

Discharge of Drainage Condition 11

Project	Land north of Mayflower Way, Angmering
Project Number	23685 - North Development

By Sonya Macandrew

Date 3 December 2025



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1 Introduction

- 1.1 This document has been produced on behalf of Mr P Taylor in support of a Discharge of Condition 11 Application for one of two applications for adjacent single dwellings. This application is for the northerly most site, has the Planning Application Reference A/121/23/PL and is referred to as land east of 22 Speedwell Chase, Angmering.
- 1.2 The proposed development incorporates a sustainable drainage system (SuDS) that will discharge surface water by infiltration to ground. The SuDS will provide water quality mitigation and storage for all storm events up to and including the 1:100 year rainfall event with an allowance for climate change.

2 Condition 11

- 2.1 Condition 11 states that, *'Development shall not commence, other than works of site survey and investigation, until full details of the proposed surface water drainage scheme have been submitted to and approved in writing by the Local Planning Authority. 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. Design considerations must take full account of the 'Supplementary Requirements for Surface Water Drainage Proposals' produced by Arun District Council, and are an overriding factor in terms of requirements. Winter groundwater monitoring to establish highest annual ground water levels and winter percolation testing to BRE 365, or similar approved, will be required to support the design of any infiltration drainage. No building / No part of the extended building shall be occupied until the complete surface water drainage system serving the property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in good working order in perpetuity.'*



3 Existing Site

3.1 Site Location

3.1.1 The development site is located on land north of Mayflower Way, Angmering, Littlehampton, West Sussex at Ordnance Survey reference TQ 072 033. The nearest postcode is BN16 4AY.



Image 1: Site Location

3.1.2 The site is bounded to the north by arable land, the west by Crayfern Homes housing development site, the south by arable land and Mayflower Way, and the east by a vehicle repair shop, car dealership and their associated parking.

3.1.3 A copy of the site location plan is located in Appendix 1 at the rear of this report.

3.2 Site Description

3.2.1 The site is approximately 0.06ha in area and currently comprises undeveloped arable land.

3.2.2 Existing ground levels are highest at the north of the site at approximately 10.75m AOD and falls towards its southern boundary at approximately 10.40m AOD.

3.2.3 A copy of the existing site layout plan is located in Appendix 2 at the rear of this report.

3.3 Existing Surface Water Drainage

3.3.1 The site currently has no positive surface water drainage infrastructure.

3.3.2 Rainfall currently discharges in part to ground and in part overland as a greenfield runoff mainly to the south of the site.

3.4 Geology and Groundwater

- 3.4.1 Site-specific investigation was carried out by Soils Limited between 9 – 10 March 2023. Arun District Council (ADC) was consulted prior to infiltration testing being undertaken for the agreed time during the winter period and permission was granted.
- 3.4.2 The site investigation confirms that the site is underlain by a layer of gravelly Silt to a depth of approximately 0.65m below ground level overlying slightly gravelly sandy Clay substrata to a depth of at least 0.89m below ground level. British Geological Survey maps and borehole information confirm that the site is within an area underlain by a bedrock of chalk from a depth of approximately 10m below ground level.
- 3.4.3 The ground investigation report states that the trial pit of TP2 was excavated beyond the Client's target depth of 0.650m below ground level due to the presence of Made Ground.
- 3.4.4 Groundwater levels were monitored from October 2023 to March 2024 and the highest groundwater was recorded in January 2024 at 2.66 metres below ground level.
- 3.4.5 Soils Limited carried out BRE Digest 365 Soakage Design Testing in trial pit TP2, which is in the location and at the depth that soakage is proposed on the site, on 9 March 2024 and the minimum infiltration rate recorded in the three tests was 4.78×10^{-6} m/s.
- 3.4.6 The online "Magic Map" available from DEFRA confirms that the site is located above a principal aquifer in the bedrock and a secondary A aquifer in the superficial drift.
- 3.4.7 The groundwater vulnerability is identified as medium and the site is not indicated to be located in any class of source protection zone associated with groundwater abstraction.
- 3.4.8 A copy of Arun District Council's confirmation email for the dates of infiltration testing and extracts from Soils Limited site-specific investigation are located in Appendix 3 at the rear of this report.

4 Development Proposals

4.1 Description

- 4.1.1 The development proposals are for the construction of one residential dwelling with associated access, car parking and landscaping.
- 4.1.2 The site is in present day Flood Zone 1 and the online flood map for planning shows that it remains so for the lifetime of the development.
- 4.1.3 The site is not shown as at risk of surface water flooding from anything less extreme than a 1:1,000 year event.
- 4.1.4 The areas of the various positively drained elements of the development are summarised as follows:

- Roof Areas 100m²
- Driveway 177m²

4.1.5 A copy of the proposed site layout and drained areas plan is located in Appendix 4 at the rear of this report.

5 Surface Water Drainage

5.1 Design Criteria

5.1.1 The surface water drainage design has been undertaken in compliance with 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 taking account of the recommendations of the SuDS Manual produced by CIRIA and the 'Supplementary Requirements for Surface Water Drainage Proposals' produced by Arun District Council.

5.2 Surface Water Drainage

5.2.1 CIRIA report C753 The SuDS Manual-v6 provides guidance on surface water drainage. The aim for surface water runoff is to match greenfield runoff rates and volumes where reasonably achievable.

5.2.2 The National Standards for Sustainable Drainage Systems set out the drainage hierarchy for surface water drainage and notes the following list of drainage options in order of preference:

- Priority 1: collected for non-potable use
- Priority 2: infiltrated to ground
- Priority 3: discharged to an above ground surface water body
- Priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- Priority 5: discharged to a combined sewer

5.2.3 The proposed surface water drainage strategy will incorporate rainwater use in the form of water butts to be used for garden watering.

5.2.4 The proposed surface water drainage strategy will be based on infiltration to ground.

5.2.5 The total impermeable area of the site will be approximately 277m².

5.2.6 An additional 10% of roof area has been included within the calculations to account for potential future urban creep amounting to a total potential impermeable site area of 287m².

- 5.2.7 Calculations have been prepared using a CV value of 1, FEH22 data and the minimum recorded infiltration rate on the site of 4.78×10^{-6} m/s and confirm that surface water drainage can be adequately accommodated within the site without any increased flood risk elsewhere.
- 5.2.8 The proposed drainage system utilises permeable paving infiltrating to ground to serve the dwelling and its associated car park / driveway area.
- 5.2.9 The permeable paving system incorporates a 30% voided subbase with a minimum storage volume of 25m³ to accommodate the 1:100 year storm event including an additional 45% to account for the predicted effects of future climate change.
- 5.2.10 In accordance with West Sussex LLFA Policy for the Management of Surface Water guidance, the distribution tanks that allow connection of the roof drainage to the voided stone subbase will be set above the water level of the 1:10 year plus climate change volume at 10.009m AOD.
- 5.2.11 The subbase within 5m of any building is reduced to 400mm and further than 5m increased to 820mm so that surface water storage is provided for the roof areas for all rainfall events up to and including the 1:10 plus climate change within the deeper voided stone infiltration blanket area.
- 5.2.12 The infiltration system has a half drain time of 1064 minutes, approximately 17.7 hours.
- 5.2.13 The retention of the first 5mm of rainfall for 'every day' rainfall required by Standard 2 of the national standards for sustainable drainage systems has been met with the provision of infiltration to ground for all events up to the design storm event.
- 5.2.14 A copy of the drainage plan, construction details and calculations is located in Appendix 5 at the rear of this report.

