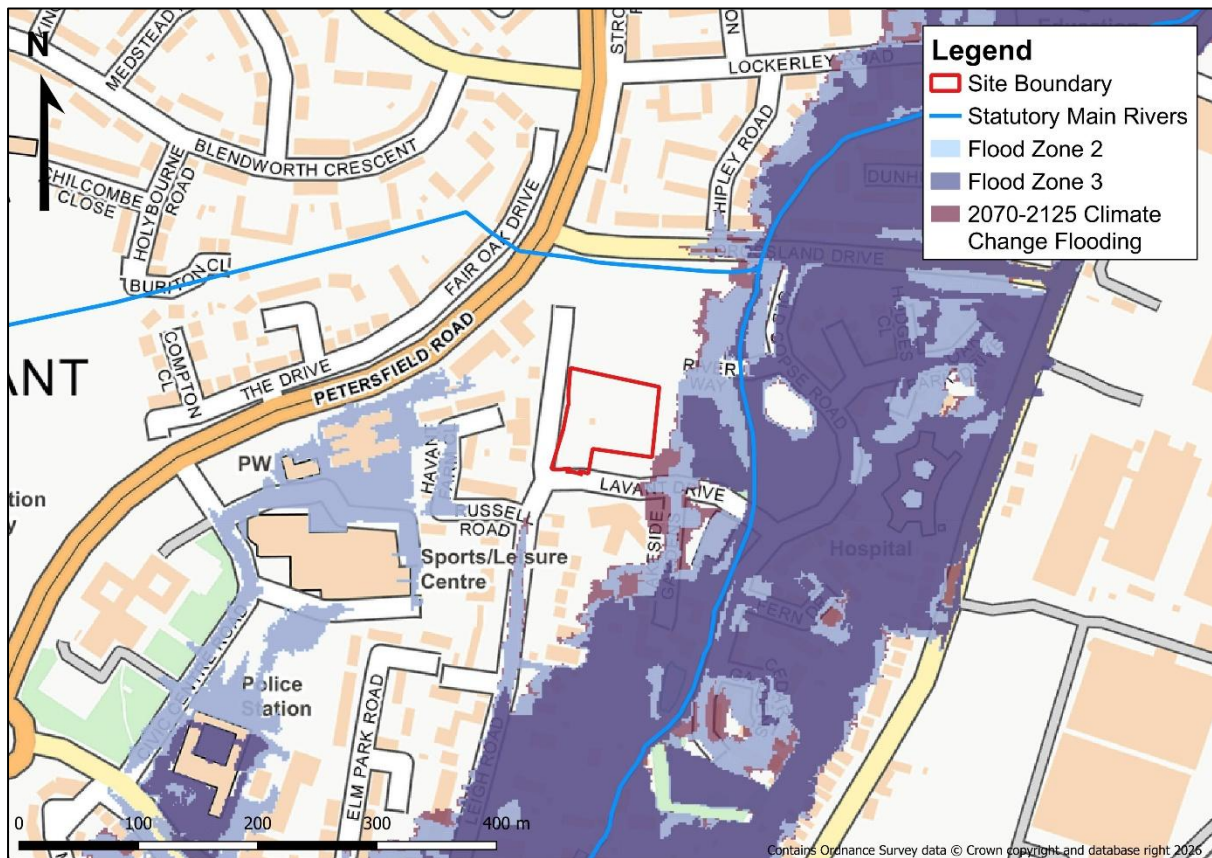


Figure 3.1 Lavant Drive, Havant
 - Risk of Flood from Rivers and Sea (Source: EA)

Tidal Flood Risk

- 3.3.4 Lavant Stream is a non-tidal EA Main River. Therefore, the site is not at risk of flooding from tidal sources.

Surface Water Flood Risk

- 3.3.5 The site is located on relatively even ground with a gentle fall in a southerly and south-westerly direction from a local high point towards the northwest of the site. Generally, flat and even ground, or sites with relatively gentle falls, do not tend to generate significant amounts of surface water runoff. Where runoff is likely to occur, this is expected to collect within minor depressions before dissipating via percolation and evaporation.
- 3.3.6 Figure 3.2 below shows the Risk of Flooding from Surface Water mapping and indicates that the majority of the site is at very low risk (<0.1% AEP) of surface water flooding. There is a small area towards the south of the site indicated to be at high risk (3.33% AEP) of surface water flooding, likely due to a topographic low spot, as well as another small area towards the north indicated to be at low risk (0.1% AEP). A portion of Leigh Road to the west of the site is also indicated to be at high risk, however this is not shown to encroach within the site boundary at any point. There is some surface water flooding

indicated to be present to the east of Lavant Drive, along Old Copse Road, however this is indicated to be below a depth of 300mm during the 1 in 100-year event and is therefore considered to be safely accessible for emergency services up to and during this storm event.

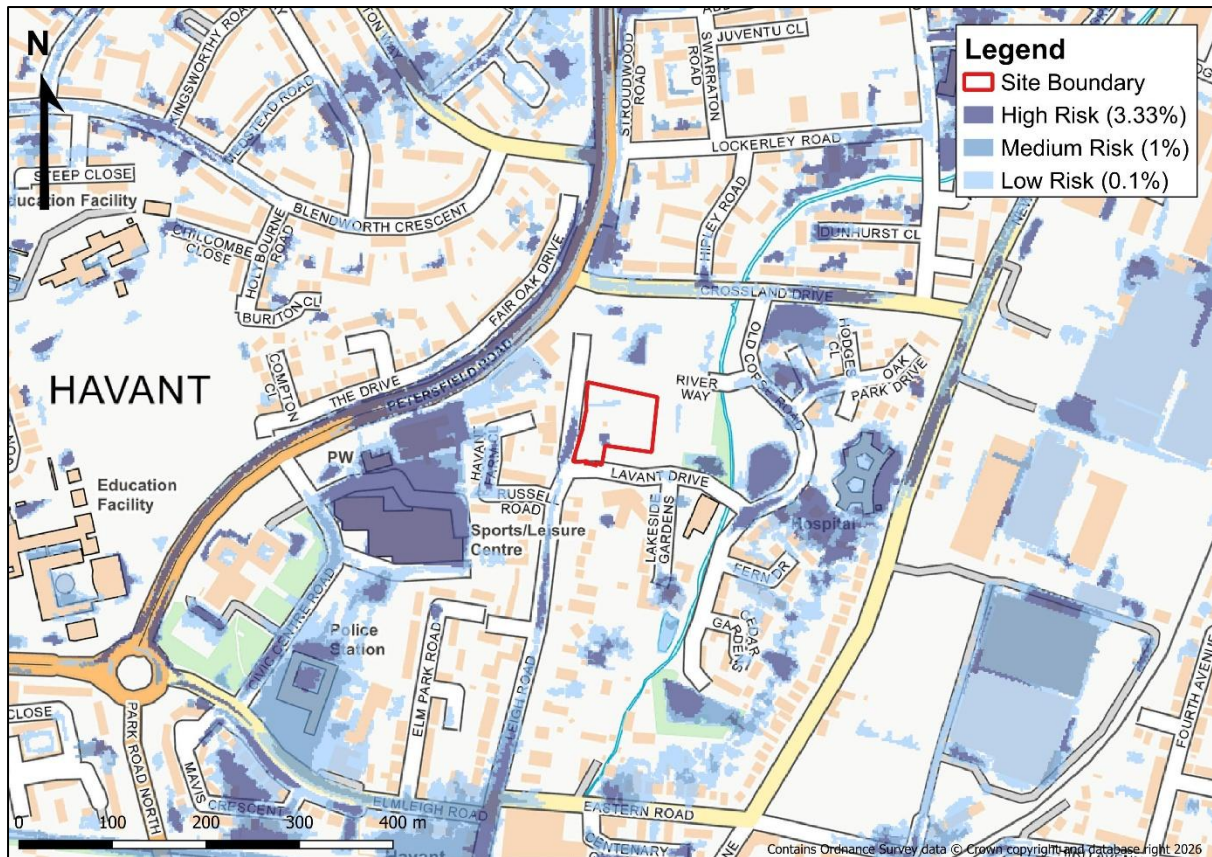


Figure 3.2 Lavant Drive, Havant
 – Risk of Flooding from Surface Water (Source: EA)

3.3.7 The overall risk of surface water flooding to the site is considered to be low. Given that the indicated surface water flood risk appears to originate within and be wholly contained within the site, it is expected that any future surface water drainage system for the development would capture and sufficiently drain this surface water without issue.

Flood Risk from Ground Water

3.3.8 The British Geological Survey's Geology of Britain mapping indicates that the site is situated upon bedrock geology consisting of London Clay Formation – Clay, Silt and Sand, and superficial deposits consisting of River Terrace Deposits (Undifferentiated) – Sand, Silt and Clay. London Clay Formation is generally classed as rocks with essentially no groundwater.

3.3.9 The Environment Agency Aquifer Designation Map identifies the site as being situated on bedrock classed as Unproductive Strata: these are geological strata with low permeability that have negligible

significance for water supply or river base flow. The superficial drift below the site is classed as Secondary A aquifer: permeable strata capable of supporting water supplies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers.

- 3.3.10 The PfSH SFRA (2024) includes mapping of areas that are susceptible to groundwater flooding on a 1km² grid scale. This mapping indicates that the majority of the site location is $\geq 50\%$ $< 75\%$ susceptible to groundwater flooding.
- 3.3.11 Based on the information from the above sources, the site is considered to be at high risk of flooding from groundwater sources. However, due to the nature of groundwater flooding, any risk associated with this source is likely to be heavily influenced by the local watercourses and primarily Lavant Stream. Given that the site is not within the natural floodplain of any nearby fluvial watercourses, the risk of groundwater flooding is expected to be minimal on-site. Additionally, a separate ground investigation report indicated a water strike at 2.70mbgl, but found no rise after 5 minutes. As such, it would be expected that there is a relatively constant water level around the site.

Flood Risk from Sewers and Infrastructure

- 3.3.12 The local sewers are operated and maintained by Southern Water (SW). A separate utilities survey indicates the presence of a 150mm diameter surface water sewer within Leigh Road to the west of the site, which runs in a southerly direction before connecting to a 900mm diameter surface water sewer and heading away from the site. A 150mm diameter surface water sewer is also indicated to be present within Lavant Drive to the southeast of the site, which runs in an eastern direction towards Lavant Stream. A 150mm diameter foul sewer is also located within Lavant Drive to the south, which runs in a westerly direction before heading south along Leigh Road and away from the site. A copy of the SW correspondence and the utilities survey is included in **Appendix D**.
- 3.3.13 The EA's Flood Risk from Reservoir mapping indicates that the site lies outside of the predicted maximum flood extents in the unlikely event that all upstream large, raised reservoirs and dams simultaneously fail and release the water they hold; both on a 'dry day', if reservoir flooding were to occur when river levels are at normal levels, and on a 'wet day', should reservoir breach occur if a river is already experiencing an extreme natural flood. As such, the site is not considered to be at risk of flooding from reservoirs.
- 3.3.14 The site is not in close proximity to any Manmade Watercourses such as canals, reservoirs or wet process industry works.
- 3.3.15 The sewers and infrastructure flood risk source can therefore be discounted as a significant source of flood risk to the site.

3.4 Climate Change

- 3.4.1 Climate change is recognised as a factor for consideration in terms of its effects on flood risk. In line with the latest update to the planning practice guidance in the NPPF on Flood Risk and Coastal Change, to assess the effects of climate change the 2070s epoch has been assessed for peak rainfall intensity.
- 3.4.2 The implications of climate change should be taken into account in relation to surface water drainage. Guidance from the EA advises that the upper end allowances for both the 1 in 30-year (3.3% AEP) and 1 in 100-year (1% AEP) events should be assessed, with the development designed to ensure that there is no increase in flood risk elsewhere and the development will be safe from surface water flooding during the 1 in 100-year event when the upper end allowance for climate change is applied. In this instance, peak rainfall intensity for care home developments within the East Hampshire Management Catchment are estimated to increase by 40% for the 3.3% AEP event and 45% for the 1% AEP event. Therefore, it is recommended that the upper end allowance of 45% is applied to design rainfall intensity to allow for the potential implications of climate change.

3.5 Detailed Development Proposals

- 3.5.1 The proposed development and vulnerability classification are discussed in Section 3.1 above.
- 3.5.2 The technical guidance to the NPPF states that developments of a more vulnerable category such as the proposed care home use are appropriate within Flood Zone 1, without being subject to the application of the Sequential Test, and that the proposed drainage strategy will ensure that the site will remain safe from current and future surface water flooding for the lifetime of the development without increasing flood risk elsewhere.

4.0 Flood Risk Management & Drainage Strategy

4.1 Surface Water Flood Risk Mitigation

- 4.1.1 The development proposals are for the construction of a care home (within Class C2) with access, car parking, landscaping and other associated works.
- 4.1.2 Although the proposed development will see the levelling of ground during construction, in accordance with best practice, external ground levels should comprise falls away from buildings and towards drainage features. The design of surface water drainage features should be such that any surface water flow paths within the site are maintained and/or accommodated while ensuring that buildings remain free from flooding without increasing risk elsewhere.

