

MERIDIAN

CIVIL ENGINEERING CONSULTANCY

LAND ADJ. TO NIGHTINGALES,
BOLNEY, HAYWARDS HEATH,
RH17 5PJ

SURFACE AND FOUL WATER DRAINAGE STRATEGY

SEPTEMBER 2026

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Client: B&G Estate Limited

Rev	Date	Prepared by	Checked by	Approved by
-	30/09/26	SL	MN	MN

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1.0 INTRODUCTION

- 1.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by B&G Estate Limited to prepare a surface and foul water drainage scheme to accompany a planning application for the development at Land Adjacent to Nightingales, Bolney, Haywards Heath, West Sussex, RH17 5PJ.
- 1.2 It is understood the proposed development is for a single dwelling with associated parking and landscaping. The site is currently undeveloped greenfield land.
- 1.3 Site investigations were undertaken on site (see SI within appendix IV) and show extremely slow infiltration rates at all tested depths. The shallow pit (TP01, 0.55mBGL) dropped just over 100mm in approximately 8 hours, and sandstone bedrock was encountered at the base of the deeper pit (TP02, 1.4mBGL).
- 1.4 As such, due to the ground conditions, infiltration has been discounted as a method of discharging surface water from the site.
- 1.5 Due to the poor infiltration rates, it is proposed that surface water is discharged via a pumped connection to an existing private surface water sewer in close proximity to the site. Attenuation is to be provided in a combination of type C (no infiltration) within the upper patio external area and type B (partial infiltration within driveway) permeable paving and a Hydrorock attenuation system.
- 1.6 A pump flow control is proposed which, according to Causeway Flow Calculations (attached within appendix III), would limit runoff from the site to a maximum of 1.0l/s for all events up to and including the 1-in-100year +45%CC storm event, as a practical minimum.
- 1.7 According to the client's investigations, there are no useable foul sewers within a reasonable distance of the development and, due to the poor infiltration rates, foul water cannot be treated and discharged via a drainage field. As such, foul water is proposed to discharge to a sealed cesspool designed in line with Building Regulations Part H. Exact specification and location are to be confirmed at detailed design stage.
- 1.8 A proposed storm and foul water drainage strategy plan layout is included in Appendix II. Supporting calculations are included in Appendix III.

2.0 POLICY COMPLIANCE

- 2.1 The purpose of this assessment is to demonstrate that the development proposal outlined above can be satisfactorily accommodated without worsening flood risk for the area and without placing the development itself at risk of flooding, broadly in accordance with:
 - National Planning Policy Framework
 - Mid Sussex District Council local guidance
 - National Standards for Sustainable Drainage Systems (SuDS)
 - Ciria SuDS Manual

3.0 SITE LOCATION

- 3.1 The proposed development location is at Land Adjacent to Nightingales, Bolney, Haywards Heath, West Sussex, RH17 5PJ. The site location is outlined within Figure 1 below.



Figure 1 - Site location within red line boundary

- 3.2 It is understood the proposed development is for a single dwelling with associated parking and landscaping.
- 3.3 As existing, the site is undeveloped and consists predominantly of grassland.

4.0 GEOLOGY AND EXISTING DRAINAGE

- 4.1 Infiltration testing in line with BRE365 methodology was undertaken by CSSI on 24th July 2026 (see SI within appendix IV), within one shallow pit (TP01, 0.55mBGL) and one deep pit (TP02, 1.4mBGL). Both pits drained extremely slowly and neither test reached the required 25% effective depth, with TP01 dropping just over 100mm in approximately 8 hours.
- 4.2 The geology encountered was broadly in line with BGS mapping of the Upper Tunbridge Wells Sand Formation, consisting of shallow topsoil over silty sandy clay, with sandstone bedrock at the base of the deeper pit.
- 4.3 As such, infiltration is not considered feasible and has been discounted as a method of discharging surface water from the site.
- 4.4 Meridian received details from the client and landowner showing approximate locations and depths of existing private surface water sewer runs in close proximity to the site. The proposed connection is to the existing private surface water manhole outside Malt House, with an invert estimated to be 1.20mBGL as per details provided by the client. Due to the levels, a pumped connection is required.
- 4.5 It is understood that the surface water sewer connects to a water body downstream. According to the client, there are no useable foul sewers within a reasonable distance of the site. This is to be confirmed and any relevant permissions to be acquired prior to construction. A diagram showing existing drainage on site is included within appendix V.
- 4.6 According to client details, other existing properties east of the development connect to this storm drainage.

5.0 CLIMATE CHANGE ALLOWANCES

- 5.1 Making an allowance for climate change in the design of surface water drainage systems will help to minimise vulnerability and provide resilience to flooding and coastal change in the future. Climate Change allowances vary across the UK subject to catchment conditions and are based on climate change projections and different scenarios of carbon dioxide (CO₂) emissions to the atmosphere.
- 5.2 Climate change allowances were recently updated by the EA and the climate change allowances are now defined by River Catchment peak rainfall allowances.

1% annual exceedance rainfall event

Epoch	1% annual exceedance rainfall event	
	Central allowance	Upper end allowance
2050s	20%	45%
2070s	25%	45%

Figure 2 - EA Peak Rainfall Allowance Data

- 5.3 The data published on the DEFRA database shows the site located within the Adur and Ouse Management Catchment and for this development, the upper end allowance of 45% should be applied to rainfall events as the climate change allowance within this region.

6.0 SUSTAINABLE URBAN DRAINAGE (SUDS) ASSESSMENT

6.1 In accordance with the SuDS management train approach, the use of various SuDS measures to reduce and control surface water flows have been considered in detail for the development.

6.2 The management of surface water has been considered in respect to the SuDS hierarchy below as detailed in the CIRIA 753 'The SUDS Manual', Section 3.2.3:

SUDS DRAINAGE HIERARCHY				
			Suitability	Comment
	1.	Store rainwater for later use	✓	Rainwater harvesting should be considered by the developer and could be used around the wider site where feasible. Water Butts have been shown indicatively on the plan to allow water re-use in the garden.
	2.	Use infiltration techniques, such as porous surfaces in non-clay areas	x	Infiltration deemed unsuitable due to extremely slow rates at all tested depths. Type C (no infiltration) permeable paving is proposed due to proximity to the building.
	3.	Attenuate rainwater in ponds or open water features for gradual release	x	Space constraints on site mean that it isn't feasible to implement open water SuDS.
	4.	Attenuate rainwater by storing in tanks or sealed water features for gradual release	✓	Tanked permeable paving and a Hydrorock attenuation system are proposed to control runoff prior to release.
	5.	Discharge rainwater direct to a watercourse	X	No suitable watercourse in the vicinity.
	6.	Discharge rainwater to a surface water sewer/drain	✓	Surface water proposed to be pumped to an existing private surface water sewer in close proximity to the site.
	7.	Discharge rainwater to Combined Sewer	x	Surface Water sewer takes priority

Table 1: SuDS Drainage Hierarchy

6.3 Following the SuDS drainage hierarchy, site investigations show infiltration to not be feasible as a method of discharging surface water from the site. Attenuation is to be provided in a combination of type C (no infiltration) within the upper patio external area and type B (partial infiltration within driveway) permeable paving and a Hydrorock attenuation system.

