

JONES HOMES SOUTHERN LTD

FOLDERS LANE (PHASE 2), BURGESS HILL

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY

**REPORT REF.
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1. INTRODUCTION

- 1.1. Ardent Consulting Engineers (hereafter referred to as "Ardent") has been commissioned by JONES HOMES SOUTHERN LTD to undertake a Flood Risk Assessment (FRA) and drainage strategy for the proposed 40 residential dwellings, parking areas, highways, greenspace, associated amenity area and all ancillary and enabling works at a Site off Folders Lane, Burgess Hill, RH15 0XD, hereafter referred to as the 'Site'.
- 1.2. This FRA has been prepared with specific reference to the requirements of National Planning Policy Framework (NPPF) updated in July 2021 and the Planning Practice Guidance (PPG), which superseded the Technical Guidance to the NPPF, updated in August 2022. This report also takes into consideration the requirements within the Non-statutory technical standards for sustainable drainage systems (March 2015) and its Best Practice Guidance (July 2015).
- 1.3. This FRA has been prepared to support a planning application to be submitted to the Local Planning Authority Mid Sussex District Council (MSDC). The Lead Local Flood Authority (LLFA) is West Sussex County Council (WSCC).

Site Location

- 1.4. The Site is currently unoccupied greenfield land, used for agricultural purposes. Lane is located along the northwest boundary of the Site. To the west of the Site is a newly built residential estate development (Burgess Hill Phase 1 of Jones Homes development) which is accessed by Stroudley Drive. Residential homes are situated to the south and north of the Site and agricultural land lies to the east. The Site is located approximately 1.9km to the southeast from the town centre of Burgess Hill on the edge of the urban fringe, with dominant land use to the south and east of the site being agricultural land and green space.
- 1.5. The Site is currently accessed via public footpaths from Folders Lane in the northwest extent of the Site and from the Stroudley Drive via the new residential estate to the west of the Site.
- 1.6. The area of the Site is approximately 1.872 ha and centred on a grid reference of 532969 mE, 117935 mN
- 1.7. Please refer to **Figure 1-1** below for a Site Location Plan.

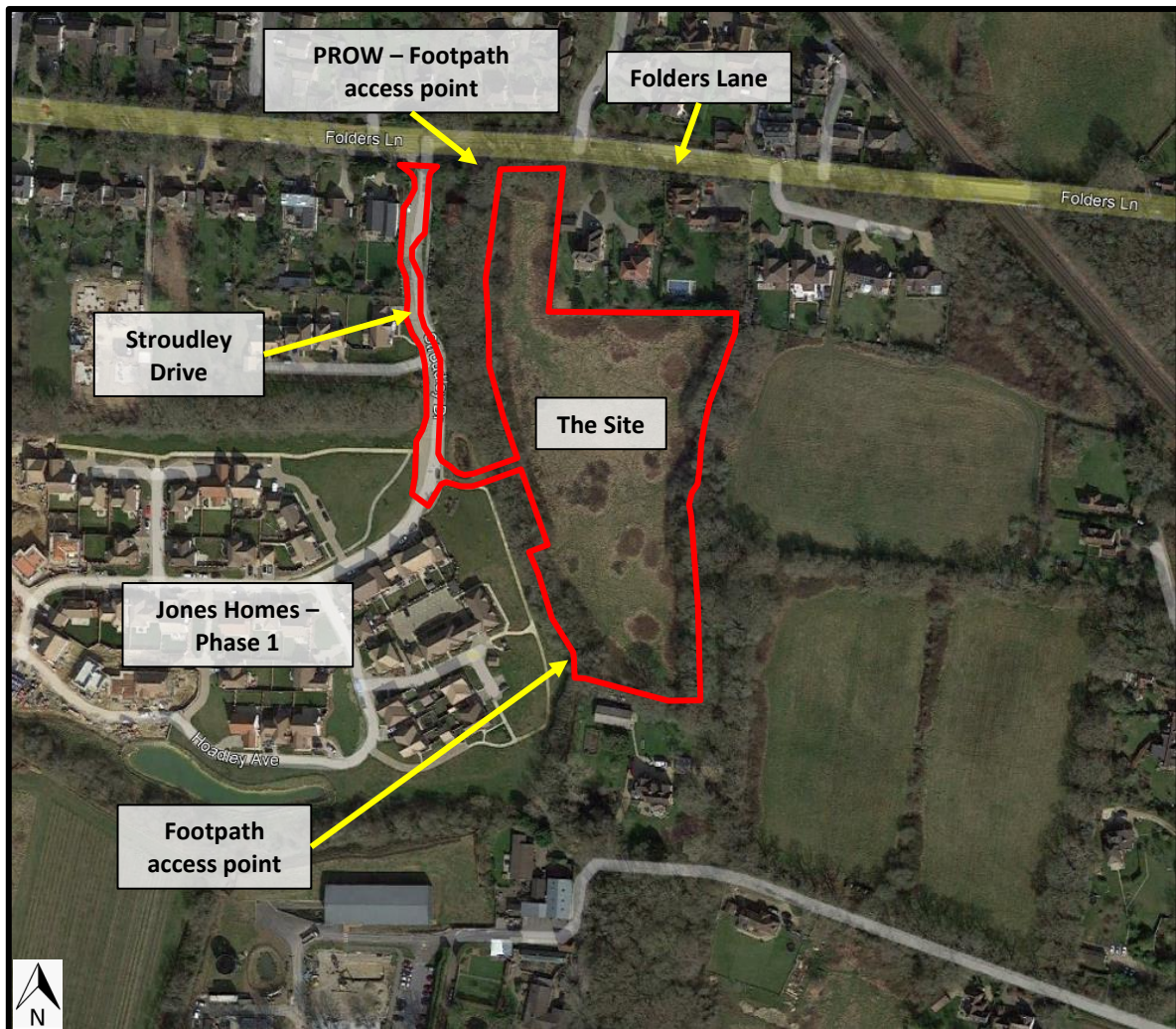


Figure 1-1: Site Location Plan

Development Proposals

- 1.8. The Site proposal consists of constructing 40 residential dwellings, parking areas, highways, greenspace, associated amenity area and all ancillary and enabling works, as part of the Phase 2 stage of the burgess hill development.
- 1.9. The proposed development is to be accessed from Stroudley Drive to the west of the Site which links to Folders Lane to the north.
- 1.10. The proposed development is illustrated in **Figure 1-2** on the next page; refer to **Appendix A** for the full development proposals.



2. POLICY CONTEXT

National Planning Policy Framework

- 2.1. The National Planning Policy Framework (NPPF) was updated on 20th July 2021; paragraph 159 to 169 inclusive, establishes the Planning Policy relating to flood risk management. The Technical Guide to the NPPF has been superseded by the Planning Practice Guidance (PPG) in March 2014, and was last updated on 25th August 2022.
- 2.2. The main focus of the policy is to direct development towards areas of the lowest practicable flood risk and to ensure that all development is safe, without increasing flood risk elsewhere. The main considerations are:
- applying the sequential test and then, if necessary, the exception test as set out below;
 - safeguarding land from development that is required, or likely to be required, for current or future flood management;
 - using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and
 - where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.

Planning Practice Guidance Flood Risk and Coastal Change

- 2.3. The accompanying planning practice guidance to the NPPF provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the National Planning Policy Framework on development in areas at risk of flooding.
- 2.4. The PPG provides supporting information on:
- The application of the sequential approach and Sequential and Exception Tests;
 - Measures to reduce flood risk to acceptable levels;
 - How to manage residual risks;

- Guidance on how to take climate change into account; and
- Guidance relating to SuDS drainage principles.

Flood and Water Management Act (2010)

2.5. The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The act also provides lead local flood authorities and the Environment Agency with a power to request information required in connection with their flood risk management functions.

Sustainable Drainage Systems - Non-statutory technical standards for sustainable drainage systems March 2015

2.6. The Non-statutory technical standards for sustainable drainage systems were published in March 2015. This document sets out non-statutory technical standards for sustainable drainage systems. They should be used in conjunction with the Planning Practice Guidance. In addition, its "Best Practice Guidance" which was published by Local Authority SuDS Officer Organisation (LASOO) in July 2015 to provide an interpretation of the technical standard.

2.7. The LPA may set local requirements for planning permission that have the effect of more stringent requirements than these non-statutory technical standards.

2.8. In addition, SuDS should be designed in accordance with CIRIA 753 "The SuDS Manual", which represents current best practice.

The Local Plan

2.9. The MSDC adopted its District Plan 2014-2031 in March 2018 which replaced the previous Mid Sussex Local Plan (2004). The District Plan is the overall strategic plan for the district, setting out an integrated economic, environmental, transport and social framework for the development of district. A draft District Plan 2021-2039 has been published and is currently undergoing Regulation 18 consultations.

2.10. The District Plan and associated mapping has been consulted and referred to (where relevant) in the production of this FRA.

2.11. Policies in the current District Plan 2014-2031 which are relevant to flood risk and drainage are as follows:

- Policy DP41 – Flood Risk and Drainage

2.12. The Site is identified as an allocated housing site on the Adopted MSDC Site Allocations Development Plan (June 2022) "SA12".

2.13. Other relevant statutory planning documents including the Burgess Hill Neighbourhood Plan (January 2016), and Supplementary Planning Documents have also been consulted as part of this FRA.

Preliminary Flood Risk Assessment

2.14. The Preliminary Flood Risk Assessment (PFRA) for WSCC, prepared in 2011, is a high-level screening exercise that compiles information on significant local flood risk from past and future floods.

2.15. This document and the associated mapping have been consulted and referred to (where relevant) in the production of the FRA.

Strategic Flood Risk Assessment

2.16. The MSDC Level 1 Strategic Flood Risk Assessment (SFRA) produced in June 2015 by MSDC, provides an overview of flood risk in the district from all potential sources and to inform flooding policies including the allocation of land for development. The report provides an assessment of the level of flooding geographically and outlines the constraints of flooding on future development proposals. The SFRA is also designed to ensure development is steered away from areas identified most at risk from various flood sources, reducing the risk of flooding to its residents and buildings, through providing the evidence needed to inform the undertaking of the Sequential Test in determining the land use allocations in accordance with the NPPF, and how to apply the Sequential Test for sites within the council.

2.17. WSCC have also produced their own SFRA in January 2010 by Capita Symonds, split over 4 volumes.

2.18. These SFRA documents and their associated mapping provided have been consulted and referred to (where relevant) in the production of this FRA.

Local Flood Risk Management Strategy

2.19. The WSCC Local Flood Risk Management Strategy (LFRMS) was produced in 2014 by the County Council. An update to the current LFRMS (2021-2026) is currently undergoing review.

- 2.20. The aim of the LFRMS is to provide a robust local framework that employs a full range of complementary approaches towards managing and communicating the risks and consequences of flooding arising from all sources of flood risk for West Sussex. The strategy will be used to influence future capital investment, maintenance, public engagement and understanding, land-use planning, emergency planning and future developments across borough.
- 2.21. This document has been consulted and referred to (where relevant) in the production of this FRA.

Surface Water Management Plan

- 2.22. A Surface Water Management Plan (SWMP) is a plan which outlines the preferred surface water management strategy in a given location. In this context surface water flooding describes flooding from sewers, drains, groundwater, and runoff from land, small water courses and ditches that occurs as a result of heavy rainfall. A SWMP should establish a long-term action plan to manage surface water in an area and should influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning and future development
- 2.23. The purpose of a SWMP is to make sustainable surface water management decisions that are evidence based and risk based, whilst taking climate change into account, and are inclusive of stakeholder views and preferences.
- 2.24. West Sussex LLFA Policy for the Management of Surface Water (updated in 2018) has been consulted and referred to (where relevant) in the production of this FRA

South East River Basin District Flood Risk Management Plan

- 2.25. The South East River Basin District Flood Risk Management Plan (2015-2021) (FRMP) has been referred (where relevant) in the production of this FRA. While the FRMP provides an overview and summery of the historic flood events within the South East River basin (and the Adur and Ouse management catchment and Adur Upper Operational sub-catchment), the mapping provided in this document is too coarse (scale too small) to relate to the site. The FRMP recommend the plan should be read in conjunction with the Lead Local Flood Authority (LLFA) local strategies (i.e. PFRA, SFRA, LFRMS and SWMP).

Climate Change Allowance

2.26. Climate change allowances for rainfall intensity, in the Planning Practice Guidance, were updated in May 2022. Climate change allowances are now broken down into management catchments. To allow for the predicted impacts of climate change on surface water runoff within the Adur and Ouse Management Catchment, the following increases detailed in **Table 2-1** below to rainfall intensity should be allowed for. For residential developments the minimum lifetime is 100 years and the upper end allowances should be used.

Table 2-1: Adur and Ouse Management Peak Rainfall Allowances

3.3% (1 in 30-year) Annual Exceedance Rainfall Event		
Epoch	Central Allowance	Upper End Allowance
2050s	20	35
2070s	20	40
1% (1 in 100-year) Annual Exceedance Rainfall Event		
Epoch	Central Allowance	Upper End Allowance
2050s	20	45
2070s	25	45

Therefore, under the NPPF an allowance of 40% and 45% for the effects of climate change for the 3.3% and 1% annual exceedance rainfall event respectively, would achieve the policy requirements in designing the drainage elements of the proposed residential redevelopment.

Sequential Test

2.27. The objective of the Sequential Test is to steer new developments toward areas with the lowest probability of flooding. Where there are no reasonably available sites in lower flood risk areas, local planning authorities in their decision making should take into account the flood risk vulnerability of land uses and consider reasonably available sites in higher flood risk areas.

2.28. As the site is shown to be located within Flood Zone 1 of the Environment Agency flood mapping (see **Section 4**), it is not considered necessary for the Site to undergo the Sequential Test.

Exception Test

2.29. Table 2 'Flood risk vulnerability classification' of the PPG describes the proposed residential development as 'More Vulnerable'. Table 3 of the PPG replicated overleaf in **Table 2-2**, confirms that the Exception Test is not required for 'More Vulnerable' uses in Flood Zone 1.

Table 2-2: Extract from PPG - Table 3 Flood Risk Vulnerability

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *
Key:					
✓ Exception test is not required					
X Development should not be permitted					

3. BASELINE CONDITIONS

Topography

- 3.1. A topographical survey of the site was carried out in November 2017 by Aworth Survey Consultants and is included in **Appendix B**. The Topographic Survey for Phase 1 of the development adjacent to the west of the Site was undertaken by M J Zara Associates in June 2014, which is available to the public on the MSDC planning portal (14/04492/FUL) and provided in **Appendix B**.
- 3.2. Excluding Stroudley Drive, the Topographical Survey shows the Site slopes in a northwest direction, from the southeast corner (57.03 mAOD) to the north boundary in the northwest extent of the Site adjacent to Folder Lane (50.65 mAOD). The average slope across the Site from the southeast corner to the northwest extent of the Site is approximately 1:41.
- 3.3. Excluding Stroudley Drive, the Topographical Surveys shows trees and Bushes along most of the Site boundary. Ditches are also noted along the south, west and north boundaries of the Site, with a Ø380 mm culvert and brick headwall located on the north boundary adjacent to Folder Lane. No manhole covers are noted within the Site boundary.

Hydrology

- 3.4. The Environment Agency's (EA) online main river map shows there are no watercourses within the Site (**Figure 3-1**). The nearest watercourse is an un-named ordinary watercourse which is located along the Site's northwest boundary and Folders Lane, which proceeds north through a Ø380 mm culvert and continues north for approximately 1.6km before joining the Adur (a 'Main River').
- 3.5. The Topographical Surveys shows Ditches are also noted along the south, west and north boundary of the Site, which based on the topography it is assumed to drain to the ordinary watercourse that is located along the Site's northwest boundary, as indicated in **Figure 3-1**.

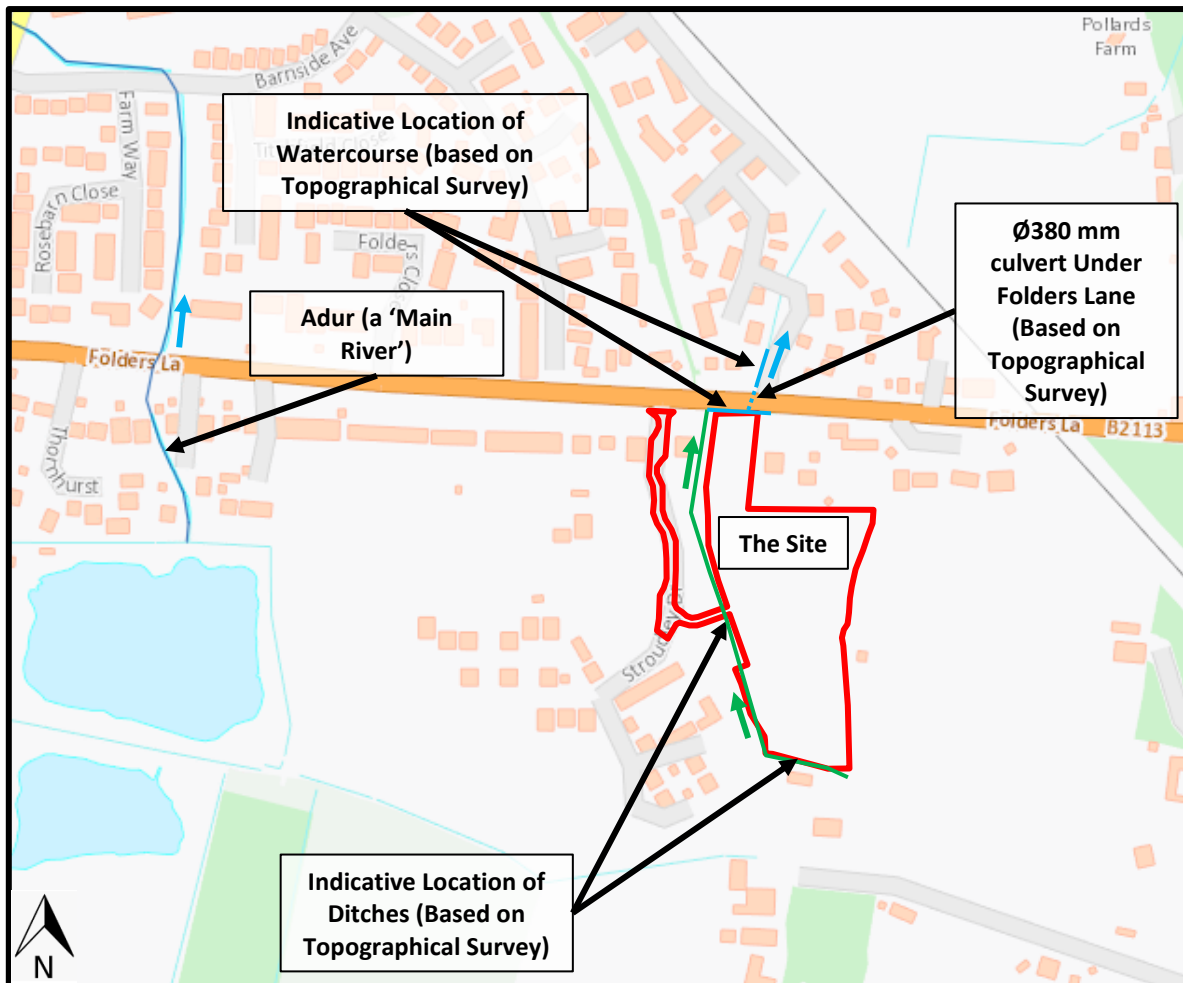


Figure 3-1: Annotated Environment Agency Main River Mapping

Ground Conditions

- 3.6. A review of British Geological Survey (BGS) mapping indicates no superficial deposits within the Site. The underlying bedrock is shown as '*Weald Clay Formation*' (Mudstone) for most of the Site and '*Weald Clay Formation*' (Sandstone) along the south boundary of the Site. An extract from BGS mapping is shown in **Figure 3-2**.