4.2 Surface Water Drainage

Sustainable Drainage Systems

- 4.2.1 Standard 1 of the National Standards for Sustainable Drainage Systems (2025) requires that surface water run-off shall discharge to one of the following, listed in order of priority:
- a) collection for non-potable use.
 - b) infiltration to ground.
 - c) discharge to an above ground surface water body.
 - d) discharge to a surface water sewer, or another piped surface water drainage system.
 - e) discharge to a combined sewer.
- 4.2.2 It is necessary to identify the most appropriate method of controlling and discharging surface water. The design should seek to improve the local run-off profile by using systems that can either attenuate run-off and reduce peak flow rates or positively impact on the existing flood profile.

Rainwater Re-use

- 4.2.3 There is some scope to incorporate a formal rainwater harvesting system within the development design, and as such it is recommended that consideration is given to including small features such as SuDSPods on some of the rainwater down pipes serving the building roof area. These are raised planters that include a small chamber to help manage rainfall at source prior to the on-site surface water drainage network, as well as incorporating a tap feature to encourage non-potable water re-use for the surrounding soft landscaping areas.

Infiltration Based Systems

- 4.2.4 The British Geological Survey's Geology of Britain mapping indicates that the site is situated upon bedrock geology consisting of London Clay Formation – Clay, Silt and Sand, and superficial deposits consisting of River terrace Deposits (Undifferentiated) – Sand, Silt and Clay.
- 4.2.5 The Cranfield Soil and Agrifood Institute's Soilscape mapping indicates the majority of the site to be situated on soils categorised as Soilscape 6: freely draining slightly acid loamy soils.
- 4.2.6 Based on the above information, it is unlikely that permeable ground conditions are present at the site. In addition, the site is indicated to be within Source Protection Zone 1 (SPZ1) so any infiltration to ground should be avoided. This would require additional mitigation measures to minimise the potential for pollution to local groundwater reserves, in accordance with the EA position on groundwater pollution. Furthermore, as there is an alternative outfall available for runoff from the site, infiltration is not deemed to be preferable. As a result, the discharge of surface water runoff by infiltration-based systems has been ruled out as the primary method of surface water discharge from the proposed development.

Open Watercourses

- 4.2.7 There are no watercourses in close proximity to the site which are suitably located to receive a direct surface water outfall from the site.

Sewers

- 4.2.8 As it is not possible to discharge surface water to ground or directly to an open watercourse, it is therefore proposed to discharge surface water flows at an attenuated rate to the public 150mm diameter surface water sewer located within Lavant Drive to the southeast of the site. SW have confirmed there is adequate capacity in their surface water network to the southeast of the site. Any new public sewer connections will be subject to a Section 106 (Water Industry Act 1991) application to SW.

SuDS Option Feasibility

- 4.2.9 A range of SuDS options have been considered for use within the context of the proposed development site, in-line with CIRIA guidance. Table 4.1 below provides a summary of the options considered for this site.

Table 4.1: Sustainable Urban Drainage Systems Options

SuDS Category	SuDS Technique	Viability	Explanation
Infiltration	Infiltration Trenches	X	Due to the indicated geology on-site and the presence of an SPZ1 aquifer, formal infiltration-based systems have been ruled out.
	Infiltration Basins	X	
	Soakaways	X	
	Bioretention/Filter Strips	X	
Filtration	Bioretention/Rain Gardens	✓	Filtration devices could be incorporated within soft landscaped areas across the site, adjacent to impermeable roads and walkways; however, these would likely need to be positively drained due to the presence of an SPZ1 aquifer beneath the site. A filter drain to the east of the site is proposed to ensure surface water does not run off the site to the east, but this is proposed to connect into the rest of the drainage system. The development proposals also include small amounts of landscaped areas which will essentially act to absorb rainwater as opposed to resulting in runoff during low-flow events. These landscaped areas could potentially be further developed to include raingardens, which will specifically receive water from impermeable surfaces while also being maintenance free.
	Filter Strips	✓	
Source Control	Green Roofs	X	As the proposals are for a care home with a pitched roof, the use of green roofs will not be feasible.
	Rainwater Harvesting	X	Due to the nature of the proposed development, the scope for rainwater harvesting is limited. Options such as raised planters on some of the rainwater down pipes serving the building roof area could be installed but these would be dependent on the use by site management. As such, other SuDS options are more favourable than rainwater harvesting for the primary method of surface water disposal.
	Pervious Pavements	✓	Pervious paving may be utilised for the external ground level car parking spaces, which will serve to increase the rainfall-runoff response time and provide water quality benefits.
Conveyance	Swales	X	

	Filter Drains	X	Due to spatial constraints, the use of formal conveyance features such as swales will not be feasible.
	Channels/Rills	X	
Retention/ Detention	Detention Basin	X	Due to spatial constraints, the proposed development surface water runoff will need to be attenuated by subsurface storage before restricted discharge to the public surface water network. All surface water runoff should drain via a suitable SuDS device prior to the tank.
	Retention Pond	X	
	Subsurface Storage	✓	
	Wetlands	X	

Runoff Assessment

- 4.2.10 The ICP SuDS and IH124 (Flood Studies Report) methods have been used to calculate the surface water runoff from a small (<50ha) greenfield site ($QBAR_{RURAL}$), which are detailed below:

$$QBAR_{RURAL} = 0.00108 \times (0.01 \times AREA)^{0.89} \times SAAR^{1.17} \times SPR^{2.17}$$

Where AREA = Area (ha)

SAAR = Standard Average Annual Rainfall (mm, 1941-1970)

SPR = Standard Percentage Runoff Coefficient

- 4.2.11 With a proposed impermeable area of 0.3ha and using Flood Studies Report values for SAAR (765mm) and SPR (0.400), this results in a $QBAR_{RURAL}$ rate of **1.1l/s** and discharge rates for the following return periods:

Rainfall Event	Runoff Rate (l/s)
1 in 1-year	1.0
1 in 30-year	2.6
1 in 30-year + 40% Climate Change	3.6
1 in 100-year	3.6
1 in 100-year + 45% Climate Change	5.2

- 4.2.12 Greenfield runoff calculations are provided in **Appendix E**.

Return Period Design

- 4.2.13 The proposed surface water drainage system should be designed to accommodate the 1 in 30-year rainfall event without any surface water flooding and should be capable of retaining the 1 in 100-year plus climate change (45%) storm event on site without flooding any buildings.

Discharge Rate

- 4.2.14 In accordance with DEFRA guidance, the peak surface water runoff rate for greenfield developments should be restricted to the pre-development discharge rate where reasonably practicable. However, restricting surface water runoff to 1.1l/s would result in an unreasonably small flow control orifice which would be at high risk of blockage. Therefore, it is recommended that a reasonably practicable maximum discharge rate of **3.0l/s** should.

Drainage Proposals – Main Strategy

- 4.2.15 In order to maintain the discharge rate of **3.0l/s** for all storms up to and including the 100-year return period with a 45% allowance for climate change, on-site attenuation is required which provides approximately **160m³** of surface water storage.
- 4.2.16 The required surface water attenuation volume is proposed to be provisioned by a subsurface geocellular attenuation tank before restricted discharge into the public surface water sewer network.
- 4.2.17 It is recommended that source control methods should be utilised where possible. These include the use of permeable paving for parking spaces and private pedestrian footways, and the creation of small bioretention rain gardens along the curtilage of the primary access road or the installation of hydroplanter features along some of the rainwater down pipes where appropriate. The above-mentioned source control methods will act to increase the rainfall-runoff response time by intercepting rainfall at source while also providing improvements to water quality. These measures will ensure that at least the first 5mm of most rainfall events does not result in runoff from the site to surface waters or piped drainage systems. It is recommended to use no-dig cell web block paving within the parking areas to the southwest of the site to ensure the existing root protection areas are not negatively impacted.
- 4.2.18 A filter drain is proposed along the eastern boundary of the site to ensure any excess surface water runoff from the roof area is captured and sufficiently treated before entering the rest of the drainage system. This will also ensure there is no risk of surface water runoff existing off-site to the east.
- 4.2.19 An initial surface water drainage strategy plan and supporting calculations are provided in **Appendix E**.
- 4.2.20 The surface water discharge rate will be subject to agreement with SW and the new public sewer connections will be subject to a Section 106 (Water Industry Act 1991) application to SW.

- 4.2.21 The proposed surface water drainage strategy will be subject to agreement with Hampshire County Council as Lead Local Flood Authority.

4.3 Water Quality

Simple Index Approach

- 4.3.1 In order to determine whether the proposed SuDS features for the development will be sufficient at removing pollutants from surface water runoff, the CIRIA SuDS Manual (2015) Simple Index Approach has been applied. This approach provides pollution hazard levels and indices to relevant pollutants based on contributing hardstanding surfaces.
- 4.3.2 Table 4.2 below provides an extract of the land use types and pollutant indices from the CIRIA SuDS Manual which are relevant to the proposed development.

Table 4.2: Pollution hazard indices for different land use classifications (Source: CIRIA SuDS Manual 2015)

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very Low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking with infrequent change	Low	0.5	0.4	0.4

- 4.3.3 Based on the above, the worst-case indices for the development are 0.5 (Total Suspended Solids), 0.4 (Metals) and 0.4 (Hydrocarbons). Table 4.3 below indicates the mitigation indices for different types of SuDS components, with only those relevant to the development included. Under the Simple Index Approach, in order to suitably mitigate surface water pollutants, the total combined indices for any SuDS components will need to be greater than the worst-case indices above. Where multiple SuDS components are proposed, the primary component is given its full indices, while subsequent component indices are applied with a factor of 50%.

Table 4.3: Indicative SuDS mitigation indices for discharges to surface waters (Source: CIRIA SuDS Manual 2015)

Type of SuDS Component	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Filter Drain	0.4	0.4	0.4
Permeable Pavement	0.7	0.6	0.7
Bioretention System	0.8	0.8	0.8

- 4.3.5 Based on the above, the proposed permeable paving has mitigation indices of 0.5 (Total Suspended Solids), 0.5 (Metals) and 0.6 (Hydrocarbons), demonstrating that this component alone will be sufficient in mitigating surface water runoff pollution from the proposed development. A filter drain to the east of the site will sufficiently mitigate any pollution from rainwater that is not captured by the remaining drainage features. Where further SuDS components are included in the development proposals these will offer even greater mitigation against surface water runoff pollution.

4.4 Amenity and Biodiversity

- 4.4.1 The proposed drainage strategy and SuDS approach can be seen to positively contribute to placemaking and environmental enhancement, maximising amenity and biodiversity benefits throughout the lifecycle of the development. The use of landscaped areas, as well as any bioretention or hydroplanter SuDS features, will positively contribute to landscape character improvements, health and wellbeing and the delivery of local biodiversity strategies.

4.5 Maintenance

- 4.5.1 The proposed surface water drainage system will require routine maintenance to ensure it remains fully operational and effective. The proposed drainage features will be maintained by the care home operator and should be inspected and maintained in accordance with the proposed maintenance schedule included in **Appendix E**.

4.6 Foul Water Drainage

- 4.6.1 A foul sewer connection will need to be sought for the proposed development, possibly utilising existing connection points. A public 150mm diameter foul sewer is suitably located within Lavant Drive to the south of the site to receive foul flows from the development via gravity. SW have indicated that there is not currently enough capacity in the foul network to connect this development, however they have stated that they have '*a duty to provide a network capacity from the point of practical connection*', and that they

will 'aim to provide this within 24 months following the date that planning has been granted as strategic sites in our current business plan'. As such, it is expected that capacity will be provided at this network.

- 4.6.2 New foul public sewer connections will be subject to agreement with SW via a Section 106 (Water Industry Act 1991) application.

5.0 Access, Egress & Evacuation

5.1 Safe Access & Egress

- 5.1.1 The site itself is not indicated to be at direct risk of either fluvial or surface water flooding and given that the site is indicated to be raised in comparison to the surrounding area, it can be considered safe to remain on-site during a flood event, and a full evacuation would not be considered necessary.
- 5.1.2 While some surface water flooding is indicated to be present to the east of Lavant Drive, along Old Copse Road, this is indicated to be below a depth of 300mm during both the present day and climate change scenarios, and is therefore considered to be safely accessible for staff and emergency services.
- 5.1.3 Although the site is not shown to be within a Flood Zone, some of the roads to the east and south of the site are in Flood Zone 2 or 3. However, based on the EA modelled flood data included in **Appendix F**, the flood depths of Lavant Stream are not indicated to rise above the highway level of Old Copse Road during the 1% AEP (+20% CC) event. The highest modelled flood level is 12.08mAOD (node 9), while EA LiDAR data indicates that the road level is approximately 12.8mAOD. Similarly, at the lowest point in the road (approximately 11.55mAOD), the modelled level is shown to be 11.50mAOD, indicating that this area would still be significantly under the maximum 300mm flood level expected to allow safe access and egress of emergency vehicles. No 0.1% AEP flood data was provided but given the above it would not be expected to be significantly higher than the 1% AEP event. As such, the site can be considered safe during a flood event, with staff and residents able to remain on-site and safe access and egress available via Old Copse Road to the east.