6.4 As there are no suitable watercourses in close proximity, surface water is proposed to be pumped to an existing private surface water sewer in close proximity to the site.

6.5 The suitability of SuDS components has been assessed in order to provide a sustainable means of providing the required attenuation volumes. The following components have been assessed as follows in Table 2, below.

SUITABILITY OF SUDS COMPONENTS		
SuDS Component	Comment	Suitability
Infiltrating SuDS	Ground conditions indicate infiltration would be unfeasible, with extremely slow rates recorded at all tested depths. Unlined paving has been specified where feasible to promote infiltration where possible.	x/✓
Permeable Pavement	A combination of type C (no infiltration) within the upper patio external area and type B (partial infiltration within driveway) permeable paving is proposed.	✓
Green / Blue Roofs	Not likely to be feasible for this application.	x
Rainwater Harvesting	Rainwater harvesting for use on site is recommended in the form of water butts to provide water re-use in garden areas. This has not been included in hydraulic calculations.	✓
Swales	Insufficient space to implement such conveyancing SuDS techniques	x
Rills and Channels	Insufficient space to implement such conveyancing SuDS techniques and would provide little benefit overall.	x
Bioretention Systems	Bioretention systems would overall provide little benefit to storage volumes.	x
Retention Ponds and Wetlands	Insufficient space on site to implement large scale SuDS techniques such as ponds/wetlands. These SuDS measures are better suited to large scale developments.	x
Detention Basins	Insufficient space on site to implement large scale SuDS techniques such as detention basins. These SuDS measures are better suited to large scale developments.	x
Geocellular Systems	A Hydrorock attenuation system is proposed to provide attenuation storage.	✓
Proprietary Treatment Systems	Not required for this development	x
Filter Drains and Filter Strips	Insufficient space on site and poor infiltration would result in filter drains/strips providing little overall benefit.	x

Table 2: Suitability of SuDS Components

7.0 SURFACE AND FOUL WATER DRAINAGE STRATEGY

- 7.1 In accordance with local Sustainable Urban Drainage and Flood Risk Policies, developments are required to use SuDS to reduce both the volume and runoff rates, where feasible.
- 7.2 Current local Sustainable drainage guidance is to achieve as close as feasible to greenfield runoff rates for storm runoff from new developments.
- 7.3 Due to the poor infiltration rates, it is proposed that surface water is discharged via a pumped connection to an existing private surface water sewer in close proximity to the site. Attenuation is to be provided within type C (no infiltration) permeable paving to the upper-level patio (36m², 0.40m sub-base, 4.32m³) and a Hydrorock HD attenuation system (40m², 0.4m deep, 95% porosity, 15.2m³). The driveway is also to have a permeable surface with a nominal type B (partial infiltration) sub-base to provide treatment, infiltration where feasible and collection of surface water; this storage has not been taken into account for the purposes of calculations.
- 7.4 As existing, the site is undeveloped greenfield land. A pump flow control is proposed, which would limit surface water runoff from the site to a maximum of 1.0l/s for all events up to and including the 1-in-100year +45%CC storm event, as a practical minimum. Flows from the tanked upper level permeable paving are to be controlled by a 29mm aperture orifice plate with filter protection, limiting flow to a maximum of 1.1l/s. Pump specification and details are to be confirmed at detailed design stage.
- 7.5 Surface water is to be pumped via a rising main to a new manhole at high level, transitioning to gravity drainage prior to connecting into the existing private surface water manhole outside Malt House. Exact locations, details and relevant approvals are to be confirmed/acquired prior to construction.
- 7.6 Comparison of the greenfield and proposed runoff rates is presented below.

SURFACE WATER DISCHARGE RATES SUMMARY						
	Area (ha)	Discharge Rates (l/s)				
		1 year	2 year/Q _{BAR}	30 year	100 year	100 year +45% CC
Greenfield Rates	0.03	-	0.2	0.4	0.6	-
Proposed Runoff Rates	0.03	-	1.0	1.0	1.0	1.0

Table 3: Calculated runoff rates

- 7.7 Foul water is proposed to discharge to a sealed, factory built cesspool (Clearwater 46,000 litre or similar), designed in line with Building Regulations Part H. The cesspool has been sized for 6 persons (18,000L + 6,800L x 4 = 45,200L) and is to be sited more than 7m from any habitable building and within 30m of vehicle access to allow for emptying. A treatment plant is not considered viable as infiltration rates are insufficient to allow for a drainage field and there is no suitable watercourse or useable foul sewer nearby. Exact specification and location are to be confirmed at detailed design stage.
- 7.8 A proposed storm and foul water drainage strategy plan layout is included in Appendix II. Supporting calculations are included in Appendix III.

8.0 WATER QUALITY

- 8.1 The primary risk to water quality is from the driveway and parking areas. This can be treated through the implementation of permeable paving across trafficked areas. Roof runoff is generally considered uncontaminated; however, catchpits are provided within the layout to remove sediment where required.
- 8.2 The plans included in Appendix II show permeable pavement is proposed to be provided to treat the runoff from the driveway area.
- 8.3 The Pollution Hazard Indices are summarised in Table 4 – Summary of Pollution Hazard Indices for different Land Use below (based on Table 26.2 of The SuDS Manual):

POLLUTION HAZARD INDICES FOR DIFFERENT LAND USE CLASSIFICATIONS				
LAND USE	Pollution Hazard Level	Total Suspended Solids	Metals	Hydrocarbons
Driveway / parking areas	Low	0.5	0.4	0.4
TOTAL POLLUTION HAZARD INDEX		0.5	0.4	0.4

Table 4: Summary of Pollution hazard Indices for different Land Use

- 8.4 When designing suitable treatment trains to deliver adequate treatment prior to discharging to sewers, watercourse or groundwater, consideration of the treatment properties of each SuDS component specified should be reviewed. With the total mitigation potential of a SuDS treatment train determined by:

$$SuDS_1 + 0.5 * SuDS_2 + 0.5 * SuDS_3 \dots = Total\ SuDS\ Mitigation\ Index$$

- 8.5 The Mitigation Indices of the proposed SuDS techniques are summarised in Table 6 below.

INDICATIVE SuDS MITIGATION INDICES FOR DISCHARGES TO SURFACE WATER			
SuDS Component	Total Suspended Solids	Metals	Hydrocarbons
Permeable Paving/Proprietary Treatment	0.7	0.6	0.7
TOTAL SUDS MITIGATION INDEX	0.7	0.6	0.7

Table 5: Indicative SuDS Mitigation Indices.

- 8.6 It can be seen that the Total SuDS Mitigation Index $\geq$ Pollution Hazard Index therefore the water treatment provided by this SuDS train is enough to remove the potential pollutants.

9.0 MANAGEMENT AND MAINTENANCE PLAN

- 9.1 All onsite SuDS and drainage systems will be privately maintained by the homeowner.
- 9.2 It is recommended that all drainage elements implemented on site should be inspected following the first rainfall event post construction and monthly for the first quarter following construction
- 9.3 Maintenance is to be conducted in line with table 6 below.