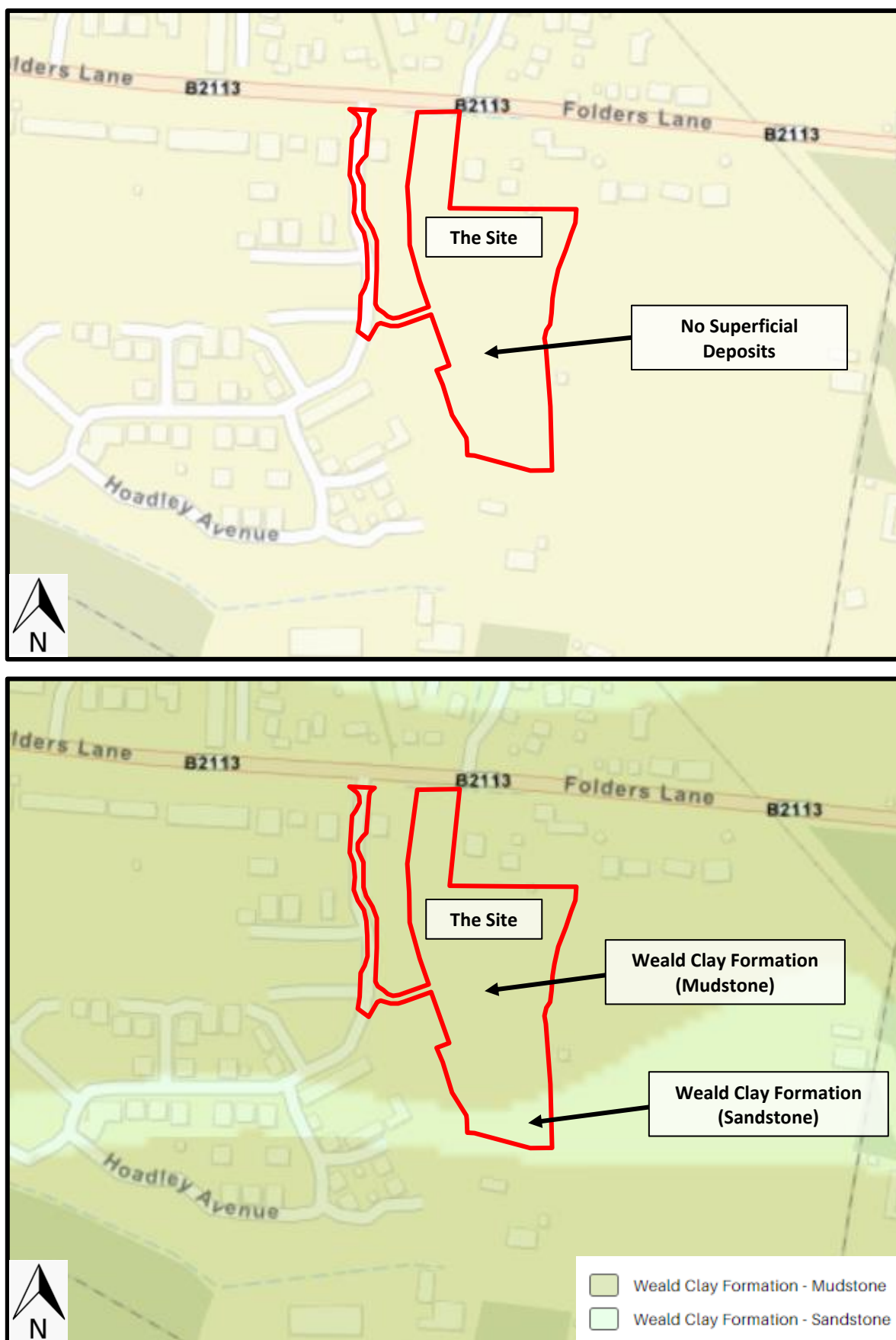


Figure 3-2: BGS Online Geology Mapping – Superficial Deposits (Top), Bedrock Geology (Bottom)

- 3.7. BGS mapping shows no boreholes within or near to the site which could be used to infer the geology and ground conditions.
- 3.8. DEFRA 'Magic Map' online mapping shows the Site is located on a 'Secondary A' Aquifer in the bedrock and in a high groundwater vulnerability risk area. The online mapping also shows the Site is located across an 'unproductive' and 'high' ground water vulnerability risk zone, but the Site is not located within a groundwater source protection zone.

Existing Sewer Infrastructure

- 3.9. Southern Water sewer asset plans (which is available to the public on the MSDC planning portal 14/04492/FUL) show no public sewers located within the Site (**Figure 3-3**). The nearest public sewers include a Ø150 mm foul water sewer conveying flow west along Folders Lane to the north of the Site, and a Ø150 mm surface water sewer located in Sycamore Drive approximately 50 m north of the Site.
- 3.10. Southern Water sewer asset plans are provided in **Appendix C**.
- 3.11. A review of the drainage Strategy for Phase 1 of the development adjacent to the west of the Site shows surface water sewers located along Stroudley Drive draining to the wetland ponds SuDS serving that development.
- 3.12. The Topographical Surveys show no manhole covers other drainage features within the Site boundary.

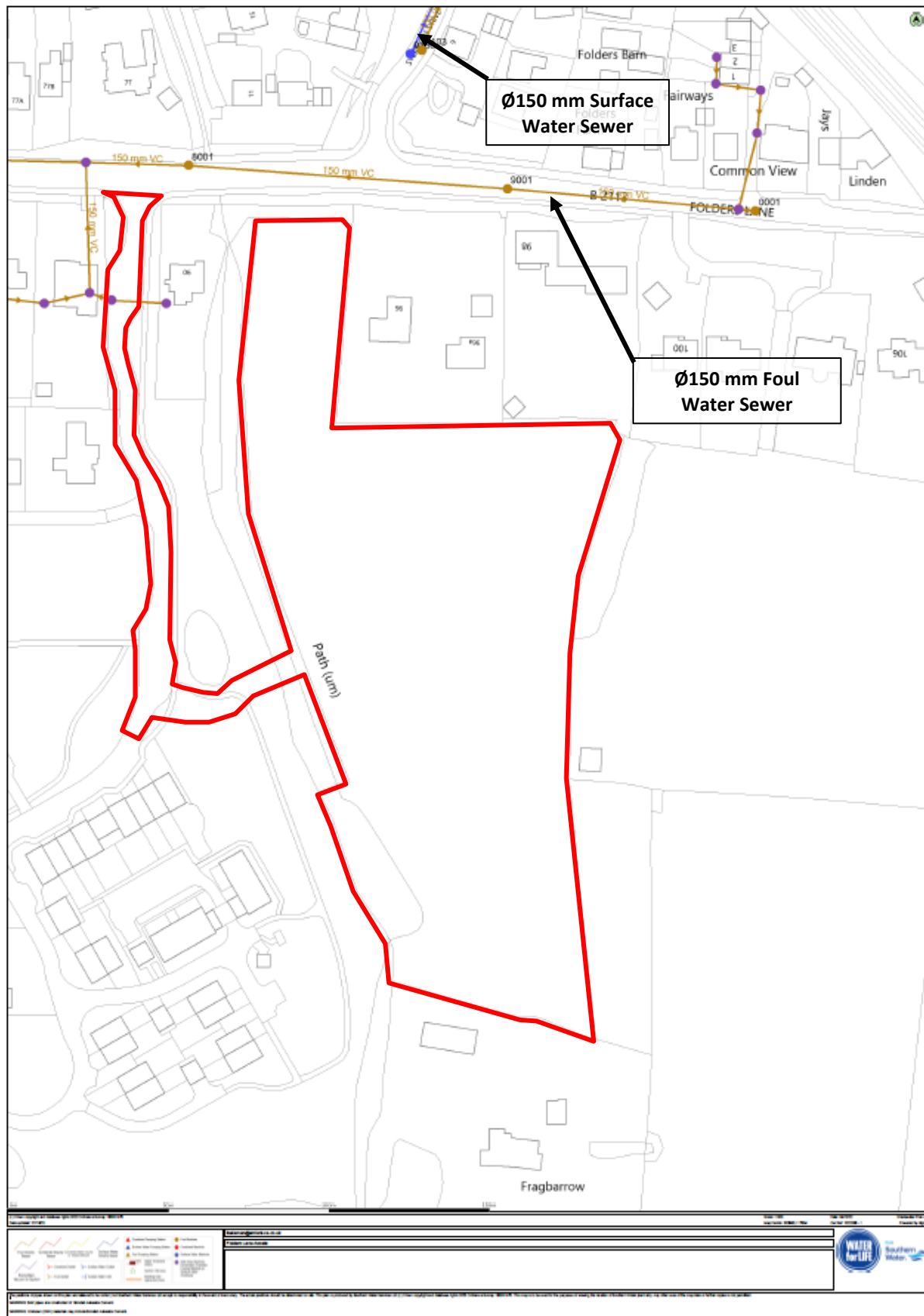


Figure 3-3: Extract from Southern Water Sewer Asset Plans

4. SOURCES OF FLOODING

4.1. The NPPF requires flood risk from the following sources to be assessed, each of which are assessed separately below:

- Tidal sources (flooding from the sea);
- Fluvial sources (river flooding);
- Pluvial sources (flooding resulting from overland flows);
- Groundwater sources;
- Sewer flooding;
- Artificial sources, canals, reservoirs etc.; and,
- It also requires the risk from increases in surface water discharge to be assessed (surface water management) – see **Section 6.0**.

Historic Flood Incidences

4.2. The WSCC PFRA has identified 2631 historic flood related incidences across the county, however there is no specific mention of any these past incidences located within or adjacent to the Site.

4.3. WSCC SFRA mapping shows several historic flood incidences from sewers in Burgess Hill to the northwest of the Site, with areas prone to flooding from land (i.e., surface water) located to the east and north of the Site. No groundwater flood incidents are shown within the region of Burgess Hill.

4.4. The EA's online historic flood map shows the Site is not located in or near to an area of historic flooding.

Flood Zone Designation

4.5. Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. The NPPF Planning Practice Guidance defines Flood Zones as follows:

- Flood Zone 1: Low Probability. Land having a less than 1 in 1,000 annual probability of river or sea flooding;
- Flood Zone 2: Medium Probability. Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding;

- Flood Zone 3a: High Probability. Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding; and
- Flood Zone 3b: The Functional Floodplain. This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessment areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.

Fluvial and Tidal Flooding

4.6. The SWCC SFRA mapping shows the entire site is located in Flood Zone 1.

4.7. The Environment Agency's Flood map for planning shows the Site is located entirely in Flood Zone 1. See **Figure 4-1** below.

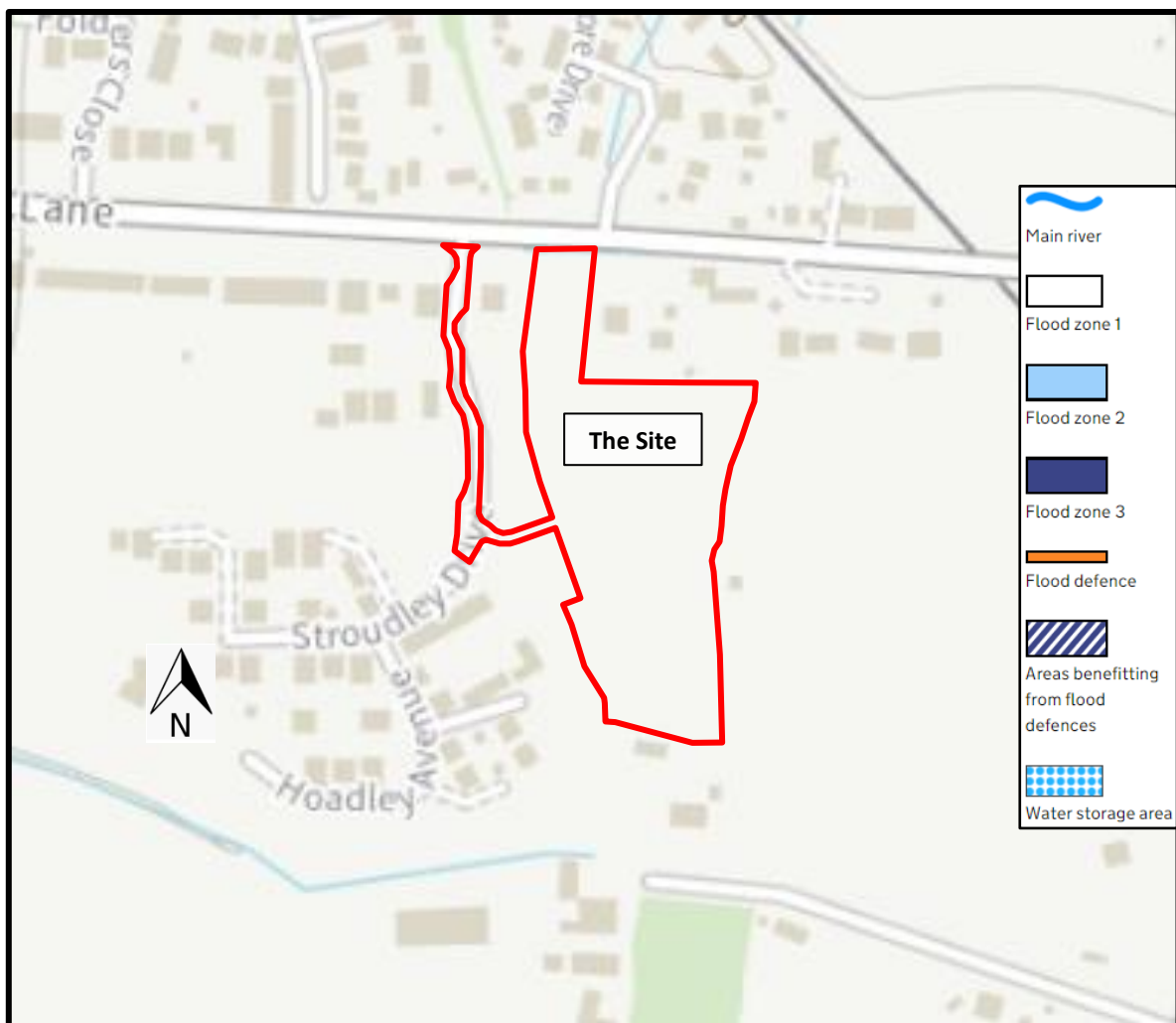


Figure 4-1: Environment Agency Flood Map for Planning

- 4.8. Whilst not shown on the EA's flood map for planning, the topographic survey shows ditches and an ordinary watercourse located along the south, west and northwest boundary of the Site, which will have fluvial flood risk associated with them. It is recommended that these ditches and ordinary watercourse are modelled to determine the associated fluvial flood extent, and sequential develop the Site outside thereof.
- 4.9. The risk of tidal and fluvial flooding is considered low to negligible, subject to hydraulic modelling of ditches and an ordinary watercourse along site boundary.

Pluvial Flooding

- 4.10. The Environment Agency surface water flood maps (**Figure 4-2**) show most of the Site has a 'very low' risk of surface water flooding, meaning that there is less than a 0.1% chance of flooding from surface water flooding each year. However, as indicated in (**Figures 4-2 and 4-3**) there is an overland flow pathway which has a low (has a chance of flooding of between 0.1% and 1% each year), medium (has a chance of flooding of between 1% and 3.3% each year) and high risk (chance of flooding of greater than 3.3% each year), which originates within the northern half of the Site and proceeds north towards the ordinary watercourse on Site's northwest boundary. Similarly, there is a second 'low risk' overland flow pathway along the northern half of the west boundary of the Site which appears to correlate with the ditch along this section of the Site boundary. Lastly, there is a small area of surface water ponding shown mid-way along the east boundary of the Site which correlates with a shallow elongated depression in the surface levels as shown in the Topographic Survey, with no apparent onward connectivity to any other ditches or watercourses.

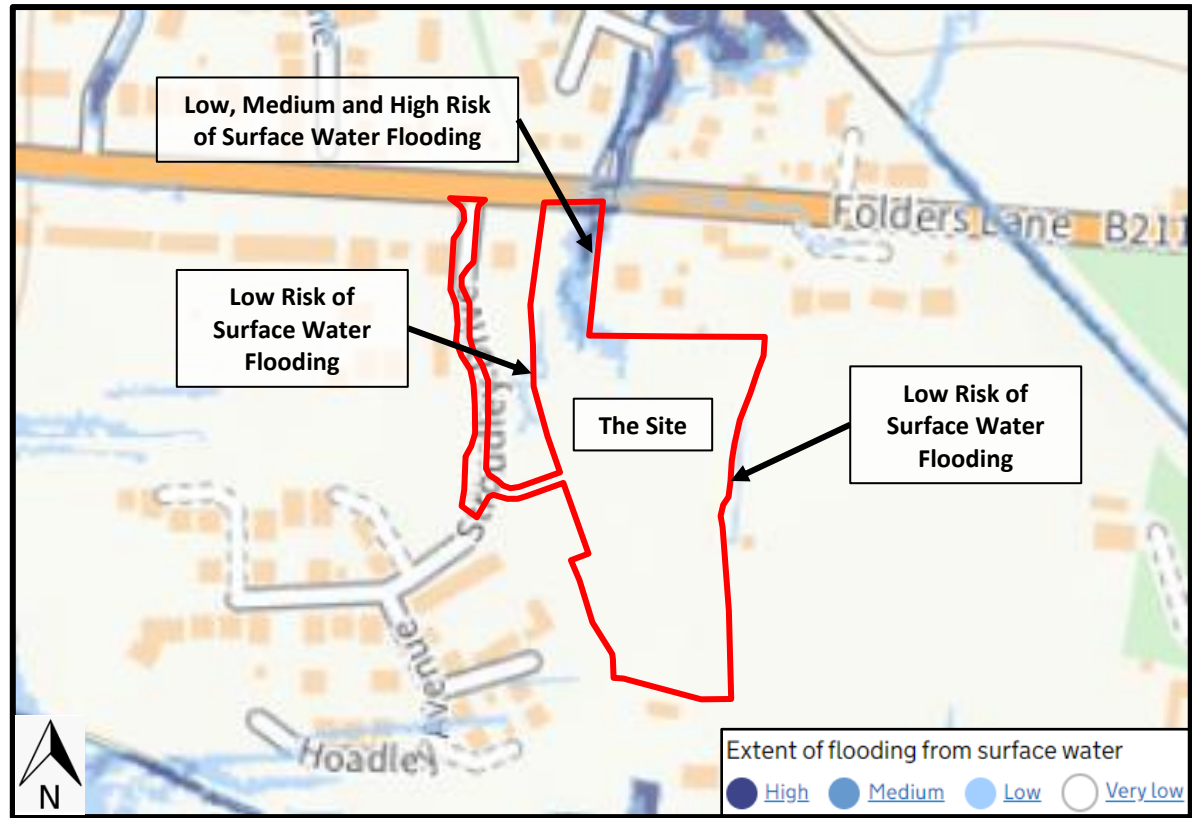


Figure 4-2: Environment Agency Flood Map for Surface Water

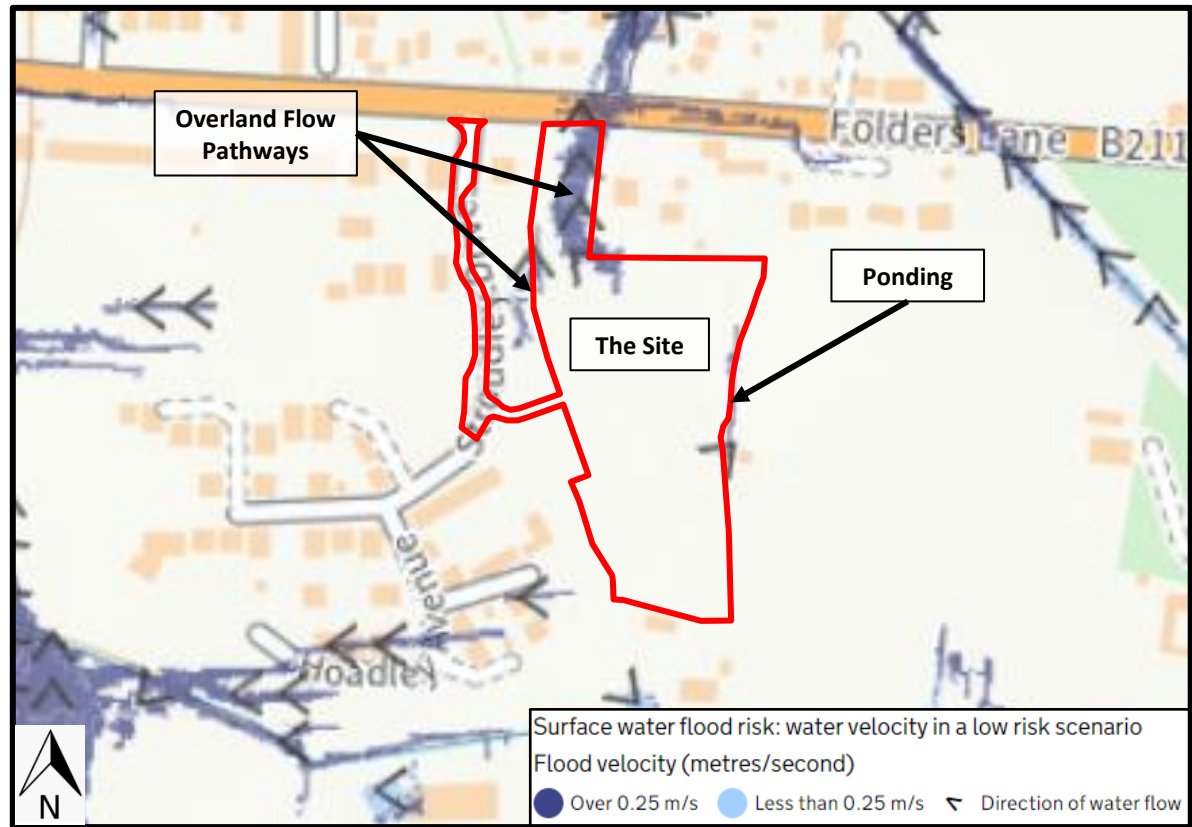


Figure 4-3: Environment Agency Flood Map for Surface Water (Low Risk Flood Velocity)

Groundwater Flooding

- 4.11. The WSCC SFRA mapping shows the Site is located in an area which has low risk of groundwater flooding.
- 4.12. BGS mapping indicates no superficial deposits within the Site, and the underlying bedrock is mostly *Weald Clay Formation* (Mudstone) which is likely to inhibit rising groundwater levels.
- 4.13. Therefore, the risk of groundwater flooding at the Site is regarded as low. As no development is proposed below ground level, it is considered that there would be no groundwater flood risk impact to the proposed development.