5.3 Water Quality

- 5.3.1 The proposed development is for residential use. In accordance with CIRIA SuDS Manual 2015 (Report C753), the pollution hazard level for this type of development is classified as between very low and low depending on the area of the site.
- 5.3.2 The surface water drainage scheme will include mitigation to ensure that surface water is suitably treated and any pollution risk adequately managed prior to discharge.
- 5.3.3 Table 26.2 in Chapter 26 of CIRIA report C753 The SuDS Manual provides Pollution Hazard Indices for varying land types. Those of relevance to the development proposals are as follows:

Land Use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very Low	0.2	0.2	0.05
Individual property driveways, residential car park, low-traffic roads	Low	0.5	0.4	0.4

Table 1: Pollution Hazard Indices

5.3.4 The surface water drainage design will use permeable paving and this will meet the target treatment level for each system required as follows:

SuDS Type	Total suspended solids (TSS)	Metals	Hydrocarbons
Permeable pavement	0.7	0.6	0.7

Table 2: Pollution Mitigation Provision

5.3.5 An interim drainage management and maintenance schedule is located in Appendix 6 at the rear of this report.

5.4 Risk to Others

5.4.1 The proposed surface water drainage system has been designed to current SuDS standards and incorporates attenuation and storage which will minimise runoff leaving the site during times of heavy rainfall.

5.4.2 Allowance has been made for a 45% increase in rainfall intensity which accords with the latest figures published by the Environment Agency and with the requirements under the National Planning Policy Framework.

5.4.3 The proposed drainage system will incorporate sufficient treatment prior to final discharge thus mitigating the risk of pollution from the site.

5.4.4 The residual risk of flooding from this development for the foreseeable future is negligible.

5.5 Surface Water Exceedance Route

5.5.1 In the event that part of the onsite surface water drainage network was to become blocked, suffer a failure due to lack of maintenance or be inundated with a storm beyond the 1:100 year +45% design storm surface water would migrate overland towards the location of the onsite voided stone subbase and garden area would in all likelihood be retained on site.

5.5.2 Any water leaving the site would mimic the existing flow route to the south and east.

5.5.3 There is no associated flood risk to the downstream catchment.

5.5.4 An exceedance flow route plan is located in Appendix 7 at the rear of this report.

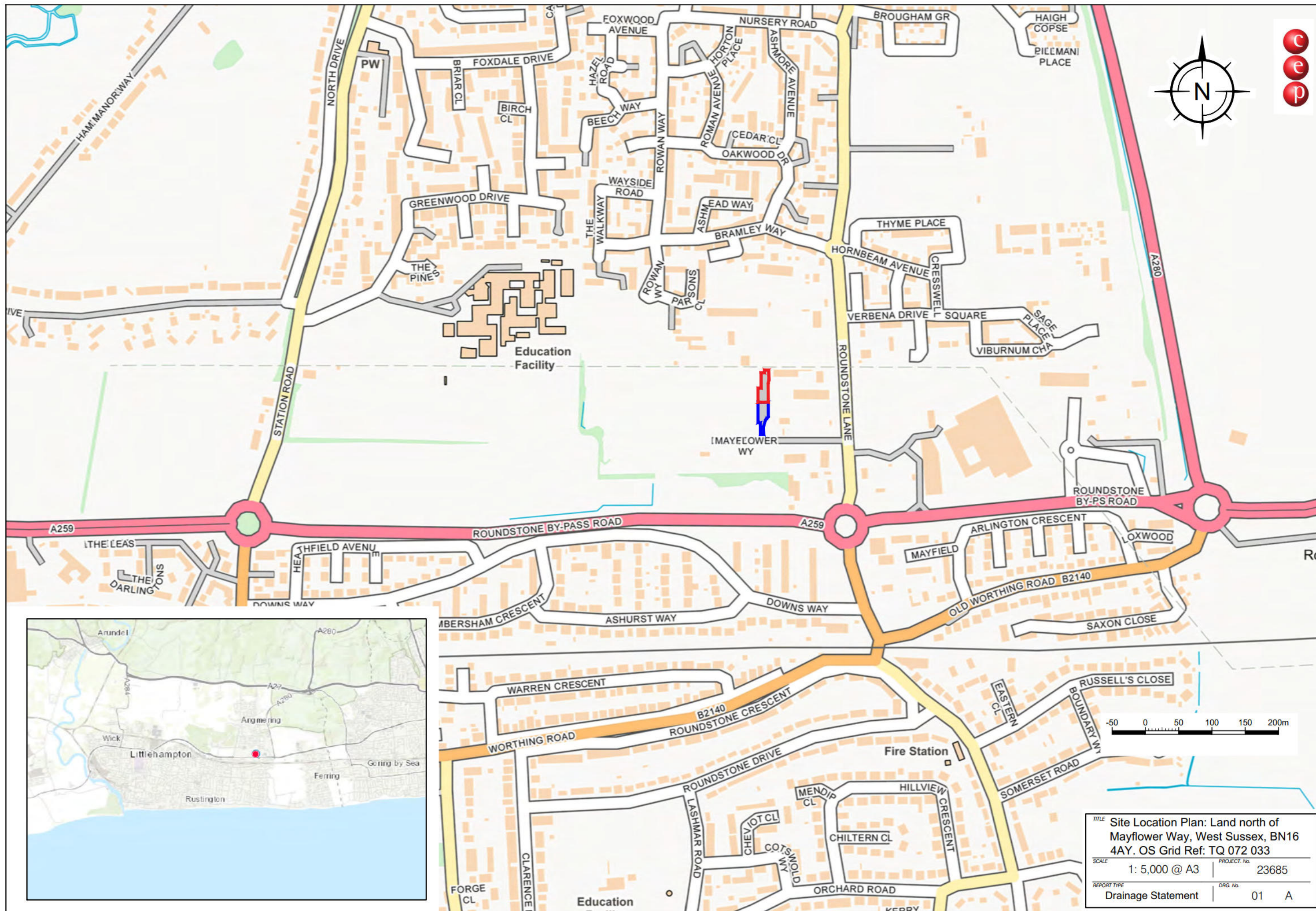
6 Conclusions

- 6.1 The proposed surface water drainage system has been designed to current standards incorporating SuDS elements providing treatment, attenuation and storage which will minimise runoff leaving the site during times of heavy rain in accordance with the SuDS Manual.
- 6.2 Allowance has been made for a 45% increase in rainfall intensities which accords with the latest figures published by the Environment Agency and in accordance with the requirements under the National Planning Policy Framework.
- 6.3 Soakage testing has confirmed that the site is suitable for infiltration to ground.
- 6.4 Any exceedance event would flow overland to the west mimicking the existing runoff route.
- 6.5 The proposed drainage system incorporates sufficient treatment prior to final discharge thus mitigating the risk of pollution from the site in accordance with the SuDS Manual.
- 6.6 An Interim Drainage Management and Maintenance Schedule is provided.

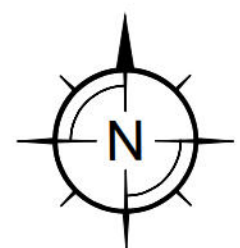
7 List of Appendices, Images and Tables

Appendix 1	Site Location Plan
Appendix 2	Existing Site Layout Plan
Appendix 3	Arun District Council's Confirmation Email and Extracts from Soils Limited Reports
Appendix 4	Proposed Site Layout and Drained Areas Plan
Appendix 5	Drainage Plan, Construction Details and Calculations
Appendix 6	Interim Drainage Management and Maintenance Schedule
Appendix 7	Exceedance Flow Route Plan
Image 1	Site Location
Table 1	Pollution Hazard Indices
Table 2	Pollution Mitigation Provision

Appendix 1
Site Location Plan



Appendix 2
Existing Site Layout Plan



MAYFLOWER WAY

TITLE Existing Site Layout Plan			
SCALE	1:500 @ A3	PROJECT No.	23685
REPORT TYPE	Drainage Statement	DRG. No.	02 A

Appendix 3

**Arun District Council's Confirmation Email,
Extracts from Soils Limited Reports
and BGS Borehole Data**

From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 22 February 2023 09:35
To: Kyanna Hodge
Cc: CEP | Reception; Paul Cann
Subject: RE: 23685 - Land North of Mayflower Way, Angmering, BN16 4AY

Hi Kyanna,

The 9th or 10th of March will be fine. Any later than this then please come back to me as our response will be entirely dependent upon the weather conditions from now until then.

