

SuDS and Drainage Report

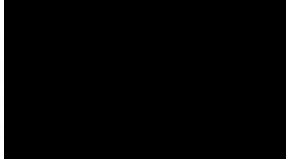
Land at 8 and 9 Holmbush Close, Shoreham by Sea

Planning Ref: **AWDM/I433/24**

Rev: **I**

Ref: **C400I**

Document Control

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Revision History

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1 Introduction

- 1.1.1 CGS Civils Ltd has been appointed to undertake a drainage strategy report for a proposed development at Land at 8 and 9 Holmbush Close, Shoreham by Sea.
- 1.1.2 The proposed development will consist of the construction of a single dwelling on plot of land.
- 1.1.3 The proposed development is located as OS Grid Reference **TQ 23631 06655**, and has the post code **BN43 6TT**.
- 1.1.4 The purpose of this drainage strategy is to demonstrate how the development area can be satisfactorily drained without increasing flood risk on site and elsewhere, and to clear condition included in decision notice from **04/04/2025**, with the planning reference: **AWDM/I433/24**. The condition requires the following to be included:
- *Construction shall not begin until a detailed surface water drainage scheme for the site has been submitted to and approved in writing by the Local Planning Authority. The surface water drainage scheme must prioritise the use of source control Sustainable Drainage Systems (SuDS) in consideration of the Non- Statutory Technical Standards for SuDS and demonstrate no increase in flood risk as a result of the Proposed Development with sufficient supporting evidence provided to support its viability including supporting calculations for the 100% AEP (1 in 1 year), 3.33% AEP (1 in 30 year), 3.33% AEP (1 in 30 year) plus climate change, the 1% AEP (1 in 100 year) and the 1% AEP (1 in 100) plus climate change critical storms. The design should follow the hierarchy of preference for different types of surface water drainage disposal systems as set out in Approved Document H of the Building Regulations, and the recommendations of the SuDS Manual produced by CIRIA. Winter groundwater monitoring and winter infiltration testing to BRE DG365, or similar approved, will be required to support the design of any infiltration drainage. The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.*
 - *The development hereby approved shall not be occupied until details of the maintenance and management of the sustainable drainage scheme have been submitted to and approved in writing by the Local Planning Authority. The drainage scheme shall be implemented prior to the first occupation of the development hereby approved and thereafter managed and maintained in accordance with the approved details in perpetuity. The Local Planning Authority shall be granted access to inspect the sustainable drainage scheme for the lifetime of the development. The details of the scheme to be submitted for approval shall include:*
 - 1. a timetable for its implementation.*
 - 2. details of SuDS feature and connecting drainage structures and maintenance requirement for each aspect including a drawing showing where they are located.*
 - 3. a management and maintenance plan for the lifetime of the development which shall include details of design life and the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime. This will include the name and contact details of any appointed management company.*
- 1.1.5 This document has been prepared with reference to:
- National Planning Policy Framework (NPPF)
 - DEFRA: Sustainable Drainage Systems: Non-Statutory technical standards for sustainable drainage systems
 - DEFRA: National Standards for Sustainable Drainage Systems (SuDS)
 - The SuDS Manual (C753)
 - Building Regulations Document H
 - West Sussex County Council Local Flood Risk Management Strategy

2 The Site

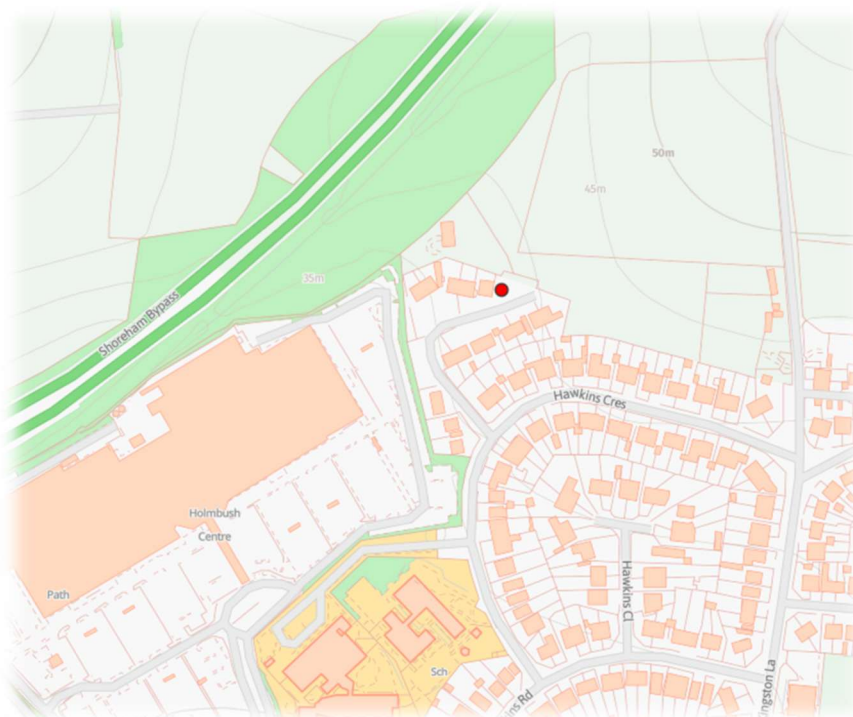


Fig 1. Site Location

- 2.1.1 The existing site is currently undeveloped. The proposal comprises the construction of a single dwelling on the site. The proposed development will result in a total impermeable area of approximately 77 m². The parking area will be constructed using permeable paving to allow surface water runoff to infiltrate into the ground.
- 2.1.2 The client owns the land to the north of the site, as well as the adjoining areas.

