

Foul and Surface Water Drainage Report

Church Farm House, Church Lane, Yapton BN18 0EP

Planning ref: Y/48/25/PL

For

Victoria and Peter Newman

Rev – P-

Reference C3267

Date 5th November 2025

Revision	Date of Issue	Comments	Prepared By	Checked By
P	05/11/2025	Initial Issue	MR	CS

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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 Church Farm House, Yapton
- 1.1.2 The purpose of this drainage strategy is to demonstrate how the development area can be satisfactorily drained without increasing flood risk onsite and elsewhere, and support application.
- 1.1.3 The existing site consists of a tennis court, a garage, and an access road. The proposed development will involve the removal of the tennis court and the construction of a new single-storey residential dwelling. The proposed development is located at OS Grid Reference **SU 98168 03600** and has the postcode **BN18 0EP**.
- 1.1.4 The proposed site plan can be found in **Appendix A**.

Fig 1. Site Location



2 Executive Summary:

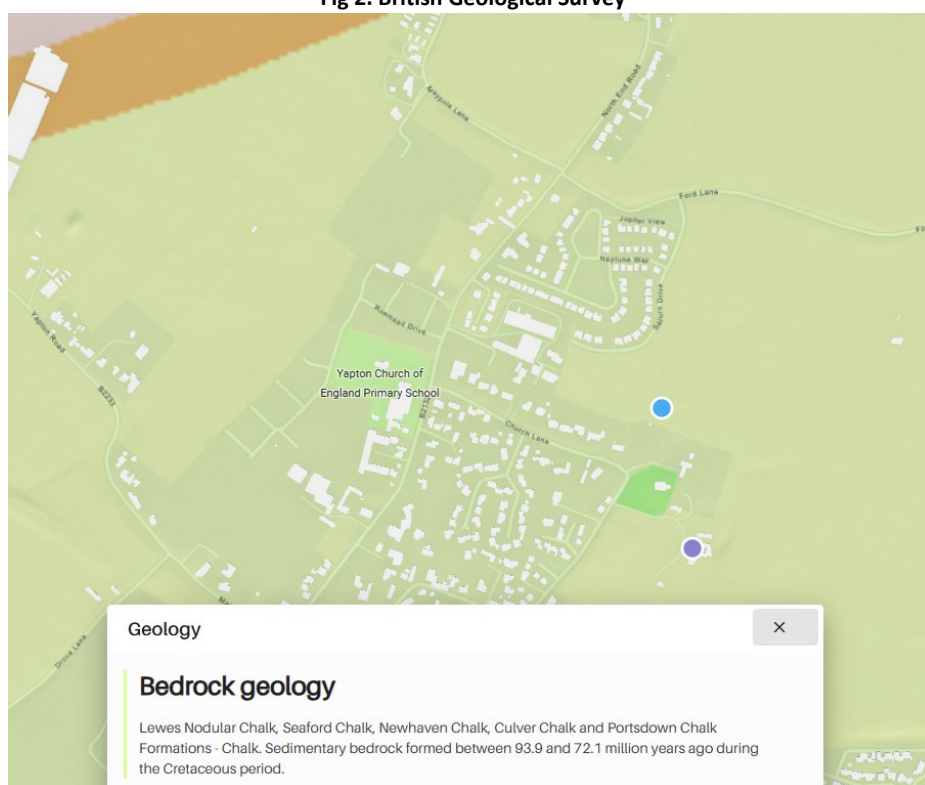
- 2.1.1 Surface water runoff will be discharged into the ground via a proposed infiltration basin with recorded infiltration rate of 2.19×10^{-5} m/s. The infiltration system has been designed to accommodate storm events up to the 1 in 100-year return period, with an additional 45% allowance for climate change and a further 10% allowance for urban creep.
- 2.1.2 The foul water will discharge into the existing public foul water manhole located within Church Lane. This connection is subject to Southern Water approval under a Section 106 agreement.

3 Site Geology

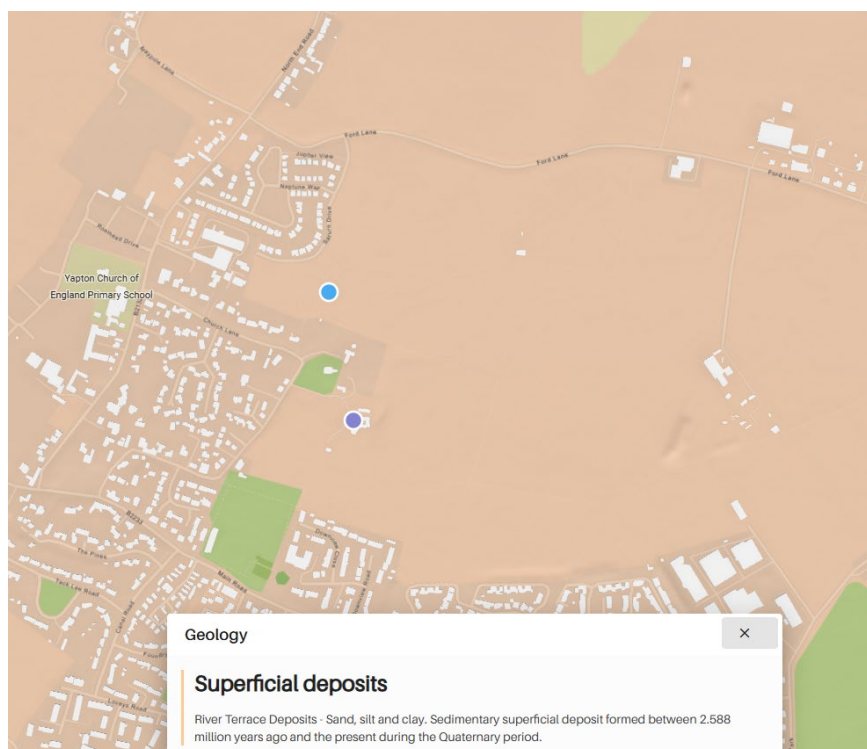
3.1 British Geological Survey information

- 3.1.1 The British Geological Survey confirms the bedrock geology to be made up Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk, Culver Chalk and Portsdown Chalk Formations- Chalk. The BGS website confirms the superficial deposits on site to be made up of River Terrace Deposits- Sand, silt and clay.
- 3.1.2 The British Geological survey also holds records of historical boreholes near the site which give some insight into the ground geology.
- Borehole SU90SE33 (Located approx.250m south-east from the site) – Clay to a depth of 1.4mbgl followed by chalk.
- 3.1.3 The British Historical Borehole log can be found in **Appendix B**.