PROPOSED SCHEDULE OF MAINTENANCE FOR BELOW GROUND DRAINAGE				
Item	Visual Inspection	Cleanse / De-sludge	CCTV Survey	Comments
Surface Water Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried out as necessary
Foul Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried out as necessary
Catchpits	1 year		N/A	Cleansing to be carried out as necessary
Permeable Block Paving	1 year	'Swept' clean of debris every 2 years.	N/A	Lift blocks and remove sand bedding and replace and re-bed paving – refer to individual manufacturer's recommendations.
Orifice Plate	6 months	As required		Cleansing to be carried out as necessary
Pump	6 months	As required		Serviced in accordance with manufacturer's recommendations
Cesspool	Fortnightly	Emptied as required (typically monthly) by a licensed contractor		If the cesspool does not fill within the estimated period, the tank should be checked for leakage. In line with Building Regulations Part H.
Hydrorock Attenuation System	See Comments	See Comments	See Comments	Maintained in accordance with manufacturers recommendations

Table 6: Site maintenance Summary

10.0 CONCLUSION

- 10.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by B&G Estate Limited to prepare a surface and foul water drainage scheme to accompany a planning application for the development at Land Adjacent to Nightingales, Bolney, Haywards Heath, West Sussex, RH17 5PJ.
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- 10.4 As such, due to the ground conditions, infiltration has been discounted as a method of discharging surface water from the site.
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- 10.7 According to the client's investigations, there are no useable foul sewers within a reasonable distance of the development and, due to the poor infiltration rates, foul water cannot be treated and discharged via a drainage field. As such, foul water is proposed to discharge to a sealed cesspool designed in line with Building Regulations Part H. Exact specification and location are to be confirmed at detailed design stage.
- 10.8 A proposed storm and foul water drainage strategy plan layout is included in Appendix II. Supporting calculations are included in Appendix III.

APPENDIX I Architects plans



Existing Location Plan 1:1250



Existing Site Plan 1:500

Notes

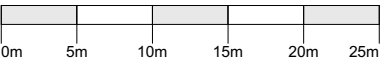
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All goods, materials, and workmanship must comply with current Building Regulations, British Standards, and relevant Codes of Practice.

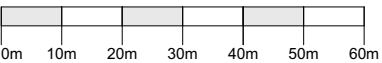
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Drawing to be printed A1

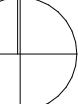


Scale 1-500



Scale 1-1250

N



RevID	Transmitted By	Trans initial Set Date	Layout Comment
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EXISTING