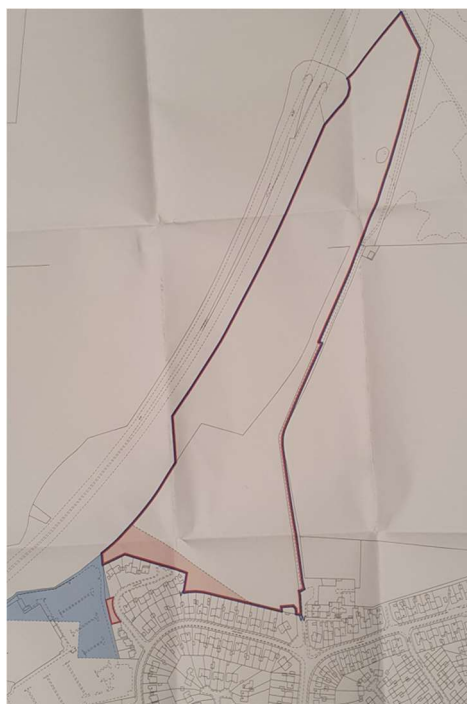


Fig 2. Total area of land owned by the client

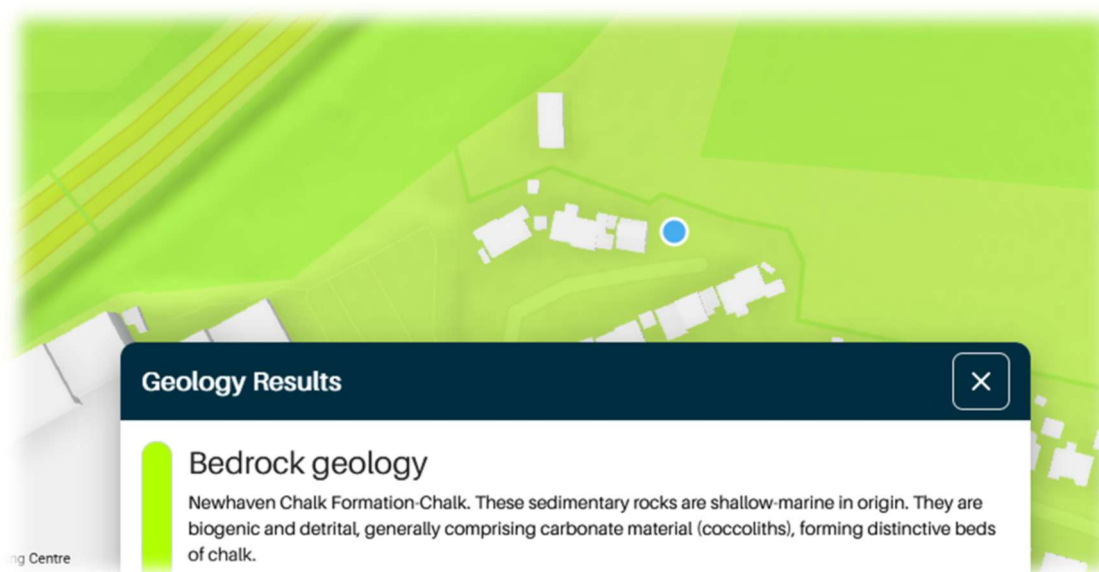
3 Executive Summary:

- 3.1.1 Surface water runoff will be discharged to ground via infiltration. Runoff from the roof areas is to be captured into a positive drainage network prior to being discharged into onsite geocellular soakaway. The runoff from the hard landscaped areas is to freely drain to ground via infiltration through permeable surfaces.
- 3.1.2 The network will also make use of a standard geocellular soakaway where required in order to cater for the 1 in 100-year storm +45% CCA + 10% urban creep. All features have been designed to the appropriate recorded infiltration rate of $1.84 \times 10^{-4} \text{m/s}$.
- 3.1.3 The foul water be collected in the Treatment Plant and discharged into the ground utilising a drainage field.

4 Site Geology

4.1 British Geological Survey information

- 4.1.1 Data from the British Geological Survey shows an expected bedrock geology of Newhaven Chalk Formation-Chalk. There are no recorded superficial deposits.
- 4.1.2 The BGS holds records of historical boreholes in the vicinity of the site which may give some insight into the underlying geology.
 - Borehole TQ20NW154 (Located approx. 179m West of the site) – Ground geology (Sand Clay, Chalk.)



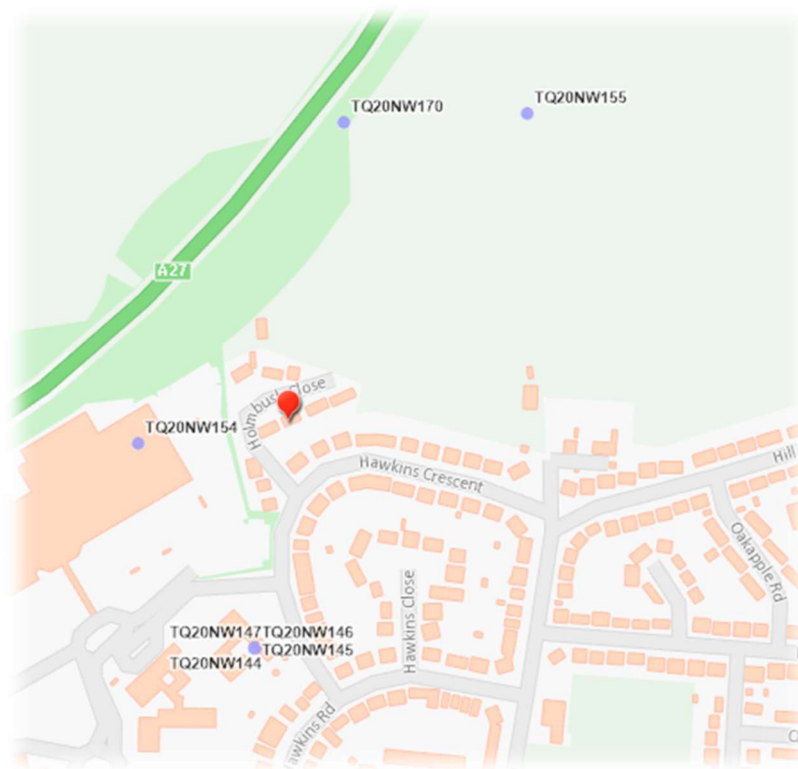


Fig 3. British Geological Survey

4.2 Geological Assessment

- 4.2.1 No intrusive ground investigation was available at the time of writing this statement. However, an onsite infiltration test to BRE 365 was conducted by CGS Civils in July 2026.
- 4.2.2 A BRE365 pit was excavated to a depth of 0.9m. Testing of the sub soils which was noted as chalk soils produced a worse case infiltration rate of 1.84×10^{-4} m/s. This is considered a very good rate and will be suitable for most infiltration devices. No groundwater was encountered during this test.
- 4.2.3 An onsite infiltration test report can be found in **Appendix E**.

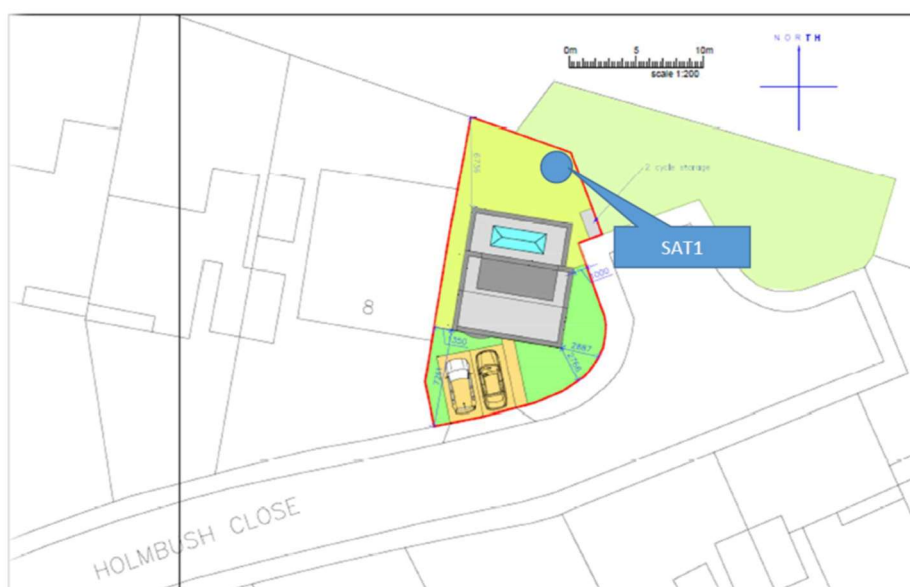


Fig 4. Infiltration Test Location



Fig 5. Infiltration Test Photographs

5 Existing Drainage

- 5.1.1 It is not currently known how existing site discharges surface water runoff, however it is presumed that all surface water runoff naturally infiltrates into the ground or discharges above ground.
- 5.1.2 There is no public sewer network in proximity to the site.



Fig 6. Sewer Records

6 Proposed Drainage Strategy

6.1 SuDS Hierarchy

- 6.1.1 All options for the destination of run-off generated on site have been assessed in the following sequence, in line with the SuDS hierarchy as set out in Building Regulations Part H document and DEFRA's Draft National Standards for SuDS.