5.2 Flood Warning & Evacuation

- 5.2.1 A formal flood warning and evacuation plan is therefore not considered necessary; however it is still recommended that the prospective site management should contact the Flood Warning Service at <https://flood-warning-information.service.gov.uk/>. The postcode of PO9 2AW should be entered. This will confirm any current flood warnings. Additionally, it is possible to register to receive flood warnings at <https://www.gov.uk/sign-up-for-flood-warnings> or by calling Floodline on 0345 988 1188. This is an elective scheme that requires occupants to register to receive automated warnings in times of heightened flood risk.

- 5.2.2 It is recommended that people do not enter flood water, even if it is known to be shallow. Flood water is often difficult to see through, and hidden obstacles or missing manhole covers present potential hazards. Unless access to or egress from the site can be made prior to severe flood conditions then it is safer to either stay at the site or stay in a safe place elsewhere until flood waters subside.

6.0 Off-Site Impacts

- 6.1.1 Surface water runoff will discharge from the proposed development at reduced rates via the provision of attenuation. Therefore, the development will bring about improvements to the surface water regime in the area and hence will not increase flooding adjacent to or downstream of the site for the lifetime of the development.

7.0 Overland Flow & Flood Routing Considerations

- 7.1.1 The routing of potential surface water runoff, should the capacity of the proposed drainage system be exceeded, needs to be built into the layout of the site such that the residual risk of flooding from this element can be easily mitigated.
- 7.1.2 Careful attention will need to be paid to the proposed site levels to ensure that overland flow routes are maintained, and localised low spots are not created.

8.0 Residual Risks

- 8.1.1 The investigations carried out as part of this flood risk assessment and flood risk management measures proposed have demonstrated that the development will be safe, without increasing flood risk elsewhere.

9.0 Recommendations

The following recommendations are made to ensure flood risk at this site is minimised:

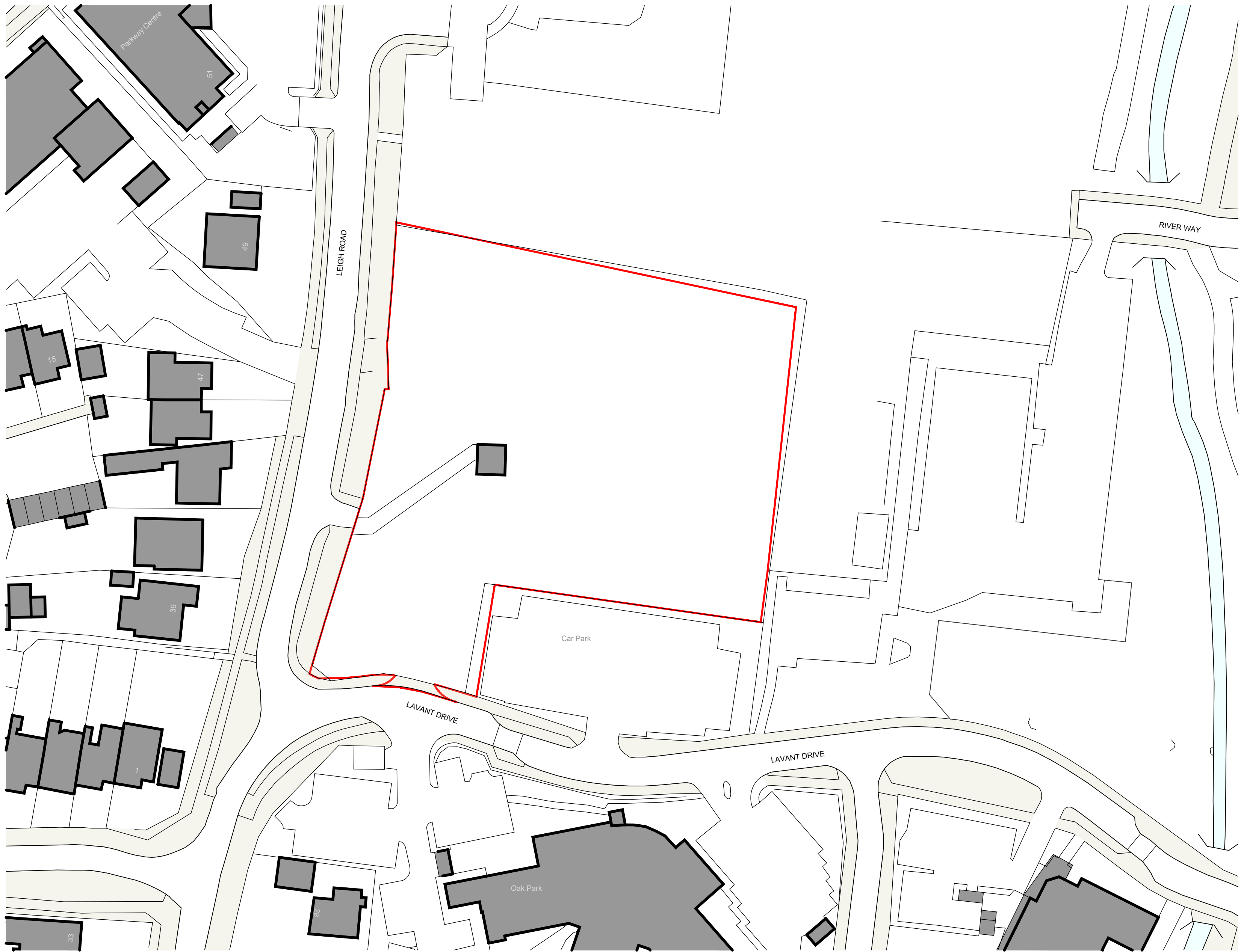
- In accordance with best practice, external ground levels should comprise falls away from buildings and towards drainage features. The design of surface water drainage features should be such that any surface water flow paths within the site are maintained and/or accommodated while ensuring that buildings remain free from flooding without increasing risk elsewhere.
- The proposed surface water drainage system should be designed to accommodate the 1 in 30-year rainfall event without any surface water flooding and should be capable of retaining the 1 in 100-year plus climate change (45%) storm event on site without flooding any buildings.
- Due to the indicated geology on-site, as well as the presence of a SPZ1 aquifer, the use of soakaways will not be feasible for this site.
- It is proposed to restrict surface water runoff to **3.0l/s** for all storms up to and including the 1 in 100-year (1% AEP) plus 45% climate change return periods. In order to achieve this discharge rate, an attenuation volume of approximately **160m³** will need to be provided. This will be in the form of a subsurface geocellular attenuation tank before a discharge into the public surface water sewer network.
- It is recommended that source control methods should be utilised where possible. These include the use of permeable paving for parking spaces and private pedestrian footways, and the creation of bioretention gardens along the curtilage of the primary access road or the installation of hydroplanter features along some of the rainwater down pipes where appropriate.
- A foul sewer connection will need to be sought for the proposed development, possibly utilising existing connection points. A public 150mm diameter foul sewer is suitably located within Lavant Drive to the south of the site to receive foul flows from the development via gravity.

Disclaimer

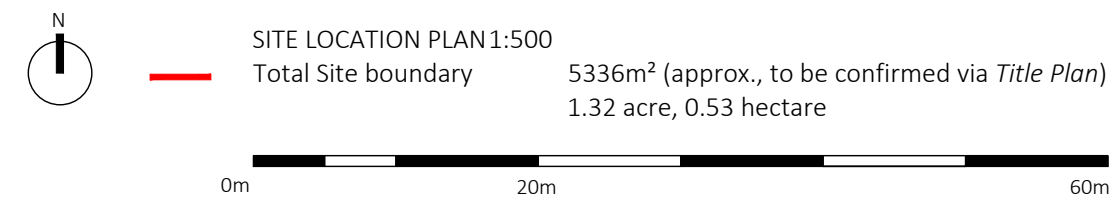
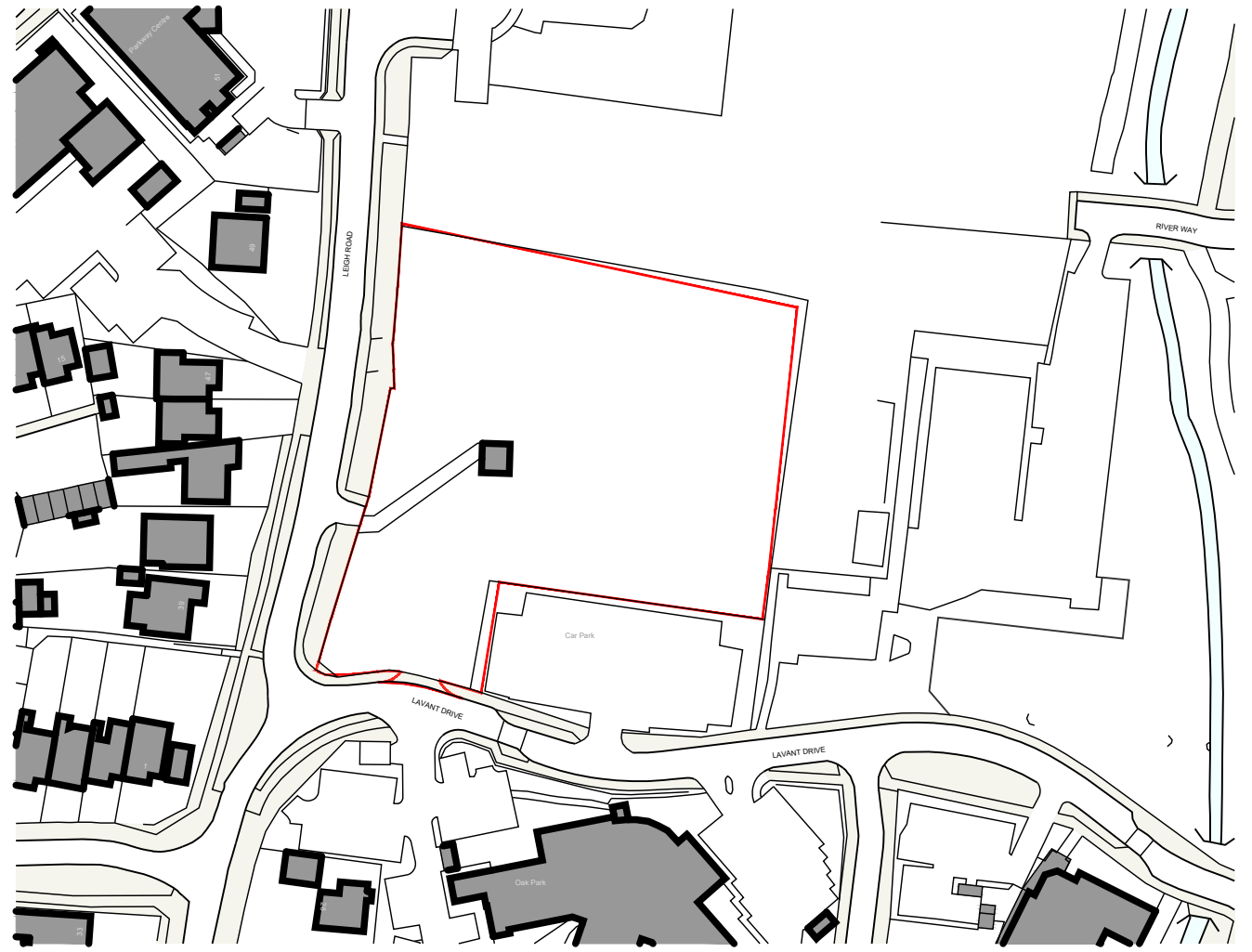
We would note that all comments made in this report are based on the sources stated in Section 1.1. This report and its recommendations are intended for the use of Fed3 Projects Ltd for the above site only.