ecotecture

ECOLOGICAL ARCHITECTURE

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www.ecotecture.co.uk

31 Sussex Road Haywards Heath
West Sussex RH16 4DZ

Client: Georgy Bochkov

Address: Land Adj to Nightingales
Haywards Heath
West Sussex
RH17 5PJ

Description: Existing Site and Location Plan

Scale: 1:500, 1:1250 Date: Sep' 19
Drawn: BI Checked: JS

Drawing No: 875 /101A

Notes

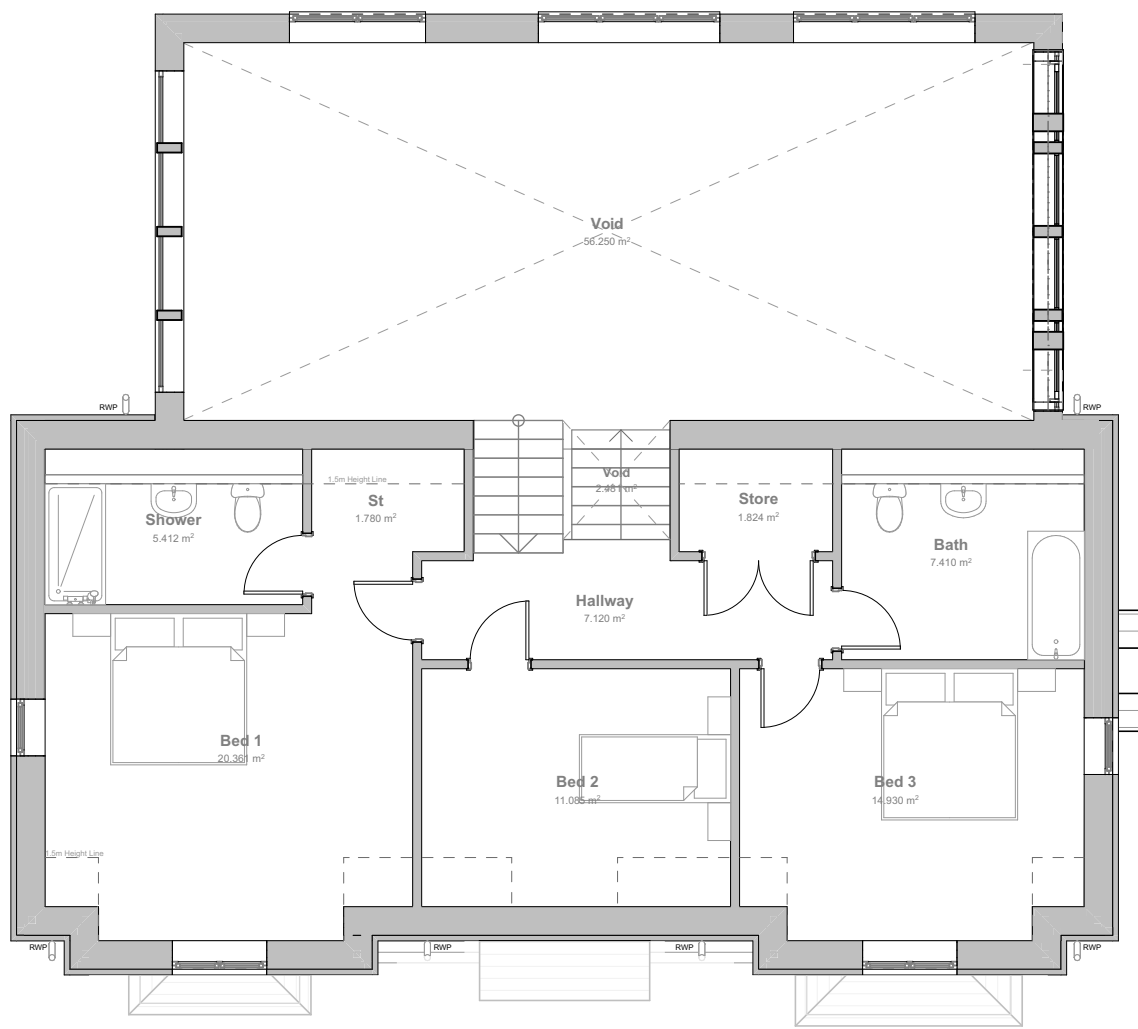
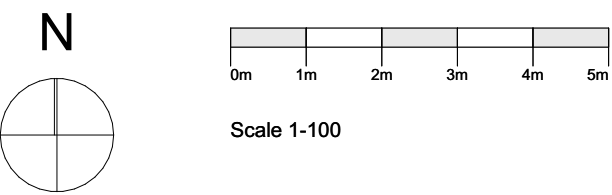
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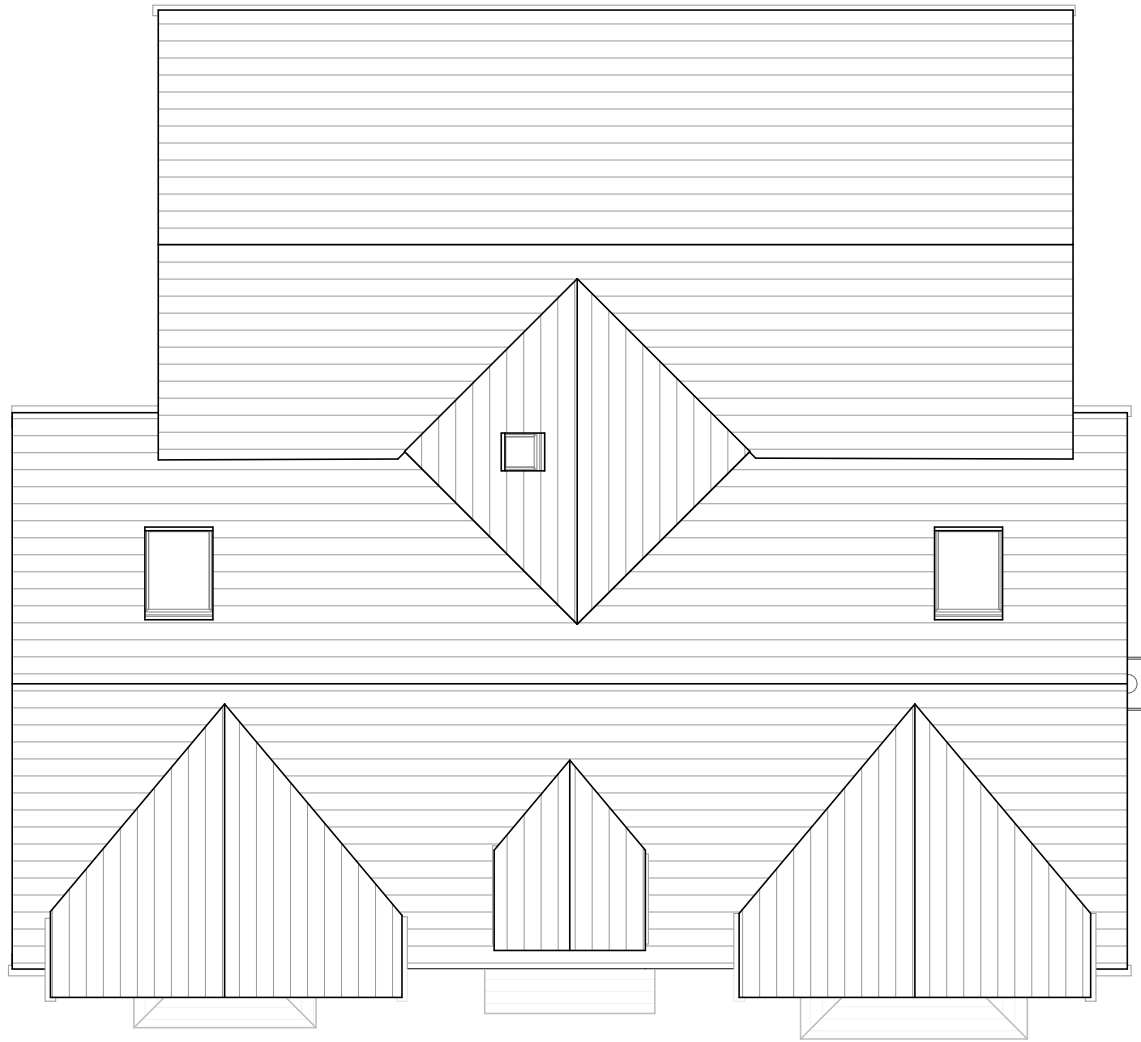
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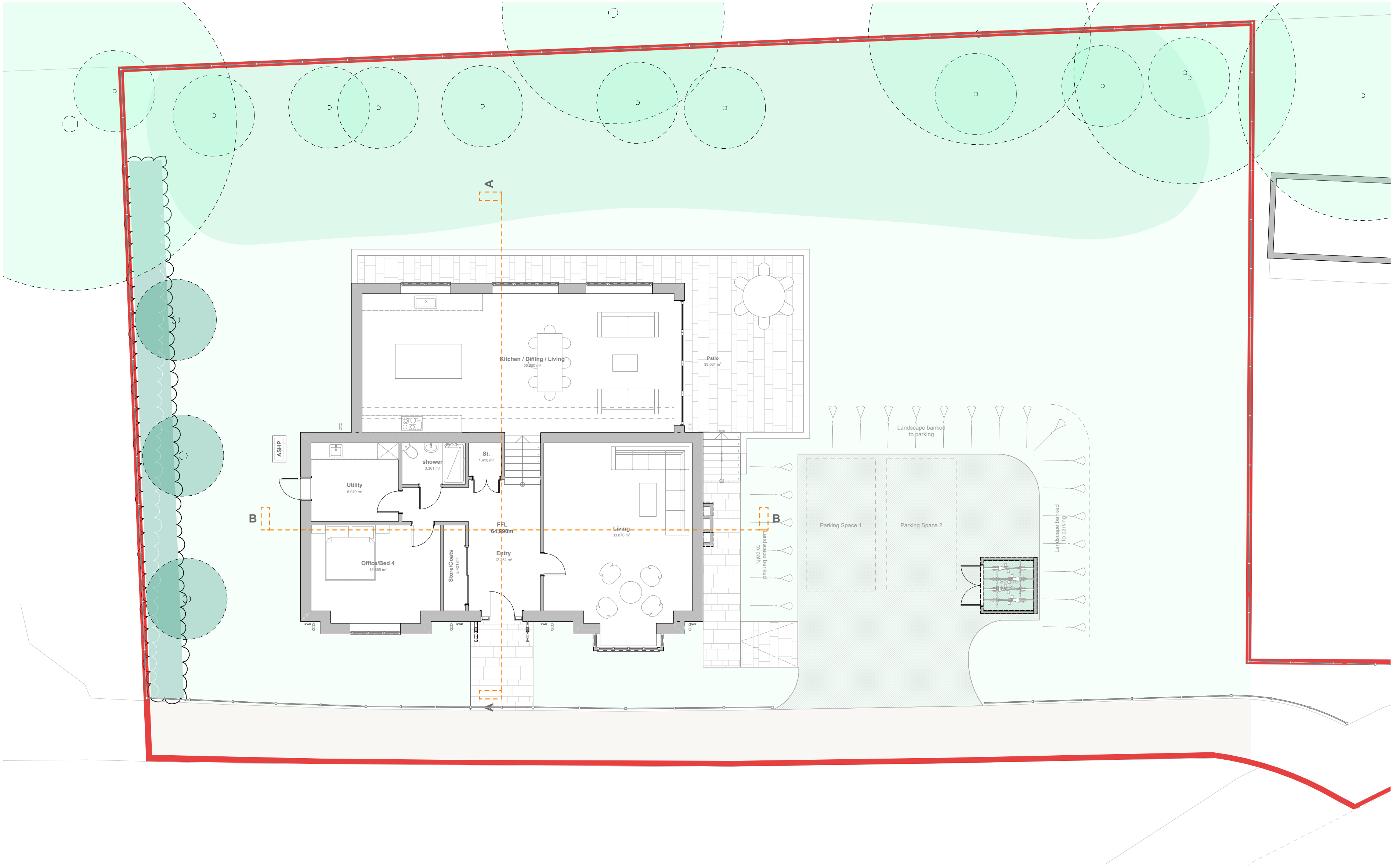
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Proposed First Floor