Table 1. SuDS Hierarchy

Discharge Destination	Justification
Rainwater Harvesting	Yes- 1500 l Rainwater Harvesting Tank
Interception Features	Yes- bio-retention planters and permeable paving.
Infiltration to ground	Infiltration Basins and porous paving based on recorded infiltration rate of 1.84×10^{-4} m/s.
To Watercourse	n/a
To Surface Water Sewer	n/a
To Other Sewer	n/a

6.2 Proposed Hydraulic Calculation Specifications:

Table 2. Hydraulic Calculations

Hydraulic Calculations Settings:	
Rainfall Methodology	FEH-22
Volumetric Run-off Coefficient Cv	1
CV Winter and Summer	1.0
Additional Storage (m ³ / ha)	0.0
Maximum Rainfall (mm/hr)	500
Urban Creep	10%
Storm Period and Climate Change Allowances (CCA)	1
	2
	10
	30 + 45%
	100 + 45%

Table 3. Storage Settings

Storage Settings:	
Attenuation Tank	Base Coefficient (m/hr): 0.66240
	Side Coefficient (m/hr): 0.66240
	Factor of Safety: 2
	Porosity: 95%
	Time to Half Empty (mins): 26

Storage Settings:	
Permeable Paving	Base Coefficient (m/hr): 0.66240
	Side Coefficient (m/hr): 0.66240
	Factor of Safety: 2
	Porosity: 30%
	Time to Half Empty (mins): 2

6.3 Surface Water Drainage

- 6.3.1 Based on the favourable infiltration rates recorded during the BRE 365 testing, it is proposed that all surface water runoff from the development is discharged into the ground through a soakaway and permeable paving.
- 6.3.2 The proposed site is situated in an area underlain by chalk strata. Considering the presence of chalk soil, it is advisable to position any soakaways at a minimum distance of 10m from structures.
- 6.3.3 The proposed soakaway has been designed using the recorded infiltration rate of 1.84×10^{-4} m/s.
- 6.3.4 All the proposed permeable areas are to be freely drained to ground via porous construction. All infiltration features on site have been designed to a recorded infiltration of 1.84×10^{-4} m/s and to cater for the 1 in 100-year +45% storm +10% urban creep.
- 6.3.5 Additionally, the proposed surface water drainage system has been designed to provide attenuation and storage of 1,500 litres for rainwater harvesting and subsequent reuse. This will be achieved through the installation of a dedicated 1,500-litre underground rainwater storage tank serving the dwelling.

- 6.3.6 The proposed drainage network will also incorporate bio-retention planters, which will provide water quality treatment, amenity and biodiversity benefits. These measures will facilitate the interception of the first 5mm of rainfall and will reduce the overall volume of surface water discharge from the site.
- 6.3.7 The proposed drainage drawings and hydraulic calculations can be found at **Appendix B**

7 Compliance with National SuDS Standards and Principles

- 7.1.1 The current national SuDS standards comprise 7 standards supported by 11 design principles. The tables below summarise how the proposed drainage strategy for Land at 8 and 9 Holmbush Close, Shoreham by Sea responds to these requirements.

Standard	Requirement	Project response
1	Runoff destinations	Rainwater harvesting has been included.
2	Management of everyday rainfall	Rainfall is managed close to source by rainwater harvesting, bio retention and permeable paving, reducing routine runoff from the site.
3	Management of extreme rainfall and flooding	Roof drainage is directed to infiltration features sized for the 1 in 100-year +45% climate change storm with 10% urban creep. The infiltration-led strategy avoids increasing flood risk elsewhere. Any exceedance routes are directed safely away from habitable areas and towards the road.
4	Water quality	Runoff from roofs and parking areas is treated through the SuDS management train. Permeable paving and infiltration components provide pollutant mitigation in accordance with the simple index approach.
5	Amenity	The drainage strategy uses source control and permeable surfacing integrated within the site layout rather than relying solely on conventional buried drainage. Given the restrictive nature of the site, open SuDS are not considered appropriate. However, the inclusion of SuDS planters will provide amenity benefits.
6	Biodiversity	Given the small nature of the site, it will not be appropriate to utilise open SuDS however, the use of SuDS planters will provide biodiversity benefits.
7	Construction, operation, maintenance and structural integrity	The proposed SuDS components are conventional, buildable and maintainable. Long-term maintenance is addressed within the maintenance schedule.

Compliance Table A. Summary of compliance with the 7 national SuDS standards

The proposed drainage design also follows the 11 underpinning principles of the national standards as summarised below.

Principle	Summary	Project response
1	Natural approach to managing water	Surface water is retained and managed on site at source using infiltration in the form of soakaways, permeable paving
2	Management train close to source	Varying SuDS features are used together, with re-use, permeable surfacing and soakaways operating and discharging to source.
3	SuDS approach	The strategy manages runoff quantity, water quality and long-term maintenance in an integrated manner
4	Early and integrated design	Drainage has been considered alongside site levels, site layout. The drainage strategy has also been developed with reference to the site's anticipated infiltration potential based on British Geological Survey (BGS) mapping infiltration test and available site information.
5	Site layout informed by drainage	The proposed infiltration features have been considered separately within the drainage design. The drainage strategy has been developed to reflect variations in site levels and the recorded infiltration characteristics of the underlying ground, based on BGS geological information an infiltration test.
6	Follow natural drainage routes	The layout allows runoff to be managed in accordance with site topography and infiltration opportunities.
7	Take account of local policy and flood evidence	The design is based on BRE 365 testing, BGS data and current national and local SuDS standards. BRE365 testing in winter and groundwater monitoring should be carried out to further support design.
8	Early engagement with the authority	The report format and supporting evidence are intended to support planning application.
9	Demonstrate compliance from concept stage	Compliance with the national standards is addressed within this planning-stage drainage strategy rather than deferred entirely to later stages.
10	Show how the standards are met in site design	The report sets out the hierarchy, testing, hydraulic basis, water quality approach in one coordinated document.
11	Consider phasing where relevant	The development is small and not expected to be phased; however, the strategy is capable of being delivered in a single coordinated phase.

Compliance Table B. Summary of compliance with the 11 SuDS design principles

7.2 Water Quality

- 7.2.1 A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution.
- 7.2.2 Frequent and short duration rainfall events are those that are most loaded with potential contaminants (silts, fines, heavy metals, and various organic and inorganic contaminants) Therefore the first 5-10mm of rainfall should be adequately treated with SuDS.
- 7.2.3 The SuDS Manual (CIRIA C753) describes risks posed to the receiving environment by any proposed drainage discharge.
- 7.2.4 The Manual describes risks posed by the surface water runoff to the receiving environment as a function of:
- The pollution hazard at a particular site (i.e., the pollution source)
 - The effectiveness of SuDS treatment components in reducing levels of pollutants to environmentally acceptable levels
 - The sensitivity of the receiving environment
- 7.2.5 Environment Agency data indicates that the site does not lie within a Source Protection Zone.
- 7.2.6 The recommended approaches for water quality risk management are given in the SuDS Manual Table 26.1.

Table 26.1, (SuDS Manual Section E) from SuDS manual. Approaches to Water Quality Risk Management

Design method	Hazard Characterisation	Risk Reduction	
		For Surface Water	For Groundwater
Simple Index Approach	Simple pollution hazard indices based on land use (Table 26.2)	Simple SuDS hazard mitigation indices (Table 26.3)	Simple SuDS hazard mitigation indices (Table 26.4)
Risk Screening	Factors characterising traffic density and extent of infiltration likely to occur (Table 26.5)	N/A	Factors characterising unsaturated soil depth and type, and predominant flow type through the soils (Table 26.5)
Detailed Risk Assessment	Site specific information used to define likely pollutants and their significance	More detailed, component specific performance information used to demonstrate that the proposed SuDS components reduce the hazard to acceptable levels	
Process-based treatment modelling	Time series rainfall used with generic pollution characteristics to determine statistical distributions of likely concentrations and loadings in the runoff	Models that represent the treatment processes in the proposed SuDS components give estimates of reductions in even mean discharge concentrations and total annual load reductions delivered by the system	

- 7.2.7 In accordance with the guidelines above, the Simple Index Approach will be used to determine the water quality requirements for this developments.