Sewer Flood Risk

- 4.14. Southern Water sewer asset plans (**Figure 3-3** and in **Appendix C**) show no public sewers located within the Site.
- 4.15. Similarly, the Topographic Survey show no manhole covers are noted within the Site boundary.
- 4.16. As the proposed development will be accompanied by a surface water drainage strategy designed in accordance with the current policy, best practice and design standards, the risk of sewer flooding within the Site is assessed as being 'low' in both the pre and post-development scenarios.

Artificial Sources

- 4.17. The WSCC SFRA artificial sources flood mapping shows flooding within the southern extent of the site along the south western boundary of the site, which is associated with the Howden Reservoir and Ladybower Reservoir.
- 4.18. According to the Environment Agency's Flood risk from reservoir map (**Figure 4-4**) shows the Site is not located in an area subjected to reservoir flood risk, even when the Adur (a 'Main River') is in flood.
- 4.19. OS mapping and Canal and River Trust mapping confirms there are no nearby artificial waterbodies such as canals located near to the Site. The nearest being the 'Wintons Fishery' (an open waterbody) located 300 m to the west of the Site but is not hydraulically linked to the Site.

4.20. As flooding incidents related to reservoirs, canals and other artificial features are very rare, and reservoirs are inspected and maintained by the Environment Agency and appropriately qualified and specialised panel engineers on a regular basis, the Site is considered to be at a 'low risk' of flooding from artificial sources

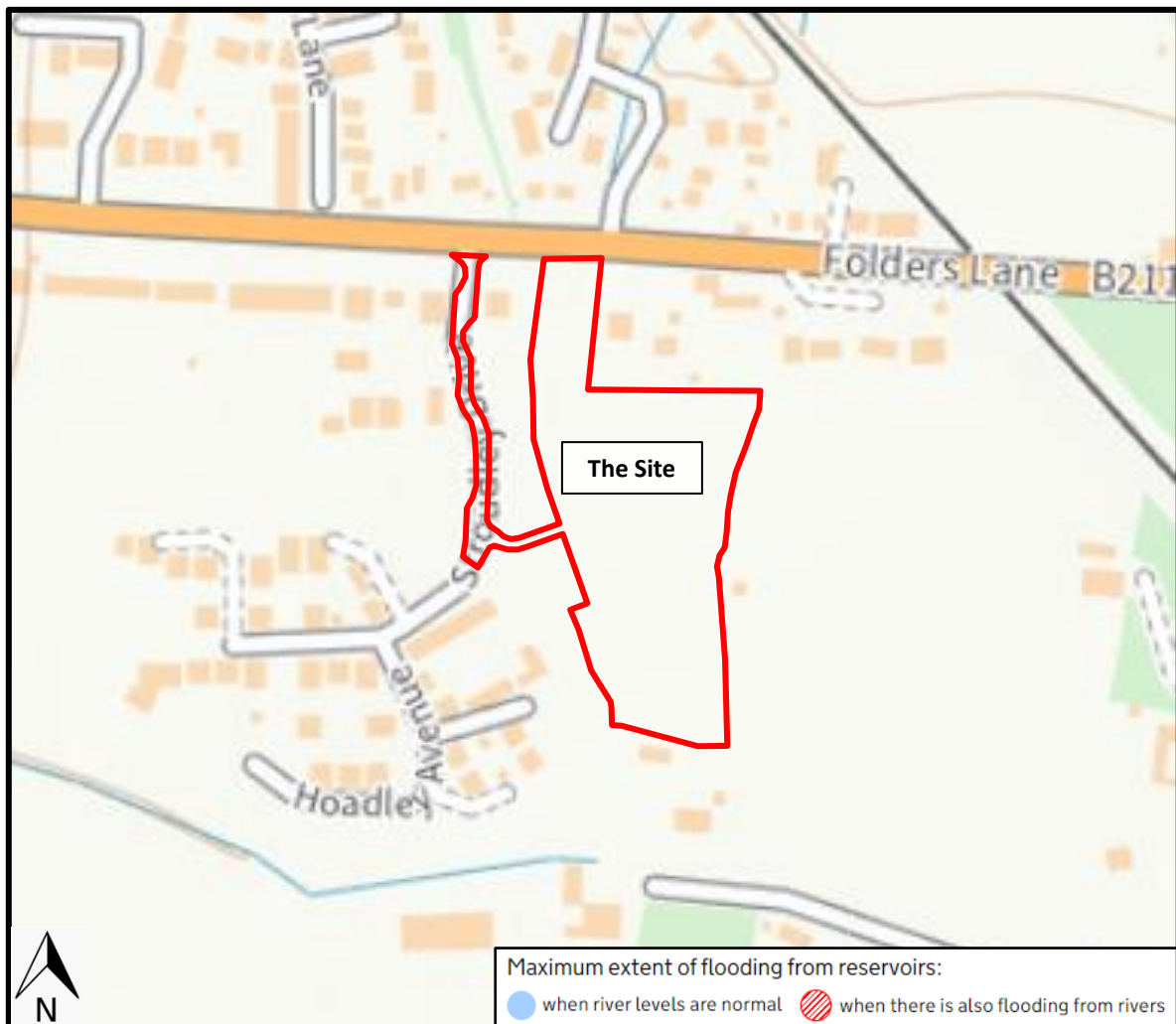


Figure 4-4: Environment Agency Flood Map for Reservoir Breach

5. FLOOD MITIGATION MEASURES

POST DEVELOPMENT SURFACE WATER FLOOD RISK

5.1. The proportion of the wider area contributing to the existing flood risk is shown in figure 5.1.

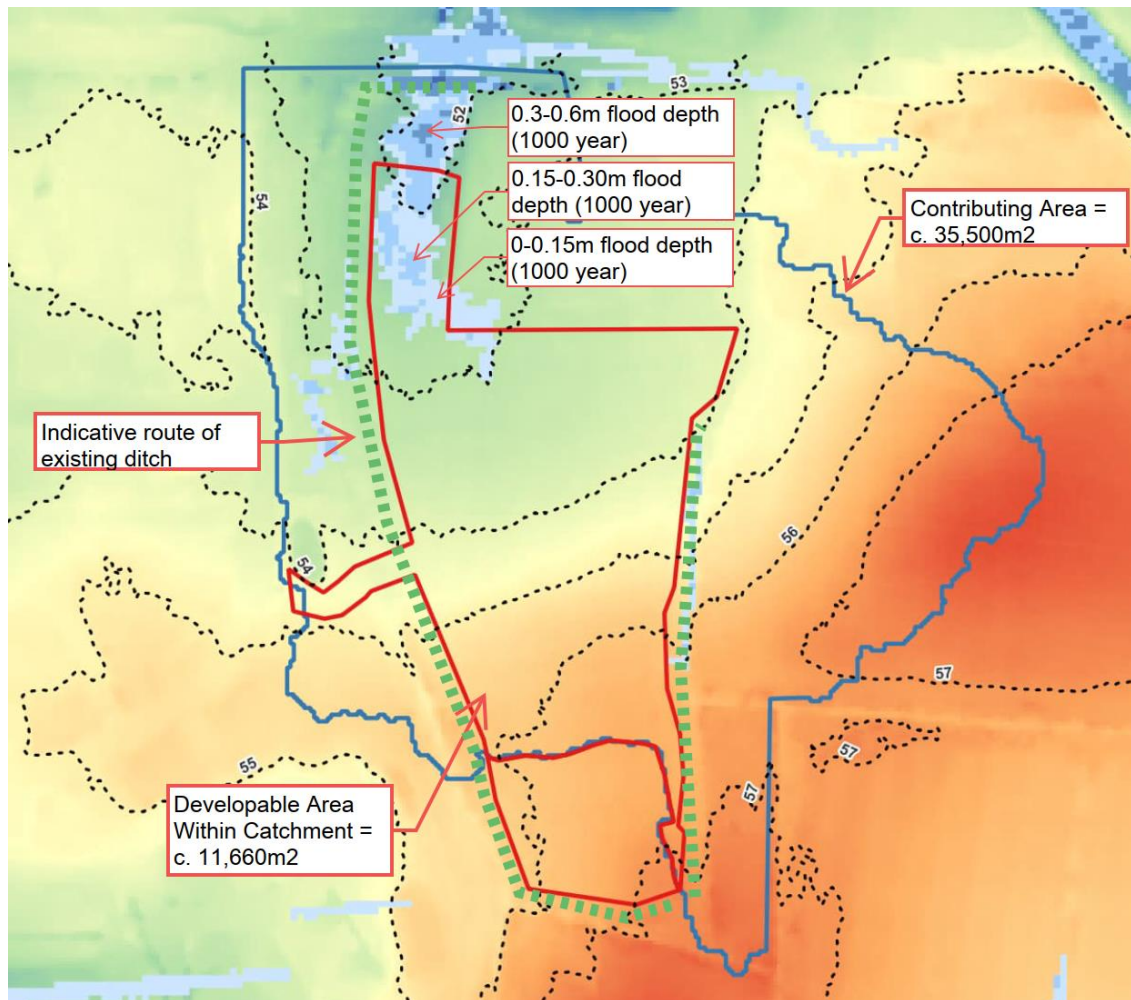


Figure 5-1: Surface Water Catchment

- 5.2. The application area currently generates approximately 31.6l/s of greenfield runoff in the 100 year (1% AEP) event (**Appendix D**). Post development, the proposed drainage system will capture the runoff within the development and discharge at a controlled rate (Qbar) for all events up to the 100 year plus 40%. The Qbar rate is 9.9l/s which will result in a betterment of 69% compared to the 100 year pre-development runoff.
- 5.3. As there will be a positive drainage system in place, the overland flows generated on site will cease to exist post development and surface water flooding will be limited to the ditches and northern watercourse.

- 5.4. The wider catchment (3.35ha) is expected to generate approximately 65.3l/s of runoff pre-development which is shown on mapping to surcharge the northern 380mm culvert. Post development this flow is expected to reduce to (65.3-31.6+9.9) 43.6l/s in the 100 year event – a 43% betterment - reducing the burden on the culvert and reducing offsite flood risk through the introduction of onsite attenuation.
- 5.5. The existing trees and associated root protection areas will form a natural constraint to develop in close proximity to the ditches, allowing for future maintenance. The residential units have been set back from the identified watercourse to the north to allow a maintenance easement and access to the culvert.

Finished Floor Levels

- 5.6. Although surface water flood risk will be managed, for robustness it is recommended that the proposed finished floor levels (FFLs) of the dwelling units should be raised above the immediate external levels, and the Site levels should be landscaped to slope potential runoff away from the proposed dwellings and towards the proposed highways, SuDS features and Site boundary. A concept levels strategy was submitted with the application indicating proposed FFLs - the exact levels of the Site will be refined as necessary during detailed design (post planning).
- 5.7. Buildings should be kept 150mm above existing levels where possible to maintain exceedance flow routes in extreme events.

Safe Access and Egress

- 5.8. The development parcel access is located within Flood Zone 1. Safe access and egress for residents and emergency services to and from the Site can be achieved from Stroudley Drive to the west of the Site which is accessed from Folders Lane to the north of the Site.

6. SURFACE WATER MANAGEMENT

Proposed Surface Water Drainage Discharge Location

6.1. The proposed drainage strategy will seek to discharge surface water in line with the drainage hierarchy, outlined in national and local policy and Planning Practice Guidance. The hierarchy is listed below in order of preference for surface water disposal:

- Into the ground (**infiltration**);
- To a **surface water body** (e.g. an ordinary watercourse);
- To a **surface water sewer, highway drain, or other drainage system**;
- To a **combined sewer**.

6.2. A review of British Geological Survey (BGS) mapping indicates no superficial deposits within the site. The underlying bedrock is shown as 'Weald Clay Formation' (Mudstone) for most of the Site and 'Weald Clay Formation' (Sandstone) along the south boundary of the Site. Therefore, the infiltration potential for the surface water discharge from Site is considered low, however, this should be confirmed through in situ infiltration testing to BRE 365 method.

6.3. A review of EA main river mapping, OS mapping and Topographical Survey confirms there is an ordinary watercourse along the northwest boundary of the Site, which the Site currently drains towards.

6.4. It is proposed that the surface water runoff from the proposed development discharges at controlled rates into this ordinary watercourse along the northwest boundary of the Site, subject to agreement with the LLFA.

Existing and Proposed Discharge Rate

6.5. The Site is currently occupied by agricultural land (greenfield Site) with an approximate developable area of 1.72 ha.

6.6. The proposed developable area of the Site equates to approximately 1.37 ha which includes dwelling units, driveways, gardens and highways, but excluding the area of Stroudley Drive which is already developed and served by drainage in Phase 1 of the development. The proposed positively drained impermeable area of the site amounts to 0.822 ha, which includes 10% for urban creep.

6.7. The greenfield runoff values for the developable area (1.72ha) were calculated using MicroDrainage ICP-SuDS method (recommended for drainage areas <50ha). **Table 6-1** presents the summary of the greenfield runoff rate for the developable area. A copy of the MicroDrainage results can be found in (**Appendix D**).

Table 6-1: Greenfield and Post Development Runoff Rates

Site Developable Area:	1.72ha	Surface Water Runoff (l/s)			
		1-year	QBAR	100-year	100-year +45% CC
Greenfield – Pre-Development		8.4	9.9	31.6	n/a
Proposed – Post-Development		8.4	9.9	9.9	9.9
Betterment		-	-	69%	-

6.8. Following the surface water discharge hierarchy, it is proposed to discharge the surface water runoff from the developable area of the Site into the ordinary watercourse located in the northwest boundary of the Site. The flows will be limited to the QBAR Greenfield run-off rate for all storm events up to an including the 1 in 100 year plus a 45% allowance for climate change.

Potential Sustainable Drainage Systems (SuDS)

6.9. DEFRA issued the non-statutory technical guidance for Sustainable Drainage Systems in March 2015. This document along with local policy guidelines and the CIRIA Guidance C753 (The SuDS Manual) have been used to determine the appropriate SuDS Strategy, which considers the spatial and environmental constraints of the Site.

6.10. **Table 6-2** overleaf appraises the constraints and opportunities for the use of SuDS techniques within the Site and it adopts the management train approach outlined in CIRIA C753 'The SuDS Manual'.

Table 6-2: CIRIA C753 SuDS Management Train Approach

Rainwater Harvesting (source Control)	
Constraints:	The benefits of rainwater harvesting on a specific design storm event cannot be quantified, due to the seasonal availability of storage within the structure.
Opportunities:	Opportunities in private gardens and amenity areas to provide harvesting features such as raised planters and water butts exist. However, it is difficult to quantify contribution, and therefore not included within calculations as part of this surface water management strategy.
Living Roofs / Green Roofs (Source Control)	
Constraints:	Green roofs require a level roof and easy access for regular maintenance. Majority of the Site is for private individual dwelling units with sloped roofs.
Opportunities:	Not considered as part of the surface water management strategy.
Infiltration Features (Source Control)	
Constraints:	Soakaways as the principle means of disposing of surface water are not considered feasible due to the presence of Mudstone and sandstone bedrock.
Opportunities:	Considered to not be viable at the Site, subject to situ infiltration testing to BRE 365 method. Not considered as part of the surface water management strategy.
Permeable Paving (Source Control)	
Constraints:	It is considered not possible to provide infiltrating permeable paving/permeapav, subject to situ infiltration testing to BRE 365 method, however, there are opportunities for the use of lined permeable paving.
Opportunities:	There is potential for permeable paving wrapped in geo-membrane to provide a stage of treatment before discharging into the drainage system, in private driveways.
Bioretention System / Raingarden (Source Control)	
Constraints:	Rain gardens provide little attenuation benefit where an infiltration solution is not available.
Opportunities:	Not considered as part of the surface water management strategy
Swales, etc. (Permeable Conveyance)	
Constraints:	In order to provide practicable attenuation benefits 1:3 side-slope swales tend to require a significant land requirement.

Opportunities:	There is restricted space within the development to allow use of such a feature.
Detention Basin	
Constraints:	Basins require 1:3 side-slopes and large areas.
Opportunities:	There is opportunity within the development to allow use of such a feature.
Attenuation Tanks (end of pipe treatment)	
Constraints:	None, space is available within the site.
Opportunities:	There is potential for oversized sewers/pipes or attenuation tanks (geo-cellular crates storage) with impermeable geo-membrane to contain the attenuation system.

6.11. After consideration of the CIRIA Guidance C753 (The SuDS Manual) and local policy guidance, it is proposed to include a dry basin and permeable paving within the Site as part of the proposed surface water drainage strategy for the proposed development.

Proposed Surface Water Drainage Strategy

6.12. In the light of the above-mentioned points and in line with the national and local drainage policy, it has been proposed to present a surface water drainage strategy where the surface water runoff from the proposed impermeable surfaces of the development is divided between two catchments: the area south of plots 7 & 8 will drain under gravity to a dry basin adjacent to the access road, and the area north of plots 7 & 8 will drain via permeable paving. The combined flow from the basin (5.4l/s) and permeable paving (4.5l/s) will be restricted to the greenfield QBAR rate of 9.9 l/s before discharging into the ordinary watercourse located on the northwest boundary of the Site.

6.13. The use of a dry basin offers water quality improvements as well as added biodiversity and amenity benefits to the Site. The use of permeable paving also offers water quality improvements from highway runoff before discharge to the watercourse.