Appendix A

Site Location Plan



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SITE LOCATION PLAN 1:1250

GENERAL NOTES
Drawing based upon:
OSmap data (Licence 100060020)

P01	First Issue			
REV	AMENDMENT	DWN	CHK	DATE

PRELIMINARY

CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR MAKING ANY SHOP DRAWINGS

vestar*
architecture + design

York House, Station Road, Tadcaster, LS24 9JF
01904 784421 hello@vestar.co.uk

CLIENT



PROJECT
Site Redevelopment
Land at Lavant Drive
Havant
POg 2AW

DRAWING TITLE
Site Location Plan

SCALE	DATE	DRAWN	CHECKED
1:1250 at A1	16.04.2026	MS	JM
1:500 at A1			

DRAWING NUMBER	REVISION
26.112-VST-XX-ZZ-A-DR-0500	P01

Project Number: 26-0250
Project Title: Lavant Drive, Havant
Location: Land north of Lavant Drive, Havant, Hampshire
BSP Document Ref: LDHA-BSP-XX-XX-T-W-0001-P04_Flood_Risk_Assessment



Appendix B

Topographical Survey



SURVEY STATIONS					
Name	Easting	Northing	Height	Remark	
JDA	472062.756	107036.807	12.332	Nail	
J01	472027.182	107023.131	12.161	Nail	
J02	471991.328	107023.271	12.685	Nail	
J03	471989.248	107046.070	12.572	Nail	
J04	471948.689	107035.483	12.280	Nail	
J05	471927.799	107036.007	11.455	Nail	
J06	471942.012	107076.618	11.520	Nail	
J07	471939.184	107105.726	11.872	Nail	
J08	471951.486	107146.120	12.650	Nail	

Underground Utility Surveys - PAS 128 - Quality Levels					
Survey Type	Quality Level	Post Processing	Location Accuracy		Supporting Data
			Horizontal	Vertical	
D	Desktop Utility Detection	-	Undefined	Undefined	-
C	Site Reconnaissance	-	Undefined	Undefined	Location demonstrated by Topographical Features or Reinstatement Surveys
B	Site Delineation	B4	Undefined	Undefined	Supported to some, but undefined. Shown as "ASSUMED"
		B3	<±500mm	Undefined / Not Feasible	Horizontal Position Only Only
		B3P	Yes	<±500mm	Horizontal Position Only Only
		B2	<±250mm or 10% of Detected Depth	<±200mm	Horizontal and Vertical Detection
		B2P	Yes	<±250mm or 10% of Detected Depth	Horizontal and Vertical Detection
		B1	<±125mm or 5% of Detected Depth	<±100mm	Horizontal and Vertical Detection
		B1P	Yes	<±125mm or 5% of Detected Depth	Horizontal and Vertical Detection
A	Verification	A	<±50mm	<±25mm	Multiple Detection Methods Used
					Horizontal and Vertical Location of the top, and/or bottom of the utility

UNDERGROUND UTILITIES LEGEND	
	STORM WATER SEWER (SWS)
	SOIL WATER SEWER (SWS)
	COMBINED SEWER (CWS)
	SEWER
	ELECTRIC CABLE
	HIGH VOLTAGE CABLE
	LOW VOLTAGE CABLE
	TELEPHONE CABLE
	CABLE TELEPHONE
	THINWIRE LIGHT SIGNAL CABLE
	UNDERGROUND WATER SUPPLY
	GAS (LPG)
	GAS (NATURAL GAS)
	GAS (MEDIUM PRESSURE)
	GAS (INTERMEDIATE PRESSURE)
	GAS (HIGH PRESSURE)
	OIL PIPE
	UNKNOWING SERVICE INSTALLER
	UNDERGROUND SERVICE FOUND BY
	UNDERGROUND SERVICE CABLE
	SHIPPY DUCT
	OVERHEAD CABLE

How attached by BT 82 82

Type Deep Quality

UNDERGROUND UTILITY SURVEY NOTES:
This survey has been carried out to the standard The Society Association (TSA), for a Level 4 Surveys on this drawing have been detected util technologies. The performance of these technologies adversely affected by ground conditions which are Brunel Surveys. Consequently some utilities undetectable and therefore, whilst Brunel Surveys endeavours to detect all utilities we cannot guarantee detection can always be achieved.
In respect of the information provided by a utility survey, any groundworks should be undertaken and in accordance with health and safety HSG 47 AVOIDING DANGER FROM UNDERGROUND

LEGEND					
AL	Ap. Info	GV	Gully	SV	Step Vegetation
BL	Bar/Slope	HS	Hedges	SW	Swamp
BR	Bar/Slope	IS	Iron Road	TH	Thicket
BS	Bar/Slope	MA	Mudbank	TR	Track
CL	Clear Land	MB	Moss	TS	Transit
CS	Clear Land	MS	Mudbank	TV	Tele. Pole
DC	Ditch	NA	Natural	UN	Unvegetated
DE	Ditch	ND	Natural	WM	Water
DI	Ditch	OH	Overhead Cable	WO	Water
DY	Ditch	PR	Power Line	WV	Water
EP	Electric Pole	RD	Road	UTL	Utility
FL	Forest Floor	RP	Road	US	Unvegetated
FM	Forest Floor	SC	Shed (Wood)	UT	Unvegetated
FR	Forest Floor	SP	Shed (Metal)	VF	Vegetation
FS	Forest Floor	SP	Shed	VM	Water
GS	Grass	SP	Shed	WM	Water
GRS	Grass	SP	Shed	WM	Water
GV	Gully	SP	Shed	WM	Water
HS	Hedges	SP	Shed	WM	Water
IS	Iron Road	SP	Shed	WM	Water
MA	Mudbank	SP	Shed	WM	Water
MB	Moss	SP	Shed	WM	Water
MS	Mudbank	SP	Shed	WM	Water
ND	Natural	SP	Shed	WM	Water
OH	Overhead Cable	SP	Shed	WM	Water
PR	Power Line	SP	Shed	WM	Water
RD	Road	SP	Shed	WM	Water
RP	Road	SP	Shed	WM	Water
SC	Shed (Wood)	SP	Shed	WM	Water
SP	Shed (Metal)	SP	Shed	WM	Water
SW	Swamp	SP	Shed	WM	Water
TH	Thicket	SP	Shed	WM	Water
TR	Track	SP	Shed	WM	Water
TS	Transit	SP	Shed	WM	Water
TV	Tele. Pole	SP	Shed	WM	Water
UN	Unvegetated	SP	Shed	WM	Water
VF	Vegetation	SP	Shed	WM	Water
VM	Water	SP	Shed	WM	Water
WM	Water	SP	Shed	WM	Water
WO	Water	SP	Shed	WM	Water
WV	Water	SP	Shed	WM	Water

STN

SURVEY STATION

GATE

BANK

FENCE

CLIFF

50m

MAJOR CONTOUR

MUDCUT CONTOUR PLAN

Brunel Surveys Ltd
UNIT 59, SHREVENHAM HUNDRED BUSINESS PARK
WATCHFIELD, SWINDON, WILTSHIRE, SN6 8TY
EMAIL : admin@brunelsurveys.com
WEB : www.brunelsurveys.com
TEL : 01793 784700



Land, Building and Utility Surveyors

NHS Property Services
99 Gresham Street
London
EC2V 7NG

Topographical & Utilities
Survey

Former Oak Park School
Lavant Drive
Havant

REVISIONS RevA - April 2025 - DS/MD/LB Cleared Areas of Site Added	
SCALE A0 Sheet @ 1 to 200	
DATE Dec 2021	SUBMITTED BY SC/JD
DRAWN BY LB/JM	CHECKED BY MR
(DRAWING NO.) 23837-200-01-RevA	

Project Number: 26-0250
Project Title: Lavant Drive, Havant
Location: Land north of Lavant Drive, Havant, Hampshire
BSP Document Ref: LDHA-BSP-XX-XX-T-W-0001-P04_Flood_Risk_Assessment



Appendix C

Proposed Site Plan



General Notes

Site area : 5408m²
1.34 acre
0.54 hectare

External lighting to be agreed with Local Planning Authority via condition.

External materials, landscaping and boundary treatments to be developed and agreed with Local Planning Authority via condition.

This drawing is colour coded.

This drawing references the Topographical plan;
23827/239/21 Rev4

Ground Floor FFL +12.70

Total Bedrooms: 86
Total Footprint: 1805m²
Total GEA: 5000m²
Total GIA: 1691m²
GIA per Resident: 54.5m²

Site Key

- Site Boundary
- 1.8m Railing
- RPA
- Permeable block paving to parking bays
- Paths within car park area
- Pavies to bedrooms/dayspaces
- Tarmac road surface
- Main Entrance
- Service Entrance
- EV Charging
- North Arrow

DO NOT SCALE FROM THIS DRAWING

© Vestar Group Ltd.

Use annotated dimensions in all instances. Dimensions to be site checked prior to commencement of works on site or prior to any prefabrication. Vestar Group Ltd is to be notified of any discrepancies in all instances.

This information contained must be read in conjunction with any relevant specifications, building regulations, British and European standards and checked against all additional consultees and specialist manufacturers information.

THIS INFORMATION IS COPYRIGHT AND SHOULD NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF VESTAR GROUP LTD.

P01	First Issue		
P02	Site Plan revised to suit Highways comments. Plans revised in line with elevation development.	JM	23.05.26
P03	Site Plan revised in line with Arboricultural and Highways comments.	JM	05.06.26
P04	Site Plan revised to show initial levels to FFL + to parking area. Key and general notes updated.	JM	09.06.26
P05	Plans, Elevations + Site Plan revised in line with design development. Significant changes to SF internal layout + external elevations. Missing reduced to room in roof with dormers. Zinc cladding reduced + colour changed	JM	09.07.26
P06	Site Plan revised to show updated red line.	JM	20.07.26
REV	AMENDMENTS	DWN	DATE

PRELIMINARY
vestar*
architecture + design

YORK HOUSE, STATION ROAD, TADCASTER, LS24 9JF
hello@vestar.co.uk www.vestar.co.uk

CLIENT



PROJECT
Land at Lavant Drive
Havant, PO9 2AW

DRAWING TITLE
Proposed Site Plan

SCALE @ A0 1:200 DATE 12.05.26 DRAWN JM CHECKED MS

DRAWING NUMBER 26.112-VST-XX-ZZ-DR-A-0500 P06 S3

Project Number: 26-0250
Project Title: Lavant Drive, Havant
Location: Land north of Lavant Drive, Havant, Hampshire
BSP Document Ref: LDHA-BSP-XX-XX-T-W-0001-P04_Flood_Risk_Assessment



Appendix D

Southern Water Correspondence & Utilities Survey

Underground Utility Surveys - PAS 128 - Quality Levels

Survey Type	Quality Level	Post-Processing	Location Accuracy	Horizontal	Vertical	Supporting Data
D - Deep Penetration Recorder (DPR)	D	-	Undefined	Undefined	-	-
		C - Low Resolution	Undefined	Undefined	-	-
C - Detection	C	S4	Undefined	Undefined	-	-
		S4	Undefined	Undefined	Suspected to exist, but undetected. Shows as "ASSUMED"	-

SURVEY STATIONS			
Name	Easting	Northing	Height
200A	470002.667	107000.807	12.130
201	470027.182	107025.793	12.161
202	470097.685	107097.685	12.185
203	470189.040	107065.670	12.212
204	470188.089	107005.485	12.280
205	470192.799	107048.697	11.465
206	471962.212	107006.604	11.120
207	471968.181	107019.799	11.111
208	471951.485	107148.120	12.050