7.2.8 Table 26.2 (SuDS Manual Section E) provides hazard classifications that are to be applied to various land uses. The land uses relevant to this development are:

Land Use	Pollution Hazard Level	Total Suspended solids (TSS)	Metals	Hydro-Carbons
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, homezones 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, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

7.2.9 To deliver adequate treatment, the selected SuDS components must have a total pollution mitigation index that exceeds the pollution hazard index for each containment type.

Total SuDS mitigation index $\geq$ pollution hazard index

Table 26.2 from SuDS manual. Pollution Hazard Indices for Different Land Use Classifications

Table 26.2 Pollution hazard indices for different land use classifications				
Land Use	Pollution Hazard Level	Total Suspended solids (TSS)	Metals	Hydro-Carbons
Residential roofs	Very Low	0.2	0.2	0.05
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Individual property driveways, residential car parks, low traffic roads (e.g., cul-de-sacs, homezones 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, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

7.2.10 The relevant land uses for this development are highlighted.

7.2.11 Table 26.4 (SuDS Manual Section E) provides indicative SuDS mitigation indices for proposed discharges to groundwater.

Table 26.4 Indicative SuDS mitigation indices for discharges to groundwater			
Characteristics of the material overlying the proposed infiltration surface, through which the runoff percolates	TSS	Metals	Hydrocarbons
A layer of dense vegetation underlain by a soil with good containment attenuation potential of at least 300mm in depth	0.6	0.5	0.6
A soil with good contaminant attenuation potential of at least 300mm in depth	0.4	0.3	0.3
Infiltration trench (where a suitable depth of filtration material is included that provides treatment, i.e., graded gravel with sufficient smaller particles but not single size coarse aggregate such as 20mm gravel) underlain by a soil with good contaminant attenuation potential of at least 300mm in depth.	0.4	0.4	0.4
Constructed permeable pavement (where a suitable filtration later is included that provides treatment, and including a geotextile at the base separating the foundation from the subgrade) underlain by a soil with good contaminant attenuation potential of at least 300mm in depth	0.7	0.6	0.7
Bioretention underlain by a soil with good contaminant attenuation potential of at least 300mm in depth	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 inflow concentrations relevant to the contributing drainage area		

Table 4: SuDS mitigation index

Table 4 Mitigation Indices						
Runoff Source	Destination of Runoff	Mitigation Index Source	Type of SuDS Component	Hazard Index (Table 26.2)		
				Total Suspended Solids (TSS)	Metals	Hydrocarbons
Individual driveways, residential car parks and low traffic roads	Ground water	Table 26.4 (for ground waters)	Permeable paving	0.7	0.6	0.7
				Mitigation Indices (Table 26.4)		
				0.7	0.6	0.7

7.2.12 This analysis has demonstrated that the SuDS components proposed for this development will adequately mitigate any pollution risks identified during the assessment.

7.3 Foul water drainage

7.3.1 Due to the proposed development site being located within the area not served by public sewers, it is proposed that foul water runoff is to be collected and discharged into the onsite package treatment plant. Treated water runoff will be then discharged into the ground utilising a drainage field.

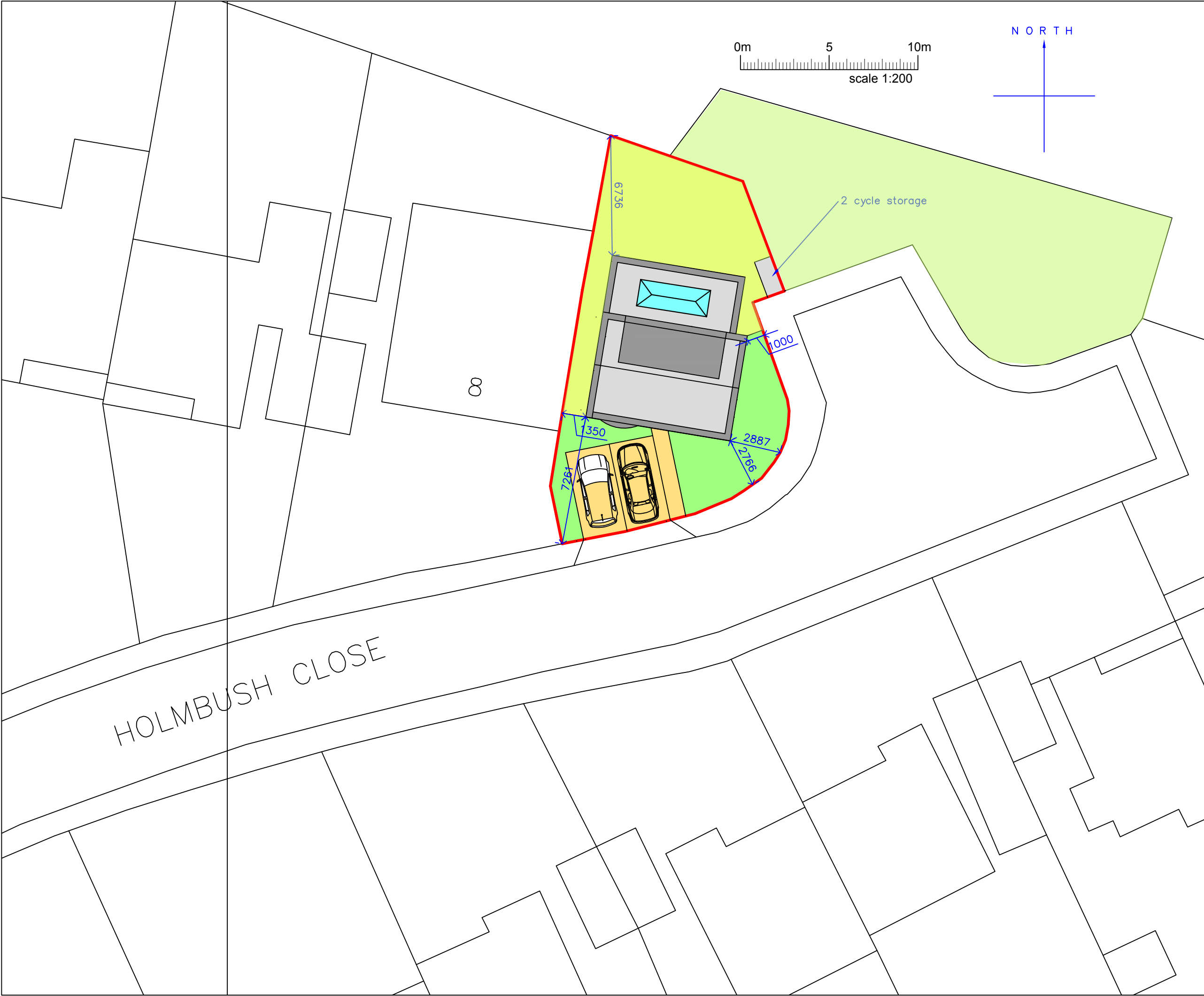
7.3.2 A BRE365 infiltration test was undertaken on site, with a trial pit excavated to a depth of 0.9m. The underlying subsoil was identified as chalk and testing produced a worst-case infiltration rate of 1.84×10^{-4} m/s, indicating very rapid infiltration. Due to the very rapid infiltration rate, a conservative design Vp value of 15 s/mm has been assumed for the proposed drainage field design. A minimum 700mm layer of medium-grade washed sand is proposed beneath the drainage field to provide additional filtration and control of infiltration in accordance with Environment Agency guidance. Prior to commencement of any works, a percolation test shall be undertaken within the proposed drainage field area, to confirm the local ground conditions and suitability of the proposed drainage field.