Fig 2. British Geological Survey

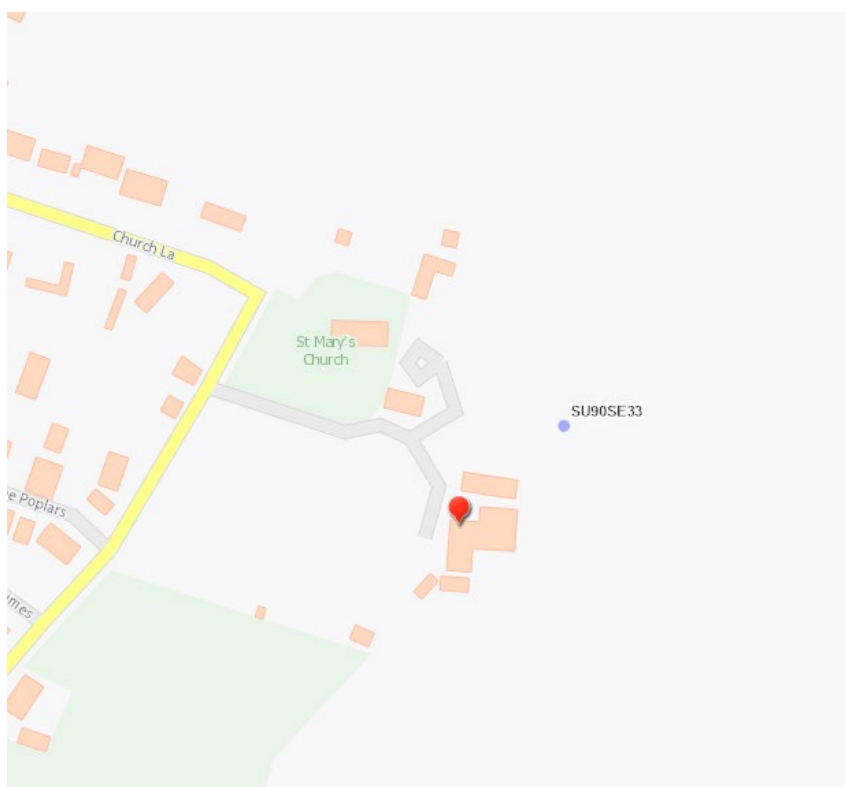


Snippet from BGS Website showing Bedrock geology <http://mapapps.bgs.ac.uk/geologyofbritain/home.html?>



Snippet from BGS Website showing superficial deposits <http://mapapps.bgs.ac.uk/geologyofbritain/home.html?>

Fig 3. British Geological Survey



Snippet from BGS Website showing historical borehole log location

3.2 Geological Assessment

- 3.2.1 No full intrusive ground investigation was carried out on site; however, soakaway infiltration testing in accordance with BRE365 was undertaken by CGS Civils Ltd on 24th October 2025.
- 3.2.2 The infiltration testing confirmed that the site is underlain by soils with good permeability characteristics. One trial pit excavation was undertaken to a depth of 0.60 m below ground level (mbgl) at the location of the proposed infiltration basin. The excavation revealed dark, free-draining soils, and no groundwater was encountered during the testing.
- 3.2.3 The shallow soakaway test recorded the slowest infiltration rate as 2.19×10^{-5} m/s. This value has been adopted in the proposed surface water drainage strategy.
- 3.2.4 The groundwater levels were monitored between 25th October 2024 and 11th March 2025, with the results indicating that the peak groundwater level is 1.65m below ground level.
- 3.2.5 The infiltration test report and groundwater level monitoring report can be found in **Appendix C**.

4 Existing Drainage

- 4.1.1 The site is currently an existing grass tennis court and gravel driveway. It is therefore presumed that surface water runoff follows the natural topography of the land, discharging via overland flow routes.

Fig 3. Photos from the site



5 Proposed Drainage Strategy

5.1 SuDS Hierarchy

- 5.1.1 All options for the destination of run-off generated on site have been assessed 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	
Rainwater Harvesting	Rainwater harvesting tank is proposed
Discharge to Ground	All surface water runoff from roof area is to be discharged into the proposed shallow infiltration basin with a recorded infiltration rate of 2.19×10^{-5} m/s
Discharge to Watercourse	N/A
Discharge to Surface Water Sewer	N/A
Discharge to Other Sewer	N/A

5.2 Proposed Hydraulic Calculation Specifications:

Table 2. SuDS Hierarchy

Hydraulic Calculations Settings:	
Rainfall Methodology	FEH-22
Volumetric Run-off Coefficient Cv	1
CV Winter and Summer	1
Additional Storage (m ³ / ha)	0.0
Maximum Rainfall (mm/hr)	75
Attenuation Tank Design	Base Coefficient (m/hr): 0.07920
	Side Coefficient (m/hr): 0.00000
	Factor of Safety: 2
	Porosity: 1.0
	Time to Half Empty (mins): 304

5.3 Surface Water Drainage

- 5.3.1 Based on the information obtained from the British Geological Survey, the infiltration testing, and the groundwater level monitoring results, it is proposed that all surface water runoff will be discharged to ground via infiltration, using the slowest infiltration rate of 2.19×10^{-5} m/s. Roof runoff will be collected through a positive drainage network before being discharged to the infiltration system. The proposed infiltration basin has been designed to accommodate the 1 in 100-year storm event, including a 45% allowance for climate change and an additional 10% allowance for urban creep.
- 5.3.2 The proposed infiltration basin has been designed to allow infiltration through the base only, in accordance with the requirements of the Arun District Council Surface Water Guidance. The highest groundwater level was recorded at 5.850 m below ground level (mbgl), while the base of the proposed infiltration basin is set at 6.850 mbgl. This provides a clear 1.0 m vertical separation between the base of the infiltration feature and the highest recorded groundwater level, ensuring adequate freeboard.
- 5.3.3 Due to the varying site gradients and the requirement for the proposed finished floor level of the building to be closely aligned with the existing tennis court level, land drainage is proposed along the western and northern sides of the buildings. This system will capture surface water runoff flowing towards the dwellings, thereby preventing excess water from impacting the proposed structures. Exceedance flow routes have been designed to follow the natural site topography, directing any overland flow towards the garden areas along the western site boundary and further south towards Church Lane.
- 5.3.4 As part of the proposed drainage network, a rainwater harvesting tank is included to facilitate the reuse of rainwater.

- 5.3.5 Proposed Drainage Strategy, Contributing Area Plan & Exceedance Flow Routes and Hydraulic calculations have been carried out which can be found at **Appendix D**.

5.4 Water Quality

- 5.4.1 A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution.
- 5.4.2 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.
- 5.4.3 The new SuDS Manual (Ciria C753, November 2015) introduces slightly different approach compared to the previous version for the water quality management of surface water. 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
- 5.4.4 The EA website indicates that the site does not lie within a Source Protection Zone.
- 5.4.5 The recommended approaches for water quality risk management are given in the SuDS Manual Table 26.1.

Table 26.1 from SuDS manual. Approaches to Water Quality Risk Management

Table 26.1 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	

- 5.4.6 As per Table 26.1 Simple Index approach will be used as a design method for this site.
- 5.4.7 Table 26.2 will provide hazard classification of different land uses. The land uses for the surface water drainage for this site are.
- Residential Roofs
 - Individual Property driveways and residential car parks
 - Low traffic roads
- 5.4.8 To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index for each contaminant type that equals or exceeds the pollution hazard index for each contaminant type. Therefore, the following must be achieved for the surface running off the site.

Total SuDS mitigation index $\geq$ pollution hazard index

5.4.9 Pollution Hazard Indices are given for different land uses in Table 26.2 of the SuDS manual;

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
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

5.4.10 From Table 26.2 the following information is tabulated in Table 1

Table 1: Pollution hazard index and destination of runoff for the proposed site

Table 3: Pollution Hazard Index and Destination of runoff for the proposed Site					
Land Use	Destination of Runoff	Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
Residential Roof	Ground Water	Very Low	0.2	0.2	0.05

5.4.11 The SuDS mitigation index will be obtained from Table 26.3 (for groundwater) of the SuDS manual.

Table 26.4 from SuDS manual. Indicative SuDS Mitigation Indices for discharges to ground waters.