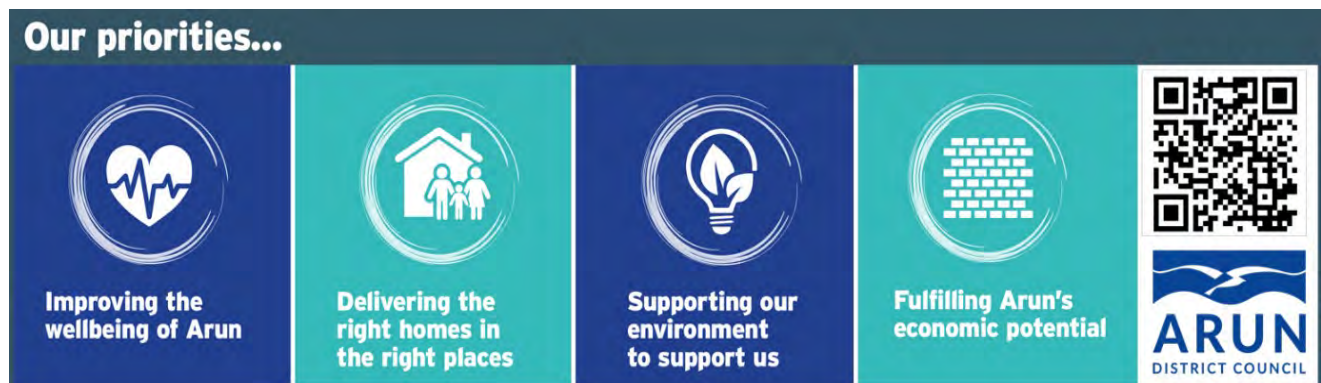
Kind regards

Sarah Burrow
Engineering Assistant, Coastal Engineers and Flood Prevention

T: 01903 737815
E: sarah.burrow@arun.gov.uk
M: 07733 125764

Usual working pattern: 8am – 2:30pm Monday to Friday

Arun District Council, Civic Centre, Maltravers Rd
Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk



From: Kyanna Hodge [REDACTED]
Sent: 21 February 2023 14:23
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Cc: CEP | Reception <[REDACTED]>; Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: 23685 - Land North of Mayflower Way, Angmering, BN16 4AY

CAUTION: This email originated from outside of the organisation. You should take extra care when clicking links or opening attachments - if you are unsure the content is safe contact the IT Helpdesk before clicking or opening.

Good afternoon Sarah

We are in the process of applying for a new Planning Application for the above site.

We note that infiltration testing is to be done during the winter period of January or February.
The geotechnical engineer appointed to carry out these works cannot commence any sooner than 9-10 March.

Please can you advise if infiltration tests can be completed up to mid March for this scheme.

Hope to hear from you soon regarding this.

Kind Regards,
Kyanna

Kyanna Hodge



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From: Paul Cann <Paul.Cann@arun.gov.uk>

Sent: 09 May 2022 [REDACTED]

[REDACTED] Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Cc: CEP | Reception <[REDACTED]>

Subject: RE: 23685 - Land North of Mayflower Way, Angmering, BN16 4AY

Hi Kyanna

Just to confirm that you will need to undertake winter (Jan/Feb) infiltration testing to BRE365 on your site and at the location/depth of your proposed infiltration structures.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services



Section 4 Groundwater

4.1 Groundwater Details

Groundwater was not encountered within any of the windowless sampler boreholes during the initial site works.

Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was conducted in October 2023, when groundwater levels should be rising from their annual minimum (lowest) elevation, which typically occurs around September to the annual maximum (highest) which typically occurs around March.

Further groundwater monitoring was conducted within the standpipe installed on site following completion of site works over the duration of the winter period between October 2023 and March 2024. A summary of the winter groundwater monitoring data has been presented in Table 4.1.

Table 4.1 Groundwater Monitoring

Exploratory Hole	Well Depth (m bgl)	Depth to Water (m bgl)					
		26/10/23	23/11/23	15/12/23	05/01/24	15/02/24	13/03/24
WS1	4.00	Dry	3.58	3.42	2.48	3.69	3.38
WS2	4.00	3.74	3.93	3.78	2.72	3.95	3.73
WS3	4.00	Dry	Dry	3.84	2.66	3.95	3.78
Note(s):							

4.2 Winter Groundwater Monitoring Summary

Groundwater was recorded as rising from its lowest elevation, recorded at 4.00m bgl (WS1 and WS3) in October 2023, to its highest recorded elevation of 2.48m bgl in January 2024. Groundwater subsequently dropped, suggesting that the peak groundwater level had been recorded.