UNDERGROUND UTILITIES LEGEND

- 10" WATER MAIN (S4)
- 12" WATER MAIN (S4)
- 18" WATER MAIN (S4)
- 24" WATER MAIN (S4)
- 30" WATER MAIN (S4)
- 36" WATER MAIN (S4)
- 42" WATER MAIN (S4)
- 48" WATER MAIN (S4)
- 54" WATER MAIN (S4)
- 60" WATER MAIN (S4)
- 66" WATER MAIN (S4)
- 72" WATER MAIN (S4)
- 78" WATER MAIN (S4)
- 84" WATER MAIN (S4)
- 90" WATER MAIN (S4)
- 96" WATER MAIN (S4)
- 102" WATER MAIN (S4)
- 108" WATER MAIN (S4)
- 114" WATER MAIN (S4)
- 120" WATER MAIN (S4)
- 126" WATER MAIN (S4)
- 132" WATER MAIN (S4)
- 138" WATER MAIN (S4)
- 144" WATER MAIN (S4)
- 150" WATER MAIN (S4)
- 156" WATER MAIN (S4)
- 162" WATER MAIN (S4)
- 168" WATER MAIN (S4)
- 174" WATER MAIN (S4)
- 180" WATER MAIN (S4)
- 186" WATER MAIN (S4)
- 192" WATER MAIN (S4)
- 198" WATER MAIN (S4)
- 204" WATER MAIN (S4)
- 210" WATER MAIN (S4)
- 216" WATER MAIN (S4)
- 222" WATER MAIN (S4)
- 228" WATER MAIN (S4)
- 234" WATER MAIN (S4)
- 240" WATER MAIN (S4)
- 246" WATER MAIN (S4)
- 252" WATER MAIN (S4)
- 258" WATER MAIN (S4)
- 264" WATER MAIN (S4)
- 270" WATER MAIN (S4)
- 276" WATER MAIN (S4)
- 282" WATER MAIN (S4)
- 288" WATER MAIN (S4)
- 294" WATER MAIN (S4)
- 300" WATER MAIN (S4)
- 306" WATER MAIN (S4)
- 312" WATER MAIN (S4)
- 318" WATER MAIN (S4)
- 324" WATER MAIN (S4)
- 330" WATER MAIN (S4)
- 336" WATER MAIN (S4)
- 342" WATER MAIN (S4)
- 348" WATER MAIN (S4)
- 354" WATER MAIN (S4)
- 360" WATER MAIN (S4)
- 366" WATER MAIN (S4)
- 372" WATER MAIN (S4)
- 378" WATER MAIN (S4)
- 384" WATER MAIN (S4)
- 390" WATER MAIN (S4)
- 396" WATER MAIN (S4)
- 402" WATER MAIN (S4)
- 408" WATER MAIN (S4)
- 414" WATER MAIN (S4)
- 420" WATER MAIN (S4)
- 426" WATER MAIN (S4)
- 432" WATER MAIN (S4)
- 438" WATER MAIN (S4)
- 444" WATER MAIN (S4)
- 450" WATER MAIN (S4)
- 456" WATER MAIN (S4)
- 462" WATER MAIN (S4)
- 468" WATER MAIN (S4)
- 474" WATER MAIN (S4)
- 480" WATER MAIN (S4)
- 486" WATER MAIN (S4)
- 492" WATER MAIN (S4)
- 498" WATER MAIN (S4)
- 504" WATER MAIN (S4)
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- 546" WATER MAIN (S4)
- 552" WATER MAIN (S4)
- 558" WATER MAIN (S4)
- 564" WATER MAIN (S4)
- 570" WATER MAIN (S4)
- 576" WATER MAIN (S4)
- 582" WATER MAIN (S4)
- 588" WATER MAIN (S4)
- 594" WATER MAIN (S4)
- 600" WATER MAIN (S4)
- 606" WATER MAIN (S4)
- 612" WATER MAIN (S4)
- 618" WATER MAIN (S4)
- 624" WATER MAIN (S4)
- 630" WATER MAIN (S4)
- 636" WATER MAIN (S4)
- 642" WATER MAIN (S4)
- 648" WATER MAIN (S4)
- 654" WATER MAIN (S4)
- 660" WATER MAIN (S4)
- 666" WATER MAIN (S4)
- 672" WATER MAIN (S4)
- 678" WATER MAIN (S4)
- 684" WATER MAIN (S4)
- 690" WATER MAIN (S4)
- 696" WATER MAIN (S4)
- 702" WATER MAIN (S4)
- 708" WATER MAIN (S4)
- 714" WATER MAIN (S4)
- 720" WATER MAIN (S4)
- 726" WATER MAIN (S4)
- 732" WATER MAIN (S4)
- 738" WATER MAIN (S4)
- 744" WATER MAIN (S4)
- 750" WATER MAIN (S4)
- 756" WATER MAIN (S4)
- 762" WATER MAIN (S4)
- 768" WATER MAIN (S4)
- 774" WATER MAIN (S4)
- 780" WATER MAIN (S4)
- 786" WATER MAIN (S4)
- 792" WATER MAIN (S4)
- 798" WATER MAIN (S4)
- 804" WATER MAIN (S4)
- 810" WATER MAIN (S4)
- 816" WATER MAIN (S4)
- 822" WATER MAIN (S4)
- 828" WATER MAIN (S4)
- 834" WATER MAIN (S4)
- 840" WATER MAIN (S4)
- 846" WATER MAIN (S4)
- 852" WATER MAIN (S4)
- 858" WATER MAIN (S4)
- 864" WATER MAIN (S4)
- 870" WATER MAIN (S4)
- 876" WATER MAIN (S4)
- 882" WATER MAIN (S4)
- 888" WATER MAIN (S4)
- 894" WATER MAIN (S4)
- 900" WATER MAIN (S4)
- 906" WATER MAIN (S4)
- 912" WATER MAIN (S4)
- 918" WATER MAIN (S4)
- 924" WATER MAIN (S4)
- 930" WATER MAIN (S4)
- 936" WATER MAIN (S4)
- 942" WATER MAIN (S4)
- 948" WATER MAIN (S4)
- 954" WATER MAIN (S4)
- 960" WATER MAIN (S4)
- 966" WATER MAIN (S4)
- 972" WATER MAIN (S4)
- 978" WATER MAIN (S4)
- 984" WATER MAIN (S4)
- 990" WATER MAIN (S4)
- 996" WATER MAIN (S4)
- 1002" WATER MAIN (S4)
- 1008" WATER MAIN (S4)
- 1014" WATER MAIN (S4)
- 1020" WATER MAIN (S4)
- 1026" WATER MAIN (S4)
- 1032" WATER MAIN (S4)
- 1038" WATER MAIN (S4)
- 1044" WATER MAIN (S4)
- 1050" WATER MAIN (S4)
- 1056" WATER MAIN (S4)
- 1062" WATER MAIN (S4)
- 1068" WATER MAIN (S4)
- 1074" WATER MAIN (S4)
- 1080" WATER MAIN (S4)
- 1086" WATER MAIN (S4)
- 1092" WATER MAIN (S4)
- 1098" WATER MAIN (S4)
- 1104" WATER MAIN (S4)
- 1110" WATER MAIN (S4)
- 1116" WATER MAIN (S4)
- 1122" WATER MAIN (S4)
- 1128" WATER MAIN (S4)
- 1134" WATER MAIN (S4)
- 1140" WATER MAIN (S4)
- 1146" WATER MAIN (S4)
- 1152" WATER MAIN (S4)
- 1158" WATER MAIN (S4)
- 1164" WATER MAIN (S4)
- 1170" WATER MAIN (S4)
- 1176" WATER MAIN (S4)
- 1182" WATER MAIN (S4)
- 1188" WATER MAIN (S4)
- 1194" WATER MAIN (S4)
- 1200" WATER MAIN (S4)
- 1206" WATER MAIN (



Tom Hall
Breakwell Sumner Partnership Limited
BSP Consulting, 12 Oxford Street
Nottingham
Nottinghamshire
NG1 5BG

Your ref
25693

Our ref
DSA000053916

Date
19th of May 2026

Contact
Tel 0330 303 0119

Dear Mr Hall,

Level 1 Capacity Check Enquiry: Lavant Drive, Havant.

Thank you for your capacity check application relating to the above development.

Your application will be progressed by our modelling team, and we will send you our response within 21 calendar days.

Please get in touch via the Get Connected customer dashboard if you have any queries.

Yours sincerely,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development



Tom Hall
Breakwell Sumner Partnership Limited
BSP Consulting, 12 Oxford Street
Nottingham
Nottinghamshire
NG1 5BG

Your ref
25693

Our ref
DSA000053916

Date
21st of May 2026

Contact
Tel 0330 303 0119

Dear Mr Hall,
Level 1 Capacity Check Enquiry: Lavant Drive, Havant.

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

The enquiry has been assessed to determine the capacity available for **0.97 l/s** at manhole reference **SU71079002 Grid Reference: 471950, 107038**.

There is currently inadequate capacity within the foul sewerage network to accommodate a foul flow of **0.97 l/s** for the above development at manhole reference **SU71079002 Grid Reference: 471950, 107038**. The proposed development would increase flows to the public sewerage system which may increase the risk of flooding to existing properties and land. Additional off-site sewers or improvements to existing sewers will be required to provide sufficient capacity to service the development. Southern Water has a duty to provide Network capacity from the point of practical connection (point of equivalent or larger diameter pipe) funded by the New Infrastructure Charge.

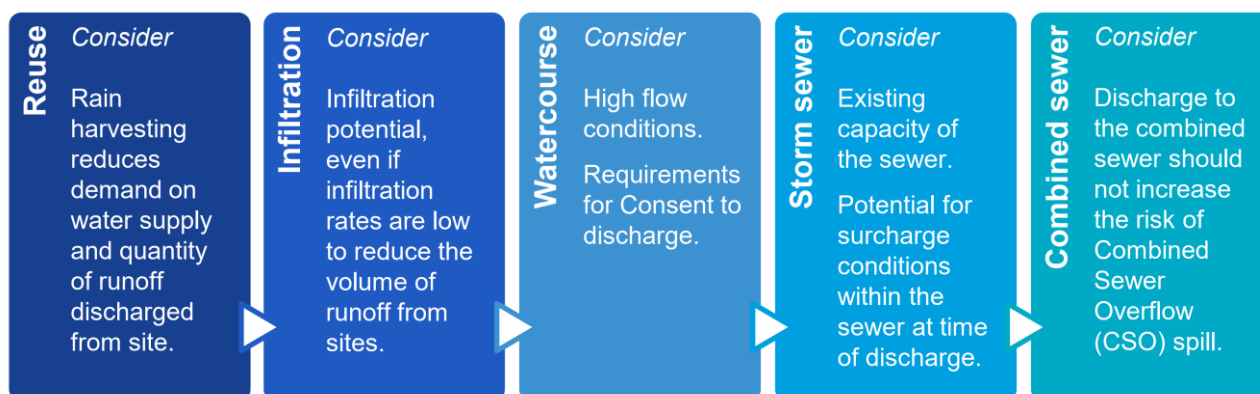
Southern Water aim to provide this within 24 months following the date that planning has been granted for developments not identified as strategic sites in our current business plan. Strategic sites are larger developments and will often take longer than 24 months for a full solution to be provided.

Surface Water

The enquiry has been assessed to determine the capacity available for **3 l/s** at manhole reference **SU71079051 Grid Reference: 471995, 107027**.

There is currently adequate capacity in the local surface water/foul sewerage network to accommodate a surface water flow of **3 l/s** for the above development at manhole reference **SU71079051 Grid Reference: 471995, 107027**.

Although capacity in the surface water network has been identified, in all situations where surface water is being considered for discharge to our network, we require the below hierarchy for surface



water to be followed which is reflected in part H3 of the Building Regulations. Whilst reuse does not strictly form part of this hierarchy, Southern Water would encourage the consideration of reuse for new developments.

Guidance on Building Regulations is here: [gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h](https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h)

We would welcome the opportunity to engage with you on the design for disposal of surface water, with a particular focus on the potential for incorporating Sustainable Drainage Systems (SuDS), for this development at the earliest opportunity and we recommend that civil engineers and landscape architects work together and with Southern Water.

Where a surface water connection to the foul or combined sewer is being considered, this should be agreed by the Lead Local Flood Authority, in consultation with Southern Water.

It should be noted that although the above assessment indicates that there is capacity available for your proposed surface water flows the LLFA (Local Lead Flood Authority) may impose/request that a lower flow is discharged to the public surface water sewer.

If the excess surface water flows are to be attenuated on site, it could have a significant effect on any proposed Sewer Adoption (S104) Agreements. Any attenuation proposals should be agreed before any works are implemented on site. Where capacity is limited/restricted, agreement should be sought if you are to include any highway drainage within your proposals as Southern Water is not obligated to accept highway flows.

New Infrastructure Charging

Please note as of 1st April 2018 we have moved to the “New Connections Services Charging Arrangements”. We understand that this may cause uncertainty for customers, particularly where they may have already committed to a development based on previous charging arrangements. We have worked with our stakeholders and Water UK to agree a set of principles by which we will base our charges. Please read through our new charging arrangement documents available at the following link: [Connecting Charging Arrangements - Southern Water](#)

Alternatively, New Appointees and Variations (NAVs), also known as ‘inset’ companies, can provide new connection services or take ownership of the new water and wastewater connection infrastructure provided for a new development. NAVs are appointed by Ofwat and replace the regional water company. It is for the developer to choose whether to use a NAV or the regional water company to supply services for new sites, according to certain legal criteria.

Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal Sewer Connection (S106) application is required to be completed and approved by Southern Water Services. To make an application visit: developerservices.southernwater.co.uk

Please note the information provided above does not grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter. **Any revisions in flow rate or alternative point of connection will require a new Pre-Planning Application to be submitted.**

Please get in touch via the Get Connected customer dashboard if you have any queries.