Proposed Roof Plan



Proposed Ground Floor

RevID	Transmitted By	Trans initial Set Date	Layout Comment

PLANNING

ecotecture

ECOLOGICAL ARCHITECTURE

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31 Sussex Road Haywards Heath
West Sussex RH16 4DZ

Client: Georgy Bochkov

Address: Land Adj to Nightingales
Haywards Heath
West Sussex
RH17 5PJ

Description: Proposed Plans

Scale: 1:100

Drawn: BI

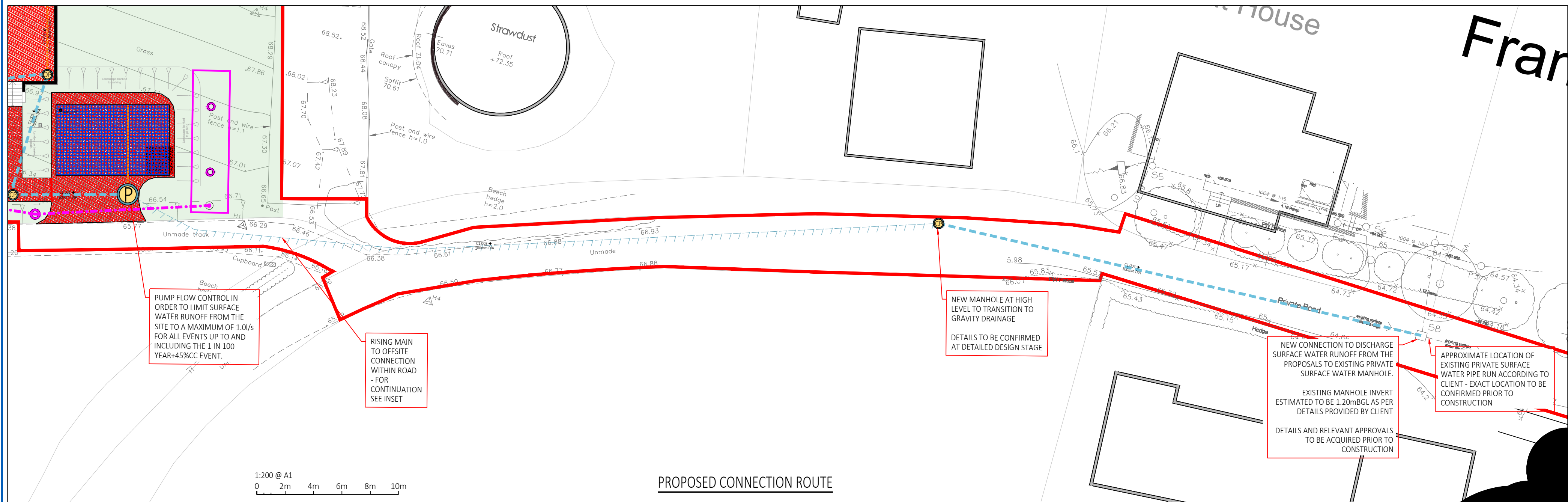
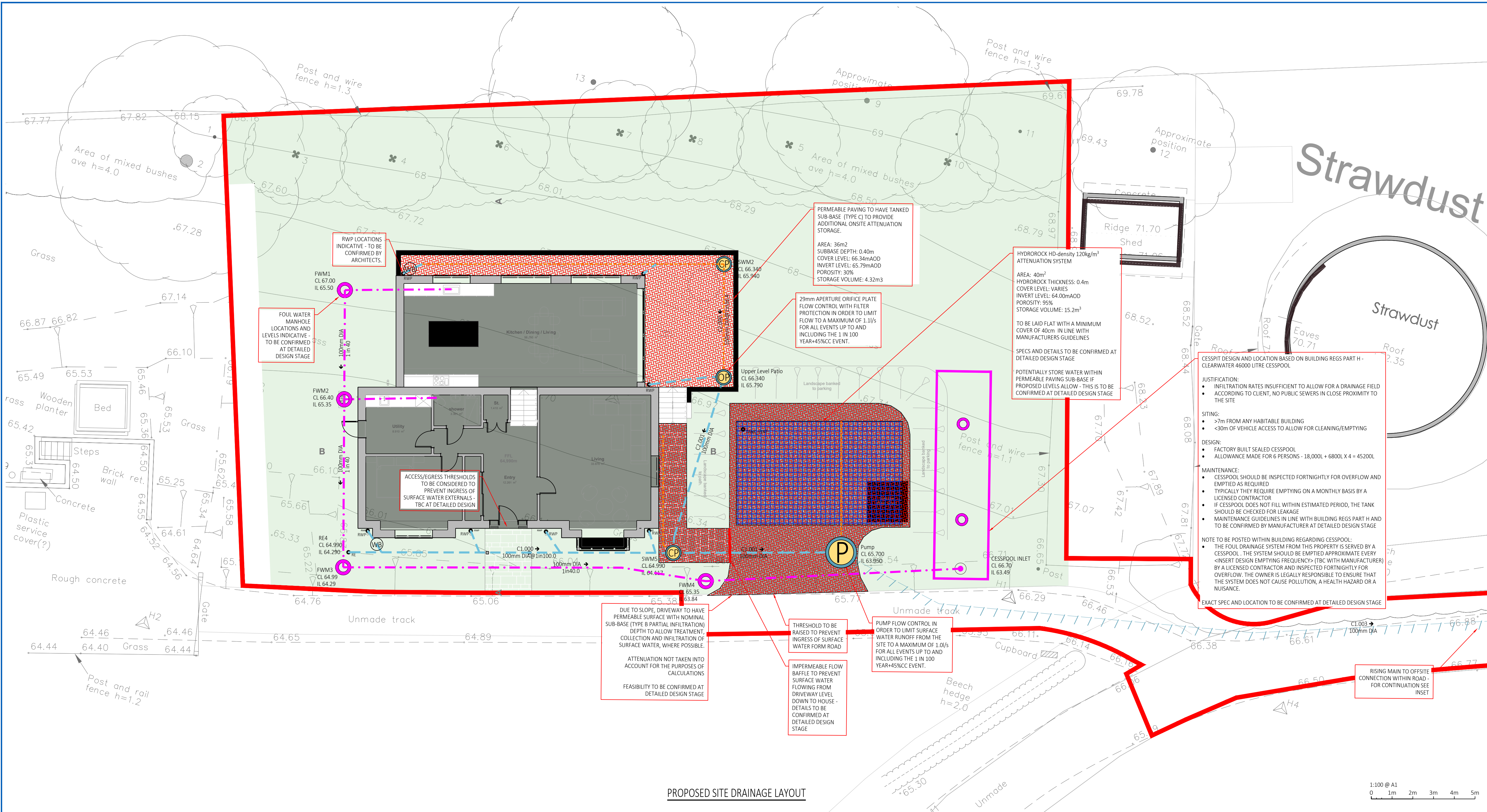
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Date:

Checked: JS

875 /311A

APPENDIX II Proposed Drainage Layout



DESIGN PHILOSOPHY

SITE INVESTIGATIONS UNDERTAKEN AT THE SITE SHOWED EXTREMELY SLOW INFILTRATION RATES AT ALL LEVELS. AS SUCH, INFILTRATION HAS BEEN DISCOUNTED AS A SOLE METHOD OF DISCHARGING SURFACE WATER FOR THE SITE. A COMBINATION OF TYPE C (NO INFILTRATION) AND TYPE B (PARTIAL INFILTRATION) PERMEABLE SURFACING AND HYDROROCK ATTENUATION CRATE HAS BEEN PROPOSED TO PROVIDE ATTENUATION.