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 layer 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		

5.4.12 SuDS mitigation indices are tabulated in Table 5 as follows:

Table 5: SuDS mitigation index

Table 4 Mitigation Indices						
Runoff Source	Destination of Runoff	Mitigation Index Source	Type of SuDS Component	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Residential Roof	Ground water	Table 26.3 (for ground waters)	A layer of dense vegetation underlain by a soil with good containment attenuation potential of at least 300mm in depth (infiltration basin)	0.6	0.5	0.6

5.4.13 The above analysis demonstrates that the SuDS devices within the design will mitigate any pollution present within the surface water system.

5.5 Foul water drainage

- 5.5.1 The foul water will discharge into the existing public foul water manhole located within Church Lane. This connection is to be agreed under S106 Southern Water application.

5.6 Construction Phase Drainage

- 5.6.1 It is an offence to cause or knowingly permit the entry of any polluting, poisonous or noxious material in the water environment. If the pollution is serious enough to lower the ecological status of the water body as set out in terms by the Water Framework Directive (2000/60/EC) than prosecution may occur.
- 5.6.2 Remediation of any damage caused will not require the polluter to be prosecuted first. If the water pollution is serious enough to be classed an environmental damage, the damage will require to be remediated such that the area is returned to the condition it would have been in if the damage had not occurred.
- 5.6.3 If any pollution has not been reported or the polluter has not taken actions to prevent any further damage; they would then be causing an offence. Third parties (e.g., Private water supply users, landowners, recreation users and the public) who may be affected by possible damage may also report the risk of any environmental damage to the enforcing authority.
- 5.6.4 The principles of SuDS (Sustainable Drainage Systems) shall be applied to all components of design and construction regarding surface water management. Any design or site works that may impact on the site drainage or the water quality shall:
- Soakaway where soils allow
 - Consider and manage erosion
 - Remove pollutants in surface water
 - Retain any silts on site and prevent silts from discharging to watercourses or drains
 - Keep runoff rates at existing greenfield runoff
 - Prevent accidental spillages reaching watercourse
- 5.6.5 As infiltration on site is viable, the temporary drainage for the development will be in the form of land drains which will discharge into the ground.
- 5.6.6 Pollution will be controlled via the use of catchpit manholes and geotextiles.
- 5.6.7 Any potential hazardous substances will be within a controlled compound with a separate drainage system that will contain a penstock valve / containment kit in the event of a spillage.

6 Summary and Conclusions

- 6.1.1 CGS Civils has been instructed to produce a Drainage statement under National Planning Policy Framework (NPPF) to support the Planning Application for a construction of self-build single storey energy efficient dwelling.
- 6.1.2 The Surface Water will discharge into the ground based on the recorded infiltration rate of 2.19×10^{-5} m/s. The infiltration system has been designed to accommodate storm events up to the 1 in 100-year return period, with an additional 45% allowance for climate change and a further 10% allowance for urban creep.
- 6.1.3 The Foul water will discharge into the existing public foul water manhole located within Church Lane. This connection is to be agreed under S106 Southern Water application.
- 6.1.4 The report has demonstrated that the proposed drainage measures ensure that suitable means of surface water and foul drainage can be achieved for the proposed development.
- 6.1.5 A maintenance schedule has been written up for the drainage network including the SuDS features and can be found within **Appendix E**.

7 Appendices

7.1 Appendix A – Site Plan

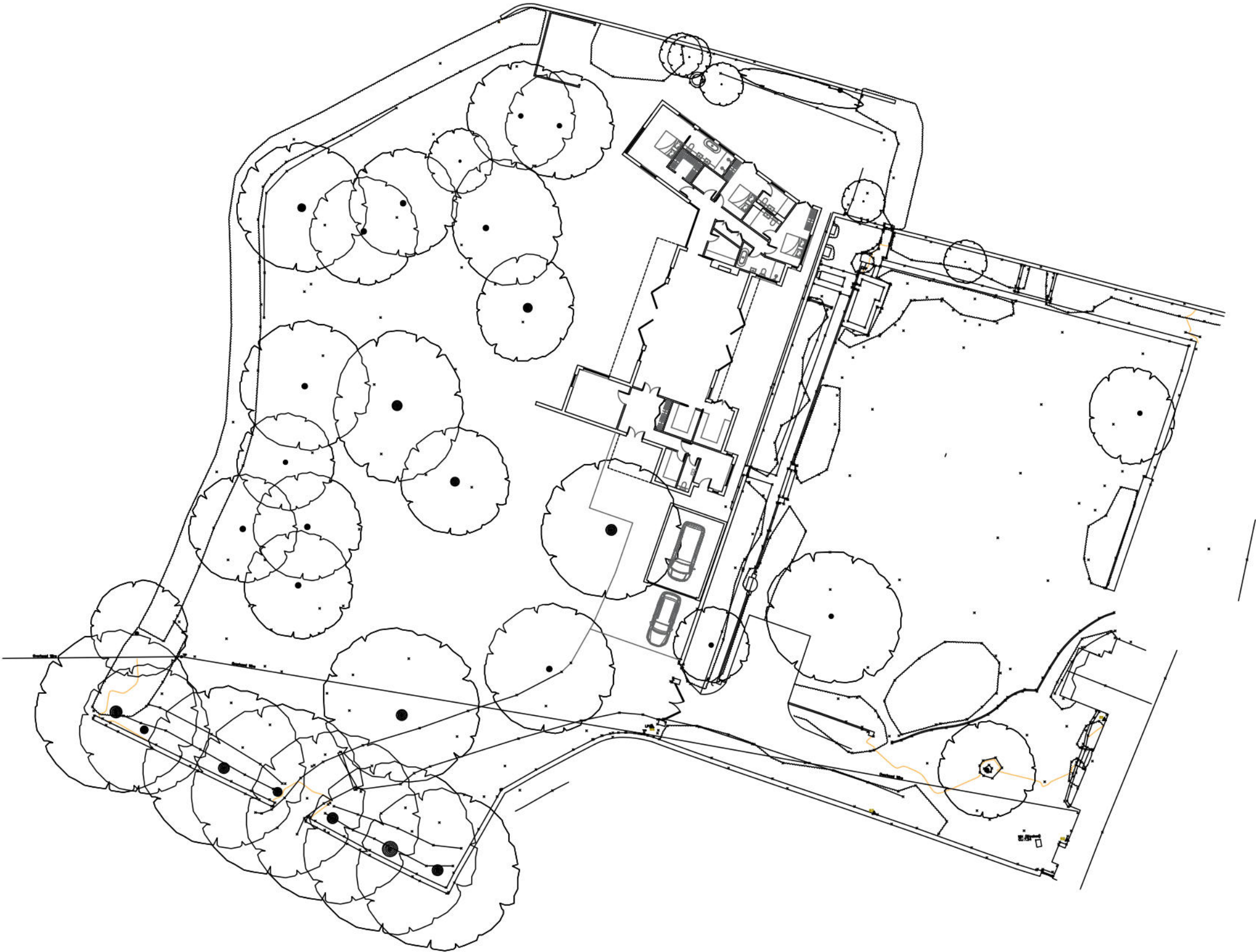
DO NOT SCALE FROM THIS DRAWING

All drawings to be read in conjunction with all relevant drawings and specifications.

All dimensions to be checked on site and discrepancies advised immediately to the Structural Engineer & Architect prior to the commencement of any works. Any variations or supplementary drawings are to be approved by Structural Engineer.

The contractor is to verify all details of the existing structure and inform the Structural Engineer of any discrepancies prior to the procurement of the new structure.