Figure 1 – Groundwater Monitoring Data

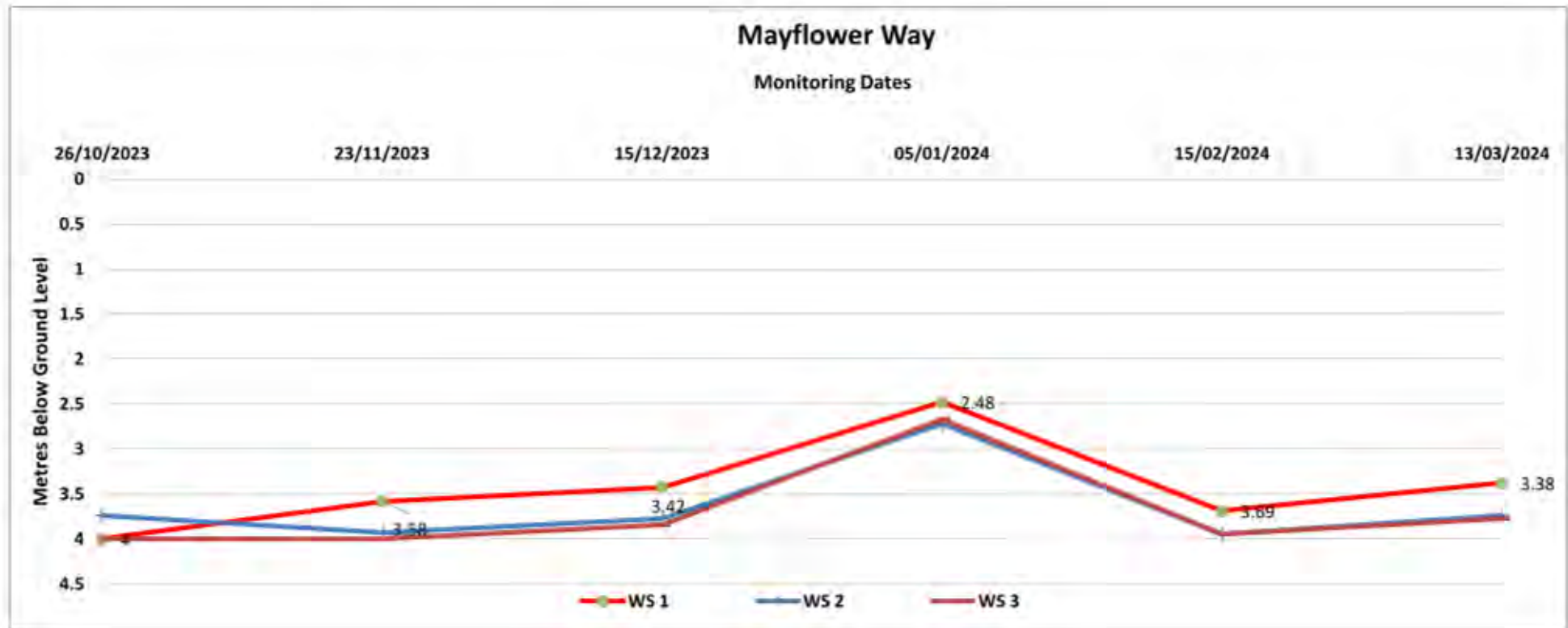




Figure 4 – Trial Hole Plan

Project

Mayflower Way, Angmering, West
Sussex, BN16 4AY

Client

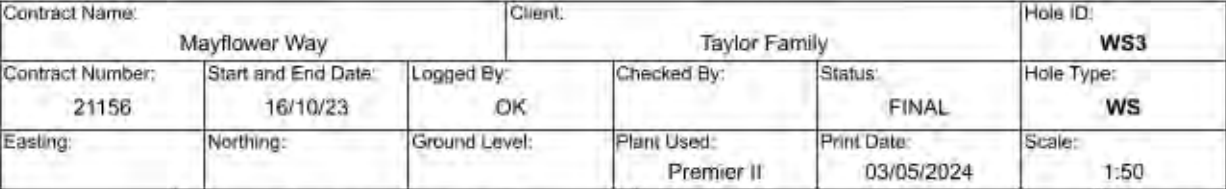
Taylor Family

Date

May 2024

Job Number

21156



Weather:	Termination: Reached proposed depth.	Sheet 1 of 1
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Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)						
									Rootlets to 0.50m bgl. Decomposed rootlets to 3.50m bgl.					
Chiseling					Installation				Water Strikes					
									Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)				0	0.00	No groundwater was encountered.
					0.00	4.00	PLAIN							
Hand vane (HV), Hand penetrometer (HP) reported in kPa; PID reported in ppm.														

Peter Taylor c/o The Civil Engineering Practice

Via Email only: [REDACTED]
31st March 2023
Our Ref.: 20743/LR

Dear Peter,

Re: Mayflower Way, Angmering, Littlehampton, West Sussex, BN16 4AY

We are writing regarding the intrusive investigation undertaken at the above-named site.

Brief

The Soils Limited quotation (reference Q27016 dated 24th October 2022) set the scope of the investigation. The investigation was for an infiltration test in accordance with the principles of BRE DG365:2016 to be undertaken to inform the design of a surface water drainage system.

General

The site was Mayflower Way, Angmering, Littlehampton, West Sussex, BN16 4AY, a site location plan has been included as Figure 1. The site was located upon the superficial River Terrace Deposits overlying the New Pit Chalk Formation. The River Terrace Deposits consists generally of sand and gravel of roughly bedded flint or chert commonly in a matrix of silt and clay. The New Pit Chalk Formation is predominantly a blocky firm to moderately hard white chalk with marl seams and sporadic flints.

Site Works

The site investigation was undertaken on the 9th and 10th of March 2023 and comprised 2No. machine excavated trial pits identified as TP1 and TP2 to a depth of 0.80 and 0.89m bgl respectively. All trial hole locations were selected by the Client's Engineer. The trial pits were excavated beyond the Client's target depth of 0.65m bgl due to the presence of Made Ground. Prior to excavation, both locations were scanned for services using a CAT and signal generator (Genny). Following the construction of the trial pit, infiltration testing in accordance with the principles of BRE DG 365:2016 were carried out.

A trial hole location plan is included as Figure 2.

Ground Conditions

The ground conditions encountered during the site investigation have been summarised in Table 1.

Made Ground (MG)
Cohesive River Terrace Deposits (CRTD)
New Pit Chalk Formation – Not encountered.

Table 1 – Summary of Ground Conditions

Strata	Depth Encountered (m bgl)		Typical Description
	Top	Base	
MG	0.00	0.35-0.65	Greyish brown gravelly CLAY/ Dark blackish brown gravelly SILT. Gravel is angular to sub rounded, fine to coarse flint, brick, concrete and occasional metal. Occasional rootlets
CRTD	0.35-0.65	0.80 ¹ -0.89 ¹	Light brown slightly gravelly sandy CLAY. Gravel is sub angular to sub rounded, fine to coarse flint. Occasional rootlets

Notes: ¹ encountered to base of trial hole

Roots

Roots (including rootlets) were encountered within both TP1 and TP2 to a depth of 0.80m. Full details are provided on the trial pits logs in Appendix A.

Infiltration Testing

Infiltration testing was performed within the trial pits TP1 and TP2 in order to provide guidance on the suitability of the ground for the adoption of a surface water drainage system. The tests were undertaken within the River Terraced deposits encountered underlying the Topsoil onsite.

The tests comprised piping fresh water via a water tanker into the open trial hole, the drop in water level over time was then recorded to give an indication of soakage potential. BRE 365 requires that each test pit be tested three times in quick succession.

Three tests were completed within both TP1 and TP2. The final test of TP1 was completed using a datalogger to continue measurements overnight. During the third test of TP1 heavy rain fell after 409 minutes resulting in the data logger recording an increase in the water level. The field data obtained from the datalogger showed an alternating rise and fall of water level, corresponding with rainfall events, as presented on the calculation sheet within Appendix A. Therefore, the remainder of the third test was extrapolated based on the data recorded prior to the heavy rainfall, in order to give a meaningful infiltration rate.

The field data and extrapolated data are presented in the Appendix A.

Table 2 presents the infiltration test results performed within the trial pits.

Table 2 - Infiltration Test Results

Trial Hole	Test No.	Test Stratum	Fill Level (m bgl)	Infiltration Rate (m/sec)	Comments
TP1	1	RTD	0.40	1.88×10^{-5}	Data extrapolated after 409 minutes.
	2		0.39	7.77×10^{-6}	
	3		0.24	1.94×10^{-6}	
TP2	1	RTD	0.33	1.09×10^{-5}	
	2		0.39	4.78×10^{-6}	
	3		0.33	5.14×10^{-6}	

Infiltration rates between 1.94×10^{-6} and 1.09×10^{-5} were calculated for the River Terrace Deposits.

Field data are included within Appendix A.

Conclusion

It is recommended that the results of the trial pit soakage tests are passed to a drainage engineer for further detailed commentary and design.