8 Summary and Conclusions

- 8.1.1 CGS Civils has been instructed to produce a Drainage statement under National Planning Policy Framework (NPPF) to support the Planning Application for a single dwelling.
- 8.1.2 The surface water runoff from roof areas will be discharged into the ground using a geocellular soakaway while all hard-paved areas will be constructed using self-draining porous paving. All features have been designed to the recorded worst-case infiltration rate and to the 1 in 100-year storm + 45% +10% urban creep
- 8.1.3 The Foul water will discharge into the ground via drainage field.
- 8.1.4 This report demonstrates that the foul and surface water drainage measures proposed for this development are suitable and will adequately mitigate the risks identified.
- 8.1.5 A separate, site-specific Maintenance and Management Document as been prepares and is also appended to this report for ease of reference.

9 Appendices

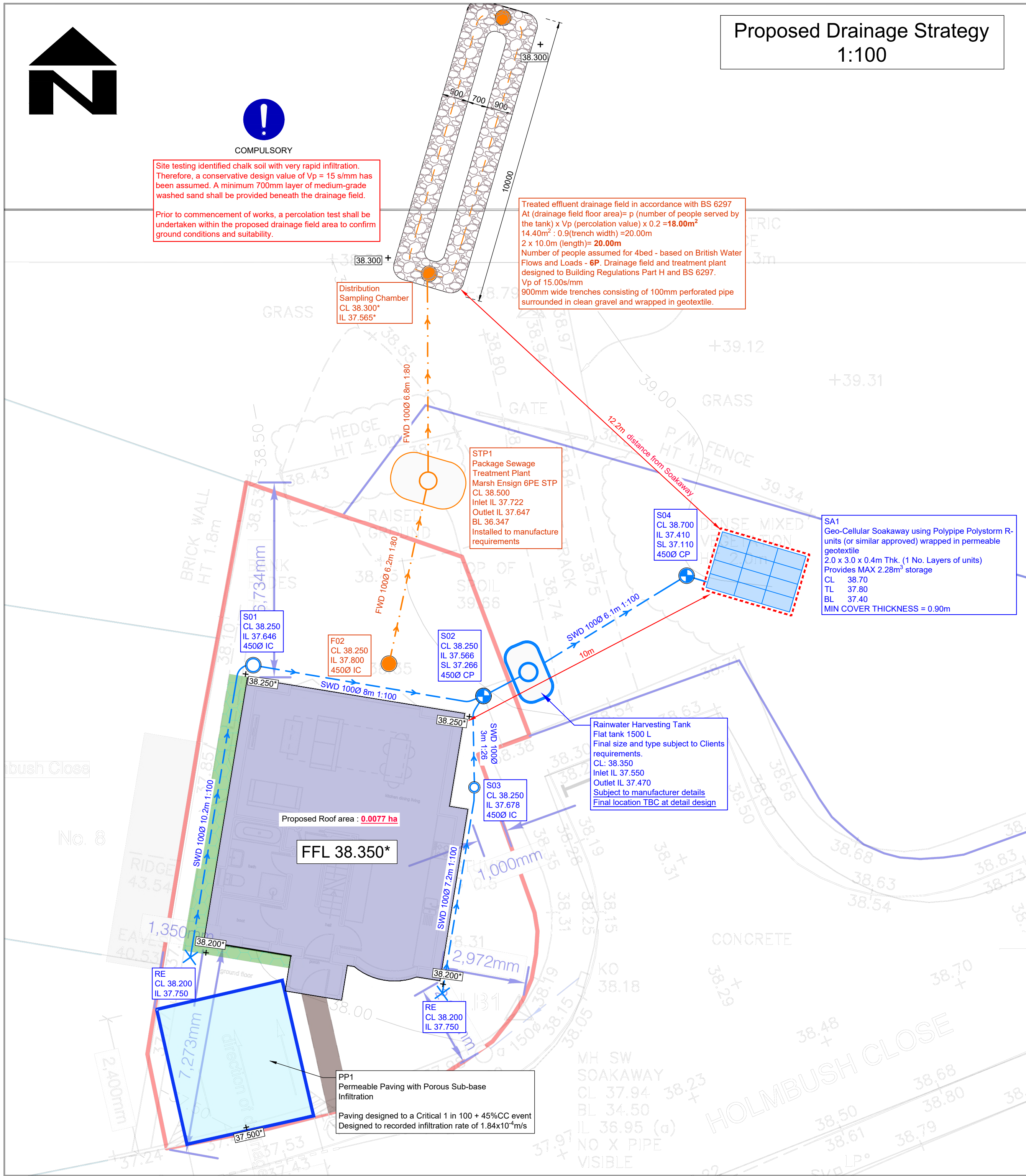
9.1 Appendix A – Site Plan



- D 12225 updated
- C 7125 Client edits
- B 121124 planning items added

REV	DATE	NATURE OF REVISION
REVISIONS		
VILLAGE DESIGN AND PLANNING 07444 875370 www.villagedesignandplanning.co.uk		
CLIENT Hyett Developments Limited		
PROJECT Land adjoining 8 Holmbush Close Shoreham-by-Sea BN43 6TT		
DRAWING TITLE PROPOSED SITE PLAN		
DRAWN BY MCC		DRAWING NO SITE 1
SCALE 1:200 @ A3	DATE 14.8.24	REVISION D

9.2 **Appendix B – Drainage Layout**



DRAINAGE LEGEND

EXISTING FEATURES

- Ex FWD Existing public foul water sewer and manhole
- Ex SWD Existing public surface water sewer and manhole
- Existing foul/surface water sewer/drain and manhole to be abandoned

PROPOSED FEATURES

- FWD Foul Drainage
- SWD Surface Water Drainage
- Pipe crossing (thickening denotes pipe above)
- Rainwater pipe
- Storm water access chamber (3000)
- Storm water inspection chamber (4500)



Storm water catchpit chamber (4500)



Storm water rodding eye



Extent of permeable paving with porous sub-base



Proposed Bio-Retention



Soil stack (type TBC by architect/m&e engineer)



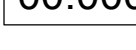
Foul water access chamber (3000)