Yours sincerely,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development

Project Number: 26-0250
Project Title: Lavant Drive, Havant
Location: Land north of Lavant Drive, Havant, Hampshire
BSP Document Ref: LDHA-BSP-XX-XX-T-W-0001-P04_Flood_Risk_Assessment



Appendix E

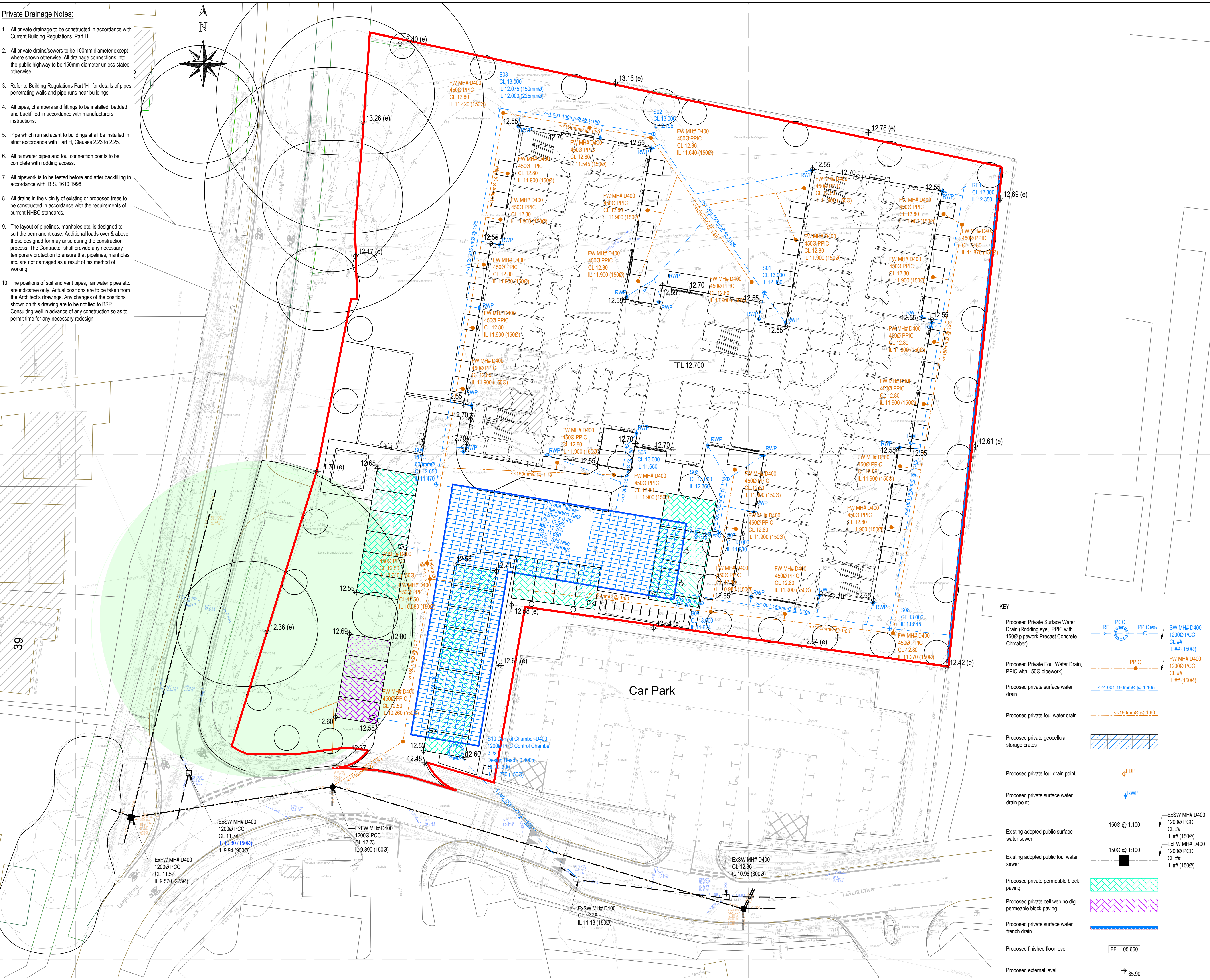
Proposed Drainage Strategy Plan, Supporting Calculations & Maintenance Records

BSP Consulting		Page 1
12 Oxford Street Nottingham NG1 5BG	26-0250 Lavant Drive, Havant	
Date 15/05/2026 File	Designed by TH Checked by MG	
Innovyze		Source Control 2019.1
<p style="text-align: center;"><u>ICP SUDS Mean Annual Flood</u></p> <p style="text-align: center;">Input</p> <p>Return Period (years) 1 Soil 0.400 Area (ha) 0.300 Urban 0.000 SAAR (mm) 765 Region Number Region 7</p> <p style="text-align: center;">Results 1/s</p> <p>QBAR Rural 1.1 QBAR Urban 1.1</p> <p>Q1 year 1.0</p> <p>Q1 year 1.0 Q30 years 2.6 Q100 years 3.6</p>		
©1982-2019 Innovyze		

Private Drainage Notes:

- All private drainage to be constructed in accordance with Current Building Regulations Part H.
- All private drains/sewers to be 100mm diameter except where shown otherwise. All drainage connections into the public highway to be 150mm diameter unless stated otherwise.
- Refer to Building Regulations Part 'H' for details of pipes penetrating walls and pipe runs near buildings.
- All pipes, chambers and fittings to be installed, bedded and backfilled in accordance with manufacturers instructions.
- Pipe which run adjacent to buildings shall be installed in strict accordance with Part H, Clauses 2.23 to 2.25.
- All rainwater pipes and foul connection points to be complete with rodding access.
- All pipework is to be tested before and after backfilling in accordance with B.S. 1610:1998
- All drains in the vicinity of existing or proposed trees to be constructed in accordance with the requirements of current NHBC standards.
- The layout of pipelines, manholes etc. is designed to suit the permanent case. Additional loads over & above those designed for may arise during the construction process. The Contractor shall provide any necessary temporary protection to ensure that pipelines, manholes etc. are not damaged as a result of his method of working.
- The positions of soil and vent pipes, rainwater pipes etc. are indicative only. Actual positions are to be taken from the Architect's drawings. Any changes of the positions shown on this drawing are to be notified to BSP Consulting well in advance of any construction so as to permit time for any necessary redesign.

© THIS DRAWING AND THE DETAILS DEPICTED ARE THE COPYRIGHT OF BSP CONSULTING AND MAY NOT BE REPRODUCED EXCEPT BY WRITTEN PERMISSION. OS LICENCE NO. 100041072



KEY

- Proposed Private Surface Water Drain (Rodding eye, PPIC with 1500 pipework Precast Concrete Chamber)
- Proposed Private Foul Water Drain, PPIC with 1500 pipework
- Proposed private surface water drain
- Proposed private foul water drain
- Proposed private geocellular storage crates
- Proposed private foul drain point
- Proposed private surface water drain point
- Existing adopted public surface water sewer
- Existing adopted public foul water sewer
- Proposed private permeable block paving
- Proposed private cell web no dig permeable block paving
- Proposed private surface water french drain
- Proposed finished floor level
- Proposed external level

Legend:

- RE: 12000 PCC
- PPIC: 1500
- SW MH# D400 12000 PCC CL # (1500)
- FW MH# D400 12000 PCC CL # (1500)
- 1500 @ 1:100
- 1500 @ 1:100
- ExSW MH# D400 12000 PCC CL # (1500)
- ExFW MH# D400 12000 PCC CL # (1500)
- FFL 105.660
- 85.90

KEY PLAN

Construction Risks | **Maintenance/Cleaning Risks** | **Demolition/Adaptation Risks**

In addition to the hazards/risks normally associated with the type of works detailed on this drawing take note of the above. It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION BOX

General Notes

- DO NOT SCALE.
- This drawing is to be read in conjunction with all other relevant drawings and details.
- Should there be any conflict between the details indicated on this drawing and those indicated on other drawings the Engineer should be informed PRIOR to construction on site.
- Until technical approval has been obtained from the relevant Authority, it should be understood that all drawings issued are Preliminary and NOT for construction. Should the contractor commence site work prior to such approval being given, it is entirely at his own risk.
- All dimensions are in metres unless otherwise stated.
- Existing levels based upon Brunel Surveys Ltd Topographical survey drawing ref. 23837-200-01-Rev A dated December 2021.
- The BSP Risk Assessments for this project must be reviewed PRIOR to the commencement of any works on site.
- Prior to commencing any works on site the contractor shall check all tie ins for line and level together with the inverts and sizes of all existing drainage and inform the engineer if there is any variation with the details indicated on this or any other relevant drawings.
- Services diversions may be required to facilitate the proposed works. Contractor to liaise with utility providers to confirm extent of diversions required.
- The contractor is to refer to the original statutory undertakers' utility plant records. It is the contractor's responsibility to determine the location and depth of existing services prior to construction. The contractor should take note of HS(GM7) 'Avoiding danger from underground services' when excavating around services.

Site Layout Updated

MS	21/07/26	JO	21/07/26	SAH	21/07/26	
Drainage Strategy updated	JO	16/07/26	JO	16/07/26	SAH	16/07/26
First Issue	JO	24/06/26	JO	24/06/26	SAH	24/06/26

REV

COMMENT	DATE	CHECKED BY	DATE	APPROVED BY	DATE
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

SCALE @ A1 | **ISSUING OFFICE** | **PROJECT NUMBER**

1:200 | NOTTINGHAM | 26-0250

CLIENT APPROVAL

A - APPROVED

B - APPROVED WITH COMMENTS

C - DO NOT USE

STATUS | **PURPOSE OF ISSUE**

S1 | PRELIMINARY

• CIVIL • STRUCTURAL • TRANSPORTATION • GEOTECHNICAL • ENVIRONMENTAL

bsp CONSULTING

12 Oxford Street, Nottingham, NG1 5BG
Tel: 01454 413 4000
e-mail: info@bsp-consulting.co.uk
Also offices in Derby, Leicester and Sheffield

bsi | **BIM Design and Construction KITEMARK™**

PROJECT

Lavant Drive, Havant

TITLE

Drainage Strategy

CLIENT

FED 3 Projects Ltd

PROJECT ORIGINATOR FUNCTIONAL SPATIAL FORM DISCIPLINE NUMBER | **REV**

LDHA-BSP-XX-XX-D-C-SK0240 | P03

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Junctions Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
S01	Manhole	472001.890	107099.228	13.000	0.650	12.350	Circular	0.450
S02	Manhole	471988.697	107118.098	13.000	0.804	12.196	Circular	0.450
S03	Manhole	471970.445	107121.180	13.000	1.002	11.998	Circular	0.600
S04	Manhole	471962.891	107076.446	12.650	1.180	11.470	Circular	0.600
S10 Control Chamber	Manhole	471965.191	107044.694	12.600	1.330	11.270	Circular	1.200
S09	Manhole	471993.887	107063.175	13.000	1.376	11.624	Circular	0.450
S08	Manhole	472016.787	107059.308	13.000	1.155	11.845	Circular	0.450
RE1	Manhole	472025.621	107111.623	13.000	0.650	12.350	Circular	0.450
EXSW MH6	Manhole	471979.633	107029.608	12.490	1.360	11.130	Circular	1.200
S05	Manhole	471985.528	107081.008	13.000	1.350	11.650	Circular	0.450
S06	Manhole	471997.519	107077.074	13.000	0.650	12.350	Circular	0.450
S07	Manhole	471996.460	107070.802	13.000	1.070	11.930	Circular	0.450

Name	Lock
S01	None
S02	None
S03	None
S04	None
S10 Control Chamber	None
S09	None
S08	None
RE1	None
EXSW MH6	None
S05	None
S06	None
S07	None

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026		
	Designed by: MS	Checked by:	Approved By:
Report Details: Type: Junctions Storm Phase: Phase	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02		



Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
S01	Outlet	1.000	Free Discharge
S02	Outlet	1.001	Free Discharge
S03	Outlet	1.002	Free Discharge
S04	Outlet	1.003	Free Discharge
S10 Control Chamber	Outlet	1.005	Hydro-Brake®
	Invert Level (m)	11.270	
	Design Depth (m)	0.400	
	Design Flow (L/s)	3.0	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0091-3000-0400-3000	
S09	Outlet	4.002	Free Discharge
S08	Outlet	4.001	Free Discharge
RE1	Outlet	4.000	Free Discharge
S05	Outlet	2.000	Free Discharge
S06	Outlet	3.000	Free Discharge
S07	Outlet	3.001	Free Discharge

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026 Designed by: MS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02		



Tank

Type : Tank

Dimensions

Exceedance Level (m)	12.550
Depth (m)	1.270
Base Level (m)	11.280
Freeboard (mm)	870
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	159.600

Depth (m)	Area (m²)	Volume (m³)
0.000	420.00	116.000
0.400	420.00	116.000

Outlets

Outlet (1)

Outgoing Connection	1.004
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	41.037

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026 Designed by: MS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02		



Permeable Paving 1.0

Type : Porous Paving

Dimensions	
Exceedance Level (m)	12.600
Depth (m)	0.550
Base Level (m)	12.050
Paving Layer Depth (mm)	200
Membrane Percolation (m/hr)	250.0
Porosity (%)	30
Length (m)	5.000
Long. Slope (1:X)	1000.00
Width (m)	15.000
Total Volume (m³)	7.874

Outlets	
Outlet	
Outgoing Connection	No Delay (1)
Outlet Type	Orifice
Diameter (m)	0.100
Coefficient of Discharge	0.600
Invert Level (m)	12.050

Outlet (1)	
Outgoing Connection	(None)
Outlet Type	Orifice
Diameter (m)	0.100
Coefficient of Discharge	0.600
Invert Level (m)	12.050

Advanced	
Conductivity (m/hr)	250.0

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026 Designed by: MS	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02		



Permeable Paving 2.0

Type : Porous Paving

Dimensions

Exceedance Level (m)	12.675
Depth (m)	0.550
Base Level (m)	12.125
Paving Layer Depth (mm)	200
Membrane Percolation (m/hr)	250.0
Porosity (%)	30
Length (m)	5.000
Long. Slope (1:X)	1000.00
Width (m)	22.500
Total Volume (m³)	11.812

Outlets

Outlet

Outgoing Connection	(None)
Outlet Type	Orifice
Diameter (m)	0.100
Coefficient of Discharge	0.600
Invert Level (m)	12.125

Outlet (1)

Outgoing Connection	(None)
Outlet Type	Orifice
Diameter (m)	0.100
Coefficient of Discharge	0.600
Invert Level (m)	12.125

Advanced

Conductivity (m/hr)	250.0
---------------------	-------

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026 Designed by: MS Checked by: Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Phase	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02	



Permeable Paving 3.0

Type : Porous Paving

Dimensions	
Exceedance Level (m)	12.715
Depth (m)	0.550
Base Level (m)	12.165
Paving Layer Depth (mm)	200
Membrane Percolation (m/hr)	250.0
Porosity (%)	30
Length (m)	5.000
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	5.250