Beams / Steelwork not to be ordered based on these drawings or calculations. Site live measurements MUST be taken.



Key Plan:

Rev:	Date:	Details:
-	-	-

Drawing Notes:

THIS IS A CAD DRAWING

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This drawing is based on dimensional survey information. The architect cannot accept responsibility for the accuracy of this survey information. This drawing may contain colour data. Please refer to the original electronic document.

Project Address: Church Farm House	Project No: CFH_NEW
Drawing Status: Planning	Drawn/Checked: -
Client: -	A1 Scale: 1:100
Drawing Title: Location Plan	Date: 01.2025
Drawing No: -	Revision: -

7.2 **Appendix B – Borehole Log**

SU 90 SE 33

9827 0349

Yapton Church

Surface level +6.4 m
Water not struck
September 1981

Block H

Waste 1.4 m
Bedrock 1.6 m+

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil and made ground	0.3	0.3
Brickearth	Clay, very sandy, mottled brown and grey-brown; some small flint pebbles	1.1	1.4
Upper Chalk	Chalk, soft, weathered, pale yellowish brown; nodular flints	1.6+	3.0

7.3 **Appendix C – Infiltration Test Results Report and Groundwater Level Monitoring Report**

Ref: C3267

Victoria and Peter Newman

04th November 2025**Re: Church Farm House, Yapton– Soakaway Testing – 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 located infiltration device to serve proposed residential dwelling.

The appended drawing illustrates the position of the test pit. The BRE365 pit was excavated to a depth of 0.6m in line with the approximate depth of the proposed infiltration basin.

The testing commenced on 26th October 2025 with three test being undertaken in accordance with BRE 365.

2. BRE 365 Soakaway Test Findings

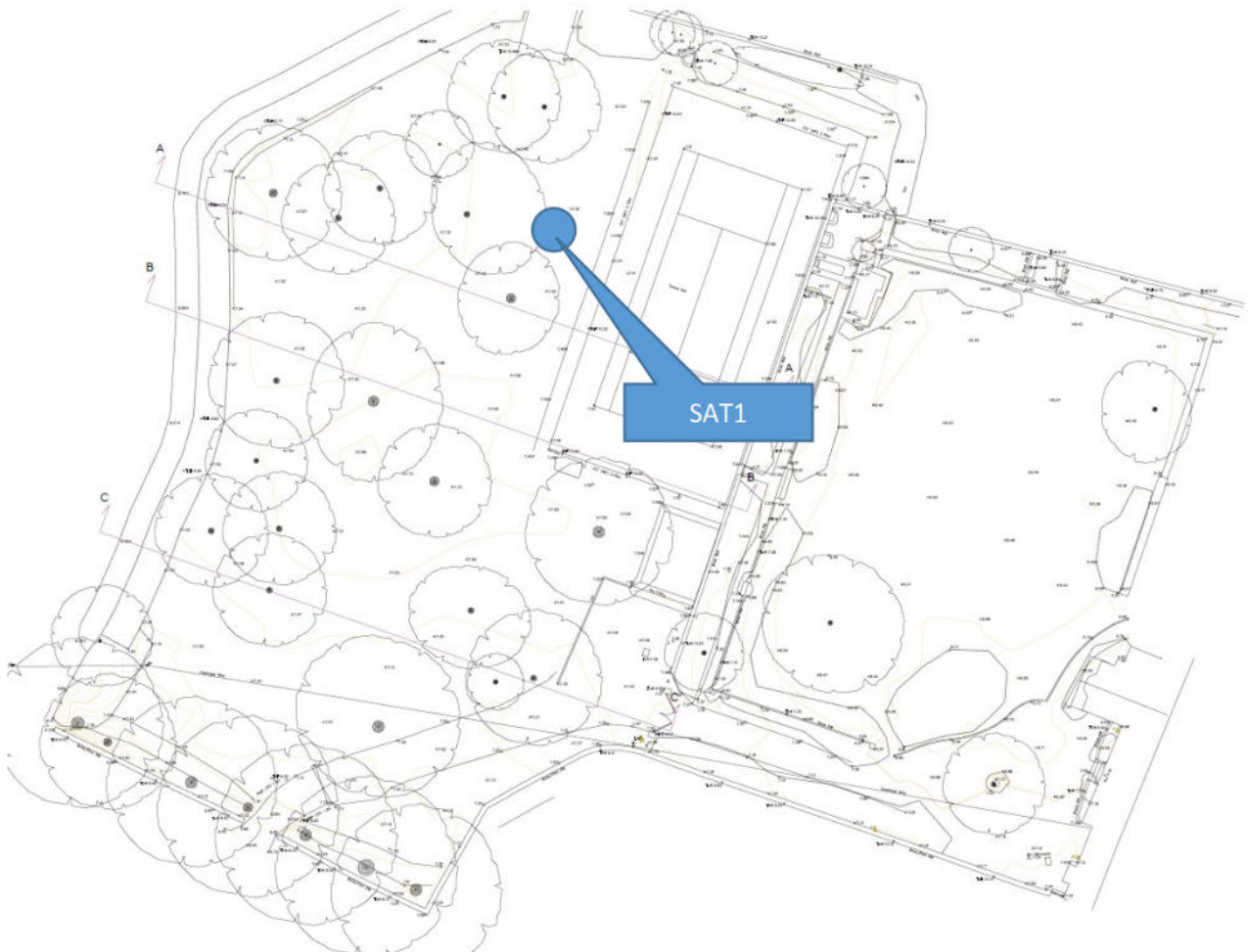
(SAT1) Testing of the sub soils which was noted as dark loam soils produced a BRE 365 design infiltration rate of **2.19x10⁻⁵m/s**. This rate was the slowest taken from all three tests. This is considered a good rate and will likely be suitable for most infiltration devices.

The third infiltration test result has been adopted for detention basin.

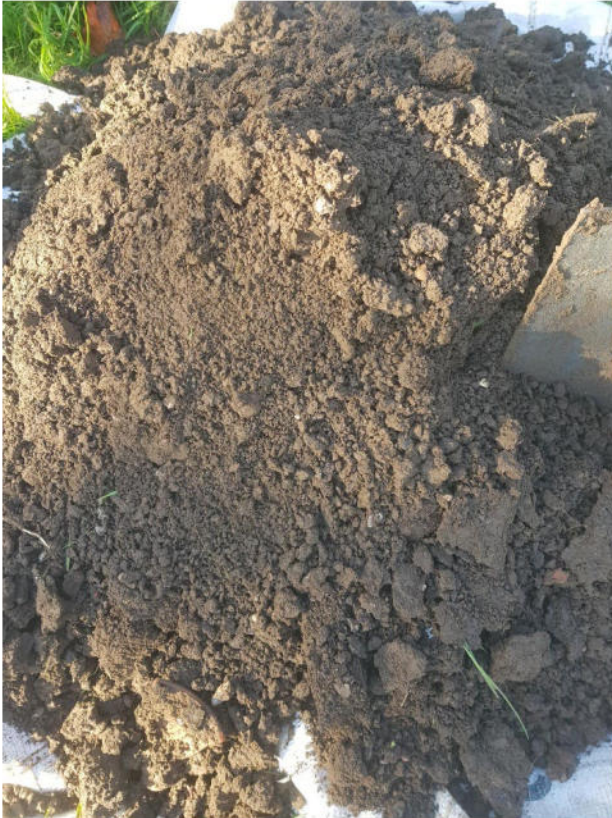
3. BRE 365 Soakaway Test Results

Test Pit No	Infiltration Rate (1-3 Tests)			Depth of Test	Soil Type
SAT1	2.60x10 ⁻⁵ m/s	2.28x10 ⁻⁵ m/s	2.19x10⁻⁵m/s	0.6m	Dark loam soils