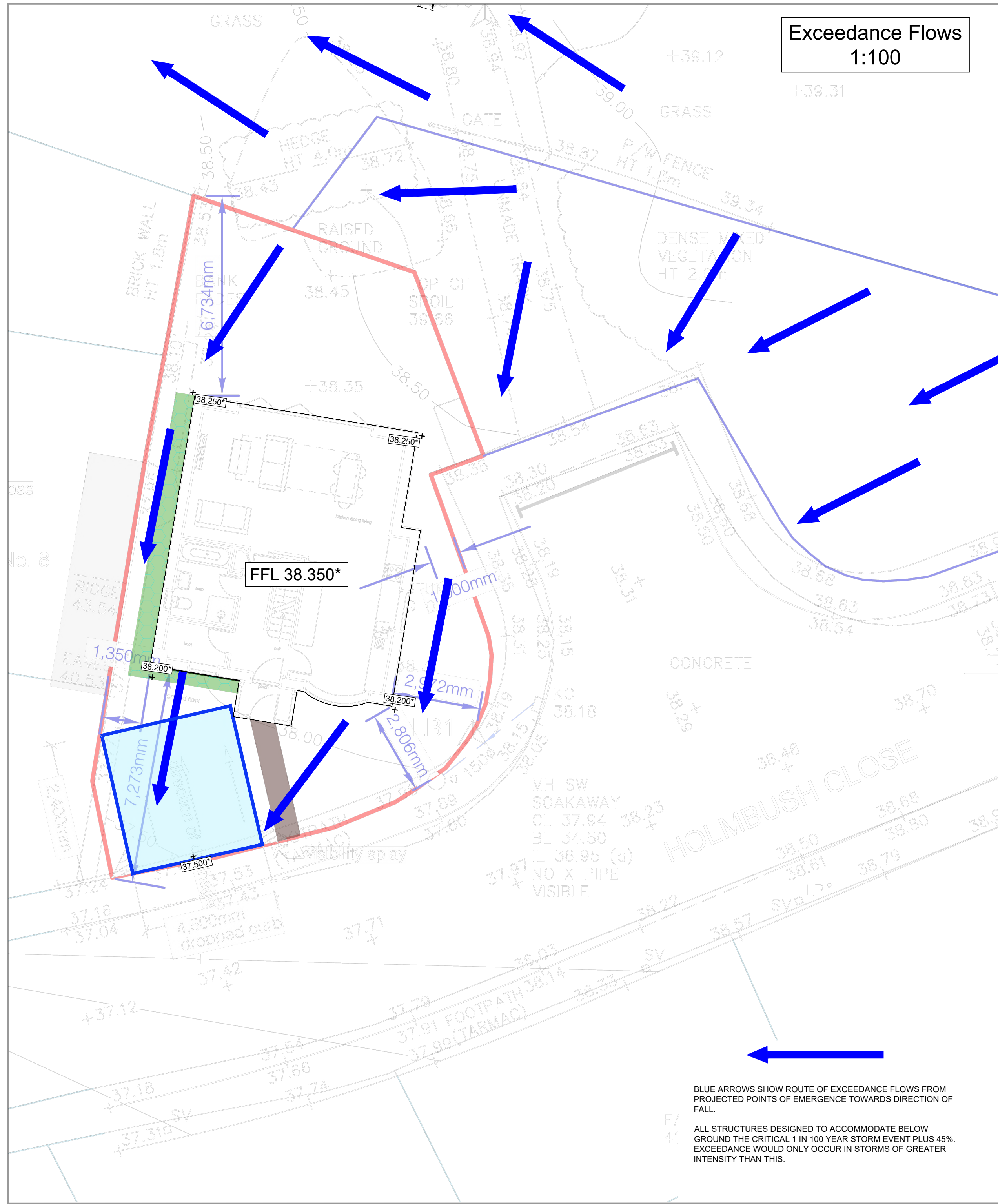
Foul water inspection chamber (4500)



Finished floor level (Assumed)



Proposed surface level (Indicative only)



Site Specific Notes

- Proposed SW drainage designed based on desktop study available BGS Historical Borehole Logs.
- The geology on site, as indicated by the British Geological Survey, comprises Newhaven Chalk Formation, with the infiltration testing also confirming the presence of chalk on site.
- All storage volumes and flow controls are designed to the critical 1 in 100 year storm event plus an allowance of 45% for the predicted effects of climate change and a 10% allowance for urban creep.
- All infiltration structures designed to recorded infiltration rate of $1.84 \times 10^{-4} \text{ m/s}$
- All infiltration structures to be located min 10m from any building and with min 500mm cover to units (see drawing for variations).
- Proposed external spot levels shown for drainage purposes only and are to be designed by others.
- The proposed drainage manhole CL's final levels are subject to external levels design by others.
- Proposed drainage field based on $V_p=15.00$ and number of people served by system: 4 (+2). Final number of the proposed bedrooms or people served by drainage field system to be confirmed at detail design.

DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
WATER AUTHORITY

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
GROUNDWATER DEPTH
ORDINARY WATERCOURSE APPROVAL
LOCATION AND DEPTH OF EXISTING UTILITIES
ROOT PROTECTION AREAS

STANDARD DRAINAGE NOTES

- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
- ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
- ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
- BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
- ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
- COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
- ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA.
- ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911-PART 1.
- ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
- ALL ADAPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
- ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
- THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
- STUB CONNECTIONS TO ADAPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
- IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
- NO PRIVATE AREAS ARE TO DRAIN ONTO ADAPTABLE AREAS AND VICE VERSA.
- ALL EXISTING MANHOLE COVER'S, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT.
- UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION.
- PROPRIETARY PRODUCTS TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S GUIDANCE.
- MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefixed to drawing numbers shall signify the following:-

PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the only drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

P-	13.07.26	PRELIMINARY ISSUE	KCK	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP
 Consulting Civil Engineers					
CLIENT SARAH GRACE					
ARCHITECT VILLAGE DESIGN AND PLANNING					
JOB TITLE LAND AT 8 AND 9 HOLMBUSH CLOSE, SHOREHAM BY SEA, BN43 6TT					
DRAWING TITLE PROPOSED DRAINAGE STRATEGY AND EXCEEDANCE FLOWS					
DRAWN	KCK	ENGINEER	CS	CHECKED	CS
DATE	JULY 2026	SCALE @ 1:	1:1100	APPROVED	CS
JOB No.	C4001	STATUS	P	DRAWING No.	101
REV.					P-

FOR PLANNING ONLY

9.3 **Appendix C – Surface Water Calculations**

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	500.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SA			38.700	450	1388.253	767.500	1.300
PP1	0.002		37.500	450	1366.439	751.930	0.430
S01	0.004	4.00	38.250	450	1367.210	765.700	0.601
S02			38.250	450	1375.154	764.638	0.684
S03	0.004	4.00	38.250	450	1374.841	761.488	0.572
S04			38.700	450	1382.164	768.793	1.290

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S01	S02	8.015	0.600	37.649	37.569	0.080	100.0	100	4.17	55.6
1.001	S02	S04	8.149	0.600	37.566	37.410	0.156	52.2	100	4.30	55.6
2.000	S03	S02	3.166	0.600	37.678	37.566	0.112	28.3	100	4.04	55.6
1.002	S04	SA	1.000	0.600	37.410	37.400	0.010	100.0	100	4.32	55.6

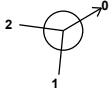
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.769	6.0	0.8	0.501	0.581	0.004	0.0	25	0.531
1.001	1.068	8.4	1.6	0.584	1.190	0.008	0.0	29	0.817
2.000	1.457	11.4	0.8	0.472	0.584	0.004	0.0	18	0.846
1.002	0.769	6.0	1.6	1.190	1.200	0.008	0.0	36	0.653

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	8.015	100.0	100	Circular	38.250	37.649	0.501	38.250	37.569	0.581
1.001	8.149	52.2	100	Circular	38.250	37.566	0.584	38.700	37.410	1.190
2.000	3.166	28.3	100	Circular	38.250	37.678	0.472	38.250	37.566	0.584
1.002	1.000	100.0	100	Circular	38.700	37.410	1.190	38.700	37.400	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S01	450	Manhole	Adoptable	S02	450	Manhole	Adoptable
1.001	S02	450	Manhole	Adoptable	S04	450	Manhole	Adoptable
2.000	S03	450	Manhole	Adoptable	S02	450	Manhole	Adoptable
1.002	S04	450	Manhole	Adoptable	SA	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SA	1388.253	767.500	38.700	1.300	450		1	1.002	37.400	100
PP1	1366.439	751.930	37.500	0.430	450					
S01	1367.210	765.700	38.250	0.601	450		0	1.000	37.649	100
S02	1375.154	764.638	38.250	0.684	450		1 2 0	2.000 1.000 1.001	37.566 37.569 37.566	100 100 100
S03	1374.841	761.488	38.250	0.572	450		0	2.000	37.678	100
S04	1382.164	768.793	38.700	1.290	450		1 0	1.001 1.002	37.410 37.410	100 100