6.14. The surface water sewer network within the proposed roads is to be of adoptable standard but will remain private, as Stroudley Drive is private, which can be addressed at the detailed design stage.

6.15. Drawings **21044771-002** Rev B (**Appendix E**) illustrates the Proposed Drainage Strategy option for the Site.

Drainage Calculations

6.16. The surface water drainage strategy has been developed in MicroDrainage. A Source Control model has been produced to calculate the storage requirements for the detention basins. MicroDrainage calculations are provided in **Appendix D** for further details.

6.17. Section 14 of the NPPF requires an allow for predicted impacts of climate change on surface water runoff. The climate change allowances for rainfall intensity, in the Planning Practice Guidance, were updated in May 2022. The Site is located within the Adur and Ouse Management Catchment, of which the relevant climate change allowances are outlined in **Table 2-1** of **Section 2**. Under the NPPF an allowance of 45% for the effects of climate change has been accounted for in the surface water drainage calculations. A sensitivity test was also performed to compare the storage needed and freeboard available within the basin, with an upper limit of 45% climate change allowance or a central limit of 25% climate change allowance. In response to the consultee comments, calculations also include results for the 30 year + 40% event.

6.18. The SuDS attenuation features have been sized to accommodate run-off for all storms up to and including the 1 in 100-year event, with 45% climate change allowance, limiting the surface water discharge flows to the QBAR greenfield flow rate for the impermeable area of the site, which includes a 10% urban creep factor, through the construction of conservatories or extended hard surfaces via permitted development.

6.19. The total impermeable area of the site is estimated to be 0.822 ha, and the total storage required for Qbar rates was calculated as 452m³ for the 100 year + 25% event, and 540m³ the critical 1:100+45%cc event.

Surface Water Runoff Treatment

6.20. In terms of surface water treatment, the integration of the SuDS features outlined in the above sections would make sure that surface water runoff would be of sufficient quality, so as not to cause pollutant-based detriment to the receiving waterbody.

- 6.21. In determining the necessary SuDS treatment methods, reference is made to **Table 6-3** and **Table 6-4** (Table 26.2 and Table 26.3 of the SuDS Manual CIRIA C753). These tables outline the 'Simple Index Approach' which sets out the water treatment criteria in relation to land use and SuDS performance evidence. To make sure sufficient treatment is proposed for surface waters, the total pollution mitigation index of the selected SuDS methods must equal or exceed the pollution hazard index for the site.
- 6.22. Following good design practice, it is proposed that catch pits be incorporated into the design where possible. This will enable the interception of silt from surface water discharging from hardstanding areas of the site at source, prior to entering the drainage network and the attenuation features.

Table 6-3: Pollution Hazard Indices

Pollution Hazard Indices for Different Land Use Classifications (Table 26.2 in The SuDS Manual CIRIA C753)				
Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs).	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day.	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail) all roads except low traffic roads and trunk roads/motorways.	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates & waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, sorted, used or manufactured; industrial sites; trunk roads and motorways.	High	0.8	0.8	0.9

Table 6-4: Indicative SuDS Mitigation Indices

Indicative SuDS Mitigation Indices for Discharges to Surface Waters (Table 26.3 in The SuDS Manual CIRIA C753)			
Type of SuDS Component	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bio-retention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Attenuation basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1-year return period event, for inflow concentrations relevant to the contributing drainage area		

6.23. In line with **Table 6-3** above, the pollution hazard level is low (Residential and low trafficked roads). From **Table 6-4** the mitigation indices associated attenuation basins and permeable paving are adequate for the pollution hazard indices associated with suspended solids, metals and hydrocarbons, and it is therefore considered they would satisfy the requirements of CIRIA C753.

Exceedance Routes

6.24. As a result of heavy or extreme storm events it is sometimes unavoidable for the capacities of sewers and other drainage systems to be exceeded.

6.25. Drainage exceedance will occur when the rate of surface water runoff exceeds the inlet capacity of the drainage system. Typically, this is when the receiving water body or pipe system becomes overloaded, blocked or when the outfall becomes restricted due to flood levels in the receiving sewer. Within the development, this will be mitigated against by raising the finished floor levels above proposed external ground levels. Any surface water exceedance flows will be channelled by the proposed site

levels into the proposed highways and SuDS features serving the site, proceeding towards the northwest boundary where the ditches and ordinary watercourse are located.

Long Term Storage

6.26. The proposed development will lead to an increase in impermeable surfaces (compared to its current greenfield condition), and thus an increase in runoff volume. As the proposed surface water drainage strategy will discharge at a restricted greenfield rate (QBAR) no long term storage will be required.

Future Maintenance

6.27. It is intended that the SuDS components of the drainage strategy will be maintained by a management company in perpetuity.

6.28. The maintenance of all SuDS components will be in accordance with the best practices and the CIRIA Manual C753. An excerpt of the recommended operation and maintenance requirements for the proposed detention basins (from CIRIA Manual C753) are provided in **Appendix F**.

6.29. Funding of the maintenance of the SuDS will be via an annual maintenance charge paid for by the occupiers of the proposed development.

7. FOUL WATER MANAGEMENT

Proposed Foul Water Drainage Strategy

7.1. Southern Water sewer asset plans show no public sewers located within the Site (**Appendix C**). The nearest public sewers include a Ø150 mm foul water sewer conveying flow west along Folders Lane to the north of the Site, and a Ø150 mm surface water sewer located in Sycamore Drive approximately 50m north of the Site.

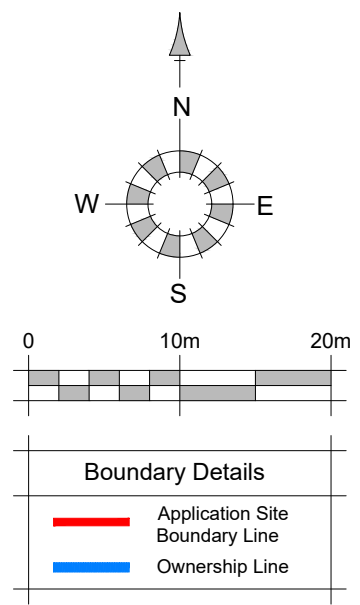
7.2. Due to the topography of the developable area of the Site it is proposed that the foul water from southern and central area of the development is drained under gravity to a proposed Ø150mm foul water sewer mid-way along the west boundary of the Site. This Ø150mm foul water will proceed west to connect into the existing foul water sewer in Stroudley Drive which currently serves the Phase 1 development to the west of the Site. The foul water flows from the northwest extent of the development will be served by a proposed private pumping station which will have a rising main conveying flows south to join the aforementioned proposed Ø150mm foul water sewer located near mid-way along the west boundary of the Site.

- 7.3. The proposed development is for up to 40 residential units, which has an approximate peak flow rate of 1.85 l/s and the proposed foul water pumping station serving 2no. houses and 6no. flats will need to accommodate 6400 litres of emergency storage for 24 hours (based on Design and Construction Guidance “The Code” for foul and surface water – May 2021).
- 7.4. A pre-development enquiry with Southern Water will need to be undertaken to confirm if there is sufficient capacity to accommodate the proposed foul water flows from the Site into their local sewer network.
- 7.5. The proposed foul drainage strategy is shown on drawing **21044771-002** in **Appendix E**.

8. CONCLUSION

- 8.1. This FRA has been undertaken to support a proposed development of greenfield land at Folders Lane (Phase 2), Burgess Hill, RH15 0XD.
- 8.2. This FRA aims to establish that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and where possible, will reduce flood risk overall.
- 8.3. This FRA has been compiled in line with specific reference to the requirement of the NPPF and accompanying PPG, along with endorsing and following the key policies laid out by both the MSDC and WSCC (as a local planning authority and as an LLFA).
- 8.4. This FRA has found there is a 'low' risk of flooding at the Site from fluvial, artificial and sewer flooding sources. There is a 'very low' risk of surface water flooding at the Site, however the risk of groundwater flooding is deemed 'low' due to BGS mapping indicating no superficial deposits within the Site, and the underlying bedrock is mostly Weald Clay Formation (Mudstone) which is likely to inhibit rising groundwater levels.
- 8.5. The surface water drainage strategy demonstrates that surface water runoff arising from the development can be sustainably managed in line with both local and national planning policy prior to discharge to the watercourse.
- 8.6. The foul water drainage strategy indicated that southern and central areas of the site will discharge via gravity, and the northern area of the site will discharge via a private foul pumping station. Foul drainage from each catchment will combine into one flow that will connect into the existing foul water sewer in Stroudley Drive which currently serves the Phase 1 development to the west of the site.
- 8.7. In conclusion, this FRA demonstrates that the proposals are consistent with the aims of the NPPF and the Planning Practice Guidance to the NPPF. The proposed development has no adverse impact on flood risk compared to the existing conditions whilst remaining safe for both people and property for the lifetime of the development.

Appendix A
Proposed Development Layout



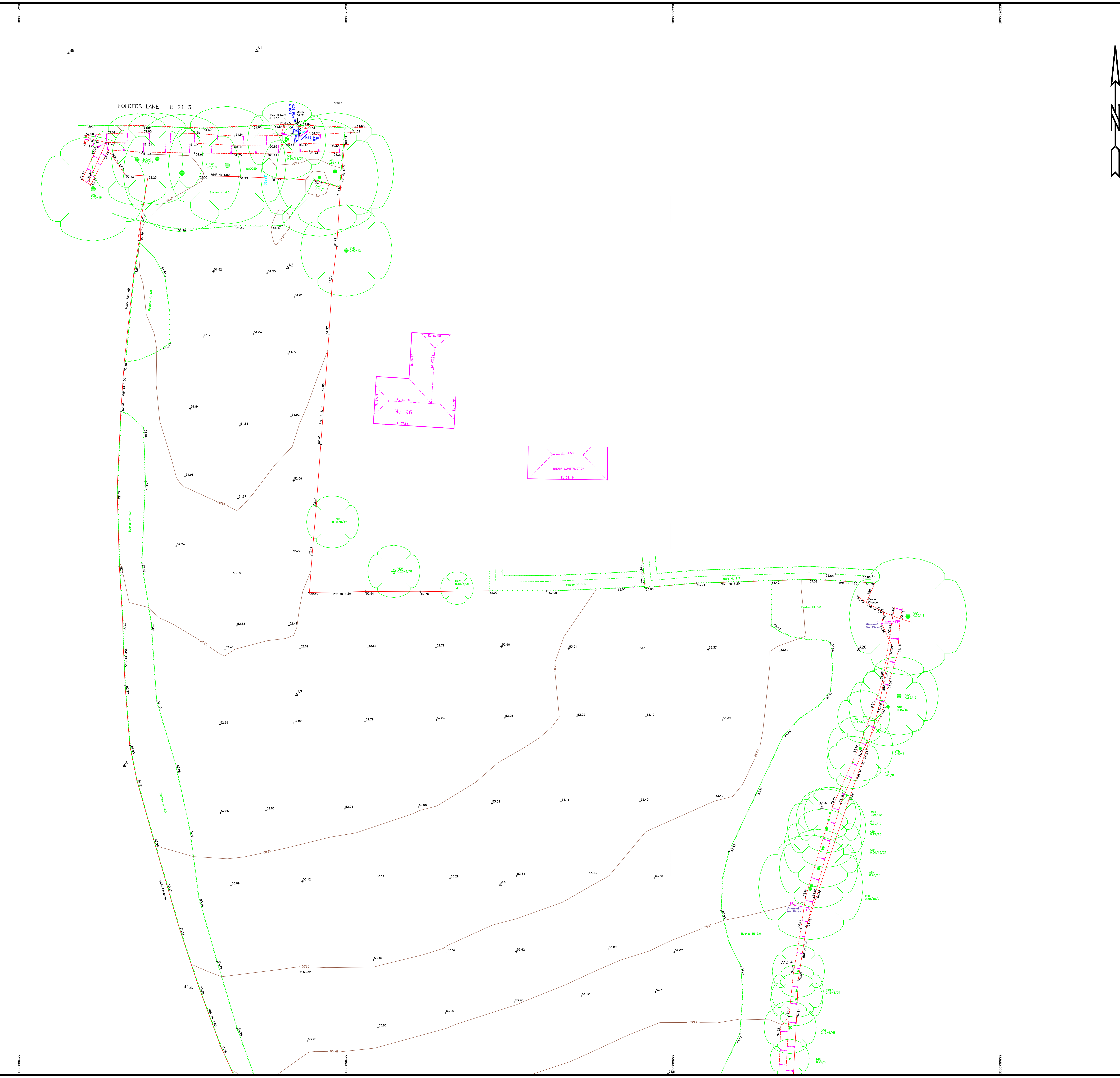
V.	DATE	REVISIONS:	BY	STATUS:



architecture planning masterplanning

2 Funtley Court, Funtley Hill,
Fareham, Hampshire, PO16 7UY.
info@osparchitecture.com www.osparchitecture.com
Tel: 01329 559400

Appendix B
Topographical Survey

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TREE LEGEND			
ALDER	ALD	MAPLE	MAP
ASPEN	ASP	CHERRY	CH
BIRCH	BIR	DOGWOOD	DOG
CEDAR	CDR	FRAXINUS	FRAX
CHERRY	CH	GLABROSTROPHUS	GLAB
CECIDIPODUS	CECO	ROSWAY	ROSW
CONIFEROUS	CON	SHALLOT	SHAL
DECIDUOUS	DEC	SWEET CHESTNUT	SCH
DOGWOOD	DOG	SPICE	SPIC
ELM	ELM	SPRUCE	SPR
FRAXINUS	FRAX	THORN	THOR
LARIX	LAR	WALNUT	WAL
MAPLE	MAP	WILLOW	WIL
NORWAY	NOR	YEW	YEW
ROSWAY	ROSW		
SHALLOT	SHAL		
SWEET CHESTNUT	SCH		
SPICE	SPIC		
SPRUCE	SPR		
THORN	THOR		
WALNUT	WAL		
WILLOW	WIL		
YEW	YEW		

SIZE AND SPECIES ARE INDICATIVE ONLY WITH THE NAME APPROPRIATE TO SCALE

Coordinate Table				Aworthe ASTROPHYSICAL OBSERVATORY
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B21	PKN	532036.660	180640.320	52.515
A4	PKN	532036.696	180674.232	51.788
A5	PEG	532041.423	180804.151	51.669
A4	PEG	532047.602	17979.733	52.608
A4	PEG	53201.514	17844.965	52.515
A5	PEG	532042.880	17978.255	52.515
A6	PEG	532001.564	17884.012	52.788
A7	PEG	532002.571	17884.012	52.785
A7	PEG	53201.030	17884.833	52.785
A9	PEG	53201.735	17840.266	56.324
A10	PEG	53201.759	17875.889	56.273
A11	PEG	53201.826	17884.186	56.273
A12	PEG	53201.889	17909.241	55.410
A13	PEG	53201.847	17934.802	54.306
A14	PEG	532030.087	17958.472	53.874
A15	PEG	532032.083	17992.180	53.874
WGS 84		UTM 18Q UTM		

PM - Punch Mark PN - Pipe Nod W - Washer (used with P3H and P4)

SHEET LAYOUT

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NOTES	
<u>LEVELLING</u>	ALL LEVELS ARE BASED ON EXISTING SURVEY CONTROL.
<u>GRID</u>	THE SURVEY GRID IS BASED ON EXISTING SURVEY CONTROL.
<u>DRAINAGE</u>	INVERT LEVELS, PIPE SIZES AND PIPE CONNECTIONS HAVE BEEN SURVEYED BY VISUAL INSPECTION ONLY, AND THEREFORE THE COMPLETE ACCURACY OF THIS INFORMATION CANNOT BE GUARANTEED.

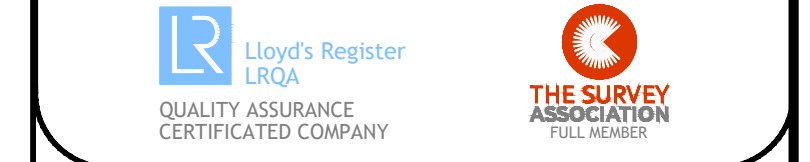
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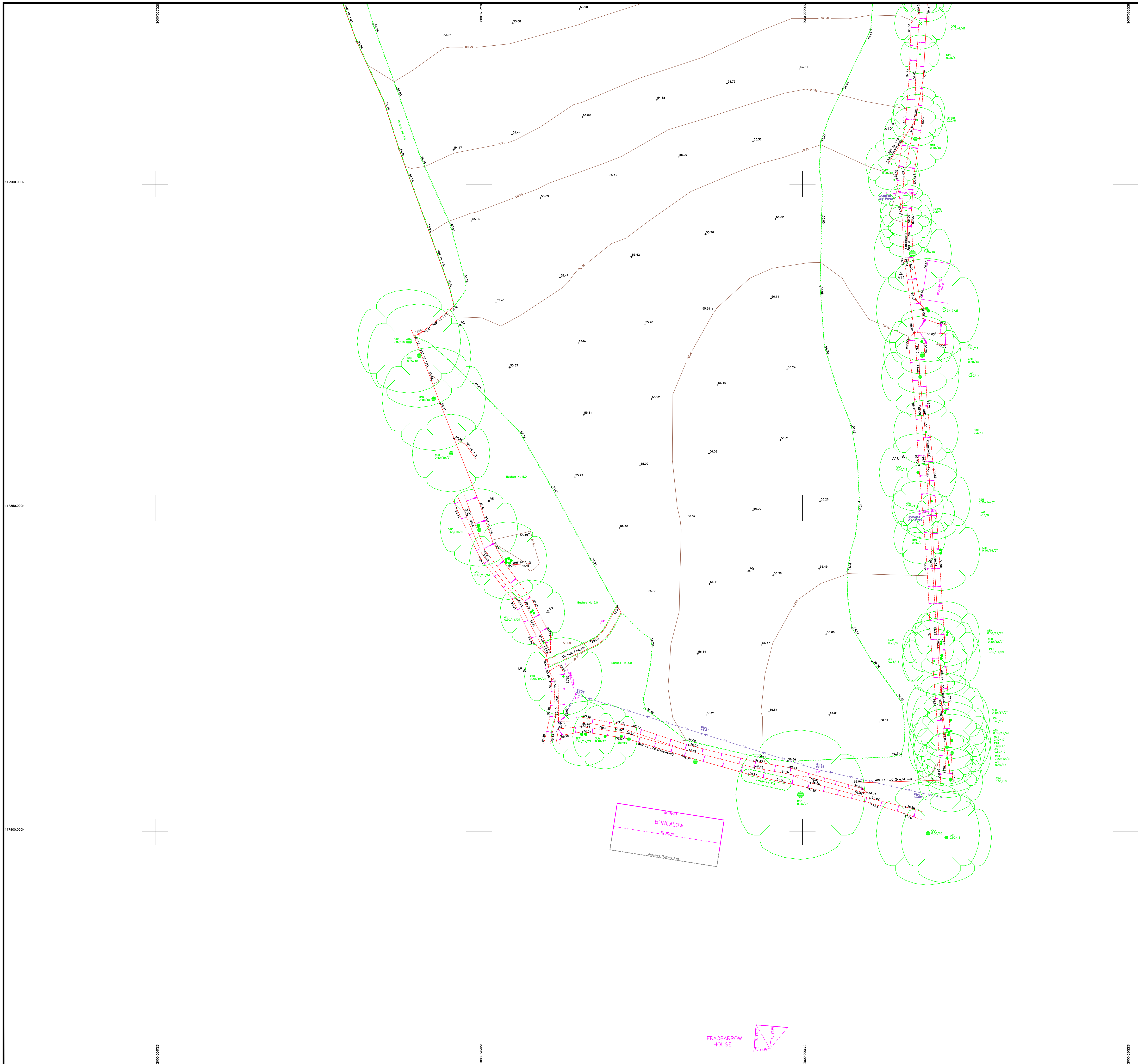
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Drawing No	6473	Surveyed	TH/TJ
Sheet	1	Drawn	DRF
Revision		Checked	PE
Scale	1:200 @ A0	Date	17/11/17