OFFSITE SURFACE WATER FLOW IS TO BE LIMITED TO 1.0l/s UP TO AND INCLUDING THE 1in100year+45%CC STORM EVENT, AND CONTROLLED BY A PUMP FLOW CONTROL CHAMBER. THE SURFACE WATER DRAINAGE SYSTEM WILL DIRECT FLOWS TO A SURFACE WATER SEWER IN CLOSE PROXIMITY TO THE SITE. PUMP SPECS AND DETAILS ARE TO BE CONFIRMED AT DETAILED DESIGN STAGE.

AS PER CLIENTS DETAILS, SURFACE WATER SEWERAGE EXISTS IN FAIRLY CLOSE PROXIMITY TO THE PROPOSALS AND AS SUCH DISCHARGE FROM THE SITE WILL UTILISE THIS. THE CONNECTION LOCATION REQUIRES A PUMPED SYSTEM AND AS SUCH THIS HAS BEEN PROPOSED WITHIN THE DESIGN. THE SURROUNDING LAND IS PROPERTY OF THE CLIENT.

ACCORDING TO CLIENTS INVESTIGATIONS THERE ARE NO USEABLE FOUL SEWERS WITHIN REASONABLE DISTANCE OF THE DEVELOPMENT. DUE TO INFILTRATION VIABILITY, FOUL WATER CANNOT BE TREATED AND INFILTRATED VIA A DRAINAGE FIELD. AS SUCH A CESSPOOL IS TO BE UTILISED FOR THE DISCHARGE OF FOUL WATER.

IT IS ASSUMED THE EXISTING SURFACE WATER SEWERAGE CONNECTS SURFACE WATER TO A WATER BODY DOWNSTREAM. ALL RELEVANT PERMISSIONS ARE TO BE ACQUIRED PRIOR TO CONSTRUCTION WHERE REQUIRED.

TO BE READ IN CONJUNCTION WITH MCEC REPORT 'MC0886 Bidwells Nightingales RH17 SW FWDs'

- GENERAL
 - THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
 - ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
 - CDM REGULATIONS 2015: ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
 - CDM REGULATIONS 2015: FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.
- CONSTRUCTION NOTE
 - THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
 - THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
 - ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY, HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILST UNDERTAKING THE WORKS.
 - THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
 - ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY MERIDIAN DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED.
- BELOW GROUND DRAINAGE
 - UPVC-U PIPES TO BS 4660 : 2000 AND PLASTIC INSPECTION CHAMBERS AND FITTINGS TO BS EN 13598-1:2020. CLAY PIPES TO BS EN 295-1:2013. CONCRETE MANHOLE AND INSPECTION CHAMBERS TO BS EN 1917:2002.
 - ALL ADAPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.
 - ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.
 - ALL PRIVATE FOUL SEWER PIPES TO BE 100mm DIAMETER FROM SOIL STACKS UNLESS OTHERWISE STATED ON THE DRAWING AND 150mm WHERE SERVING MORE THAN 9 PROPERTIES.
 - ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
 - ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
 - ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
 - EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REBURIED IF NECESSARY.
 - CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
 - ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.
- MANHOLE COVERS AND FRAMES
 - MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICED AREAS.
 - MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

LEGEND

- PROPOSED SW PIPE RUN
- PROPOSED PERFORATED SW DRAIN
- PROPOSED FW PIPE RUN
- PROPOSED SW RISING MAIN
- CESSPIT ACCESS CHAMBER
- PROPOSED TYPE D FW INSPECTION CHAMBER
- PROPOSED SW PUMP
- PROPOSED ORIFICE PLATE MANHOLE
- CATCHPIT CHAMBER/MANHOLE
- PROPOSED SW RODDING EYE
- PROPOSED SW RAINWATER PIPE
- PERMEABLE PAVING
- ATTENUATION TANK
- CESSPIT APPROXIMATE LOCATION
- TANK VENT - EXACT LOCATION TBC
- IMPERMEABLE FLOW BAFFLE
- RWP ROUTED THROUGH BUTT

-	-	-	-
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	Preliminary		
CLIENT:	B&G Estate Limited		
SITE:	Nightingales, Haywards Heath, West Sussex, RH17 5PJ		
TITLE:	Surface & Foul Water Drainage Strategy - Proposed Layout		
SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:100/1:200	29/09/26	SL	MN
PROJECT NO:	DRAWING NO:	REVISION:	
MC0886	CIV01	-	

APPENDIX III Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	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)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)
2	
Upper Level Patio	0.010
4	0.010
5	
Carpark Attenuation Tank	0.008
Pump	
8	
9	

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)	1440	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

15	30	60	120	180	240	360	600	960	2160
----	----	----	-----	-----	-----	-----	-----	-----	------

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

Node Upper Level Patio Online Orifice Control

Flap Valve	x	Invert Level (m)	65.790	Diameter (m)	0.029
Downstream Link	2.001	Design Depth (m)	0.500	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.3		

Node Pump Online Pump Control

Flap Valve	x	Invert Level (m)	63.950	Switch on depth (m)	0.150
Downstream Link	1.003	Design Depth (m)	0.400	Switch off depth (m)	0.050
Replaces Downstream Link	x	Design Flow (l/s)	1.0		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.150	1.000	0.400	1.000

Results for 2 year Critical Storm Duration. Lowest mass balance: 89.18%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	2	1	65.940	0.000	0.0	0.0000	0.0000	OK
120 minute summer	Upper Level Patio	76	65.867	0.077	1.0	0.7988	0.0000	OK
15 minute summer	4	10	64.329	0.039	1.9	0.0003	0.0000	OK
15 minute summer	5	11	64.160	0.043	2.1	0.0068	0.0000	OK
240 minute summer	Carpark Attenuation Tank	144	64.103	0.103	1.5	3.9061	0.0000	SURCHARGED
240 minute summer	Pump	144	64.102	0.152	1.6	0.1716	0.0000	SURCHARGED
240 minute summer	8	156	64.522	0.022	1.0	0.0000	0.0000	OK
240 minute summer	9	156	63.522	0.022	1.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	2	2.000	Upper Level Patio	0.0	0.000	0.000	0.0133	
120 minute summer	Upper Level Patio	2.001	5	0.4	0.567	0.016	0.0110	
15 minute summer	4	1.000	5	1.9	0.636	0.311	0.0514	
15 minute summer	5	1.001	Carpark Attenuation Tank	2.1	0.685	0.354	0.0114	
240 minute summer	Carpark Attenuation Tank	1.002	Pump	1.6	0.349	0.202	0.0232	
240 minute summer	Pump	1.003	8	1.0	0.182	26.539	0.2292	
240 minute summer	8	1.004	9	1.0	0.780	0.106	0.0535	6.1