Simulation Settings

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

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
10	0	0	0
30	0	0	0
30	45	0	0
100	0	0	0
100	45	0	0

Node SA Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.66240	Invert Level (m)	37.400	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.66240	Time to half empty (mins)	26	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	2.000	Number Required	1
Porosity	0.95	Pit Length (m)	3.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.66240	Invert Level (m)	37.070	Slope (1:X)	9.0
Side Inf Coefficient (m/hr)	0.66240	Time to half empty (mins)	2	Depth (m)	0.300
Safety Factor	2.0	Width (m)	4.000	Inf Depth (m)	
Porosity	0.30	Length (m)	5.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SA	21	37.440	0.040	0.9	0.2328	0.0000	OK
15 minute summer	PP1	11	37.114	0.044	0.3	0.0167	0.0000	OK
15 minute summer	S01	10	37.669	0.020	0.5	0.0031	0.0000	OK
15 minute summer	S02	10	37.589	0.023	1.0	0.0037	0.0000	OK
15 minute summer	S03	10	37.692	0.014	0.5	0.0023	0.0000	OK
30 minute summer	S04	20	37.441	0.031	0.9	0.0049	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	SA	Infiltration		0.5			
15 minute summer	PP1	Infiltration		0.2			
15 minute summer	S01	1.000	S02	0.5	0.449	0.083	0.0089
15 minute summer	S02	1.001	S04	1.0	0.610	0.119	0.0134
15 minute summer	S03	2.000	S02	0.5	0.499	0.044	0.0033
30 minute summer	S04	1.002	SA	0.9	0.712	0.147	0.0024

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SA	22	37.458	0.058	1.3	0.3390	0.0000	OK
30 minute summer	PP1	20	37.135	0.065	0.4	0.0286	0.0000	OK
15 minute summer	S01	10	37.674	0.025	0.8	0.0040	0.0000	OK
15 minute summer	S02	10	37.596	0.030	1.6	0.0047	0.0000	OK
15 minute summer	S03	10	37.696	0.018	0.8	0.0029	0.0000	OK
30 minute summer	S04	21	37.458	0.048	1.4	0.0077	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	SA	Infiltration		0.6			
30 minute summer	PP1	Infiltration		0.2			
15 minute summer	S01	1.000	S02	0.8	0.501	0.133	0.0128
15 minute summer	S02	1.001	S04	1.6	0.696	0.191	0.0205
15 minute summer	S03	2.000	S02	0.8	0.563	0.070	0.0046
30 minute summer	S04	1.002	SA	1.3	0.712	0.222	0.0042

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SA	23	37.540	0.140	2.5	0.8179	0.0000	OK
15 minute summer	PP1	12	37.201	0.131	0.8	0.0829	0.0000	OK
15 minute summer	S01	10	37.685	0.036	1.6	0.0058	0.0000	OK
15 minute summer	S02	10	37.609	0.043	3.2	0.0068	0.0000	OK
15 minute summer	S03	10	37.703	0.025	1.6	0.0040	0.0000	OK
30 minute summer	S04	23	37.540	0.130	2.7	0.0207	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	SA	Infiltration		0.7			
15 minute summer	PP1	Infiltration		0.5			
15 minute summer	S01	1.000	S02	1.6	0.585	0.265	0.0219
15 minute summer	S02	1.001	S04	3.2	0.781	0.382	0.0418
15 minute summer	S03	2.000	S02	1.6	0.679	0.140	0.0075
30 minute summer	S04	1.002	SA	2.5	0.689	0.406	0.0078

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SA	25	37.602	0.202	3.3	1.1810	0.0000	OK
15 minute summer	PP1	12	37.240	0.170	1.1	0.1261	0.0000	OK
15 minute summer	S01	10	37.691	0.042	2.1	0.0067	0.0000	OK
15 minute summer	S02	9	37.616	0.050	4.2	0.0080	0.0000	OK
15 minute summer	S03	10	37.708	0.030	2.1	0.0047	0.0000	OK
30 minute summer	S04	25	37.602	0.192	3.7	0.0305	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	SA	Infiltration		0.7			
15 minute summer	PP1	Infiltration		0.7			
15 minute summer	S01	1.000	S02	2.1	0.621	0.348	0.0271
15 minute summer	S02	1.001	S04	4.2	0.817	0.501	0.0479
15 minute summer	S03	2.000	S02	2.1	0.722	0.184	0.0093
30 minute summer	S04	1.002	SA	3.3	0.832	0.542	0.0078

Results for 30 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	SA	43	37.702	0.302	3.3	1.7696	0.0000	OK
15 minute summer	PP1	12	37.300	0.230	1.5	0.2097	0.0000	OK
60 minute summer	S01	42	37.705	0.056	2.0	0.0088	0.0000	OK
60 minute summer	S02	42	37.704	0.138	4.0	0.0220	0.0000	SURCHARGED
15 minute summer	S03	10	37.716	0.038	3.1	0.0060	0.0000	OK
60 minute summer	S04	43	37.703	0.293	3.7	0.0465	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	SA	Infiltration		0.8			
15 minute summer	PP1	Infiltration		0.9			
60 minute summer	S01	1.000	S02	2.0	0.605	0.328	0.0493
60 minute summer	S02	1.001	S04	3.7	0.598	0.443	0.0638
15 minute summer	S03	2.000	S02	3.2	0.773	0.277	0.0159
60 minute summer	S04	1.002	SA	3.3	0.689	0.544	0.0078

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	SA	43	37.667	0.267	3.1	1.5634	0.0000	OK
15 minute summer	PP1	12	37.274	0.204	1.3	0.1699	0.0000	OK
15 minute summer	S01	10	37.698	0.049	2.7	0.0078	0.0000	OK
60 minute summer	S02	43	37.669	0.103	3.6	0.0164	0.0000	SURCHARGED
15 minute summer	S03	10	37.713	0.035	2.7	0.0055	0.0000	OK
60 minute summer	S04	43	37.667	0.257	3.5	0.0409	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	SA	Infiltration		0.8			
15 minute summer	PP1	Infiltration		0.8			
15 minute summer	S01	1.000	S02	2.7	0.642	0.447	0.0337
60 minute summer	S02	1.001	S04	3.5	0.598	0.421	0.0638
15 minute summer	S03	2.000	S02	2.7	0.746	0.236	0.0115
60 minute summer	S04	1.002	SA	3.1	0.689	0.515	0.0078

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	SA	48	37.786	0.386	2.8	2.2610	0.0000	OK
15 minute summer	PP1	12	37.348	0.278	2.0	0.2899	0.0000	OK
60 minute winter	S01	47	37.790	0.141	1.8	0.0223	0.0000	SURCHARGED
60 minute winter	S02	47	37.789	0.223	3.6	0.0354	0.0000	SURCHARGED
60 minute winter	S03	47	37.789	0.111	1.8	0.0177	0.0000	SURCHARGED
60 minute winter	S04	48	37.786	0.376	3.2	0.0599	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute winter	SA	Infiltration		0.9			
15 minute summer	PP1	Infiltration		1.1			
60 minute winter	S01	1.000	S02	1.8	0.584	0.298	0.0627
60 minute winter	S02	1.001	S04	3.2	0.636	0.377	0.0638
60 minute winter	S03	2.000	S02	1.8	0.680	0.157	0.0248
60 minute winter	S04	1.002	SA	2.8	0.801	0.465	0.0078