Project
LAND SOUTH OF 96 FOLDERS LANE
BURGESS HILL
WEST SUSSEX

Client
JONES HOMES (SOUTHERN) LTD
3 WHITE OAK SQUARE
SWANLEY
KENT
BR8 7AG

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Coordinate Table

SURVEY CONSULTANTS

STATION	DESCRIPTION	EASTING	NORTHING	LEVEL
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RN - Honey Roll PEN - Parker Kaler's Roll PGM - Permanent Ground Marker
RM - Ranch Mark RN - Blue Roll W - Washes (used with RKM and RM)

SHEET LAYOUT

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NOTES	
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www.aworth.co.uk als@aworth.co.uk



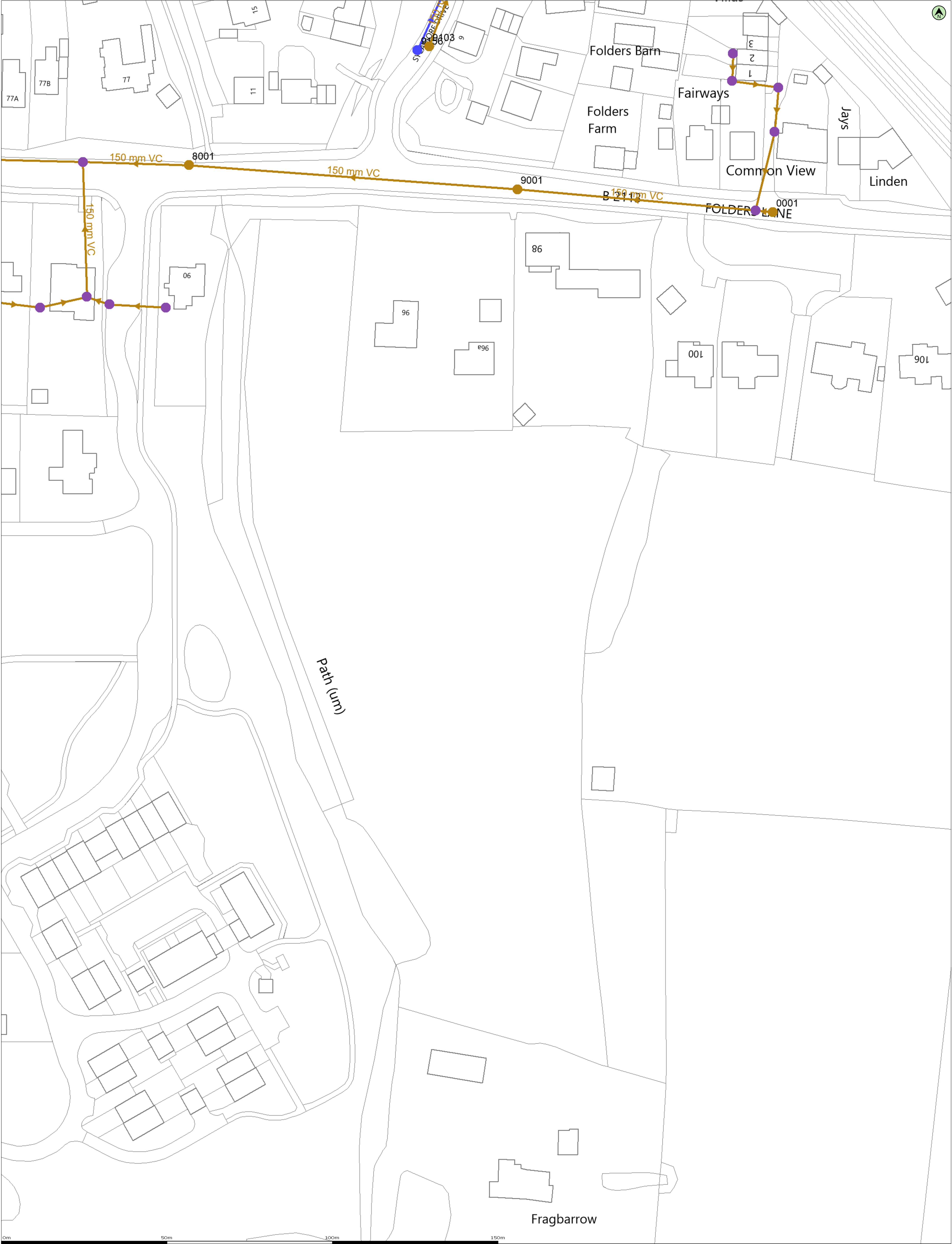
Drawing No	5473	Surveyed	TH/TJ
Sheet	2	Drawn	DR®
Revision		Checked	PE
Scale	1:200 @ A0	Date	17/11/17

Project

LAND SOUTH OF 96 FOLDERS LANE
BURGESS HILL
WEST SUSSEX

Client
JONES HOMES (SOUTHERN) LTD
3 WHITE OAK SQUARE
SWANLEY
KENT
BR8 7AG

Appendix C
Sewer Asset Mapping



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Data updated: 27/10/22

Scale: 1:500
Map Centre: 532955.117934

Date: 06/12/22
Our Ref: 1022280 - 1

Wastewater Plan A1
Powered by digimap

lbateman@ardent-ce.co.uk
Folders Lane Assets



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2022 Ordnance Survey 100031673. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

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Appendix D
Surface Water Drainage Calculations

Ardent		Page 1
3rd Floor, The Hallmark Buil...		
52-56 LeadenHall Street		
London, EC3M 5JE		
Date 15/11/2022 12:18	Designed by lbateman	
File	Checked by	
Innovyze	Source Control 2020.1	
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 100 Soil 0.450 Area (ha) 1.720 Urban 0.000 SAAR (mm) 883 Region Number Region 7 Results l/s QBAR Rural 9.9 QBAR Urban 9.9 Q100 years 31.6 Q1 year 8.4 Q30 years 22.5 Q100 years 31.6		
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Ardent					Page 1	
3rd Floor, The Hallmark Buil...			Folders Lane Ph2			
52-56 LeadenHall Street			Burgess Hill			
London, EC3M 5JE			Cat 1 - 1yr			
Date 10/08/2023			Designed by JJ			
File 2104772 Catchment 1 -1y...			Checked by JM			
Innovyze			Source Control 2020.1			
Summary of Results for 1 year Return Period						
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	
15 min Summer	51.480	0.280	4.8	37.9	O K	
30 min Summer	51.546	0.346	5.0	49.1	O K	
60 min Summer	51.606	0.406	5.0	59.8	O K	
120 min Summer	51.645	0.445	5.0	67.4	O K	
180 min Summer	51.659	0.459	5.0	70.3	O K	
240 min Summer	51.665	0.465	5.0	71.4	O K	
360 min Summer	51.660	0.460	5.0	70.4	O K	
480 min Summer	51.648	0.448	5.0	68.1	O K	
600 min Summer	51.635	0.435	5.0	65.4	O K	
720 min Summer	51.619	0.419	5.0	62.5	O K	
960 min Summer	51.588	0.388	5.0	56.6	O K	
1440 min Summer	51.527	0.327	4.9	45.7	O K	
2160 min Summer	51.451	0.251	4.8	33.2	O K	
2880 min Summer	51.395	0.195	4.5	24.8	O K	
4320 min Summer	51.331	0.131	4.0	15.9	O K	
5760 min Summer	51.308	0.108	3.5	12.8	O K	
7200 min Summer	51.294	0.094	3.0	11.1	O K	
8640 min Summer	51.284	0.084	2.7	9.9	O K	
10080 min Summer	51.278	0.078	2.4	9.1	O K	
15 min Winter	51.510	0.310	4.9	42.8	O K	
30 min Winter	51.583	0.383	5.0	55.6	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
15 min Summer	29.648	0.0	42.0	24		
30 min Summer	19.726	0.0	55.9	37		
60 min Summer	12.800	0.0	72.9	64		
120 min Summer	8.156	0.0	92.9	112		
180 min Summer	6.242	0.0	106.6	144		
240 min Summer	5.155	0.0	117.4	178		
360 min Summer	3.898	0.0	133.2	248		
480 min Summer	3.196	0.0	145.6	316		
600 min Summer	2.740	0.0	156.1	384		
720 min Summer	2.417	0.0	165.2	452		
960 min Summer	1.983	0.0	180.7	584		
1440 min Summer	1.501	0.0	205.1	834		
2160 min Summer	1.134	0.0	232.6	1192		
2880 min Summer	0.930	0.0	254.3	1536		
4320 min Summer	0.704	0.0	288.7	2216		
5760 min Summer	0.578	0.0	316.3	2944		
7200 min Summer	0.495	0.0	338.6	3672		
8640 min Summer	0.436	0.0	357.5	4400		
10080 min Summer	0.391	0.0	374.2	5136		
15 min Winter	29.648	0.0	47.1	24		
30 min Winter	19.726	0.0	62.7	37		
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Ardent				Page 2	
3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 1yr			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -1y...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 1 year Return Period</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	51.649	0.449	5.0	68.2	O K
120 min Winter	51.697	0.497	5.0	77.9	O K
180 min Winter	51.710	0.510	5.0	80.6	O K
240 min Winter	51.714	0.514	5.0	81.7	O K
360 min Winter	51.704	0.504	5.0	79.4	O K
480 min Winter	51.684	0.484	5.0	75.3	O K
600 min Winter	51.660	0.460	5.0	70.5	O K
720 min Winter	51.635	0.435	5.0	65.5	O K
960 min Winter	51.583	0.383	5.0	55.6	O K
1440 min Winter	51.488	0.288	4.9	39.2	O K
2160 min Winter	51.386	0.186	4.5	23.4	O K
2880 min Winter	51.329	0.129	4.0	15.6	O K
4320 min Winter	51.296	0.096	3.1	11.4	O K
5760 min Winter	51.282	0.082	2.6	9.5	O K
7200 min Winter	51.273	0.073	2.2	8.5	O K
8640 min Winter	51.267	0.067	2.0	7.8	O K
10080 min Winter	51.263	0.063	1.8	7.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	12.800	0.0	81.6	64	
120 min Winter	8.156	0.0	104.0	118	
180 min Winter	6.242	0.0	119.4	158	
240 min Winter	5.155	0.0	131.5	192	
360 min Winter	3.898	0.0	149.2	270	
480 min Winter	3.196	0.0	163.1	344	
600 min Winter	2.740	0.0	174.8	418	
720 min Winter	2.417	0.0	185.0	488	
960 min Winter	1.983	0.0	202.4	622	
1440 min Winter	1.501	0.0	229.8	870	
2160 min Winter	1.134	0.0	260.5	1212	
2880 min Winter	0.930	0.0	284.9	1528	
4320 min Winter	0.704	0.0	323.3	2212	
5760 min Winter	0.578	0.0	354.3	2936	
7200 min Winter	0.495	0.0	379.2	3648	
8640 min Winter	0.436	0.0	400.4	4408	
10080 min Winter	0.391	0.0	419.1	5136	
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Summary of Results for 30 year Return Period <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Control (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>51.788</td><td>0.588</td><td>5.0</td><td>98.0</td><td>O K</td></tr><tr><td>30 min Summer</td><td>51.914</td><td>0.714</td><td>5.0</td><td>129.1</td><td>O K</td></tr><tr><td>60 min Summer</td><td>52.027</td><td>0.827</td><td>5.0</td><td>160.3</td><td>O K</td></tr><tr><td>120 min Summer</td><td>52.119</td><td>0.919</td><td>5.0</td><td>188.5</td><td>O K</td></tr><tr><td>180 min Summer</td><td>52.156</td><td>0.956</td><td>5.0</td><td>200.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>52.171</td><td>0.971</td><td>5.0</td><td>205.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>52.177</td><td>0.977</td><td>5.0</td><td>207.4</td><td>O K</td></tr><tr><td>480 min Summer</td><td>52.167</td><td>0.967</td><td>5.0</td><td>204.2</td><td>O K</td></tr><tr><td>600 min Summer</td><td>52.156</td><td>0.956</td><td>5.0</td><td>200.3</td><td>O K</td></tr><tr><td>720 min Summer</td><td>52.143</td><td>0.943</td><td>5.0</td><td>196.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>52.116</td><td>0.916</td><td>5.0</td><td>187.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>52.052</td><td>0.852</td><td>5.0</td><td>167.8</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>51.948</td><td>0.748</td><td>5.0</td><td>138.1</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>51.845</td><td>0.645</td><td>5.0</td><td>111.5</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>51.659</td><td>0.459</td><td>5.0</td><td>70.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>51.520</td><td>0.320</td><td>4.9</td><td>44.4</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>51.429</td><td>0.229</td><td>4.7</td><td>29.8</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>51.371</td><td>0.171</td><td>4.4</td><td>21.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>51.336</td><td>0.136</td><td>4.1</td><td>16.6</td><td>O K</td></tr><tr><td>15 min Winter</td><td>51.840</td><td>0.640</td><td>5.0</td><td>110.4</td><td>O K</td></tr><tr><td>30 min Winter</td><td>51.976</td><td>0.776</td><td>5.0</td><td>145.7</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>72.682</td><td>0.0</td><td>103.3</td><td>26</td></tr><tr><td>30 min Summer</td><td>48.363</td><td>0.0</td><td>137.5</td><td>40</td></tr><tr><td>60 min Summer</td><td>30.811</td><td>0.0</td><td>175.5</td><td>68</td></tr><tr><td>120 min Summer</td><td>19.036</td><td>0.0</td><td>216.9</td><td>128</td></tr><tr><td>180 min Summer</td><td>14.191</td><td>0.0</td><td>242.5</td><td>186</td></tr><tr><td>240 min Summer</td><td>11.467</td><td>0.0</td><td>261.3</td><td>244</td></tr><tr><td>360 min Summer</td><td>8.493</td><td>0.0</td><td>290.3</td><td>360</td></tr><tr><td>480 min Summer</td><td>6.855</td><td>0.0</td><td>312.4</td><td>426</td></tr><tr><td>600 min Summer</td><td>5.801</td><td>0.0</td><td>330.4</td><td>490</td></tr><tr><td>720 min Summer</td><td>5.059</td><td>0.0</td><td>345.8</td><td>556</td></tr><tr><td>960 min Summer</td><td>4.074</td><td>0.0</td><td>371.3</td><td>686</td></tr><tr><td>1440 min Summer</td><td>2.998</td><td>0.0</td><td>409.9</td><td>956</td></tr><tr><td>2160 min Summer</td><td>2.203</td><td>0.0</td><td>452.1</td><td>1344</td></tr><tr><td>2880 min Summer</td><td>1.769</td><td>0.0</td><td>484.0</td><td>1708</td></tr><tr><td>4320 min Summer</td><td>1.297</td><td>0.0</td><td>532.1</td><td>2424</td></tr><tr><td>5760 min Summer</td><td>1.040</td><td>0.0</td><td>569.0</td><td>3104</td></tr><tr><td>7200 min Summer</td><td>0.876</td><td>0.0</td><td>599.4</td><td>3752</td></tr><tr><td>8640 min Summer</td><td>0.762</td><td>0.0</td><td>625.6</td><td>4424</td></tr><tr><td>10080 min Summer</td><td>0.677</td><td>0.0</td><td>648.5</td><td>5144</td></tr><tr><td>15 min Winter</td><td>72.682</td><td>0.0</td><td>115.7</td><td>26</td></tr><tr><td>30 min Winter</td><td>48.363</td><td>0.0</td><td>154.0</td><td>40</td></tr></tbody></table>							Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	15 min Summer	51.788	0.588	5.0	98.0	O K	30 min Summer	51.914	0.714	5.0	129.1	O K	60 min Summer	52.027	0.827	5.0	160.3	O K	120 min Summer	52.119	0.919	5.0	188.5	O K	180 min Summer	52.156	0.956	5.0	200.5	O K	240 min Summer	52.171	0.971	5.0	205.5	O K	360 min Summer	52.177	0.977	5.0	207.4	O K	480 min Summer	52.167	0.967	5.0	204.2	O K	600 min Summer	52.156	0.956	5.0	200.3	O K	720 min Summer	52.143	0.943	5.0	196.2	O K	960 min Summer	52.116	0.916	5.0	187.5	O K	1440 min Summer	52.052	0.852	5.0	167.8	O K	2160 min Summer	51.948	0.748	5.0	138.1	O K	2880 min Summer	51.845	0.645	5.0	111.5	O K	4320 min Summer	51.659	0.459	5.0	70.3	O K	5760 min Summer	51.520	0.320	4.9	44.4	O K	7200 min Summer	51.429	0.229	4.7	29.8	O K	8640 min Summer	51.371	0.171	4.4	21.3	O K	10080 min Summer	51.336	0.136	4.1	16.6	O K	15 min Winter	51.840	0.640	5.0	110.4	O K	30 min Winter	51.976	0.776	5.0	145.7	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	72.682	0.0	103.3	26	30 min Summer	48.363	0.0	137.5	40	60 min Summer	30.811	0.0	175.5	68	120 min Summer	19.036	0.0	216.9	128	180 min Summer	14.191	0.0	242.5	186	240 min Summer	11.467	0.0	261.3	244	360 min Summer	8.493	0.0	290.3	360	480 min Summer	6.855	0.0	312.4	426	600 min Summer	5.801	0.0	330.4	490	720 min Summer	5.059	0.0	345.8	556	960 min Summer	4.074	0.0	371.3	686	1440 min Summer	2.998	0.0	409.9	956	2160 min Summer	2.203	0.0	452.1	1344	2880 min Summer	1.769	0.0	484.0	1708	4320 min Summer	1.297	0.0	532.1	2424	5760 min Summer	1.040	0.0	569.0	3104	7200 min Summer	0.876	0.0	599.4	3752	8640 min Summer	0.762	0.0	625.6	4424	10080 min Summer	0.677	0.0	648.5	5144	15 min Winter	72.682	0.0	115.7	26	30 min Winter	48.363	0.0	154.0	40
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480 min Summer	6.855	0.0	312.4	426																																																																																																																																																																																																																																																				
600 min Summer	5.801	0.0	330.4	490																																																																																																																																																																																																																																																				
720 min Summer	5.059	0.0	345.8	556																																																																																																																																																																																																																																																				
960 min Summer	4.074	0.0	371.3	686																																																																																																																																																																																																																																																				
1440 min Summer	2.998	0.0	409.9	956																																																																																																																																																																																																																																																				
2160 min Summer	2.203	0.0	452.1	1344																																																																																																																																																																																																																																																				
2880 min Summer	1.769	0.0	484.0	1708																																																																																																																																																																																																																																																				
4320 min Summer	1.297	0.0	532.1	2424																																																																																																																																																																																																																																																				
5760 min Summer	1.040	0.0	569.0	3104																																																																																																																																																																																																																																																				
7200 min Summer	0.876	0.0	599.4	3752																																																																																																																																																																																																																																																				
8640 min Summer	0.762	0.0	625.6	4424																																																																																																																																																																																																																																																				
10080 min Summer	0.677	0.0	648.5	5144																																																																																																																																																																																																																																																				
15 min Winter	72.682	0.0	115.7	26																																																																																																																																																																																																																																																				
30 min Winter	48.363	0.0	154.0	40																																																																																																																																																																																																																																																				
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3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 30yr			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -30...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 30 year Return Period</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	52.098	0.898	5.0	181.8	O K
120 min Winter	52.198	0.998	5.0	214.6	O K
180 min Winter	52.241	1.041	5.0	229.5	O K
240 min Winter	52.261	1.061	5.0	236.6	O K
360 min Winter	52.274	1.074	5.0	241.5	O K
480 min Winter	52.269	1.069	5.0	239.4	O K
600 min Winter	52.254	1.054	5.0	234.0	O K
720 min Winter	52.237	1.037	5.0	228.2	O K
960 min Winter	52.204	1.004	5.0	216.5	O K
1440 min Winter	52.122	0.922	5.0	189.5	O K
2160 min Winter	51.955	0.755	5.0	140.2	O K
2880 min Winter	51.791	0.591	5.0	98.7	O K
4320 min Winter	51.524	0.324	4.9	45.1	O K
5760 min Winter	51.382	0.182	4.4	23.0	O K
7200 min Winter	51.322	0.122	3.9	14.7	O K
8640 min Winter	51.305	0.105	3.4	12.5	O K
10080 min Winter	51.294	0.094	3.0	11.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	30.811	0.0	196.6	68	
120 min Winter	19.036	0.0	242.9	126	
180 min Winter	14.191	0.0	271.6	182	
240 min Winter	11.467	0.0	292.6	240	
360 min Winter	8.493	0.0	325.1	352	
480 min Winter	6.855	0.0	349.9	460	
600 min Winter	5.801	0.0	370.1	558	
720 min Winter	5.059	0.0	387.3	584	
960 min Winter	4.074	0.0	415.8	736	
1440 min Winter	2.998	0.0	459.0	1046	
2160 min Winter	2.203	0.0	506.3	1452	
2880 min Winter	1.769	0.0	542.1	1816	
4320 min Winter	1.297	0.0	596.0	2464	
5760 min Winter	1.040	0.0	637.3	3064	
7200 min Winter	0.876	0.0	671.3	3680	
8640 min Winter	0.762	0.0	700.7	4400	
10080 min Winter	0.677	0.0	726.4	5120	
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3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 100yr +45%			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -30...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 30 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	51.952	0.752	5.0	139.3	O K
30 min Summer	52.106	0.906	5.0	184.4	O K
60 min Summer	52.243	1.043	5.0	230.3	O K
120 min Summer	52.359	1.159	5.0	273.2	O K
180 min Summer	52.410	1.210	5.0	293.9	O K
240 min Summer	52.437	1.237	5.0	304.9	O K
360 min Summer	52.462	1.262	5.0	315.1	O K
480 min Summer	52.464	1.264	5.0	316.1	O K
600 min Summer	52.456	1.256	5.0	312.9	O K
720 min Summer	52.447	1.247	5.0	309.1	O K
960 min Summer	52.427	1.227	5.0	300.8	O K
1440 min Summer	52.387	1.187	5.0	284.4	O K
2160 min Summer	52.323	1.123	5.0	259.6	O K
2880 min Summer	52.255	1.055	5.0	234.5	O K
4320 min Summer	52.100	0.900	5.0	182.5	O K
5760 min Summer	51.902	0.702	5.0	125.9	O K
7200 min Summer	51.741	0.541	5.0	87.5	O K
8640 min Summer	51.612	0.412	5.0	61.1	O K
10080 min Summer	51.515	0.315	4.9	43.6	O K
15 min Winter	52.014	0.814	5.0	156.7	O K
30 min Winter	52.177	0.977	5.0	207.6	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	101.754	0.0	144.6	26	
30 min Summer	67.708	0.0	192.5	41	
60 min Summer	43.136	0.0	245.7	70	
120 min Summer	26.651	0.0	303.6	128	
180 min Summer	19.868	0.0	339.5	186	
240 min Summer	16.054	0.0	365.8	246	
360 min Summer	11.891	0.0	406.4	362	
480 min Summer	9.596	0.0	437.3	480	
600 min Summer	8.121	0.0	462.6	552	
720 min Summer	7.083	0.0	484.1	610	
960 min Summer	5.703	0.0	519.8	738	
1440 min Summer	4.198	0.0	573.6	1004	
2160 min Summer	3.085	0.0	632.9	1416	
2880 min Summer	2.477	0.0	677.6	1828	
4320 min Summer	1.816	0.0	745.1	2644	
5760 min Summer	1.456	0.0	796.6	3344	
7200 min Summer	1.227	0.0	839.2	3968	
8640 min Summer	1.067	0.0	875.9	4664	
10080 min Summer	0.948	0.0	908.0	5336	
15 min Winter	101.754	0.0	162.0	26	
30 min Winter	67.708	0.0	215.6	40	
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3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 100yr +45%			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -30...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 30 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	52.323	1.123	5.0	259.7	O K
120 min Winter	52.449	1.249	5.0	309.8	O K
180 min Winter	52.508	1.308	5.0	334.9	O K
240 min Winter	52.540	1.340	5.0	349.2	O K
360 min Winter	52.573	1.373	5.0	364.3	O K
480 min Winter	52.583	1.383	5.0	368.9	O K
600 min Winter	52.581	1.381	5.0	367.8	O K
720 min Winter	52.571	1.371	5.0	363.4	O K
960 min Winter	52.545	1.345	5.0	351.4	O K
1440 min Winter	52.493	1.293	5.0	328.4	O K
2160 min Winter	52.402	1.202	5.0	290.3	O K
2880 min Winter	52.300	1.100	5.0	250.9	O K
4320 min Winter	52.032	0.832	5.0	162.0	O K
5760 min Winter	51.732	0.532	5.0	85.5	O K
7200 min Winter	51.525	0.325	4.9	45.3	O K
8640 min Winter	51.410	0.210	4.6	27.0	O K
10080 min Winter	51.348	0.148	4.2	18.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	43.136	0.0	275.2	68	
120 min Winter	26.651	0.0	340.1	126	
180 min Winter	19.868	0.0	380.3	184	
240 min Winter	16.054	0.0	409.7	240	
360 min Winter	11.891	0.0	455.2	356	
480 min Winter	9.596	0.0	489.8	468	
600 min Winter	8.121	0.0	518.1	576	
720 min Winter	7.083	0.0	542.2	680	
960 min Winter	5.703	0.0	582.1	776	
1440 min Winter	4.198	0.0	642.2	1082	
2160 min Winter	3.085	0.0	708.9	1540	
2880 min Winter	2.477	0.0	758.9	1992	
4320 min Winter	1.816	0.0	834.5	2816	
5760 min Winter	1.456	0.0	892.2	3408	
7200 min Winter	1.227	0.0	939.9	3968	
8640 min Winter	1.067	0.0	981.0	4584	
10080 min Winter	0.948	0.0	1017.0	5240	
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3rd Floor, The Hallmark Buil...			Folders Lane Ph2																																																																																																																																							
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30 min Winter	52.134	0.934	5.0	193.4	O K																																																																																																																																					
<table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>94.179</td><td>0.0</td><td>133.9</td><td>26</td></tr><tr><td>30 min Summer</td><td>63.261</td><td>0.0</td><td>179.9</td><td>41</td></tr><tr><td>60 min Summer</td><td>40.510</td><td>0.0</td><td>230.7</td><td>70</td></tr><tr><td>120 min Summer</td><td>25.003</td><td>0.0</td><td>284.8</td><td>128</td></tr><tr><td>180 min Summer</td><td>18.552</td><td>0.0</td><td>317.0</td><td>186</td></tr><tr><td>240 min Summer</td><td>14.912</td><td>0.0</td><td>339.8</td><td>244</td></tr><tr><td>360 min Summer</td><td>10.975</td><td>0.0</td><td>375.1</td><td>362</td></tr><tr><td>480 min Summer</td><td>8.815</td><td>0.0</td><td>401.7</td><td>480</td></tr><tr><td>600 min Summer</td><td>7.430</td><td>0.0</td><td>423.3</td><td>528</td></tr><tr><td>720 min Summer</td><td>6.458</td><td>0.0</td><td>441.5</td><td>592</td></tr><tr><td>960 min Summer</td><td>5.172</td><td>0.0</td><td>471.3</td><td>720</td></tr><tr><td>1440 min Summer</td><td>3.774</td><td>0.0</td><td>515.9</td><td>988</td></tr><tr><td>2160 min Summer</td><td>2.748</td><td>0.0</td><td>563.9</td><td>1408</td></tr><tr><td>2880 min Summer</td><td>2.192</td><td>0.0</td><td>599.5</td><td>1820</td></tr><tr><td>4320 min Summer</td><td>1.590</td><td>0.0</td><td>652.3</td><td>2520</td></tr><tr><td>5760 min Summer</td><td>1.265</td><td>0.0</td><td>692.0</td><td>3224</td></tr><tr><td>7200 min Summer</td><td>1.060</td><td>0.0</td><td>724.7</td><td>3888</td></tr><tr><td>8640 min Summer</td><td>0.917</td><td>0.0</td><td>752.9</td><td>4504</td></tr><tr><td>10080 min Summer</td><td>0.812</td><td>0.0</td><td>777.5</td><td>5240</td></tr><tr><td>15 min Winter</td><td>94.179</td><td>0.0</td><td>149.9</td><td>26</td></tr><tr><td>30 min Winter</td><td>63.261</td><td>0.0</td><td>201.4</td><td>40</td></tr></table>							Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	94.179	0.0	133.9	26	30 min Summer	63.261	0.0	179.9	41	60 min Summer	40.510	0.0	230.7	70	120 min Summer	25.003	0.0	284.8	128	180 min Summer	18.552	0.0	317.0	186	240 min Summer	14.912	0.0	339.8	244	360 min Summer	10.975	0.0	375.1	362	480 min Summer	8.815	0.0	401.7	480	600 min Summer	7.430	0.0	423.3	528	720 min Summer	6.458	0.0	441.5	592	960 min Summer	5.172	0.0	471.3	720	1440 min Summer	3.774	0.0	515.9	988	2160 min Summer	2.748	0.0	563.9	1408	2880 min Summer	2.192	0.0	599.5	1820	4320 min Summer	1.590	0.0	652.3	2520	5760 min Summer	1.265	0.0	692.0	3224	7200 min Summer	1.060	0.0	724.7	3888	8640 min Summer	0.917	0.0	752.9	4504	10080 min Summer	0.812	0.0	777.5	5240	15 min Winter	94.179	0.0	149.9	26	30 min Winter	63.261	0.0	201.4	40																						
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3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 100yr			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -10...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 100 year Return Period</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	52.279	1.079	5.0	243.1	O K
120 min Winter	52.399	1.199	5.0	289.2	O K
180 min Winter	52.450	1.250	5.0	310.4	O K
240 min Winter	52.476	1.276	5.0	321.0	O K
360 min Winter	52.499	1.299	5.0	331.0	O K
480 min Winter	52.500	1.300	5.0	331.7	O K
600 min Winter	52.491	1.291	5.0	327.5	O K
720 min Winter	52.475	1.275	5.0	320.7	O K
960 min Winter	52.442	1.242	5.0	306.8	O K
1440 min Winter	52.375	1.175	5.0	279.5	O K
2160 min Winter	52.260	1.060	5.0	236.3	O K
2880 min Winter	52.127	0.927	5.0	190.9	O K
4320 min Winter	51.784	0.584	5.0	97.1	O K
5760 min Winter	51.533	0.333	4.9	46.8	O K
7200 min Winter	51.399	0.199	4.5	25.4	O K
8640 min Winter	51.334	0.134	4.1	16.3	O K
10080 min Winter	51.313	0.113	3.6	13.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	40.510	0.0	258.4	68	
120 min Winter	25.003	0.0	319.0	126	
180 min Winter	18.552	0.0	355.1	184	
240 min Winter	14.912	0.0	380.6	240	
360 min Winter	10.975	0.0	420.1	354	
480 min Winter	8.815	0.0	449.9	466	
600 min Winter	7.430	0.0	474.0	574	
720 min Winter	6.458	0.0	494.4	672	
960 min Winter	5.172	0.0	527.9	760	
1440 min Winter	3.774	0.0	577.7	1070	
2160 min Winter	2.748	0.0	631.6	1524	
2880 min Winter	2.192	0.0	671.5	1968	
4320 min Winter	1.590	0.0	730.6	2640	
5760 min Winter	1.265	0.0	775.0	3232	
7200 min Winter	1.060	0.0	811.7	3824	
8640 min Winter	0.917	0.0	843.2	4488	
10080 min Winter	0.812	0.0	870.8	5136	
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3rd Floor, The Hallmark Building 52-56 LeadenHall Street London, EC3M 5JE		Folders Lane Ph2 Burgess Hill Cat 1 - 100yr +25%			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -100...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 100 year Return Period (+25%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	52.033	0.833	5.0	162.1	O K
30 min Summer	52.204	1.004	5.0	216.6	O K
60 min Summer	52.357	1.157	5.0	272.4	O K
120 min Summer	52.484	1.284	5.0	324.4	O K
180 min Summer	52.539	1.339	5.0	348.8	O K
240 min Summer	52.567	1.367	5.0	361.5	O K
360 min Summer	52.594	1.394	5.0	374.0	O K
480 min Summer	52.598	1.398	5.0	376.0	O K
600 min Summer	52.590	1.390	5.0	372.3	O K
720 min Summer	52.579	1.379	5.0	366.9	O K
960 min Summer	52.555	1.355	5.0	356.0	O K
1440 min Summer	52.508	1.308	5.0	335.2	O K
2160 min Summer	52.440	1.240	5.0	306.1	O K
2880 min Summer	52.371	1.171	5.0	278.0	O K
4320 min Summer	52.225	1.025	5.0	223.9	O K
5760 min Summer	52.045	0.845	5.0	165.6	O K
7200 min Summer	51.854	0.654	5.0	113.7	O K
8640 min Summer	51.702	0.502	5.0	79.1	O K
10080 min Summer	51.585	0.385	5.0	56.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	117.724	0.0	167.4	26	
30 min Summer	79.076	0.0	224.8	41	
60 min Summer	50.637	0.0	288.4	70	
120 min Summer	31.253	0.0	356.1	128	
180 min Summer	23.190	0.0	396.3	188	
240 min Summer	18.640	0.0	424.7	246	
360 min Summer	13.719	0.0	468.9	364	
480 min Summer	11.019	0.0	502.1	482	
600 min Summer	9.288	0.0	529.0	590	
720 min Summer	8.073	0.0	551.8	636	
960 min Summer	6.465	0.0	589.1	762	
1440 min Summer	4.718	0.0	644.5	1022	
2160 min Summer	3.435	0.0	704.9	1436	
2880 min Summer	2.739	0.0	749.4	1848	
4320 min Summer	1.988	0.0	815.4	2676	
5760 min Summer	1.581	0.0	865.0	3456	
7200 min Summer	1.324	0.0	905.9	4048	
8640 min Summer	1.147	0.0	941.1	4688	
10080 min Summer	1.015	0.0	971.9	5352	
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3rd Floor, The Hallmark Building