Results for 30 year Critical Storm Duration. Lowest mass balance: 90.26%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	2	44	65.984	0.044	0.3	0.0021	0.0000	OK
60 minute summer	Upper Level Patio	44	65.984	0.194	3.3	2.0578	0.0000	SURCHARGED
15 minute summer	4	10	64.359	0.069	4.8	0.0006	0.0000	OK
15 minute summer	5	11	64.193	0.076	5.2	0.0122	0.0000	OK
240 minute summer	Carpark Attenuation Tank	172	64.192	0.192	3.0	7.3005	0.0000	SURCHARGED
240 minute summer	Pump	172	64.191	0.241	1.1	0.2726	0.0000	SURCHARGED
30 minute summer	8	52	64.522	0.022	1.0	0.0000	0.0000	OK
30 minute summer	9	52	63.522	0.022	1.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	2	2.000	Upper Level Patio	-0.3	-0.060	-0.028	0.0303	
60 minute summer	Upper Level Patio	2.001	5	0.7	0.660	0.027	0.0233	
15 minute summer	4	1.000	5	4.8	0.786	0.789	0.1051	
15 minute summer	5	1.001	Carpark Attenuation Tank	5.2	0.838	0.865	0.0227	
240 minute summer	Carpark Attenuation Tank	1.002	Pump	1.1	0.252	0.135	0.0232	
240 minute summer	Pump	1.003	8	1.0	0.182	26.624	0.2293	
30 minute summer	8	1.004	9	1.0	0.780	0.107	0.0536	6.5

Results for 100 year Critical Storm Duration. Lowest mass balance: 92.24%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	2	44	66.043	0.103	0.3	0.0050	0.0000	FLOOD RISK
60 minute summer	Upper Level Patio	44	66.043	0.253	4.2	2.6946	0.0000	FLOOD RISK
15 minute summer	4	10	64.376	0.086	6.1	0.0007	0.0000	OK
240 minute summer	5	192	64.251	0.134	2.3	0.0213	0.0000	SURCHARGED
240 minute summer	Carpark Attenuation Tank	192	64.250	0.250	3.7	9.5076	0.0000	SURCHARGED
240 minute summer	Pump	192	64.249	0.299	1.4	0.3383	0.0000	SURCHARGED
15 minute summer	8	44	64.522	0.022	1.0	0.0000	0.0000	OK
15 minute summer	9	44	63.522	0.022	1.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	2	2.000	Upper Level Patio	-0.3	-0.063	-0.034	0.0427	
60 minute summer	Upper Level Patio	2.001	5	0.9	0.380	0.032	0.0333	
15 minute summer	4	1.000	5	6.0	0.817	0.994	0.1285	
240 minute summer	5	1.001	Carpark Attenuation Tank	2.3	0.639	0.382	0.0286	
240 minute summer	Carpark Attenuation Tank	1.002	Pump	1.4	0.273	0.180	0.0232	
240 minute summer	Pump	1.003	8	1.0	0.182	26.624	0.2293	
15 minute summer	8	1.004	9	1.0	0.780	0.107	0.0536	6.0

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 94.65%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	2	46	66.171	0.231	0.5	0.0113	0.0000	FLOOD RISK
60 minute summer	Upper Level Patio	46	66.171	0.381	6.2	4.0785	0.0000	FLOOD RISK
15 minute summer	4	11	64.609	0.319	8.8	0.0026	0.0000	SURCHARGED
240 minute summer	5	236	64.395	0.278	3.3	0.0441	0.0000	SURCHARGED
240 minute summer	Carpark Attenuation Tank	236	64.394	0.394	5.2	14.9642	0.0000	SURCHARGED
240 minute summer	Pump	236	64.393	0.443	1.5	0.5007	0.0000	SURCHARGED
15 minute summer	8	42	64.522	0.022	1.0	0.0000	0.0000	OK
15 minute summer	9	42	63.522	0.022	1.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	2	2.000	Upper Level Patio	-0.5	-0.096	-0.051	0.0427	
60 minute summer	Upper Level Patio	2.001	5	1.1	0.295	0.039	0.0359	
15 minute summer	4	1.000	5	7.9	1.010	1.309	0.1357	
240 minute summer	5	1.001	Carpark Attenuation Tank	3.2	0.625	0.525	0.0286	
240 minute summer	Carpark Attenuation Tank	1.002	Pump	1.5	0.352	0.194	0.0232	
240 minute summer	Pump	1.003	8	1.0	0.182	26.624	0.2293	
15 minute summer	8	1.004	9	1.0	0.780	0.107	0.0536	9.3

APPENDIX IV Site Investigation

Consultation Partner per ref: Sam

Test Site: Nightingales, Haywards Heath, West Sussex, RH17 5PJ

Ref: CSR0057

Date of Test: 24/07/2026

CS Site Investigations were instructed to undertake BRE365 compliant infiltration testing within 1 no. shallow pits (approx. 0.5m) and 1 no. deep pit (approx 1.6m) at the locations shown within the figure below. The test locations were selected based upon assumed approximate proposed infiltration device locations.



Figure 1 - marked test locations

Expected Geology

The British Geological Survey (BGS) Geology of Britain Viewer indicates the below underlying geology:

Bedrock geology

Upper Tunbridge Wells Sand-Sandstone and siltstone, interbedded. These sedimentary rocks are fluvial, palustrine and shallow-marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting (with periodic inundation from the sea).

Superficial Deposits

BGS Geology viewer indicates no superficial deposits at the site.

Trial Pit Summary

TP	Length	Width	Depth	Soil Description	Test Completed
1	1.2	0.3	0.55	0-100 top soil, 100-550 silty sandy clay	Y
2	1.25	0.3	1.4	0-150 top soil, 150-700 silty sandy clay, 700-1400 sandy silty clay/blue clay mixture, 1400 hit solid sandstone bedrock	Y

Table 1 - Table showing brief details of each hole

Site Investigation Additional Info

- Geology beneath the site was fairly consistent, consisting of shallow top soil with silty sandy clay beneath followed by sandstone bedrock at the base of the deeper trial pit.
- Geology was roughly in line with BGS predictions consisting of silty clay, gravels and sand
- Within the deeper trial pit (TP02), the aim was to get into the sandstone layer however, it could not be meaningfully penetrated with a 3 tonne machine utilising a sharp toothed bucket.
- TP01 drained extremely slowly, only dropping just over 10cm over 8 hours.
- The site owner located multiple foul and surface water manholes in fairly close proximity to the site and described a surface water drainage sewer system running through the wider development that eventually travels down the hill and to a pond. This may be a point of investigation if the infiltration rates prove unfeasible.

Conclusion

The geology encountered beneath the site gave very steady infiltration at all depths. Infiltration testing in line with BRE365 methodology was undertaken.

Prepared By

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Preparation Date: 25/07/2026

Disclaimer

This report is based on data obtained during the testing conducted on **July 24th 2026**. The conclusions and recommendations are made in good faith and are intended to assist in the design and development of the site drainage system. Any use of this report for purposes other than those stated should be done with caution and may require additional verification.