Appendix A – Soakaway Test Location Plan



Appendix B – Site Photographs



Richard Cobden House, Lion Street, Chichester, West Sussex, PO19 1LW

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Consulting Civil Engineers

Appendix C – Soakaway Test Results

Job: Church Farm House, Yapton - Test 1

Infiltration Calculator

$$f = \frac{V_{p75-25}}{ap_{50} \times tp_{75-25}}$$

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

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

tp_{75-25} = 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	=	0.6
Trial pit length	=	1

ap_{50} =

1.08

 m/squared

tp_{75-25} =

3200

 seconds

V_{p75-25} =

0.09

 m/cubed

F =

2.6E-05

Job: Church Farm House, Yapton - 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	=	0.6
Trial pit length	=	1

a_{p50} =

1.08

 m/squared

t_{p75-25} =

3650

 seconds

V_{p75-25} =

0.09

 m/cubed

F =

2.28E-05

Job: Church Farm House, Yapton - 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	=	0.6
Trial pit length	=	1

a_{p50} =

1.08

 m/squared

t_{p75-25} =

3800

 seconds

V_{p75-25} =

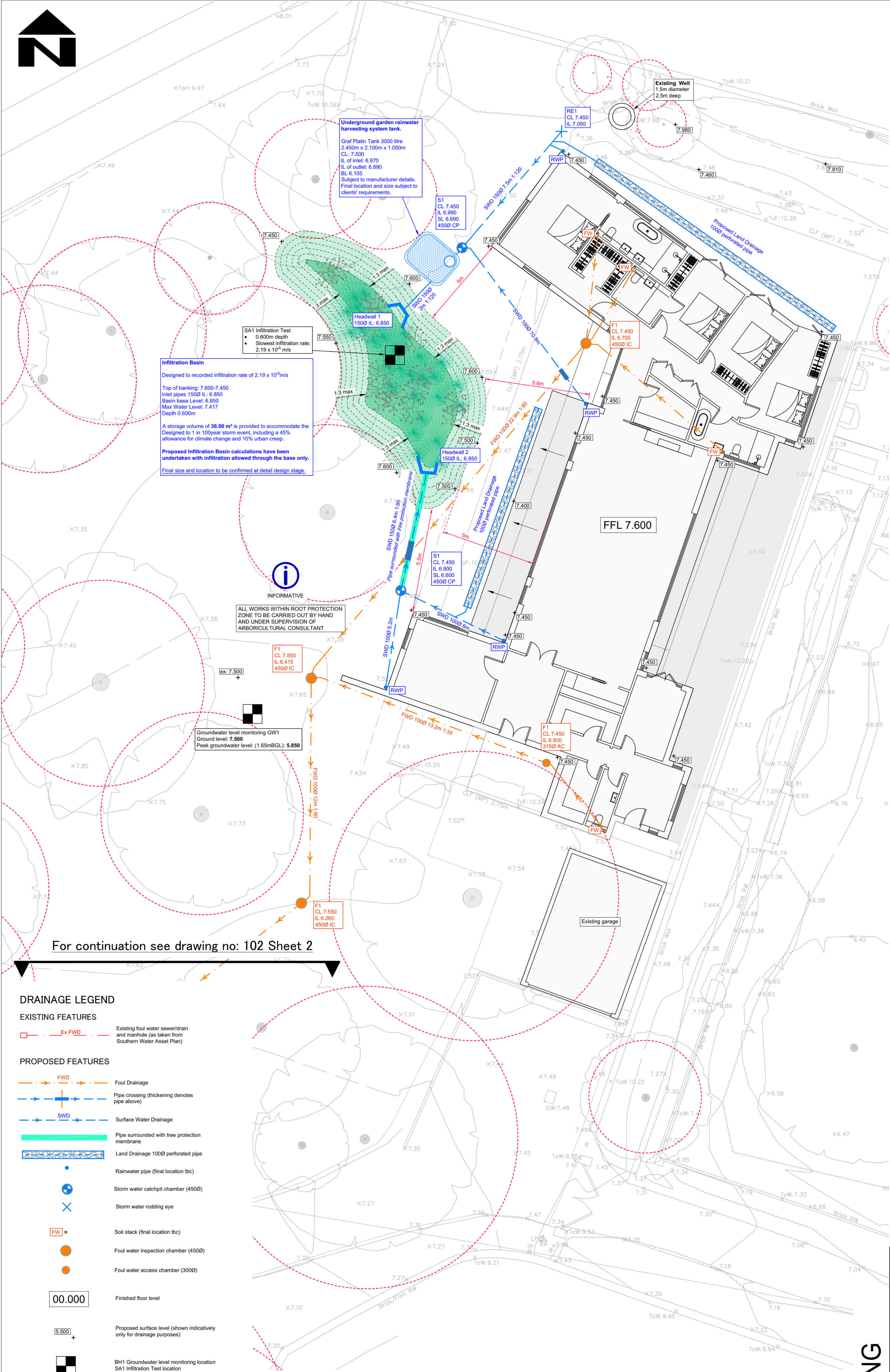
0.09

 m/cubed

F =

2.19E-05

7.4 Appendix D – Proposed Drainage Strategy, Contributing Area Plan & Exceedance Flow routes and



For continuation see drawing no: 102 Sheet 2

DRAINAGE LEGEND

EXISTING FEATURES

Ex FWD Existing foul water sewer/drain and manhole (as taken from Southern Water Asset Plan)

PROPOSED FEATURES

FWD Foul Drainage

Pipe crossing (thickening denotes pipe above)

SWD Surface Water Drainage

Pipe surrounded with tree protection membrane

Land Drainage 1000 perforated pipe

Rainwater pipe (final location tbc)

Storm water catchpit chamber (4500)

Storm water rodding eye

Soil stack (final location tbc)

Foul water inspection chamber (4500)

Foul water access chamber (3000)

00.000 Finished floor level

5.500 Proposed surface level (shown indicatively only for drainage purposes)

BH1 Groundwater level monitoring location SA1 Infiltration Test location

Tree Protection Zone (as taken from Barry Holdsworth Ltd 'Tree Protection Plan' dated: 12.08.25)

ABBREVIATIONS

MH - MANHOLE

IC - INSPECTION CHAMBER

AC - ACCESS CHAMBER

CP - CATCHPIT

BC - BRAKE CHAMBER

RE - RODDING EYE

IL - INVERT LEVEL

SL - SUMP LEVEL

RA - RESTRICTED ACCESS COVER

CL - COVER LEVEL

TL - TOP OF CELLULAR SA

BL - BASE OF CELLULAR SA

FL - FORMATION LEVEL

VP - VENTILATION PIPE

SU - SUMP UNIT

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

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
LOCATION AND DEPTH OF EXISTING UTILITIES

Site Specific Notes

- Proposed drainage designed based on desktop study, groundwater level monitoring report and infiltration test results.
- Proposed infiltration basin designed to the worst case recorded infiltration rate of 2.19×10^{-3} m/s and to be located min 5m from the building.
- The infiltration system has been designed to cater the Critical 1 in 100 year + 45% climate change event + 10% for urban creep allowance.
- Final RWP's and SWP's locations are to be confirmed at detail design stage.
- The proposed foul water is to be discharged into the existing public foul water manhole located in Church Lane. This connection is to be agreed under S106 application with Southern Water
- External levels to be designed by others..