Outlets	
Outlet	
Outgoing Connection	No Delay
Outlet Type	Orifice
Diameter (m)	0.100
Coefficient of Discharge	0.600
Invert Level (m)	12.165

Advanced	
Conductivity (m/hr)	250.0



Permeable Paving 4.0

Type : Porous Paving

Dimensions	
Exceedance Level (m)	12.775
Depth (m)	0.550
Base Level (m)	12.225
Paving Layer Depth (mm)	200
Membrane Percolation (m/hr)	250.0
Porosity (%)	30
Length (m)	12.796
Long. Slope (1:X)	1000.00
Width (m)	6.000
Total Volume (m³)	8.062

Outlets	
Outlet	
Outgoing Connection	No Delay (2)
Outlet Type	Orifice
Diameter (m)	0.100
Coefficient of Discharge	0.600
Invert Level (m)	12.225

Advanced	
Conductivity (m/hr)	250.0

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Connections Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
1.000	23.025	Pipe	150.000		0.6	150	13.000	12.350
1.001	18.510	Pipe	150.488		0.6	150	13.000	12.196
1.002	45.367	Pipe	85.923		0.6	225	13.000	11.998
4.000	53.055	Pipe	105.000		0.6	150	13.000	12.350
4.001	23.225	Pipe	105.000		0.6	150	13.000	11.845
3.000	6.360	Pipe	15.144		0.6	150	13.000	12.350
No Delay (2)	14.480	No Delay						
No Delay	7.128	No Delay						
No Delay (1)	21.322	No Delay						
4.002	2.845	Pipe	30.270		0.6	150	13.000	11.624
1.004	1.233	Pipe	123.346		0.6	225	12.550	11.280
1.005	20.885	Pipe	149.175		0.6	150	12.600	11.270
1.003	2.062	Pipe	137.480		0.6	225	12.650	11.470
2.000	7.992	Pipe	66.603		0.6	150	13.000	11.650
3.001	4.024	Pipe	10.059		0.6	150	13.000	11.930

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)
1.000	13.000	12.196		None	
1.001	13.000	12.073		Levels	
1.002	12.650	11.470		None	
4.000	13.000	11.845		None	
4.001	13.000	11.624		None	
3.000	13.000	11.930		None	
No Delay (2)					
No Delay					
No Delay (1)					
4.002	12.550	11.530		Levels	
1.004	12.600	11.270		None	
1.005	12.490	11.130		None	3.3
1.003	12.550	11.455		Levels	
2.000	12.550	11.530		Levels	
3.001	12.550	11.530		Levels	

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Tank		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (1)	S02		Time of Concentration	0.029	100	0	100	0.029
Catchment Area (2)	S01		Time of Concentration	0.029	100	0	100	0.029
Catchment Area (3)	RE1		Time of Concentration	0.022	100	0	100	0.022
Catchment Area (4)	S08		Time of Concentration	0.019	100	0	100	0.019
Catchment Area (5)	S09		Time of Concentration	0.004	100	0	100	0.004
Catchment Area (6)	S06		Time of Concentration	0.026	100	0	100	0.026
Catchment Area (7)	S05		Time of Concentration	0.017	100	0	100	0.017
Catchment Area (8)	S03		Time of Concentration	0.016	100	0	100	0.016
Catchment Area (9)	S04		Time of Concentration	0.017	100	0	100	0.017
Catchment Area (10)	Permeable Paving 2.0		Time of Concentration	0.035	100	0	100	0.035
Catchment Area (11)	Permeable Paving 3.0		Time of Concentration	0.026	100	0	100	0.026
Catchment Area (12)	Permeable Paving 4.0		Time of Concentration	0.031	100	0	100	0.031
Catchment Area (13)	Permeable Paving 1.0		Time of Concentration	0.027	100	0	100	0.027
Catchment Area (14)	S04		Time of Concentration	0.008	100	0	100	0.008
TOTAL		0.0		0.312				0.312

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026			
	Designed by:		Checked by:	Approved By:
Report Details: Type: Outfall Details Storm Phase: Phase	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
Permeable Paving 1.0	Free Discharge		
Permeable Paving 2.0	Free Discharge		
EXSW MH6	Free Discharge		

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026			
Report Title: Rainfall Analysis Criteria	Designed by: MS	Checked by:	Approved By:	
	BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd	Date: 20/07/2026			
	Designed by:	Checked by:	Approved By:	
	MS			
Report Details:			BSP Consulting Ltd:	
Type: Junctions Summary Storm Phase: Phase	Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			



FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S01	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	12.35 0	12.409	0.059	4.9	0.009	0.000	4.7	2.262	OK
S02	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	12.19 6	12.286	0.090	9.6	0.014	0.000	8.9	4.504	OK
S03	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	11.99 8	12.066	0.068	11.6	0.019	0.000	11.1	5.765	OK
S04	FEH: 2 years: +0 %: 15 mins: Winter	12.65 0	11.47 0	11.571	0.101	15.2	0.028	0.000	14.3	7.660	OK
S10 Control Chamber	FEH: 2 years: +0 %: 480 mins: Winter	12.60 0	11.27 0	11.384	0.114	2.1	0.129	0.000	2.1	53.907	OK
S09	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	11.62 4	11.676	0.052	6.8	0.008	0.000	6.6	3.536	OK
S08	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	11.84 5	11.909	0.065	6.7	0.010	0.000	6.1	3.195	OK
RE1	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	12.35 0	12.396	0.046	3.7	0.007	0.000	3.5	1.715	OK
EXSW MH6	FEH: 2 years: +0 %: 15 mins: Summer	12.49 0	11.13 0	11.148	0.018	0.4	0.000	0.000	0.4	0.429	OK
S05	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	11.65 0	11.688	0.038	2.9	0.006	0.000	2.8	1.321	OK
S06	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	12.35 0	12.383	0.033	4.4	0.005	0.000	4.3	2.020	OK
S07	FEH: 2 years: +0 %: 15 mins: Winter	13.00 0	11.93 0	11.960	0.030	4.3	0.005	0.000	4.3	2.019	OK

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			



FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S01	FEH: 30 years: +40 %: 15 mins: Winter	13.000	12.350	12.705	0.355	14.5	0.056	0.000	11.6	6.714	Flood Risk
S02	FEH: 30 years: +40 %: 15 mins: Winter	13.000	12.196	12.594	0.398	26.0	0.063	0.000	23.6	13.375	Surcharged
S03	FEH: 30 years: +40 %: 15 mins: Winter	13.000	11.998	12.117	0.119	31.7	0.034	0.000	30.8	17.110	OK
S04	FEH: 30 years: +40 %: 15 mins: Winter	12.650	11.470	11.675	0.205	43.1	0.058	0.000	40.7	22.750	OK
S10 Control Chamber	FEH: 30 years: +40 %: 480 mins: Winter	12.600	11.270	11.740	0.470	81.1	0.531	0.000	3.0	150.429	Surcharged
S09	FEH: 30 years: +40 %: 15 mins: Winter	13.000	11.624	11.728	0.105	20.0	0.017	0.000	19.7	10.491	OK
S08	FEH: 30 years: +40 %: 15 mins: Winter	13.000	11.845	11.987	0.142	20.0	0.023	0.000	17.8	9.479	OK
RE1	FEH: 30 years: +40 %: 15 mins: Winter	13.000	12.350	12.434	0.084	11.0	0.013	0.000	10.5	5.084	OK
EXSW MH6	FEH: 30 years: +40 %: 15 mins: Summer	12.490	11.130	11.170	0.040	2.3	0.000	0.000	2.3	2.408	OK
S05	FEH: 30 years: +40 %: 15 mins: Winter	13.000	11.650	11.720	0.070	8.5	0.011	0.000	8.4	3.923	OK
S06	FEH: 30 years: +40 %: 15 mins: Winter	13.000	12.350	12.409	0.059	13.0	0.009	0.000	12.9	5.981	OK
S07	FEH: 30 years: +40 %: 15 mins: Winter	13.000	11.930	11.984	0.054	12.9	0.009	0.000	12.8	5.980	OK

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: MS	Checked by:		Approved By:
		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			



FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Resident Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S01	FEH: 100 years: +45 %: 15 mins: Winter	13.000	12.350	12.983	0.633	18.9	0.101	0.000	14.6	8.769	Flood Risk
S02	FEH: 100 years: +45 %: 15 mins: Winter	13.000	12.196	12.815	0.619	33.4	0.098	0.000	30.2	17.439	Flood Risk
S03	FEH: 100 years: +45 %: 15 mins: Winter	13.000	11.998	12.138	0.140	40.7	0.040	0.000	39.4	22.304	OK
S04	FEH: 100 years: +45 %: 15 mins: Winter	12.650	11.470	11.737	0.267	55.4	0.076	0.000	53.8	29.654	Surcharged
S10 Control Chamber	FEH: 100 years: +45 %: 720 mins: Winter	12.600	11.270	11.939	0.669	70.8	0.756	0.000	3.3	334.667	Surcharged
S09	FEH: 100 years: +45 %: 15 mins: Winter	13.000	11.624	11.752	0.129	25.7	0.020	0.000	25.3	13.669	OK
S08	FEH: 100 years: +45 %: 15 mins: Winter	13.000	11.845	12.187	0.343	25.4	0.054	0.000	22.8	12.349	Surcharged
RE1	FEH: 100 years: +45 %: 15 mins: Winter	13.000	12.350	12.457	0.107	14.3	0.017	0.000	13.0	6.604	OK
EXSW MH6	FEH: 100 years: +45 %: 15 mins: Summer	12.490	11.130	11.176	0.046	3.0	0.000	0.000	3.0	3.225	OK
S05	FEH: 100 years: +45 %: 15 mins: Winter	13.000	11.650	11.732	0.082	11.1	0.013	0.000	10.9	5.108	OK
S06	FEH: 100 years: +45 %: 15 mins: Winter	13.000	12.350	12.419	0.069	16.9	0.011	0.000	16.7	7.793	OK
S07	FEH: 100 years: +45 %: 15 mins: Winter	13.000	11.930	11.994	0.064	16.7	0.010	0.000	16.6	7.791	OK

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			



FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)
Tank	FEH: 2 years: +0 %: 480 mins: Winter	11.384	11.384	0.104	0.104	5.6	41.651	0.000	0.000	2.1	53.961	73.903
Permeable Paving 1.0	FEH: 2 years: +0 %: 120 mins: Winter	12.167	12.073	0.112	0.023	1.5	1.501	0.000	0.000	1.0	4.113	80.942
Permeable Paving 2.0	FEH: 2 years: +0 %: 120 mins: Winter	12.232	12.151	0.102	0.026	2.0	2.137	0.000	0.000	1.9	5.296	81.908
Permeable Paving 3.0	FEH: 2 years: +0 %: 120 mins: Winter	12.318	12.202	0.148	0.037	1.5	1.376	0.000	0.000	1.1	4.078	73.793
Permeable Paving 4.0	FEH: 2 years: +0 %: 240 mins: Winter	12.436	12.249	0.198	0.024	1.1	2.973	0.000	0.000	0.5	5.385	63.119

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			



FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)
Tank	FEH: 30 years: +40 %: 360 mins: Winter	11.560	11.560	0.280	0.280	17.2	111.832	0.000	0.000	28.6	123.180	29.930
Permeable Paving 1.0	FEH: 30 years: +40 %: 60 mins: Winter	12.307	12.112	0.252	0.062	6.7	3.518	0.000	0.000	4.6	9.598	55.327
Permeable Paving 2.0	FEH: 30 years: +40 %: 60 mins: Winter	12.359	12.196	0.229	0.071	8.7	5.069	0.000	0.000	8.4	12.347	57.087
Permeable Paving 3.0	FEH: 30 years: +40 %: 30 mins: Winter	12.505	12.278	0.335	0.113	8.6	3.277	0.000	0.000	5.3	6.873	37.571
Permeable Paving 4.0	FEH: 30 years: +40 %: 60 mins: Winter	12.800	12.301	0.563	0.076	7.7	6.446	0.550	0.000	3.1	8.471	20.043

Surface Water Network: Site Lavant Drive, Havant Project:26-0250 Client: FED 3 Projects Ltd		Date: 20/07/2026			
		Designed by: MS	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		BSP Consulting Ltd: Title: Surface Water Calculations Purpose: Preliminary LDHA-BSP-ZZ-XX-CA-C-0001-P02			



FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)
Tank	FEH: 100 years: +45 %: 480 mins: Winter	11.663	11.663	0.383	0.383	114.7	152.913	0.000	0.000	99.1	211.200	4.190
Permeable Paving 1.0	FEH: 100 years: +45 %: 60 mins: Winter	12.363	12.128	0.308	0.078	8.8	4.324	0.000	0.000	6.4	12.912	45.085
Permeable Paving 2.0	FEH: 100 years: +45 %: 60 mins: Winter	12.413	12.214	0.283	0.089	11.6	6.279	0.000	0.000	11.8	16.653	46.843
Permeable Paving 3.0	FEH: 100 years: +45 %: 30 mins: Winter	12.732	12.329	0.562	0.164	11.3	4.148	0.294	0.000	7.0	9.334	20.987
Permeable Paving 4.0	FEH: 100 years: +45 %: 60 mins: Winter	12.809	12.354	0.572	0.129	10.2	7.603	1.240	0.000	5.9	12.275	5.684

SUDS MAINTENANCE MANUAL DATA SHEET



Reference: MM-PP-01

V2 – June 2015

SUDS Element:

Permeable Paved Driveway

Function Served:

Permeable paving acting as drainage, conveyance, allowing infiltration and functioning as attenuation.