Appendix I – Raw Data

		Test Data	
		Test No:	1
		Time (mins)	Depth (m bgl)
		0	0.15
		5	0.16
		10	0.17
		15	0.175
		20	0.18
		25	0.19
		30	0.2
		40	0.21
		50	0.215
		60	0.22
		75	0.22
		90	0.225
		120	0.225
		150	0.23
		180	0.24
		210	0.245
		240	0.25
		270	0.255
		300	0.26
		330	0.26
		360	0.26
		390	0.265
		420	0.265
		450	0.265
		Test Data	
		Test No:	1
		Time (mins)	Depth (m bgl)
		0	0.6
		5	0.61
		10	0.63
		15	0.64
		20	0.65
		25	0.66
		30	0.67
		40	0.68
		50	0.68
		60	0.69
		75	0.7
		90	0.71
		120	0.72
		150	0.74
		180	0.75
		210	0.76
		240	0.77
		270	0.77
		300	0.78
		330	0.785
		360	0.79
		390	0.795
		420	0.8

BRE 365 Infiltration Test Results	
Site Address:	Nightingales
Site Reference:	CSR58
Hole Reference:	TP01

TP01 Dimensions (m)	
Depth:	0.55
Width:	0.3
Length:	1.2

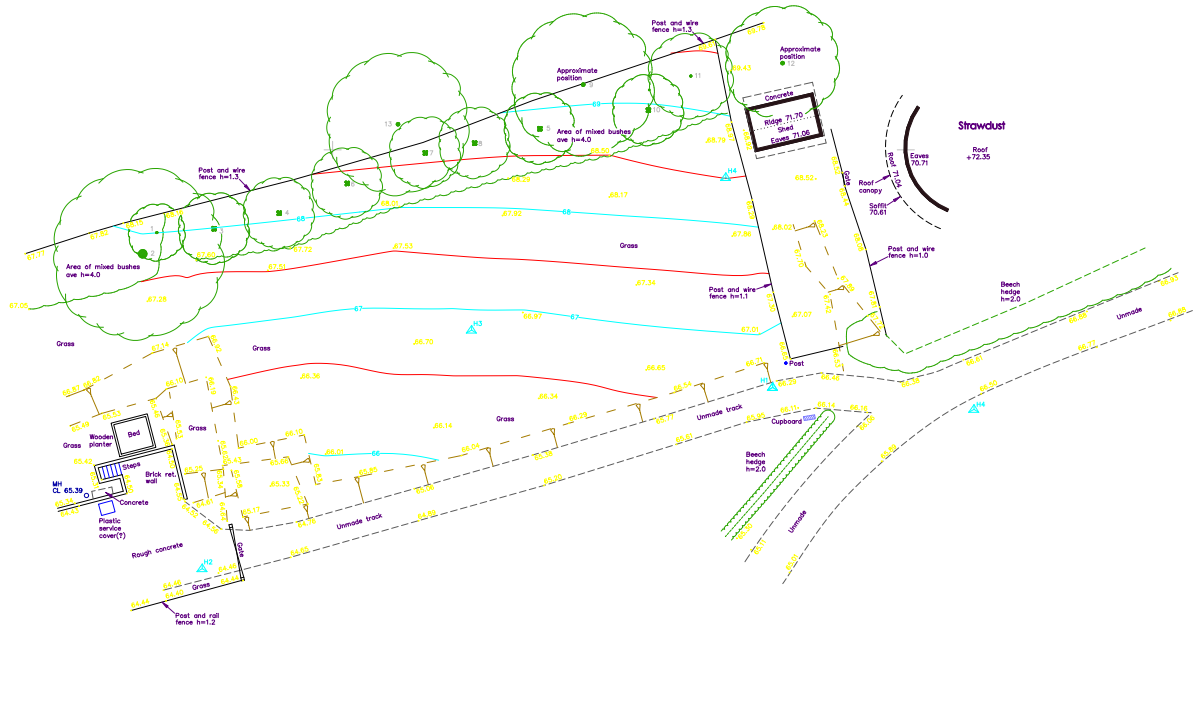
BRE 365 Infiltration Test Results	
Site Address:	Nightingales
Site Reference:	CSR58
Hole Reference:	TP02

TP01 Dimensions (m)	
Depth:	1.4
Width:	0.3
Length:	1.25

Appendix II – Summary & Photo

Trial Pit nu	Size (m)	Hole Graphic	Spoil Graphic	Test Graphic
TP01	D:0.55 B:1.2 W:0.3	No Photo Available		
TP02	D:1.4 B:1.25 W:0.3			No Photo Available

APPENDIX V Supplementary Documents



Tree Schedule		
1	Silver birch	d=0.15 h=8
2	Sycamore	d=0.6 h=12
3	Unknown	multibole h=8
4	Unknown	multibole h=8
5	Unknown	multibole h=8
6	Unknown	multibole h=8
7	Unknown	multibole h=8
8	Unknown	multibole h=8
9	Sycamore	d=0.25 h=12
10	Unknown	multibole h=8
11	Unknown	d=0.15 h=7
12	Sycamore	d=0.25 h=10
13	Sycamore	d=0.25 h=12

Survey control			
Stn	Easting	Northing	Height
H1	526070.700	123623.415	66.234
H2	526030.901	123610.764	64.306
H3	526049.699	123627.419	65.812
H4	526067.439	123636.070	66.507

Any setting-out should be undertaken using these control stations and any setting-out using GPS should be transformed to this control.

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Topographical Survey Legend

Hedge		Telephone line	
Undergrowth		Power line	
Tree		Banking	
Bush		Contour line	
Building		Survey Station	
Glass Building		Gate	
Open Building		Level	

Ordnance Survey Benchmark

Foul Drainage

Storm Drainage

OSM
FW MH
CL 117.10
L 116.75
SW MH
CL 117.10
L 116.75

Abbreviations

Animal Set	Sett
Air Valve	AV
Borehole	BH
Bus Stop	BS
Cover Level	CL
Earth Rod	ER
Electricity Pole	EP
Fire Hydrant	FH
Inspection Cover	IC
Invert Level	IL
Lamp Post	LP
Manhole	MH
Marker	MK
Name Plate	RNP
Power Pole	PP
Rain water Pipe	RWP
Road Sign	RS
Rodding Eye	RE
Reinforced Steel Joint	RSJ
Soil Vent Pipe	SVP
Stop Valve	SV
Survey Station	STN
Telegraph Pole	TP
Tree Stump	Stump
Trial Hole	TH
Unable To Lift	UTL
Vent Pipe	VP
Water Valve	WV



Notes

All trees are identified where possible. Species, spread, height and girth are indicative only.

Drainage has been surveyed where found, and traced where possible.

Eaves and ridge heights of surrounding buildings have been surveyed where possible.

HOOK SURVEY

Land & Building Surveyors
www.hooksurvey.com

Project :
Land at The Street, Bolney,
Haywards Heath, West Sussex RH17 5PJ

Client :
B&G Estate Limited

Drawing title :
Topographical Survey

Job No. : S26/10956	Dwg No. : S26/10956/01	Revision : -
Scale : 1:200	Date : May 2026	Drawn by : D.S.

Grid & Levels related to :
Ordnance survey coordinate system using GPS related to the
Leica Smartlink RTK network. Based around 5 survey stations
with a scale factor of 1.000, only the fixed survey stations
H1, H2, H3 and H4 are true Ordnance Survey positions.

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