Figure 2. Trial Hole Location Plan

Project

Mayflower Way, Angmering, Little Hampton, West
Sussex, BN16 4AY

Date

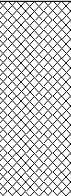
March 2023

Client

Peter Taylor

Reference

20743

		Soils Limited Newton House, Cross Road, Tadworth KT20 5SR			Trial Pit Log		Trial Pit No. TP2 Sheet 1 of 1	
Project Name: Mayflower Way				Project No.: 20743		Method: Machine Excavated		Hole Type TP
Location: Angmering, Littlehampton, West Sussex, BN16 4AY						Plant: JCB 5T		
Client: Peter Taylor				Trial Pit Length: 0.50m		Trial Pit Width: 1.40m		Scale 1:25
Dates: 09/03/2023				Level:		Co-ords:		Logged By CF
Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES					Dark blackish brown gravelly SILT. Gravel is angular to sub rounded, fine to coarse flint, brick, concrete and occasional metal. Occasional rootlets .MADE GROUND	
	0.70	ES		0.65			Light brown slightly gravelly sandy CLAY. Gravel is sub angular to sub rounded, fine to coarse flint. Occasional rootlets	
				0.89			End of Pit at 0.890m	
							1	
							2	
							3	
							4	
							5	
General Remarks: Rootlets obsered upto 0.80m bgl								Sample Type D: Disturbed B: Bulk J: Jar W: Water
Groundwater Remarks: Dry								

Soakaway Calculations

Soakaway Test No.	TP2 Test 1
Contract:	Mayflower Way, Angmering, Littlehampton, West Sussex, BN16 4AY
Contract No.	20743

Field Test

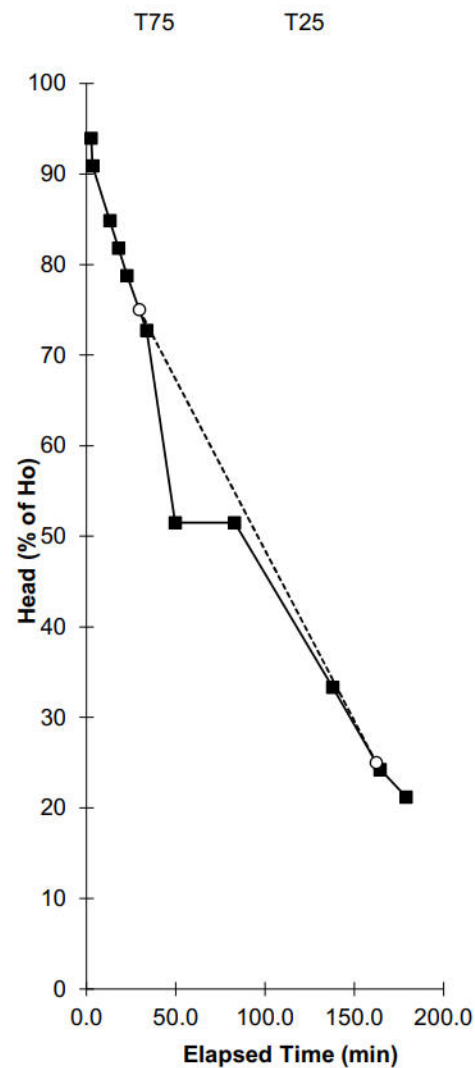
Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	0.89 m
Width of Pit	0.50 m
Length of Pit	1.40 m
Depth of Pit Soaked	0.33 m
ap50	1.327 m2
Vp75-25	0.1155 m3
t75-25	132.8 min
water used	0.2310 m3
f	1.093E-05 m/sec.

Field Data

Depth to	Elapsed	Head of	Head of
Water	Time	Water	Water
(m)	(min)	(% of Ho)	(m)
0.56	0	100	0.33
0.58	2.5	94	0.31
0.59	3.4	91	0.30
0.61	13.0	85	0.28
0.62	17.9	82	0.27
0.63	22.6	79	0.26
0.65	33.6	73	0.24
0.72	49.7	52	0.17
0.72	83.0	52	0.17
0.78	137.8	33	0.11
0.81	164.5	24	0.08
0.82	179.1	21	0.07

T75	29.512	75
T25	162.275	25
T75-25	132.763	Derived from Best Fit



Comments

Rainfall noted between 49.7 and 83.0 minutes.

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 5SR

Telephone: 01737 814 221
Facsimile: 01737 812 557

Soakaway Calculations

Soakaway Test No.	TP2 Test 2
Contract:	Mayflower Way, Angmering, Littlehampton, West Sussex, BN16 4AY
Contract No.	20743

Field Test

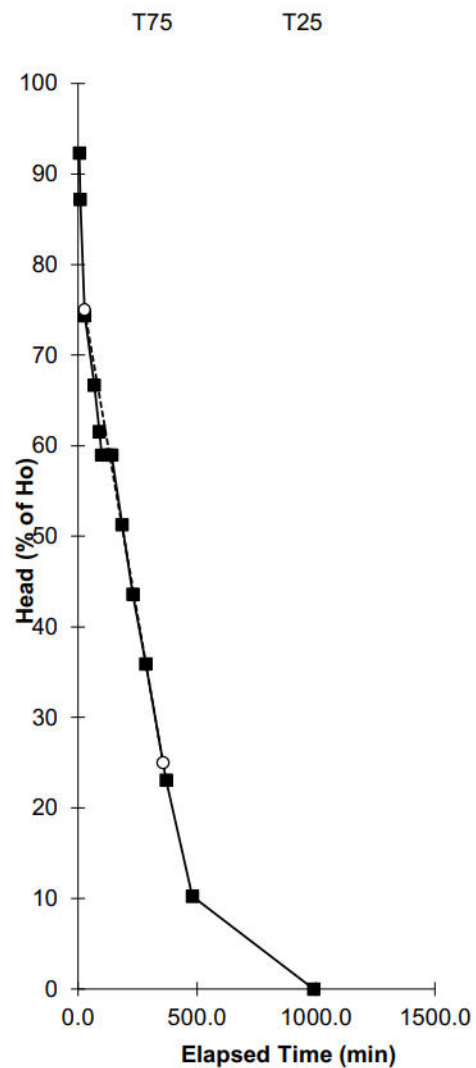
Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	0.89 m
Width of Pit	0.50 m
Length of Pit	1.40 m
Depth of Pit Soaked	0.39 m
ap50	1.441 m2
Vp75-25	0.1365 m3
t75-25	330.3 min
water used	0.2730 m3
f	4.780E-06 m/sec.

Field Data

Depth to	Elapsed	Head of	Head of
Water	Time	Water	Water
(m)	(min)	(% of Ho)	(m)
0.5	0	100	0.39
0.53	5.1	92	0.36
0.55	8.4	87	0.34
0.60	27.9	74	0.29
0.63	68.0	67	0.26
0.65	89.2	62	0.24
0.66	98.6	59	0.23
0.66	120.1	59	0.23
0.66	134.9	59	0.23
0.66	141.0	59	0.23
0.69	185.0	51	0.20
0.72	230.0	44	0.17
0.75	285.0	36	0.14
0.80	370.0	23	0.09
0.85	480.0	10	0.04
0.89	990.0	0	0.00

T75	26.972	75
T25	357.250	25
T75-25	330.278	Derived from Best Fit



Comments

Rainfall noted between 98.6 and 141.0 minutes.

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 5SR

Telephone: 01737 814 221
Facsimile: 01737 812 557

Soakaway Calculations

Soakaway Test No.	TP2 Test 3
Contract:	Mayflower Way, Angmering, Littlehampton, West Sussex, BN16 4AY
Contract No.	20743

Field Test

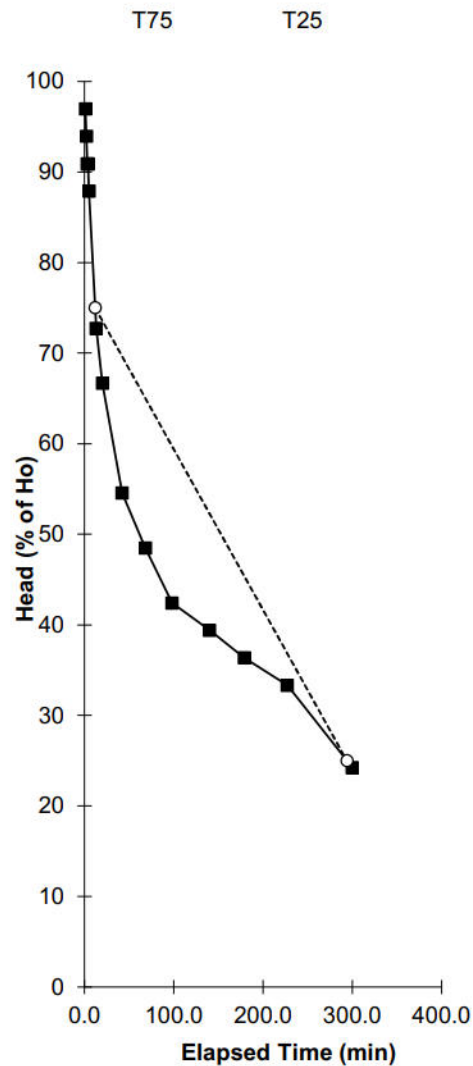
Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	0.87 m
Width of Pit	0.50 m
Length of Pit	1.40 m
Depth of Pit Soaked	0.33 m
ap50	1.327 m2
Vp75-25	0.1155 m3
t75-25	282.1 min
water used	0.2310 m3
f	5.142E-06 m/sec.