52-56 LeadenHall Street

London, EC3M 5JE

Folders Lane Ph2

Burgess Hill

Cat 1 - 100yr +25%

Date 10/08/2023

File 2104772 Catchment 1 -100...

Designed by JJ

Checked by JM

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Source Control 2020.1

Page 2



Summary of Results for 100 year Return Period (+25%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Winter	52.100	0.900	5.0	182.3	O K
30 min Winter	52.280	1.080	5.0	243.6	O K
60 min Winter	52.442	1.242	5.0	307.0	O K
120 min Winter	52.580	1.380	5.0	367.4	O K
180 min Winter	52.642	1.442	5.0	396.9	Flood Risk
240 min Winter	52.675	1.475	5.0	413.1	Flood Risk
360 min Winter	52.711	1.511	5.1	431.1	Flood Risk
480 min Winter	52.723	1.523	5.1	437.2	Flood Risk
600 min Winter	52.722	1.522	5.1	436.7	Flood Risk
720 min Winter	52.713	1.513	5.1	432.3	Flood Risk
960 min Winter	52.683	1.483	5.1	417.2	Flood Risk
1440 min Winter	52.627	1.427	5.0	389.6	Flood Risk
2160 min Winter	52.535	1.335	5.0	346.9	O K
2880 min Winter	52.435	1.235	5.0	303.9	O K
4320 min Winter	52.215	1.015	5.0	220.4	O K
5760 min Winter	51.891	0.691	5.0	123.0	O K
7200 min Winter	51.630	0.430	5.0	64.4	O K
8640 min Winter	51.468	0.268	4.8	35.9	O K
10080 min Winter	51.382	0.182	4.4	22.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Winter	117.724	0.0	187.4	26
30 min Winter	79.076	0.0	251.8	40
60 min Winter	50.637	0.0	323.1	68
120 min Winter	31.253	0.0	398.8	126
180 min Winter	23.190	0.0	443.9	184
240 min Winter	18.640	0.0	475.7	242
360 min Winter	13.719	0.0	525.1	356
480 min Winter	11.019	0.0	562.3	470
600 min Winter	9.288	0.0	592.5	580
720 min Winter	8.073	0.0	617.9	688
960 min Winter	6.465	0.0	659.6	870
1440 min Winter	4.718	0.0	720.8	1098
2160 min Winter	3.435	0.0	789.4	1560
2880 min Winter	2.739	0.0	839.3	2000
4320 min Winter	1.988	0.0	913.3	2864
5760 min Winter	1.581	0.0	968.8	3528
7200 min Winter	1.324	0.0	1014.6	4104
8640 min Winter	1.147	0.0	1054.1	4672
10080 min Winter	1.015	0.0	1088.6	5256

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3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 100yr +45%			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -10...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	52.121	0.921	5.0	189.0	O K
30 min Summer	52.304	1.104	5.0	252.4	O K
60 min Summer	52.469	1.269	5.0	318.0	O K
120 min Summer	52.607	1.407	5.0	380.3	Flood Risk
180 min Summer	52.670	1.470	5.0	410.6	Flood Risk
240 min Summer	52.703	1.503	5.1	427.1	Flood Risk
360 min Summer	52.738	1.538	5.1	445.4	Flood Risk
480 min Summer	52.750	1.550	5.2	451.2	Flood Risk
600 min Summer	52.747	1.547	5.2	450.1	Flood Risk
720 min Summer	52.738	1.538	5.1	445.1	Flood Risk
960 min Summer	52.716	1.516	5.1	433.7	Flood Risk
1440 min Summer	52.671	1.471	5.0	411.3	Flood Risk
2160 min Summer	52.608	1.408	5.0	380.9	Flood Risk
2880 min Summer	52.545	1.345	5.0	351.7	O K
4320 min Summer	52.417	1.217	5.0	296.4	O K
5760 min Summer	52.285	1.085	5.0	245.2	O K
7200 min Summer	52.144	0.944	5.0	196.4	O K
8640 min Summer	51.949	0.749	5.0	138.5	O K
10080 min Summer	51.793	0.593	5.0	99.3	O K
15 min Winter	52.192	0.992	5.0	212.3	O K
30 min Winter	52.385	1.185	5.0	283.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	136.560	0.0	194.1	26	
30 min Summer	91.729	0.0	260.7	41	
60 min Summer	58.739	0.0	334.6	70	
120 min Summer	36.254	0.0	413.0	128	
180 min Summer	26.900	0.0	459.7	188	
240 min Summer	21.623	0.0	492.7	246	
360 min Summer	15.914	0.0	543.9	364	
480 min Summer	12.782	0.0	582.4	482	
600 min Summer	10.774	0.0	613.6	600	
720 min Summer	9.365	0.0	639.9	688	
960 min Summer	7.499	0.0	683.1	798	
1440 min Summer	5.473	0.0	745.3	1048	
2160 min Summer	3.985	0.0	817.6	1460	
2880 min Summer	3.178	0.0	869.3	1876	
4320 min Summer	2.306	0.0	945.9	2688	
5760 min Summer	1.834	0.0	1003.4	3512	
7200 min Summer	1.536	0.0	1050.8	4320	
8640 min Summer	1.330	0.0	1091.7	4928	
10080 min Summer	1.178	0.0	1127.4	5552	
15 min Winter	136.560	0.0	217.4	26	
30 min Winter	91.729	0.0	291.9	40	
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3rd Floor, The Hallmark Buil...		Folders Lane Ph2			
52-56 LeadenHall Street		Burgess Hill			
London, EC3M 5JE		Cat 1 - 100yr +45%			
Date 10/08/2023		Designed by JJ			
File 2104772 Catchment 1 -10...		Checked by JM			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 100 year Return Period (+45%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	52.560	1.360	5.0	358.2	O K
120 min Winter	52.709	1.509	5.1	430.2	Flood Risk
180 min Winter	52.778	1.578	5.2	466.4	Flood Risk
240 min Winter	52.817	1.617	5.3	487.1	Flood Risk
360 min Winter	52.861	1.661	5.3	511.9	Flood Risk
480 min Winter	52.880	1.680	5.4	522.5	Flood Risk
600 min Winter	52.885	1.685	5.4	525.4	Flood Risk
720 min Winter	52.881	1.681	5.4	523.4	Flood Risk
960 min Winter	52.859	1.659	5.3	510.9	Flood Risk
1440 min Winter	52.805	1.605	5.2	480.9	Flood Risk
2160 min Winter	52.723	1.523	5.1	437.4	Flood Risk
2880 min Winter	52.635	1.435	5.0	393.7	Flood Risk
4320 min Winter	52.449	1.249	5.0	309.6	O K
5760 min Winter	52.245	1.045	5.0	230.8	O K
7200 min Winter	51.937	0.737	5.0	135.3	O K
8640 min Winter	51.677	0.477	5.0	73.8	O K
10080 min Winter	51.508	0.308	4.9	42.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	58.739	0.0	374.8	70	
120 min Winter	36.254	0.0	462.6	126	
180 min Winter	26.900	0.0	514.9	184	
240 min Winter	21.623	0.0	551.8	242	
360 min Winter	15.914	0.0	609.1	358	
480 min Winter	12.782	0.0	652.2	472	
600 min Winter	10.774	0.0	687.0	584	
720 min Winter	9.365	0.0	716.4	694	
960 min Winter	7.499	0.0	763.9	900	
1440 min Winter	5.473	0.0	786.1	1118	
2160 min Winter	3.985	0.0	915.7	1584	
2880 min Winter	3.178	0.0	973.6	2028	
4320 min Winter	2.306	0.0	1059.4	2904	
5760 min Winter	1.834	0.0	1123.8	3752	
7200 min Winter	1.536	0.0	1177.0	4400	
8640 min Winter	1.330	0.0	1222.7	4928	
10080 min Winter	1.178	0.0	1262.8	5448	
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2104772 - Folders Lane Ph2
Burgess Hill
Cat2 - 1yr

Date 10/08/2023
File 2104772 Catchment 2 -1y...