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 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.
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P.	05.11.25	PRELIMINARY ISSUE	MR	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

cgs
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Consulting Civil Engineers

CLIENT	VICTORIA AND PETER NEWMAN
ARCHITECT	OOA LTD
JOB TITLE	CHURCH FARM HOUSE, YAPTON, BN18 0EP

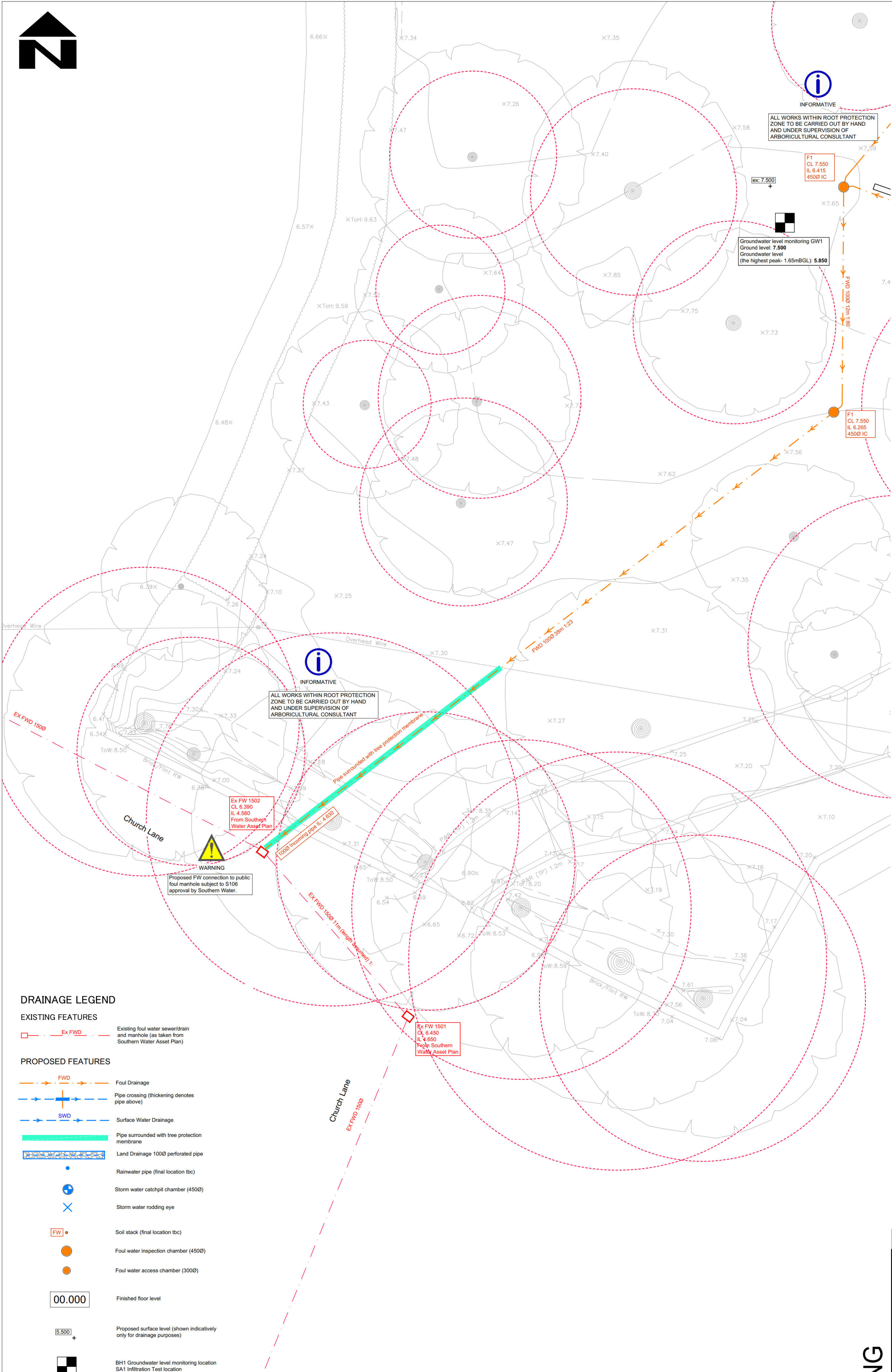
DRAWING TITLE	PROPOSED DRAINAGE STRATEGY SHEET 1
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DRAWN	MR	ENGINEER	CS	CHECKED	CS	APPROVED	CS
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DATE	NOVEMBER 2025	SCALE @ A1	1:100
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DWG No.	C3267	STATUS	P	DRAWING No.	101	REV.	P-
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FOR PLANNING



DRAINAGE LEGEND

EXISTING FEATURES

Ex FWD Existing foul water sewer/drain and manhole (as taken from Southern Water Asset Plan)

PROPOSED FEATURES

- FWD Foul Drainage
- Pipe crossing (thickening denotes pipe above)
- SWD Surface Water Drainage
- Pipe surrounded with tree protection membrane
- Land Drainage 1000 perforated pipe
- Rainwater pipe (final location tbc)
- Storm water catchpit chamber (4500)
- Storm water rodding eye
- FW Soil stack (final location tbc)
- Foul water inspection chamber (4500)
- Foul water access chamber (3000)
- 00.000 Finished floor level
- 5.500 Proposed surface level (shown indicatively only for drainage purposes)
- BH1 Groundwater level monitoring location SA1 Infiltration Test location
- Tree Protection Zone (as taken from Barry Holdsworth Ltd 'Tree Protection Plan' dated: 12.08.25)

ABBREVIATIONS

- MH - MANHOLE
- IC - INSPECTION CHAMBER
- AC - ACCESS CHAMBER
- CP - CATCHPIT
- BC - BRAKE CHAMBER
- RE - RODDING EYE
- IL - INVERT LEVEL
- SL - SUMP LEVEL
- RA - RESTRICTED ACCESS COVER
- CL - COVER LEVEL
- TL - TOP OF CELLULAR SA
- BL - BASE OF CELLULAR SA
- FL - FORMATION LEVEL
- VP - VENTILATION PIPE
- SU - SUMP UNIT

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

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
LOCATION AND DEPTH OF EXISTING UTILITIES

Site Specific Notes

- Proposed drainage designed based on desktop study, groundwater level monitoring report and infiltration test results.
- Proposed infiltration basin designed to the worst case recorded infiltration rate of 2.19 x10⁻⁵ m/s and to be located min 5m from the building.
- The infiltration system has been designed to cater the Critical 1 in 100 year + 45% climate change event + 10% for urban creep allowance.
- Final RWP's and SVP's locations are to be confirmed at detail design stage.
- The proposed foul water is to be discharged into the existing public foul water manhole located in Church Lane. This connection is to be agreed under S106 application with Southern Water
- External levels to be designed by others..