Field Data

Depth to	Elapsed	Head of	Head of
Water	Time	Water	Water
(m)	(min)	(% of Ho)	(m)
0.54	0	100	0.33
0.55	1.0	97	0.32
0.56	2.0	94	0.31
0.57	3.0	91	0.30
0.57	4.0	91	0.30
0.58	5.0	88	0.29
0.63	13.0	73	0.24
0.65	20.0	67	0.22
0.69	42.0	55	0.18
0.71	68.0	48	0.16
0.73	98.0	42	0.14
0.74	140.0	39	0.13
0.75	179.0	36	0.12
0.76	227.0	33	0.11
0.79	300.0	24	0.08

T75	11.800	75
T25	293.917	25
T75-25	282.117	Derived from Best Fit



Comments

SOILS LIMITED

Newton House, Cross Road, Tadworth
Surrey, KT20 5SR

Telephone: 01737 814 221
Facsimile: 01737 812 557



British
Geological
Survey

GeoIndex Onshore

Q BN16 4AY



Data



Borehole records

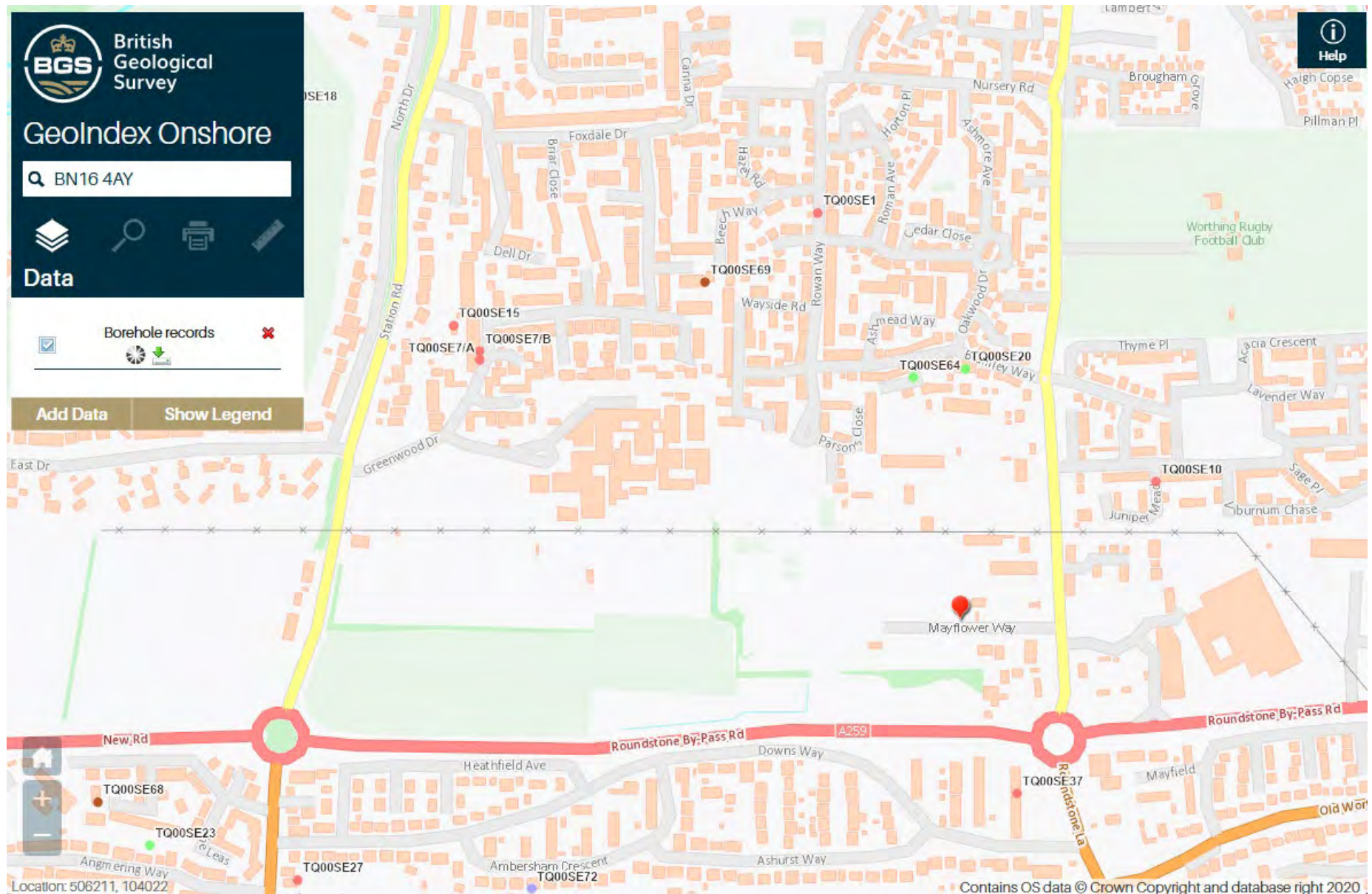


Add Data

Show Legend



Help



Contains OS data © Crown Copyright and database right 2020



RECORD OF WELL (SHAFT OR BORE)

For Survey use only

N. 11881

317/401

Licence No. 4/22/34

At Remondstone Lane

Town or Village East Ticeston

County Sussex

For Three Specialists Ltd

Six-inch quarter sheet LXIII SE 12. 63 SE/W.

State whether owner, tenant, builder, contractor, consultant, etc.: Owner

Address (if different from above)

Level of ground surface 8.5m
above sea-level (O.D.) +28 ft.

If well-top is not at ground level, state how far { above: ft.
below: ft.

SHAFT ft.; diameter ft.; Full details of headings (dimensions and directions)

BORE 80 ft.; diameter of bore: at top 6 ins.; at bottom 6 ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)

Plain 8" surface - 41'; Plain 8" - surface to 45'; slotted 45' - 56'.

annulus cement grouted

Water struck at depths of 20' ad seq ft. below well-top.

Rest level of water 17 ft. above well-top. Suction at 33 ft. Yield on 8 hours' test

pumping at 700 galls. per hour with depression to 21' 6" ft. below well-top.

Recovery to rest-level in mins. Capacity of pump 1000 g.p.h. Date of measurements March

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type Sumo 7CLS Motive power under

Capacity 2500 gallons per hour. Suction at 33 ft.

Amount pumped unknown galls. per day. Estimated consumption unknown galls. per week.

Well made by Duke Odebenedid Date of well March 1965

Information from Leitchamilton

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

Done by O on 6" bore. 63 SE/W. 1. 9. 68

LOG OF STRATA OVERLEAF.

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

Section 6.

Date Received

1" O.S. Map No.

Site marked on 1" Map

(use symbol on 6" Map)

28.65.

0

0



TQ 00 SE/20

(For Survey use only)
GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

If measurements start below
ground surface, state how far ...