Designed by JJ
Checked by JM

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Source Control 2020.1

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Summary of Results for 1 year Return Period

Half Drain Time : 1 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	51.432	0.032	0.0	3.8	3.8	0.2	O K
30 min Summer	51.449	0.049	0.0	3.8	3.8	0.4	O K
60 min Summer	51.439	0.039	0.0	3.8	3.8	0.2	O K
120 min Summer	51.400	0.000	0.0	3.5	3.5	0.0	O K
180 min Summer	51.400	0.000	0.0	2.8	2.8	0.0	O K
240 min Summer	51.400	0.000	0.0	2.4	2.4	0.0	O K
360 min Summer	51.400	0.000	0.0	1.9	1.9	0.0	O K
480 min Summer	51.400	0.000	0.0	1.6	1.6	0.0	O K
600 min Summer	51.400	0.000	0.0	1.4	1.4	0.0	O K
720 min Summer	51.400	0.000	0.0	1.2	1.2	0.0	O K
960 min Summer	51.400	0.000	0.0	1.0	1.0	0.0	O K
1440 min Summer	51.400	0.000	0.0	0.8	0.8	0.0	O K
2160 min Summer	51.400	0.000	0.0	0.6	0.6	0.0	O K
2880 min Summer	51.400	0.000	0.0	0.5	0.5	0.0	O K
4320 min Summer	51.400	0.000	0.0	0.3	0.3	0.0	O K
5760 min Summer	51.400	0.000	0.0	0.3	0.3	0.0	O K
7200 min Summer	51.400	0.000	0.0	0.2	0.2	0.0	O K
8640 min Summer	51.400	0.000	0.0	0.2	0.2	0.0	O K
10080 min Summer	51.400	0.000	0.0	0.2	0.2	0.0	O K
15 min Winter	51.449	0.049	0.0	3.8	3.8	0.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	29.648	0.0	2.1	18
30 min Summer	19.726	0.0	3.2	26
60 min Summer	12.800	0.0	4.6	40
120 min Summer	8.156	0.0	6.2	0
180 min Summer	6.242	0.0	7.3	0
240 min Summer	5.155	0.0	8.1	0
360 min Summer	3.898	0.0	9.4	0
480 min Summer	3.196	0.0	10.3	0
600 min Summer	2.740	0.0	11.1	0
720 min Summer	2.417	0.0	11.8	0
960 min Summer	1.983	0.0	12.9	0
1440 min Summer	1.501	0.0	14.6	0
2160 min Summer	1.134	0.0	16.5	0
2880 min Summer	0.930	0.0	17.8	0
4320 min Summer	0.704	0.0	19.9	0
5760 min Summer	0.578	0.0	21.3	0
7200 min Summer	0.495	0.0	22.3	0
8640 min Summer	0.436	0.0	23.1	0
10080 min Summer	0.391	0.0	23.7	0
15 min Winter	29.648	0.0	2.5	18

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3rd Floor, The Hallmark Buil... 52-56 LeadenHall Street London, EC3M 5JE				2104772 - Folders Lane Ph2 Burgess Hill Cat2 - 1yr			
Date 10/08/2023 File 2104772 Catchment 2 -1y...				Designed by JJ Checked by JM			
Innovyze				Source Control 2020.1			
<u>Summary of Results for 1 year Return Period</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	51.459	0.059	0.0	3.8	3.8	0.5	O K
60 min Winter	51.429	0.029	0.0	3.8	3.8	0.1	O K
120 min Winter	51.400	0.000	0.0	2.9	2.9	0.0	O K
180 min Winter	51.400	0.000	0.0	2.2	2.2	0.0	O K
240 min Winter	51.400	0.000	0.0	1.9	1.9	0.0	O K
360 min Winter	51.400	0.000	0.0	1.4	1.4	0.0	O K
480 min Winter	51.400	0.000	0.0	1.2	1.2	0.0	O K
600 min Winter	51.400	0.000	0.0	1.0	1.0	0.0	O K
720 min Winter	51.400	0.000	0.0	0.9	0.9	0.0	O K
960 min Winter	51.400	0.000	0.0	0.7	0.7	0.0	O K
1440 min Winter	51.400	0.000	0.0	0.5	0.5	0.0	O K
2160 min Winter	51.400	0.000	0.0	0.4	0.4	0.0	O K
2880 min Winter	51.400	0.000	0.0	0.3	0.3	0.0	O K
4320 min Winter	51.400	0.000	0.0	0.2	0.2	0.0	O K
5760 min Winter	51.400	0.000	0.0	0.2	0.2	0.0	O K
7200 min Winter	51.400	0.000	0.0	0.2	0.2	0.0	O K
8640 min Winter	51.400	0.000	0.0	0.2	0.2	0.0	O K
10080 min Winter	51.400	0.000	0.0	0.1	0.1	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	19.726	0.0	3.8	26			
60 min Winter	12.800	0.0	5.3	40			
120 min Winter	8.156	0.0	7.1	0			
180 min Winter	6.242	0.0	8.3	0			
240 min Winter	5.155	0.0	9.3	0			
360 min Winter	3.898	0.0	10.7	0			
480 min Winter	3.196	0.0	11.7	0			
600 min Winter	2.740	0.0	12.6	0			
720 min Winter	2.417	0.0	13.4	0			
960 min Winter	1.983	0.0	14.7	0			
1440 min Winter	1.501	0.0	16.7	0			
2160 min Winter	1.134	0.0	18.8	0			
2880 min Winter	0.930	0.0	20.4	0			
4320 min Winter	0.704	0.0	22.7	0			
5760 min Winter	0.578	0.0	24.5	0			
7200 min Winter	0.495	0.0	25.7	0			
8640 min Winter	0.436	0.0	26.7	0			
10080 min Winter	0.391	0.0	27.5	0			
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2104772 - Folders Lane Ph2
Burgess Hill
Cat2 - 30yr

Date 10/08/2023
File 2104772 Catchment 2 -30...

Designed by JJ
Checked by JM

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Source Control 2020.1

Micro Drainage

Summary of Results for 30 year Return Period

Half Drain Time : 13 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	51.555	0.155	0.0	4.0	4.0	3.8	O K
30 min Summer	51.578	0.178	0.0	4.0	4.0	5.0	O K
60 min Summer	51.576	0.176	0.0	4.0	4.0	4.9	O K
120 min Summer	51.554	0.154	0.0	3.9	3.9	3.7	O K
180 min Summer	51.527	0.127	0.0	3.9	3.9	2.5	O K
240 min Summer	51.498	0.098	0.0	3.8	3.8	1.5	O K
360 min Summer	51.440	0.040	0.0	3.8	3.8	0.3	O K
480 min Summer	51.400	0.000	0.0	3.4	3.4	0.0	O K
600 min Summer	51.400	0.000	0.0	2.9	2.9	0.0	O K
720 min Summer	51.400	0.000	0.0	2.6	2.6	0.0	O K
960 min Summer	51.400	0.000	0.0	2.1	2.1	0.0	O K
1440 min Summer	51.400	0.000	0.0	1.5	1.5	0.0	O K
2160 min Summer	51.400	0.000	0.0	1.1	1.1	0.0	O K
2880 min Summer	51.400	0.000	0.0	0.9	0.9	0.0	O K
4320 min Summer	51.400	0.000	0.0	0.6	0.6	0.0	O K
5760 min Summer	51.400	0.000	0.0	0.5	0.5	0.0	O K
7200 min Summer	51.400	0.000	0.0	0.4	0.4	0.0	O K
8640 min Summer	51.400	0.000	0.0	0.4	0.4	0.0	O K
10080 min Summer	51.400	0.000	0.0	0.3	0.3	0.0	O K
15 min Winter	51.574	0.174	0.0	4.0	4.0	4.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	72.682	0.0	7.1	20
30 min Summer	48.363	0.0	9.8	29
60 min Summer	30.811	0.0	12.9	46
120 min Summer	19.036	0.0	16.4	78
180 min Summer	14.191	0.0	18.5	110
240 min Summer	11.467	0.0	19.8	138
360 min Summer	8.493	0.0	22.2	194
480 min Summer	6.855	0.0	23.9	0
600 min Summer	5.801	0.0	25.3	0
720 min Summer	5.059	0.0	26.5	0
960 min Summer	4.074	0.0	28.5	0
1440 min Summer	2.998	0.0	31.3	0
2160 min Summer	2.203	0.0	34.4	0
2880 min Summer	1.769	0.0	36.6	0
4320 min Summer	1.297	0.0	39.7	0
5760 min Summer	1.040	0.0	41.9	0
7200 min Summer	0.876	0.0	43.6	0
8640 min Summer	0.762	0.0	45.0	0
10080 min Summer	0.677	0.0	46.1	0
15 min Winter	72.682	0.0	8.1	21

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2104772 - Folders Lane Ph2
Burgess Hill
Cat2 - 30yr +40%

Date 10/08/2023
File 2104772 Catchment 2 -30...

Designed by JJ
Checked by JM

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Source Control 2020.1

Micro Drainage

Summary of Results for 30 year Return Period (+40%)

Half Drain Time : 25 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	51.607	0.207	0.0	4.1	4.1	6.8	O K
30 min Summer	51.635	0.235	0.0	4.1	4.1	8.7	O K
60 min Summer	51.637	0.237	0.0	4.1	4.1	8.9	O K
120 min Summer	51.621	0.221	0.0	4.1	4.1	7.8	O K
180 min Summer	51.600	0.200	0.0	4.1	4.1	6.3	O K
240 min Summer	51.576	0.176	0.0	4.0	4.0	4.9	O K
360 min Summer	51.530	0.130	0.0	3.9	3.9	2.7	O K
480 min Summer	51.485	0.085	0.0	3.8	3.8	1.2	O K
600 min Summer	51.441	0.041	0.0	3.8	3.8	0.3	O K
720 min Summer	51.400	0.000	0.0	3.6	3.6	0.0	O K
960 min Summer	51.400	0.000	0.0	2.9	2.9	0.0	O K
1440 min Summer	51.400	0.000	0.0	2.1	2.1	0.0	O K
2160 min Summer	51.400	0.000	0.0	1.6	1.6	0.0	O K
2880 min Summer	51.400	0.000	0.0	1.2	1.2	0.0	O K
4320 min Summer	51.400	0.000	0.0	0.9	0.9	0.0	O K
5760 min Summer	51.400	0.000	0.0	0.7	0.7	0.0	O K
7200 min Summer	51.400	0.000	0.0	0.6	0.6	0.0	O K
8640 min Summer	51.400	0.000	0.0	0.5	0.5	0.0	O K
10080 min Summer	51.400	0.000	0.0	0.5	0.5	0.0	O K
15 min Winter	51.626	0.226	0.0	4.1	4.1	8.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	101.754	0.0	10.4	21
30 min Summer	67.708	0.0	14.5	31
60 min Summer	43.136	0.0	18.8	48
120 min Summer	26.651	0.0	23.5	82
180 min Summer	19.868	0.0	26.3	114
240 min Summer	16.054	0.0	28.5	146
360 min Summer	11.891	0.0	31.6	206
480 min Summer	9.596	0.0	34.1	262
600 min Summer	8.121	0.0	36.1	316
720 min Summer	7.083	0.0	37.8	0
960 min Summer	5.703	0.0	40.6	0
1440 min Summer	4.198	0.0	44.7	0
2160 min Summer	3.085	0.0	49.1	0
2880 min Summer	2.477	0.0	52.4	0
4320 min Summer	1.816	0.0	57.1	0
5760 min Summer	1.456	0.0	60.5	0
7200 min Summer	1.227	0.0	63.2	0
8640 min Summer	1.067	0.0	65.4	0
10080 min Summer	0.948	0.0	67.2	0
15 min Winter	101.754	0.0	11.8	22

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2104772 - Folders Lane Ph2

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Cat2 - 30yr +40%

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File 2104772 Catchment 2 -30...

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Source Control 2020.1

Page 2



Summary of Results for 30 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	51.655	0.255	0.0	4.2	4.2	10.3	O K
60 min Winter	51.656	0.256	0.0	4.2	4.2	10.4	O K
120 min Winter	51.631	0.231	0.0	4.1	4.1	8.5	O K
180 min Winter	51.597	0.197	0.0	4.1	4.1	6.1	O K
240 min Winter	51.559	0.159	0.0	4.0	4.0	4.0	O K
360 min Winter	51.479	0.079	0.0	3.8	3.8	1.0	O K
480 min Winter	51.400	0.000	0.0	3.5	3.5	0.0	O K
600 min Winter	51.400	0.000	0.0	3.0	3.0	0.0	O K
720 min Winter	51.400	0.000	0.0	2.6	2.6	0.0	O K
960 min Winter	51.400	0.000	0.0	2.1	2.1	0.0	O K
1440 min Winter	51.400	0.000	0.0	1.5	1.5	0.0	O K
2160 min Winter	51.400	0.000	0.0	1.1	1.1	0.0	O K
2880 min Winter	51.400	0.000	0.0	0.9	0.9	0.0	O K
4320 min Winter	51.400	0.000	0.0	0.7	0.7	0.0	O K
5760 min Winter	51.400	0.000	0.0	0.5	0.5	0.0	O K
7200 min Winter	51.400	0.000	0.0	0.4	0.4	0.0	O K
8640 min Winter	51.400	0.000	0.0	0.4	0.4	0.0	O K
10080 min Winter	51.400	0.000	0.0	0.3	0.3	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	67.708	0.0	16.4	32
60 min Winter	43.136	0.0	21.3	52
120 min Winter	26.651	0.0	26.2	88
180 min Winter	19.868	0.0	29.7	122
240 min Winter	16.054	0.0	32.0	152
360 min Winter	11.891	0.0	35.6	208
480 min Winter	9.596	0.0	38.4	0
600 min Winter	8.121	0.0	40.6	0
720 min Winter	7.083	0.0	42.5	0
960 min Winter	5.703	0.0	45.7	0
1440 min Winter	4.198	0.0	50.4	0
2160 min Winter	3.085	0.0	55.3	0
2880 min Winter	2.477	0.0	59.0	0
4320 min Winter	1.816	0.0	64.4	0
5760 min Winter	1.456	0.0	68.3	0
7200 min Winter	1.227	0.0	71.4	0
8640 min Winter	1.067	0.0	74.0	0
10080 min Winter	0.948	0.0	76.2	0

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Burgess Hill

Cat2 - 100yr

Date 10/08/2023

File 2104772 Catchment 2 -10...

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Source Control 2020.1

Page 1



Summary of Results for 100 year Return Period

Half Drain Time : 23 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	51.595	0.195	0.0	4.0	4.0	6.0	O K
30 min Summer	51.622	0.222	0.0	4.1	4.1	7.8	O K
60 min Summer	51.625	0.225	0.0	4.1	4.1	8.0	O K
120 min Summer	51.608	0.208	0.0	4.1	4.1	6.9	O K
180 min Summer	51.584	0.184	0.0	4.0	4.0	5.4	O K
240 min Summer	51.559	0.159	0.0	4.0	4.0	4.0	O K
360 min Summer	51.509	0.109	0.0	3.8	3.8	1.9	O K
480 min Summer	51.461	0.061	0.0	3.8	3.8	0.6	O K
600 min Summer	51.400	0.000	0.0	3.8	3.8	0.0	O K
720 min Summer	51.400	0.000	0.0	3.3	3.3	0.0	O K
960 min Summer	51.400	0.000	0.0	2.6	2.6	0.0	O K
1440 min Summer	51.400	0.000	0.0	1.9	1.9	0.0	O K
2160 min Summer	51.400	0.000	0.0	1.4	1.4	0.0	O K
2880 min Summer	51.400	0.000	0.0	1.1	1.1	0.0	O K
4320 min Summer	51.400	0.000	0.0	0.8	0.8	0.0	O K
5760 min Summer	51.400	0.000	0.0	0.6	0.6	0.0	O K
7200 min Summer	51.400	0.000	0.0	0.5	0.5	0.0	O K
8640 min Summer	51.400	0.000	0.0	0.5	0.5	0.0	O K
10080 min Summer	51.400	0.000	0.0	0.4	0.4	0.0	O K
15 min Winter	51.611	0.211	0.0	4.1	4.1	7.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	94.179	0.0	9.5	21
30 min Summer	63.261	0.0	13.3	31
60 min Summer	40.510	0.0	17.6	48
120 min Summer	25.003	0.0	21.7	82
180 min Summer	18.552	0.0	24.6	114
240 min Summer	14.912	0.0	26.3	144
360 min Summer	10.975	0.0	29.1	202
480 min Summer	8.815	0.0	31.3	258
600 min Summer	7.430	0.0	32.9	0
720 min Summer	6.458	0.0	34.3	0
960 min Summer	5.172	0.0	36.6	0
1440 min Summer	3.774	0.0	40.0	0
2160 min Summer	2.748	0.0	43.5	0
2880 min Summer	2.192	0.0	46.0	0
4320 min Summer	1.590	0.0	49.5	0
5760 min Summer	1.265	0.0	52.0	0
7200 min Summer	1.060	0.0	53.8	0
8640 min Summer	0.917	0.0	55.4	0
10080 min Summer	0.812	0.0	56.6	0
15 min Winter	94.179	0.0	10.8	21

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Summary of Results for 100 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	51.642	0.242	0.0	4.2	4.2	9.3	O K
60 min Winter	51.643	0.243	0.0	4.2	4.2	9.3	O K
120 min Winter	51.615	0.215	0.0	4.1	4.1	7.3	O K
180 min Winter	51.578	0.178	0.0	4.0	4.0	5.0	O K
240 min Winter	51.536	0.136	0.0	3.9	3.9	2.9	O K
360 min Winter	51.444	0.044	0.0	3.8	3.8	0.3	O K
480 min Winter	51.400	0.000	0.0	3.2	3.2	0.0	O K
600 min Winter	51.400	0.000	0.0	2.7	2.7	0.0	O K
720 min Winter	51.400	0.000	0.0	2.4	2.4	0.0	O K
960 min Winter	51.400	0.000	0.0	1.9	1.9	0.0	O K
1440 min Winter	51.400	0.000	0.0	1.4	1.4	0.0	O K
2160 min Winter	51.400	0.000	0.0	1.0	1.0	0.0	O K
2880 min Winter	51.400	0.000	0.0	0.8	0.8	0.0	O K
4320 min Winter	51.400	0.000	0.0	0.6	0.6	0.0	O K
5760 min Winter	51.400	0.000	0.0	0.5	0.5	0.0	O K
7200 min Winter	51.400	0.000	0.0	0.4	0.4	0.0	O K
8640 min Winter	51.400	0.000	0.0	0.3	0.3	0.0	O K
10080 min Winter	51.400	0.000	0.0	0.3	0.3	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	63.261	0.0	15.0	32
60 min Winter	40.510	0.0	19.6	52
120 min Winter	25.003	0.0	24.8	86
180 min Winter	18.552	0.0	27.5	120
240 min Winter	14.912	0.0	29.7	150
360 min Winter	10.975	0.0	32.8	202
480 min Winter	8.815	0.0	35.1	0
600 min Winter	7.430	0.0	37.0	0
720 min Winter	6.458	0.0	38.6	0
960 min Winter	5.172	0.0	41.2	0
1440 min Winter	3.774	0.0	45.1	0
2160 min Winter	2.748	0.0	49.0	0
2880 min Winter	2.192	0.0	51.9	0
4320 min Winter	1.590	0.0	55.9	0
5760 min Winter	1.265	0.0	58.8	0
7200 min Winter	1.060	0.0	61.0	0
8640 min Winter	0.917	0.0	62.8	0
10080 min Winter	0.812	0.0	64.3	0

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File 2104772 Catchment 2 -10...