9.4 **Appendix D – Borehole Logs**

TX20 RW \$23476 106593 154

Contract Name						A27 BRIGHTON BY PASS		Trial Pit No. 7	
								Sheet 1 of 1	
Method of Excavation:				Machine Excavation		Ground Level		32.17m OD	
Chainage:				765m		Start		8.3.79	
						Finish		9.3.79	
Water Levels	In-situ Tests	Samples	Depth (m)	Reduced Level (m.O.D.)	Thickness (m)	Description of Strata	Legend		
			0.40	31.77	0.40	Topsoil			
		J	0.75	31.42	0.35	Grey-brown clayey sandy silt with small flint and chalk fragments			
		J	0.95	31.22	0.20	Soft to firm very silty sandy clay with numerous large flints			
		B				Highly weathered structureless buff chalk comprising clay smeared medium hard chalk blocks in a matrix of putty and fragmentary chalk with some clay. Blocks randomly orientated within mass up to 150 x 180mm in dimension (Grade V)			
		B			4.05				
		B							
		B							
			5.00	27.17			Bottom of pit		

Notes Pit dimensions (Plan) 4.7 x 2.8 x 0m, 1.2 x 3.1 @ 1m, 1.1 x 2.2 @ 5m
 Shored, all 4 sides similar
 Orientation - long axis trends 160°
 Groundwater not encountered

Terresearch Limited
Report No. S.28/611
Appendix 2 Sheet 38

9.5 **Appendix E – Soakage Test Results**

Ref: C4001

28 July 2026

Re: Land at 8 and 9 Holmbush Close, Shoreham by Sea – Infiltration Test Result Summary

The following investigation was carried out at the above location in accordance with our quotation.

1. Site Works

The purpose of the investigation was to supply soakaway test data in general accordance with BRE document 365 (Soakaway Design) at location which would be the approximate intended location for a possible infiltration device to serve a new single dwelling.

The appended drawing illustrates the position of the test pit. The BRE365 pit was excavated to a depth of 0.9m in line with the approximate depth of the proposed soakaway.

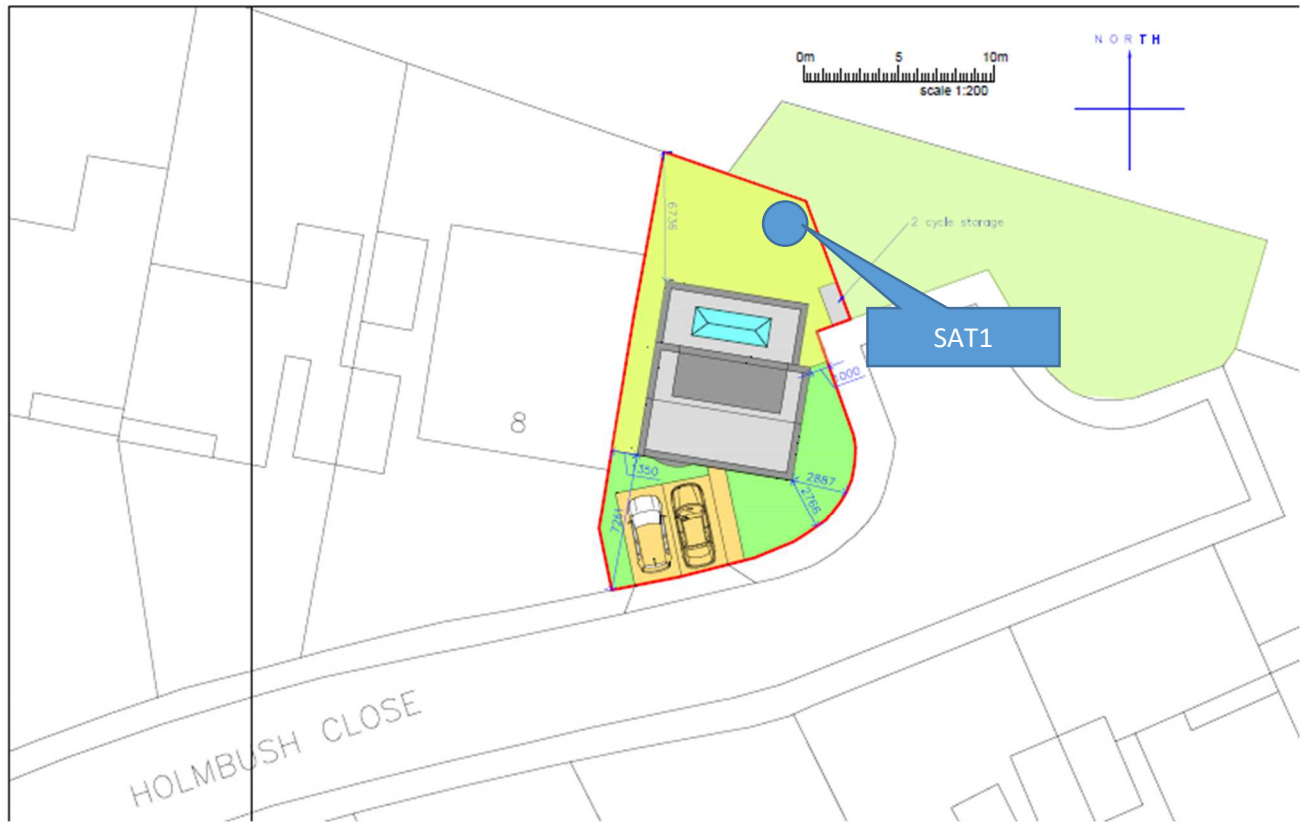
The testing commenced on 07 July 2026 with three tests being undertaken in accordance with BRE 365.

2. BRE 365 Soakaway Test Findings

(SAT1) Testing of the sub soils which was noted as chalk soils produced a BRE 365 design infiltration rate of **$1.84 \times 10^{-4} \text{m/s}$** . This rate was the slowest taken from all three tests. This is considered a good rate and will likely be suitable for most infiltration devices.

3. BRE 365 Soakaway Test Results

Test Pit No	Infiltration Rate (1-3 Tests)			Depth of Test	Soil Type
SAT1	$2.55 \times 10^{-4} \text{m/s}$	$2.3 \times 10^{-4} \text{m/s}$	$1.84 \times 10^{-4} \text{m/s}$	0.9m	chalk







Consulting Civil Engineers

Appendix C – Soakaway Test Results

Job: Land at 8 and 9 Holmbush Close, Shoreham by Sea - Test 1

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1

a_{p50} = 1.47 m/squared

t_{p75-25} = 360 seconds

V_{p75-25} = 0.135 m/cubed

F = 0.000255

Job: Land at 8 and 9 Holmbush Close, Shoreham by Sea - Test 2

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1

a_{p50} = 1.47 m/squared

t_{p75-25} = 397 seconds

V_{p75-25} = 0.135 m/cubed

F = 0.000231

Job: Land at 8 and 9 Holmbush Close, Shoreham by Sea - Test 3

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1

a_{p50} = 1.47 m/squared

t_{p75-25} = 500 seconds

V_{p75-25} = 0.135 m/cubed

F = 0.000184