THICKNESS

Feet Inches

DEPTH

Feet Inches

Drift (Valley
gravel)
23'

? Upper chalk
57'
Middle chalk

M. H.
1/2/73

Brown clay } Brickearth
Brown clay and flint }
Green sand & ballast } Brighton Rammed Beach
Yellow rock chalk
White rock chalk
Hard yellow chalk
Soft yellow chalk
White chalk

R. J. Wyllie
8.11.82

5
13 3.9
23 7.0
30
33
36
58
80 244

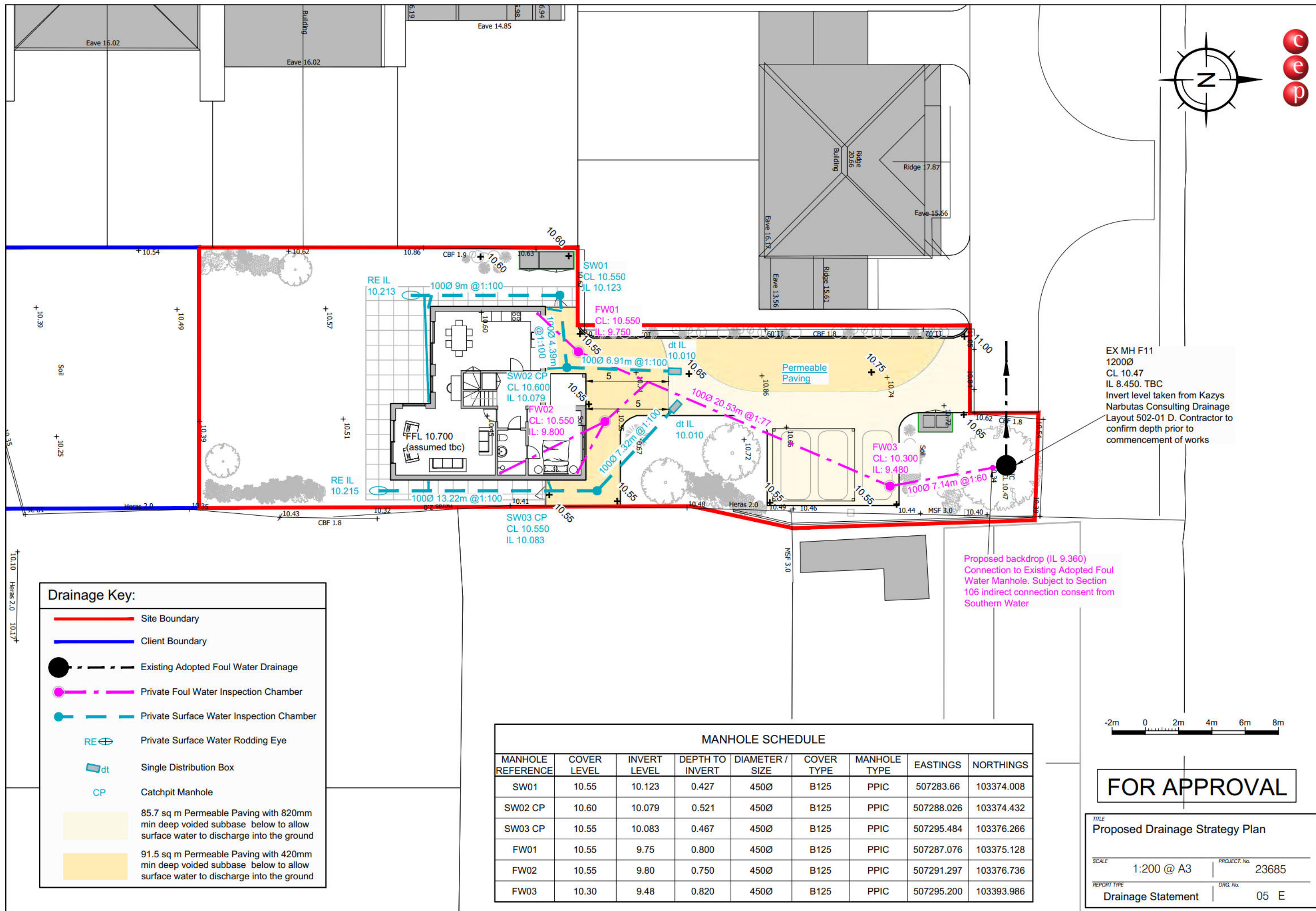
Appendix 4
Proposed Site Layout and
Drained Areas Plan

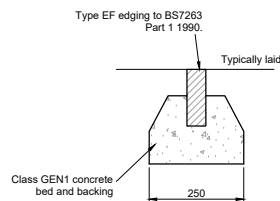
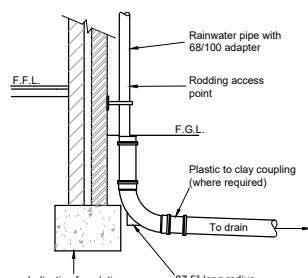
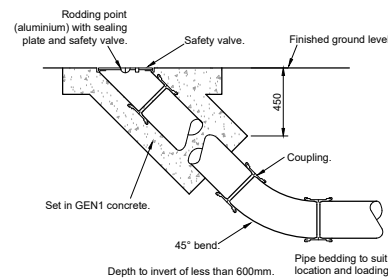
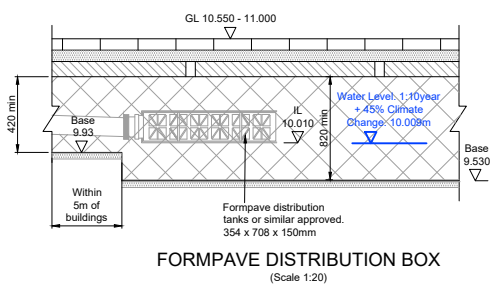
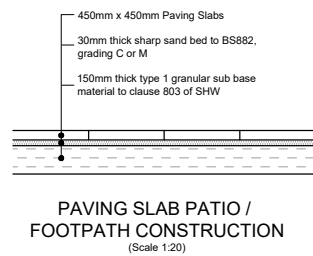


REPORT TYPE	DRG. No.
Drainage Statement	04 C

Appendix 5

**Drainage Plan, Construction Details
and Calculations**

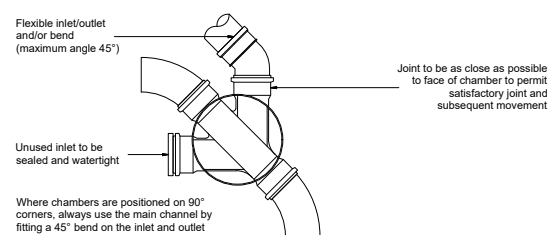
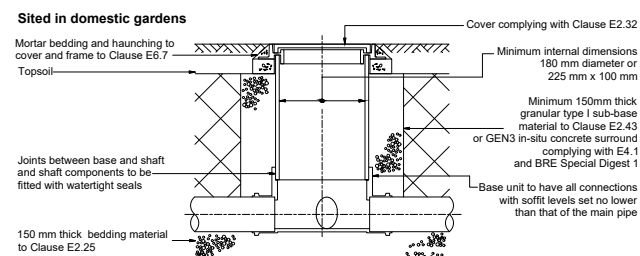
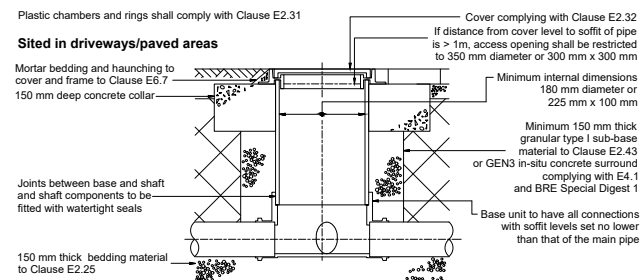