Features:

60mm permeable block paviour, bedding material over 30% voided stone. Including perforated pipework and catch pits for drain down and conveyance.

Owned:

Care Home Operator

Location:

Refer to drawing LDHA-BSP-XX-XX-D-C-SK0240-P03_Drainage_Strategy

General Notes:

As a private owner scope of maintenance requirements are limited to what can reasonably be expected under routine maintenance of property. i.e. Part A.

Where normal maintenance is not sufficient items from Part B. of the schedule should be undertaken by a suitably experienced body

Part A: Routine Maintenance (typically monthly):

Maintenance Activity	Comments	Frequency
Litter and debris removal		Monthly
Inspect structures for evidence of poor operation		Monthly

Occasional Maintenance (typically every 6 months):

Maintenance Activity	Comments	Frequency
Brushing of pavement surface	Joints in paving become silted over time. Inspect visually. Undertake maintenance where joints are greater than 50% silted.	6 monthly or more frequently if required
Filling joints between paving blocks with suitable material	Following brushing joints may need to be topped up with suitable material. Specification as follows: "Jointing material: 2/6.3mm clean crushed stone (no fines) to BS RN 13242:2002 or BS EN 12620"	6 monthly as required following brushing

Where Part A activities do not address deficient performance refer to Part B, see General Notes.

Part B: Occasional Maintenance (typically every 6 months):

Maintenance Activity	Comments	Frequency
Inspect inlet catch pit and pre-treatment components for silt accumulation	Includes visual inspection of inlet chamber, forebay and inspection of flow control.	Half yearly
Visual inspection catch-pits, linking pipework etc. for evidence of physical damage	Visual inspection from surface only, CCTV survey required if evidence present of structural issues.	Half yearly

Annual Activities:

Maintenance Activity	Comments	Frequency
Remove sediment from catch-pits	Remove accumulated silt with suction tanker when 50% full.	Annual/as required

Infrequent/Corrective Activities:

Maintenance Activity	Comments	Frequency
Repair damage to paving	Damage may include rutting or local failure of structure	As required
Repair/rehabilitation of inlets and outlets.		As required
Rehabilitation following a pollution event	Pollution includes potential sealants of joints	As required
Repair/replace geotextile base.	If evidence from CCTV suggests a direct source of silt is present intrusive works will be required to the geotextile	As required
Rehabilitate sub-base	If, following brushing, the structure continues to perform below standard structural overhaul may be required. Stone may require reprocessing to reinstate original void ratio.	As required Evidence of similar structures installed around the country suggests rebuilding of the structures may be required typically every 25 years.

SUDS MAINTENANCE MANUAL DATA SHEET



Reference: MM-AT-01

V1 – Nov 2016

SUDS Element:

Attenuation Tanks

Function Served:

Acting as attenuation tank

Features:

Crate storage with maintenance access tunnel with catch-pits above and below

Owned:

Care Home Operator

Location:

Refer to drawing LDHA-BSP-XX-XX-D-C-SK0240-P03_Drainage_Strategy

General Notes:

Maintenance strategy should be reviewed on a regular basis and performance of the maintenance activities assessed.

Reference should be made to recognised industry standards in undertaking maintenance.

Where activities are required outside ownership permission must be sought from relevant party.

Refer to section 22 of CIRIA C697 for discussion on maintenance techniques.

Requirement for reporting of inspections to be confirmed by responsible party. May be required as evidence of activities to prove activity as part of funding arrangements.

Routine Maintenance (typically monthly):

Maintenance Activity	Comments	Frequency
Litter and debris removal		Monthly
Inspect structures for evidence of poor operation		Monthly

Occasional Maintenance (typically every 6 months):

Maintenance Activity	Comments	Frequency
Inspect inlet catch pit and pre-treatment components for silt accumulation	Includes visual inspection of inlet chamber, forebay and inspection of flow control.	6 monthly
Visual inspection catch-pits, linking pipework etc for evidence of physical damage	Visual inspection from surface only, CCTV survey required if evidence present of structural issues.	6 monthly
Check mechanical devices within control chambers	Includes inspection of orifice plate for signs of damage	6 monthly

Annual Activities:

Maintenance Activity	Comments	Frequency
Remove sediment from catch-pits	Remove accumulated silt with suction tanker when 50% full.	Annual/as required

Infrequent/Corrective Activities:

Maintenance Activity	Comments	Frequency
Repair/rehabilitation of inlets and outlets.		As required
Jetting and vacuuming inspection tunnel	Remove accumulated silt with suction tanker when 20% section loss (or 100mm whichever the lesser).	As required

Note;

Attenuation crate manufacturers have suppliers maintenance guidance. This should be obtained from the supplier and appended to this data-sheet and any recommended actions above and beyond stated here should be included in the maintenance regime.

SUDS MAINTENANCE MANUAL DATA SHEET



Reference: MM-GS-02

V1 – Nov 2016

SUDS Element:

Filter Drains

Function Served:

Drainage feature providing positive drainage to impermeable playground and yard area.

Features:

600mm wide, 950mm deep single sized stone filled trench surrounded by geotextile providing sump for water allowing infiltration. Perforated pipe allowing for inspection and maintenance.

Owned:

Care Home Operator

Location:

Refer to drawing LDHA-BSP-XX-XX-D-C-SK0240-P03_Drainage_Strategy

General Notes:

N/A

Part A: Routine Maintenance (typically monthly):

Maintenance Activity	Comments	Frequency
Litter and debris removal		Monthly
Grass cutting of landscaped areas	All cuttings to be removed from SUDS components	Monthly (during growing season) or as required
Manage other vegetation and remove nuisance plants.	Weeding should be conducted by hand or use non-toxic and biodegradable weed killer. Invasive species should be removed in accordance with best practice	Monthly (at implementation) then as required.
Inspect structures for evidence of poor operation		Monthly

Where Part A activities do not address deficient performance refer to Part B, see General Notes.

Part B: Occasional Maintenance (typically 6 monthly):

Maintenance Activity	Comments	Frequency
Inspect inlet catch pits and pre-treatment components for silt accumulation	Includes visual inspection of inlet chamber, forebay and inspection of flow control.	6 monthly
Visual inspection catch-pits, linking pipework etc for evidence of physical damage	Visual inspection from surface only, CCTV survey required if evidence present of structural issues.	6 monthly
Undertake trial hole within filter drain to ascertain condition at base of drain	Membrane or stone may be blocked with silt	As required

Annual Activities:

Maintenance Activity	Comments	Frequency
Remove sediment from catch-pits	Remove accumulated silt with suction tanker when 50% full.	As required

Infrequent/Corrective Activities:

Maintenance Activity	Comments	Frequency
Repair/replace geotextile surround.	If drain does not function following routine maintenance intrusive works may be required to clear the stone and replace the geotextile surround.	As required
Rehabilitate/replace filter medium	Required when all mechanical elements checked and performance remains inadequate.	As required Evidence from similar structures from around the country suggests full replacement may be required during 100 year life.
Jetting linking pipework	Where CCTV survey shows siltation of pipework has occurred	As required

SUDS MAINTENANCE MANUAL DATA SHEET



Reference: MM-BR-01

V1 – Mar 2026

SUDS Element:

GreenBlue SuDS Pod

Function Served:

Small SuDS feature located on the rainwater downpipes to capture the initial volume of runoff from a building roof area, provide an opportunity for biodiversity enhancement, and encourage water re-use.

Features:

Above ground planter that receives runoff from rainwater downpipes, which percolates through a soil/mulch layer and is temporarily stored in a chamber.

Owned:

Care Home Operator

Location:

Located on rainwater downpipes around building/dwellings where appropriate.

General Notes:

Maintenance strategy should be reviewed on a regular basis and performance of the maintenance activities assessed.

Reference should be made to recognised industry standards in undertaking maintenance.

Where activities are required outside ownership permission must be sought from relevant party.

Refer to section 22 of CIRIA C697 for discussion on maintenance techniques.

Requirement for reporting of inspections to be confirmed by responsible party. May be required as evidence of activities to prove activity as part of funding arrangements.

Routine Maintenance (typically monthly):

Maintenance Activity	Comments	Frequency
Regular Visual Inspections	<p>Key tasks include:</p> <ul style="list-style-type: none"> Visually inspect the SuDSPod surface condition. Confirm the unit is free-draining and not holding standing water for extended periods. Check for signs of sediment build-up, debris accumulation, or vandalism. 	Monthly, during the first 12 months following installation, then on a quarterly basis or after significant storm events.

Occasional Maintenance (typically 3-6 months):

Maintenance Activity	Comments	Frequency
Inspection of the inlets and outlets of the SuDSPod.	<p>This should be triggered after a reduced flow from the SuDS Pod. Key tasks include:</p> <ul style="list-style-type: none"> A visual inspection of inlets/outlets to ensure they're free flowing. The removal of any leaves/litter, sediment or other obstructions. Confirmation that no physical damage or displacement has occurred. 	Quarterly and after heavy rainfall events.
Clearing moss, debris and other sediment below inflow.	<p>Key tasks include:</p> <ul style="list-style-type: none"> Removal of moss, algae, leaf litter, silt/debris that has accumulated below inflow. Ensuring that inflow zone remains open to allow continuous flow. 	As required (typically every 6 months).

Occasional Maintenance (typically 3-6 months):

Maintenance Activity	Comments	Frequency
Plant health and vegetation management.	<p>Key tasks include:</p> <ul style="list-style-type: none"> Assess plant health, coverage and vigour. Removal of dead, diseased or invasive vegetation. Replacement of failed plants with appropriate SuDSPod approved species. Light pruning if necessary to maintain hydraulic function. 	Quarterly visual checks with additional inspections during the growing season (spring/summer).

Infrequent/Corrective Activities:

Maintenance Activity	Comments	Frequency
Replacement of planting at top of SuDS Pod.	<p>Replace any plants that have failed to establish or have been damaged.</p> <p>Any replacement planting needs to match the original specification.</p>	Increased inspections during the first year following the replacement of plants.

SUDS MAINTENANCE MANUAL DATA SHEET



Reference: MM-BR-01

V1 – Jan 2022

SUDS Element:

Bioretention Feature

Function Served:

Bioretention features designed to retain surface water runoff and encourage percolation.

Features:

Planted shallow depression.

Owned:

Care Home Operator

Location:

Within open soft landscaping where appropriate.

General Notes:

Maintenance strategy should be reviewed on a regular basis and performance of the maintenance activities assessed.

Reference should be made to recognised industry standards in undertaking maintenance.

Where activities are required outside ownership permission must be sought from relevant party.

Refer to section 22 of CIRIA C697 for discussion on maintenance techniques.

Requirement for reporting of inspections to be confirmed by responsible party. May be required as evidence of activities to prove activity as part of funding arrangements.

Routine Maintenance (typically monthly):

Maintenance Activity	Comments	Frequency
Litter and debris removal	Litter and debris (removed prior to any grass cutting activity) to minimise risk of shredding litter. Particular attention should be paid to inlet/outlet pipes.	Monthly
Trimming/cutting of feature plants	All cuttings to be removed from SUDS components.	Monthly (during growing season) or as required
Manage other vegetation and remove nuisance plants	Weeding should be conducted by hand or use non-toxic and biodegradable weed killer. Invasive species should be removed in accordance with best practice.	Monthly (at implementation) then as required.

Occasional Maintenance (typically 6 monthly):

Maintenance Activity	Comments	Frequency
Visual inspection of features for general condition	Check to identify potential issues (dead or dying vegetation, overgrown vegetation, foreign species present etc.)	6 monthly

Annual Activities:

Maintenance Activity	Comments	Frequency
Tidy all dead growth before start of growing season		Annually
Prune and trim trees and remove cuttings	Where vegetation is planted as a barrier management of upward growth to encourage outward growth is necessary (after shrub seedlings are established).	As required

Infrequent/Corrective Activities:

Maintenance Activity	Comments	Frequency
Remove dead vegetation		1-3 years or as required
Re-seed or replant areas of poor vegetation growth		As required
Repair erosion or other damage	Required to maintain the bed at original design level	As required
Rehabilitation following a pollution event		As required

Project Number: 26-0250
Project Title: Lavant Drive, Havant
Location: Land north of Lavant Drive, Havant, Hampshire
BSP Document Ref: LDHA-BSP-XX-XX-T-W-0001-P04_Flood_Risk_Assessment



Appendix F

Environment Agency Correspondence & Modelled Flood Data