STANDARD DRAINAGE NOTES

- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
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- 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.
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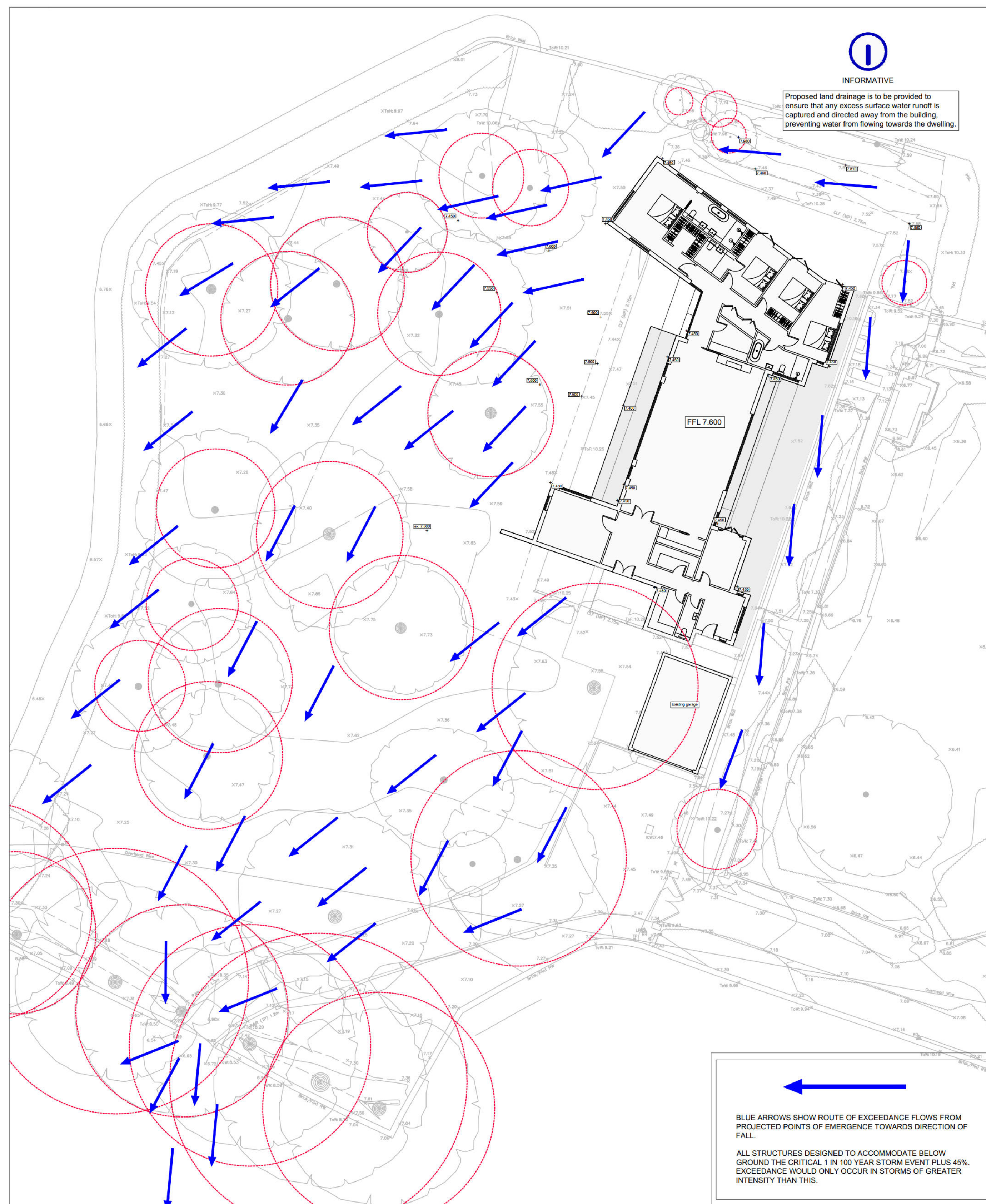
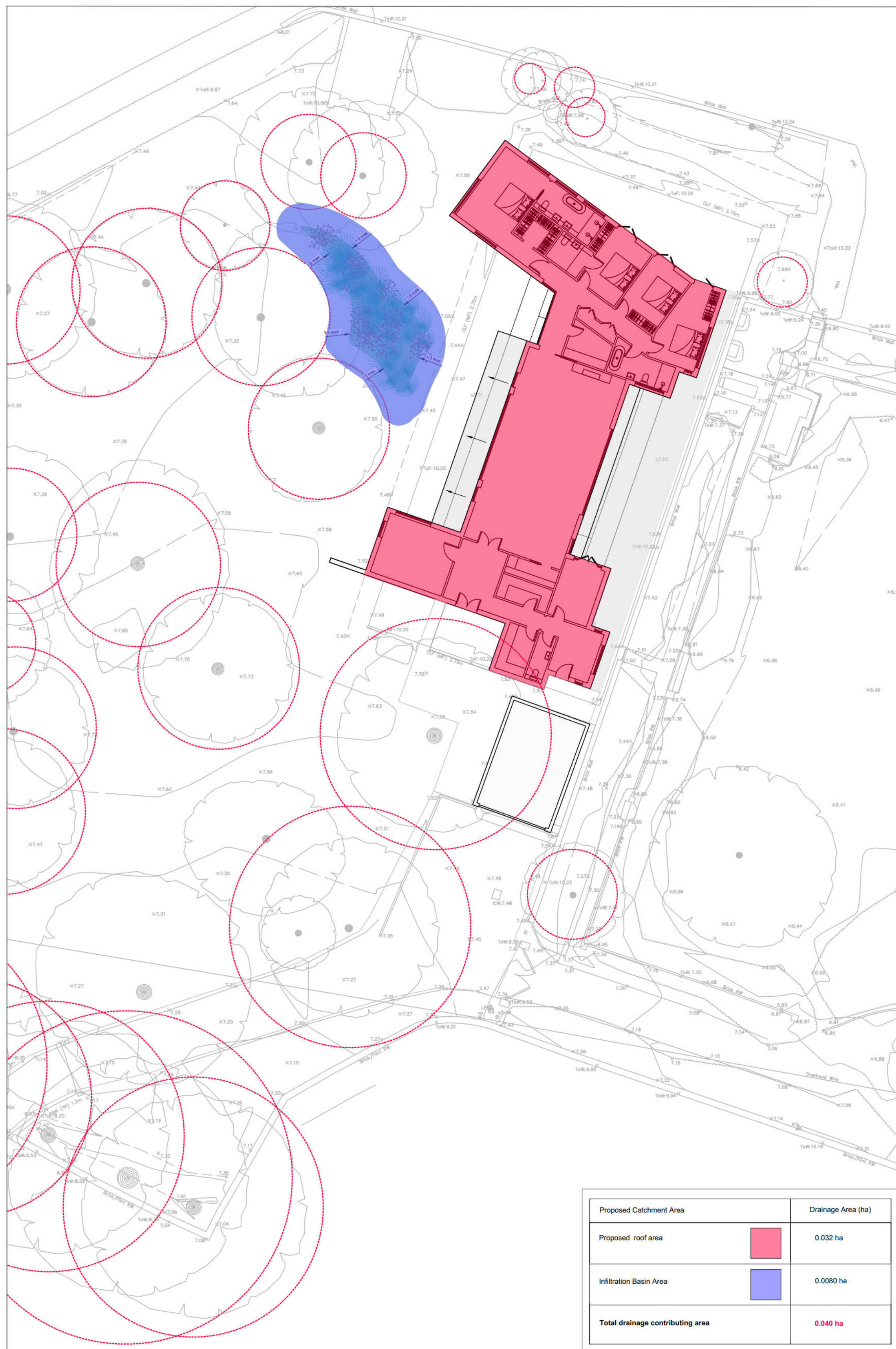