Innovyze

2104772 - Folders Lane Ph2
Burgess Hill
Cat2 - 100yr +45%

Designed by JJ
Checked by JM

Source Control 2020.1

Page 1



Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 40 minutes.

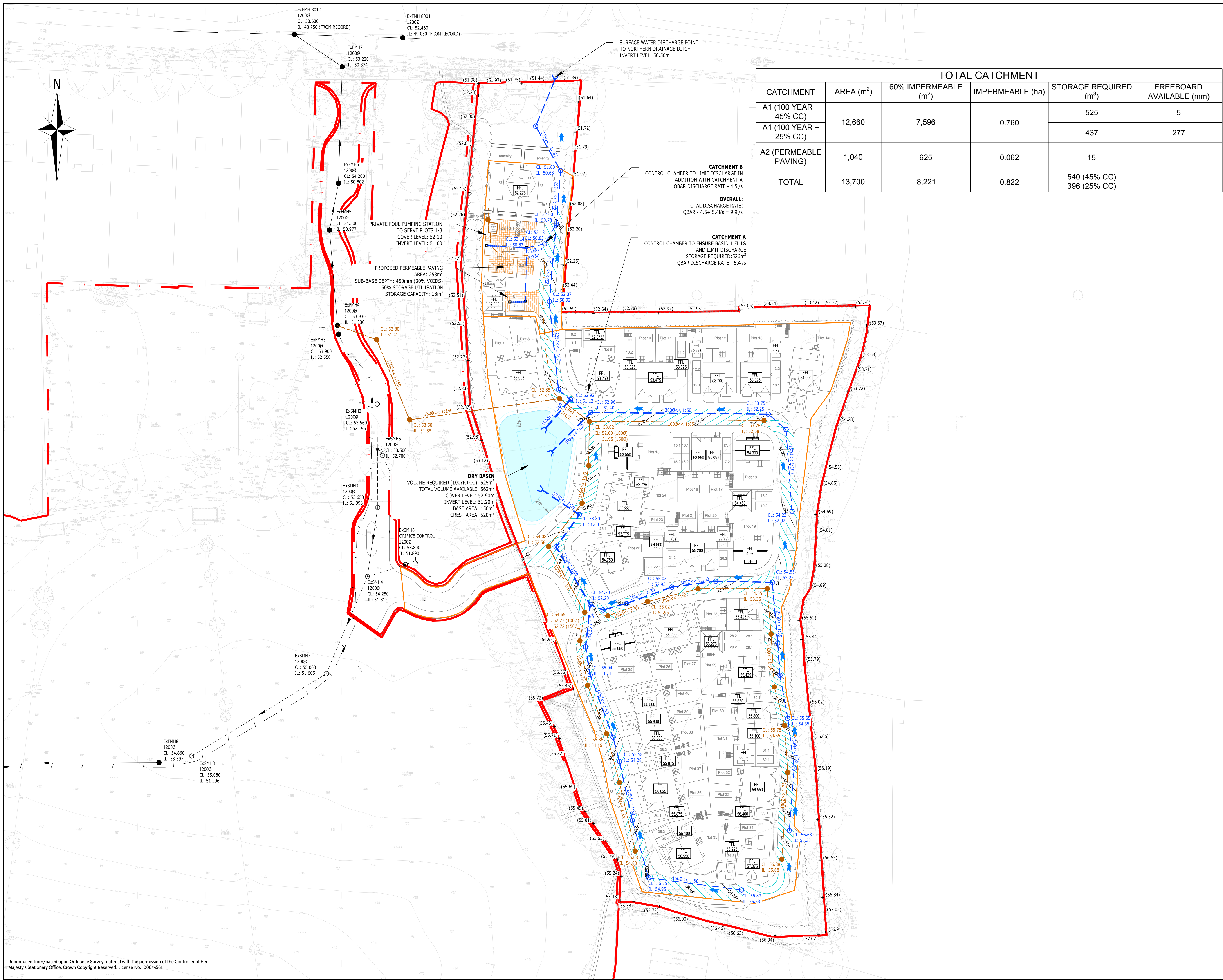
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	51.659	0.259	0.0	4.2	4.2	10.6	O K
30 min Summer	51.696	0.296	0.0	4.3	4.3	13.6	O K
60 min Summer	51.707	0.307	0.0	4.3	4.3	14.4	Flood Risk
120 min Summer	51.695	0.295	0.0	4.3	4.3	13.5	O K
180 min Summer	51.675	0.275	0.0	4.2	4.2	11.9	O K
240 min Summer	51.653	0.253	0.0	4.2	4.2	10.2	O K
360 min Summer	51.612	0.212	0.0	4.1	4.1	7.1	O K
480 min Summer	51.571	0.171	0.0	4.0	4.0	4.7	O K
600 min Summer	51.533	0.133	0.0	3.9	3.9	2.8	O K
720 min Summer	51.496	0.096	0.0	3.8	3.8	1.5	O K
960 min Summer	51.400	0.000	0.0	3.8	3.8	0.0	O K
1440 min Summer	51.400	0.000	0.0	2.8	2.8	0.0	O K
2160 min Summer	51.400	0.000	0.0	2.0	2.0	0.0	O K
2880 min Summer	51.400	0.000	0.0	1.6	1.6	0.0	O K
4320 min Summer	51.400	0.000	0.0	1.2	1.2	0.0	O K
5760 min Summer	51.400	0.000	0.0	0.9	0.9	0.0	O K
7200 min Summer	51.400	0.000	0.0	0.8	0.8	0.0	O K
8640 min Summer	51.400	0.000	0.0	0.7	0.7	0.0	O K
10080 min Summer	51.400	0.000	0.0	0.6	0.6	0.0	O K
15 min Winter	51.678	0.278	0.0	4.2	4.2	12.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	136.560	0.0	14.4	22
30 min Summer	91.729	0.0	19.9	32
60 min Summer	58.739	0.0	25.9	52
120 min Summer	36.254	0.0	32.5	86
180 min Summer	26.900	0.0	36.0	120
240 min Summer	21.623	0.0	38.6	152
360 min Summer	15.914	0.0	42.7	214
480 min Summer	12.782	0.0	46.0	274
600 min Summer	10.774	0.0	48.5	332
720 min Summer	9.365	0.0	50.6	388
960 min Summer	7.499	0.0	53.9	0
1440 min Summer	5.473	0.0	59.0	0
2160 min Summer	3.985	0.0	64.2	0
2880 min Summer	3.178	0.0	68.0	0
4320 min Summer	2.306	0.0	73.5	0
5760 min Summer	1.834	0.0	77.4	0
7200 min Summer	1.536	0.0	80.5	0
8640 min Summer	1.330	0.0	83.0	0
10080 min Summer	1.178	0.0	85.1	0
15 min Winter	136.560	0.0	16.4	22

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Ardent		Page 2					
3rd Floor, The Hallmark Buil... 52-56 LeadenHall Street London, EC3M 5JE		2104772 - Folders Lane Ph2 Burgess Hill Cat2 - 100yr +45%					
Date 10/08/2023 File 2104772 Catchment 2 -10...		Designed by JJ Checked by JM					
Innovyze		Source Control 2020.1					
Summary of Results for 100 year Return Period (+45%)							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	51.725	0.325	0.0	4.3	4.3	15.9	Flood Risk
60 min Winter	51.740	0.340	0.0	4.4	4.4	17.0	Flood Risk
120 min Winter	51.719	0.319	0.0	4.3	4.3	15.4	Flood Risk
180 min Winter	51.687	0.287	0.0	4.3	4.3	12.8	O K
240 min Winter	51.652	0.252	0.0	4.2	4.2	10.1	O K
360 min Winter	51.588	0.188	0.0	4.0	4.0	5.6	O K
480 min Winter	51.521	0.121	0.0	3.9	3.9	2.3	O K
600 min Winter	51.445	0.045	0.0	3.8	3.8	0.3	O K
720 min Winter	51.400	0.000	0.0	3.4	3.4	0.0	O K
960 min Winter	51.400	0.000	0.0	2.7	2.7	0.0	O K
1440 min Winter	51.400	0.000	0.0	2.0	2.0	0.0	O K
2160 min Winter	51.400	0.000	0.0	1.4	1.4	0.0	O K
2880 min Winter	51.400	0.000	0.0	1.2	1.2	0.0	O K
4320 min Winter	51.400	0.000	0.0	0.8	0.8	0.0	O K
5760 min Winter	51.400	0.000	0.0	0.7	0.7	0.0	O K
7200 min Winter	51.400	0.000	0.0	0.6	0.6	0.0	O K
8640 min Winter	51.400	0.000	0.0	0.5	0.5	0.0	O K
10080 min Winter	51.400	0.000	0.0	0.4	0.4	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	91.729	0.0	22.5	33			
60 min Winter	58.739	0.0	29.3	56			
120 min Winter	36.254	0.0	36.2	92			
180 min Winter	26.900	0.0	40.8	128			
240 min Winter	21.623	0.0	43.4	162			
360 min Winter	15.914	0.0	48.2	224			
480 min Winter	12.782	0.0	51.6	280			
600 min Winter	10.774	0.0	54.5	328			
720 min Winter	9.365	0.0	56.8	0			
960 min Winter	7.499	0.0	60.6	0			
1440 min Winter	5.473	0.0	66.3	0			
2160 min Winter	3.985	0.0	72.2	0			
2880 min Winter	3.178	0.0	76.5	0			
4320 min Winter	2.306	0.0	82.8	0			
5760 min Winter	1.834	0.0	87.2	0			
7200 min Winter	1.536	0.0	90.8	0			
8640 min Winter	1.330	0.0	93.7	0			
10080 min Winter	1.178	0.0	96.2	0			
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Appendix E
Surface and Foul Water Drainage Strategy



TOTAL CATCHMENT					
CATCHMENT	AREA (m ²)	60% IMPERMEABLE (m ²)	IMPERMEABLE (ha)	STORAGE REQUIRED (m ³)	FREEBOARD AVAILABLE (mm)
A1 (100 YEAR + 45% CC)	12,660	7,596	0.760	525	5
A1 (100 YEAR + 25% CC)				437	277
A2 (PERMEABLE PAVING)	1,040	625	0.062	15	
TOTAL	13,700	8,221	0.822	540 (45% CC) 396 (25% CC)	

- NOTES:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - THE AVOIDANCE AND PROTECTION OF SERVICES DURING THE WORKS IS THE RESPONSIBILITY OF THE CONTRACTOR.
 - THE CONTRACTOR IS REMINDED OF HIS OBLIGATION TO VERIFY THE ROUTE OF ALL SERVICES ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - THE CONTRACTOR SHOULD ALLOW FOR ANY NECESSARY LIAISON WITH THE STATUTORY UTILITIES DURING THE COURSE OF THE WORKS TO AVOID ANY DISRUPTION TO RETAINED SERVICES.
 - THE CONTRACTOR SHOULD NOTE THAT THE SERVICES SHOWN ARE NOT TO BE CONSIDERED EXHAUSTIVE. PRIVATE SERVICES MAY BE PRESENT WITHIN THE LIMIT OF WORKS AND CARE SHOULD BE TAKEN TO LOCATE AND AVOID THESE DURING CONSTRUCTION.
 - ALL INFORMATION IS INDICATIVE AND IS FOR INFORMATION ONLY.

- KEY
- SITE BOUNDARY
 - EXISTING FOUL WATER SEWER & MANHOLE
 - EXISTING FOUL WATER RISING MAIN
 - EXISTING SURFACE WATER SEWER & MANHOLE
 - PCC HEADWALL
 - PROPOSED SURFACE WATER SEWER & MANHOLE
 - PROPOSED FOUL WATER SEWER & MANHOLE
 - PROPOSED FOUL WATER RISING MAIN
 - PROPOSED BASIN
 - PROPOSED PERMEABLE PAVING
 - PERFORATED PIPE 100mmØ
 - CATCHMENT BOUNDARY
 - EXCEEDENCE FLOW ROUTES

FOR INFORMATION ONLY

B	DISHARGE RATE AMENDED TO QBAR RATE	HS	JM	BB	06.09.2022
A	DRAINAGE ADJUSTED TO SUIT UPDATED LAYOUT	LB	JM	BB	19.12.2022
Rev	Description	Drn	Chk	App	Date

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Client
JONES HOMES SOUTHERN LTD

Project Title:
FOLDERS LANE, PHASE 2 - BURGESS HILL

Drawing Title:
PROPOSED DRAINAGE STRATEGY

A1 Scale	Date	Designed by
1:500	DEC 2022	LB
Drawn by	Checked by	Approved by
LB	JM	BB
Drawing Number	2104771-002	
Rev	B	

Appendix F
SuDS Operation and Maintenance Schedule

REPORT REF: LB/2104771-02

DOCUMENT CONTROL

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
-	DRAFT	LB	LB	BB	06.12.22

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1.0 INTRODUCTION

This report is intended to outline the proposed maintenance regime of the surface water drainage network and Sustainable Drainage System (SuDS) pertinent to the proposed development at Folders Lane, Burgess Hill, RH15 0XD.

Reference should be made to **Appendix E** for the location of the proposed SuDS and the *Preliminary Drainage Strategy* drawing (drawing number 2104771-002) for the design criteria.

2.0 SCOPE

This report considers whole life design & maintenance criteria for the SuDS features proposed as part of the development. These features include permeable block paving, a grassed swale, flow controls and headwalls. The design and management of these features needs to consider all the following issues to ensure that risks to performance are minimised:

- Hydraulic design objectives of the scheme;
- Amenity objectives;
- Ecological benefits;
- Health and safety issues, e.g. effective inlet and outlet structures that are easy to maintain.

Regular inspection, monitoring and maintenance will be required to ensure the effective long-term operation of the SuDS on-site. This will be included as part of the overall site management company contract and would form part of the non-adopted estate road maintenance regime.

A management company will be in place, which will employ suitable landscape contractors to maintain the SuDS. They should have a comprehensive knowledge of the development

SuDS MAINTENANCE SCHEDULE

and visit the site on a regular basis to undertake routine care such as cleaning of inlet and outlet pipework, grass cutting, tree and shrub maintenance, sweeping and litter picking.

Such attendance will ensure regular monitoring of the drainage system, a rapid response to maintenance needs, and a feeling of ownership of the SuDS features.

As part of the management company contract, the following landscape maintenance procedures will be applied:

- **Management Plan** - describing the management objectives for a site over time, and the management strategies that will be employed to both realise these objectives and reconcile any potential conflicts that may arise.
- **Specification** - detailing the conditions under which the work will be done, the materials to be used and the standard of work required.
- **Schedule of Work** - itemising the tasks to be undertaken and the frequency at which they will be performed.

As landscape maintenance contract periods are usually 1 or 3 years duration, this is a convenient starting point for SuDS maintenance contracts. The frequency of regular maintenance tasks in a contract period will vary from fortnightly to monthly periods, unless in situations where grass or weed growth requires a higher frequency of work.

Maintenance tasks which suit a performance approach commonly include plant growth, grass cutting, pruning and tree maintenance. However, work tasks such as sweeping paths, regular litter collection and cleaning road surfaces will require work at an agreed frequency with a more specific timing such as weekly, monthly, or annually. Where the frequency and timing of tasks is critical then a mixture of performance and frequency specification is necessary to ensure effective maintenance. This type of specification is useful where SuDS features require regular attention.

SuDS maintenance tends towards a frequency requirement to ensure a predictable standard of care which can be recorded on site, and which provides a reasonable basis for pricing work. A convenient frequency for many tasks is at a monthly inspection as this is the usual minimum site attendance required in a landscape specification. The monthly frequency provides for an inspection of all SuDS features and checking of all inlets and outlets.

It is recommended that SuDS are not handed over to those responsible for maintenance until upstream construction has ceased, the contributing catchment has stabilised, and any necessary rehabilitation of downstream components has been undertaken by the construction contractor. However, if maintenance agreements must be put in place in advance of this time, and the level of construction activity in the contributing catchment is still high, bespoke temporary maintenance specifications should be prepared that take account of high sediment accumulation rates and the increased risks of potential spillages.

3.0 SURFACE WATER DRAINAGE OWNERSHIP PROPOSALS

It is the intention that ownership and responsibility of all various surface water drainage elements including the receiving surface water ditch bounding the site will be managed and maintained by the private management company. This will receive annual contributions from all residents.

4.0 SUDS MAINTENANCE PROPOSALS

The proposed drainage strategy utilises sustainable drainage techniques to ensure that the site can accommodate all storm events up to and including the 1 in 100-year storm event with allowances for future climate change.

It is the intention that all SuDS features including the dry detention basin, permeable paving, flow controls, pipes, and headwalls are to be maintained by a private management company. The tables below outline the maintenance requirements of the SuDS components throughout the drainage strategy. These have been informed by the guidance outlined within CIRIA C753 and best practice guidance. The following information would be supplemented by manufacturer's specifications where applicable and be obviously dependent on the type of system involved.

Operation and Maintenance Requirements for Permeable Pavements		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or reduce frequency as required, based on site-specific observations of clogging or manufacture's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is the most likely to collect the most sediment.
Occasional maintenance	Stabilise and mow contributing and adjacent areas.	As required
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than a spray.	As required – once per a year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required

SuDS MAINTENANCE SCHEDULE

	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing materials.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection.	Monthly for three months after instillation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Three-monthly, 48 hours after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually
	Monitor inspection chambers.	Annually

Operation and Maintenance Requirements for Detention Basins		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)

Operation and Maintenance Requirements for Detention Basins		
Maintenance Schedule	Required Action	Typical Frequency
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually
Occasional Maintenance	Reseed area of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing	As required
	Realignment of rip-cap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

SuDS MAINTENANCE SCHEDULE

Operation and Maintenance Requirements for Flow Controls, Pipes, and Headwalls		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove sediment and debris from chambers.	Annually
	Remove sediment and debris from headwall aprons and riprap.	Annually
	Remove any root ingress from chambers/pipework.	As required
	Remove vegetation blocking sight and access to headwalls.	As required
Occasional Maintenance	CCTV survey of drains to check alignment, cracking, and joint displacement.	10-year intervals
Remedial Actions	Repair/rehabilitation of inlets, outlet, overflows, and railings.	As required
Monitoring	Initial inspection.	Monthly for three months after installation
	Inspect for evidence of poor operation, weed growth and/or excessive sediment build-up- if required, take remedial action.	Three-monthly, 48 hours after large storms in first six months
	Inspect silt accumulation rates and establish appropriate clearance rates.	Annually
	Monitor inspection chambers and headwalls.	Annually

Figures