CLIENT	VICTORIA AND PETER NEWMAN
ARCHITECT	OOA LTD
JOB TITLE	CHURCH FARM HOUSE, YAPTON, BN18 0EP

DRAWING TITLE	PROPOSED DRAINAGE STRATEGY SHEET 2
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DRAWN	MR	ENGINEER	CS	CHECKED	CS	APPROVED	CS
DATE	NOVEMBER 2025	SCALE @ A1	1:100				
JOB NO.	C3267	STATUS	P	DRAWING NO.	101	REV.	P-

FOR PLANNING



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CLIENT VICTORIA AND PETER NEWMAN			
ARCHITECT OOA LTD			
JOB TITLE CHURCH FARM HOUSE, YAPTON, BN18 OEP			
DRAWING TITLE CONTRIBUTING AREA PLAN & EXCEEDANCE FLOW ROUTES			

DRAWN MR	ENGINEER CS	CHECKED CS	APPROVED CS
DATE NOVEMBER 2025		SCALE @ A1 1:200	
JOB No: C3267	STATUS P	DRAWING No: 201	REV. P-

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)	75.0		

Nodes

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Infiltration Basin	0.040	7.500	450	10435.888	8493.074	0.650

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

Node Infiltration Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.07920	Safety Factor	2.0	Invert Level (m)	6.850
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	356

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	35.0	35.0	0.200	48.7	48.7	0.400	64.7	64.7	0.600	82.9	82.9
0.100	41.6	41.6	0.300	56.4	56.4	0.500	73.5	73.5			

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 (m ³)	Flood (m ³)	Status
360 minute summer	Infiltration Basin	232	6.956	0.106	1.5	4.1143	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
360 minute summer	Infiltration Basin	Infiltration	0.4

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 (m ³)	Flood (m ³)	Status
180 minute winter	Infiltration Basin	176	7.114	0.264	3.5	11.6798	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
180 minute winter	Infiltration Basin	Infiltration	0.4					

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 (m ³)	Flood (m ³)	Status
240 minute summer	Infiltration Basin	240	7.181	0.331	5.3	15.4658	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
240 minute summer	Infiltration Basin	Infiltration	0.4

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
360 minute winter	Infiltration Basin	352	7.320	0.470	3.7	24.4901	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
360 minute winter	Infiltration Basin	Infiltration	0.4					

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	Infiltration Basin	472	7.468	0.618	4.0	36.0060	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
480 minute winter	Infiltration Basin	Infiltration	0.4					

7.5 **Appendix E – Maintenance Schedule**

SuDS Maintenance Schedule

Church Farm House, Church Lane, Yapton BN18 0EP

Planning Ref: Y/48/25/PL

For

Victoria and Peter Newman

Rev – P-

Reference **C3267**

Date **05th November 2025**

Revision	Date of Issue	Comments	Prepared By	Checked By
P	05/11/2025	Initial Issue	MR	CS

Maintenance

1.1 Introduction

- 1.1.1 During construction, the Contractor will be responsible for maintaining the drainage and SuDS (Sustainable Drainage Systems). Upon handover, the occupier will take on the responsibility of these duties as laid out in this report.
- 1.1.2 The maintenance schedule for the proposed development will be split down into two separate categories; SuDS features and regular private drainage.

1.2 SuDS at Church Farm House, Church Lane, Yapton

- 1.2.1 As listed above, in section 5.1.2, the SuDS features used on site will be **Rainwater Harvesting Tank and Infiltration Basin**
- 1.2.2 The SuDS features have been designed for easy maintenance and comprise:
- Regular Day-to-Day care – litter collection, regular gardening to control vegetation growth and checking inlets where water enters the SuDS features
 - Occasional tasks – checking the SuDS features and removing any silt that builds up in the SuDS feature
 - Remedial work – repairing damage where necessary

1.3 SuDS Drainage Maintenance Specification

1.3.1 Rainwater Harvesting Tank

In order to maintain the functioning of the rainwater harvesting tanks, the following maintenance requirements should be adhered to:

Operation and maintenance requirements for rainwater harvesting tanks		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Ensure that all inlets and outlets are clear of debris and blockage	Weekly
	Remove debris inlets and outlets	Weekly
	Inspect first flush diverter to ensure it is working correctly and not clogged	Weekly – Clean if necessary
	Clean Filter screens	Monthly – Replace if damaged
	Inspect the tank for sediment build-up and any signs of algae	Monthly
	Inspect roof and gutters and clear of all debris	Every 3 months
	Inspect pump for any signs of wear or damage and test to ensure it is functioning correctly	Every 3 months
	Check bottom of the tank for sediment build-up and clear if necessary	Every 6 months
	Ensure all downpipes are clear and functioning correctly and clear if necessary	Every 6 months
	Test water	Every 6 months
	Thorough tank cleaning – drain tank, scrub interior and rinse	Annually or as required
	Service the pump and filtration system and replace any worn parts	Annually
	Inspect overflow to ensure it is working correctly and clear any obstructions	Annually
Monitoring	Monitor Water levels	Annually
	Inspect for pests e.g mosquitoes and take measures to prevent	As required

1.3.2 Infiltration Basin

In order to maintain the functioning of the Infiltration Basin, the following maintenance requirements should be adhered to:

Table 21.3 Operation and maintenance requirements for Infiltration Basins		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter, debris, and trash	Monthly
	Cut the grass – for landscaped areas	Monthly (during growing season) or as required
	Cut the meadow grass in and around basin	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetations and remove nuisance plants (for the first 3 years)	Monthly (at start, then as required)
Occasional maintenance	Reseed areas of poor vegetation growth	Annually, or as required
	Prune and trim trees and remove cuttings	As required
	Remove sediment from pre-treatment system when 50% full	As required
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realign the rip-rap	As required
	Repair / rehabilitate inlets, outlets and overflows	As required
	Rehabilitate infiltration surface using scarifying and spiking techniques if performance deteriorates	As required
	Relevel uneven surface and reinstate design levels	As required
Monitoring	Inspect inlets, outlets and overflows for blockages and clean if required	Monthly
	Inspect banksides, structure, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies	Half Yearly
	Inspect infiltration surface for compaction and ponding	Monthly

1.4 General Drainage Maintenance Specification

1.4.1 Inlet Structures and Inspection Chambers

- Inlet structures such as rainwater downpipes, road gullies and channel drains should be free from obstruction at all times to allow free flow through the SuDS
- Inspection Chambers and Rodding Eyes are used on bends or where pipes come together. They allow access and cleaning to the system if necessary.

Inlet Structures and Inspection Chambers	
Regular Maintenance	Frequency
Inlet Structures Inspect rainwater downpipes, channel drains and road gullies, removing obstructions and silt as necessary. Check that there is no physical damage. Trim vegetation 1m min surround to structures and keep area free from silt and debris	Monthly
Inspection Chambers and below ground control chambers. Remove cover and inspect, ensuring that the water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in Autumn	Annually
Occasional Maintenance Check topsoil levels are 20mm above edges of chambers to avoid mower damage.	As necessary
Remedial Work Repair physical damage if necessary	As required

1.4.2 Below ground drainage pipes

- Below ground drainage pipes convey water to the SuDS system. They should always be free from obstruction to allow free flow.

Below Ground Drainage Pipes	
Regular Maintenance	Frequency
Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months then annually
Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually or as required
Maintain vegetation to designed limits within the vicinity of below ground drainage pipes and tanks.	Monthly or as required
Remedial Work	
Repair physical damage if necessary	As required
Monitoring	
Inspect all inlets, outlets and vents to ensure that they are in good conditions and operating as designed.	Annually
Survey inside of pipe runs for sediment build up and remove if necessary.	Every 5 years or as required