TYPICAL RAINWATER PIPE DETAIL
(Scale 1:25)

EF EDGING DETAIL
(Scale 1:10)

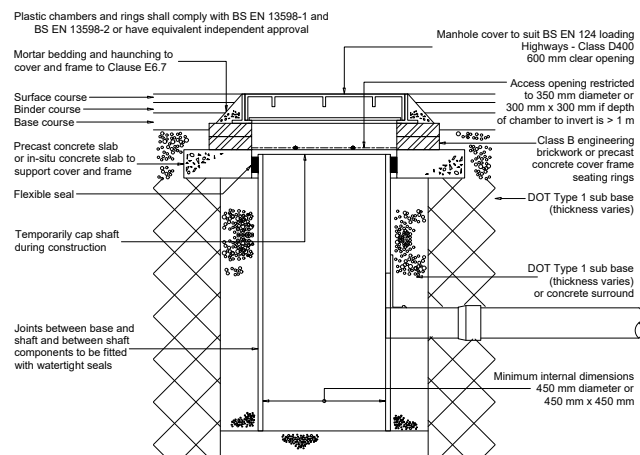
Maximum depth from cover level to soffit of pipe
in areas subject to vehicle loading 3 m, non-entry



Note: Where the access chamber is in the highway (including any footway), the highway authority can have specific requirements.

Not to scale

CATCHPIT CHAMBER
500mm SUMP
(Scale 1:20)



CATCHPIT CHAMBER
500mm SUMP
(Scale 1:20)

10. All manhole and chamber sizes are given as a minimum to meet the SSG Appendix C-Design and Construction Guidance

Issue Status	PLANNING
--------------	----------

CLIENT	
Henry Adams LLP	
PROJECT	
Land North of Mayflower Way Angmering West Sussex	
TITLE	
North Site - Construction Details	
DRAWN	DATE
P Reynolds	May 2022
ENGINEER	CHECKED
K Hodge	SM
SCALE	
As shown @ A1	
PROJECT NO.	
23685	
DWG No.	REV.
50	C

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)	0.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	Cover Level (m)	Depth (m)
Plot	0.029	10.550	1.020

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	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

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

Node Plot Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.01721	Safety Factor	2.0	Invert Level (m)	9.530
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	1064

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	85.7	85.7	0.401	177.0	190.1	0.821	0.0	209.9
0.400	85.7	98.8	0.820	177.0	209.9			

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
240 minute summer	Plot	188	9.718	0.188	1.8	4.8430	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
240 minute summer	Plot	Infiltration	0.2					

**Results for 10 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 (m ³)	Flood (m ³)	Status
480 minute winter	Plot	464	10.009	0.479	1.7	14.4672	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
480 minute winter	Plot	Infiltration	0.2

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	Plot	352	10.095	0.565	2.7	19.0350	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
360 minute winter	Plot	Infiltration	0.2

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
480 minute winter	Plot	472	10.199	0.669	2.6	24.5611	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
480 minute winter	Plot	Infiltration	0.2

Appendix 6

**Interim Drainage Management
and Maintenance Schedule**

Interim Drainage Management and Maintenance Plan



The Civil Engineering Practice
11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1RA

www.civil.co.uk

Project	Land north of Mayflower Way, West Sussex
Project Number	23685 – North Development

By Sonya Macandrew

Date 2 December 2025

1 Introduction

- 1.1 This Interim Drainage Management and Maintenance Plan has been prepared as the initial draft of the document that will become the Drainage Maintenance and Management Manual.
- 1.2 The Drainage Management and Maintenance Manual will be completed as part of the Operation and Maintenance Manual to be provided by the Principal Contractor on completion of construction.
- 1.3 The Drainage Management and Maintenance Manual will be handed over to the Owner on project completion.
- 1.4 The Drainage Management and Maintenance Manual will remain a live document and will be used to guide and record the management and maintenance of the surface water and foul drainage systems.

2 During Construction

- 2.1 Once appointed the Contractor will prepare a site specific method statement for the control of silt and other pollutants during construction. CIRIA Report C532, Control of water pollution from construction sites, provides further guidance on this.
- 2.2 The Contractor will maintain the proposed drainage system during construction and until the handing over of the site.

3 Surface Water Drainage System

3.1 Overview

- 3.1.1 The surface water drainage system has been designed as a Sustainable Urban Drainage System (SuDS)
- 3.1.2 The system has been designed to collect surface water from the roofs and discharge it to ground via an infiltration blanket.



3.1.3 The driveway and parking area has been designed as permeable paving with infiltration to ground.

3.2 How the System will Function

3.2.1 Surface water falling on the roofs will be collected in gutters and discharged via rainwater pipes and below ground drainage pipes into an infiltration blanket.

3.2.2 Catchpits within the below ground pipe work system will trap silt and debris and provide a point of access for maintenance.

3.2.3 The driveway, parking area has been designed as permeable paving systems.

3.2.4 Surface water falling on these areas will be filtered through the permeable paving into a voided stone layer beneath.

3.2.5 The system will provide water quality improvement to ensure that at the point of discharge the surface water has received suitable pollution mitigation.

4 Foul Water Drainage System

4.1 Foul water will be discharged to the public sewer beneath Parsons Close via conventional pipework laid at self cleansing velocity and will require minimal maintenance.

5 Schedule of Maintenance

5.1 Maintenance of individual property drainage connections is the responsibility of the individual property owners.

5.2 There are three categories of maintenance activities:

- **Regular maintenance**

Basic tasks undertaken on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.

- **Occasional maintenance**

Tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).

- **Remedial maintenance**

Intermittent tasks that may be required to rectify faults associated with the system. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.

5.3 The following maintenance schedule details the typical tasks to be undertaken at different intervals.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Manage vegetation and remove nuisance plants - aesthetics	As required
	Cleaning of gutters and any filters on downpipes	3 Monthly
Occasional Maintenance	Remove sediment and debris from silt trap chambers, and inlet chambers	6 monthly
	Visual inspection of permeable paving for defects and settlement	Annually
	Sweeping / brushing of permeable paving	Every 2 years
	Surface and foul water pipework - jetting / rodding	Every 2 years or as required
Remedial Maintenance	Remove debris / blockages to silt traps	As required
	Repairs to access chambers / manhole covers	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipes for blockages, standing water and clear	As required
	Reconstruct storage structures if performance deteriorates or failure occurs	As required
Monitoring	Inspect silt traps and note the rate sediment has accumulated	Monthly in the first year and then annually
	Inspect storage structures to ensure they are fully emptying	Annually

Indicative Schedule of Maintenance for the Proposed Drainage System

Component	Inspection Frequency				
	3 months	6 Months	1 Year	After leaf fall in Autumn	2 Years
Gutters / filters	✓			✓	
Catchpits		✓		✓	
Surface and Foul Water Pipework					✓
Permeable Paving			✓		
Storage Facilities			✓		

Inspection Frequency Summary

6 Maintenance Procedures

- 6.1 It is recommended that the owners employ a suitably qualified company to undertake the maintenance works for the drainage components.
- 6.2 The following procedures provide a guide to the two most common maintenance items, jetting and silt removal, to be undertaken on site:

6.3 Jetting

6.3.1 Equipment Required:

- High-pressure water jetting equipment.
- Personal protective equipment (PPE) for operators.

6.3.2 Typical Procedure:

- Perform a pre-jetting inspection to assess the level of sedimentation.
- Insert the jetting hose into the pipe, starting from the upstream end.
- Gradually move the jetting hose downstream, ensuring the entire pipe or structure length is cleaned.
- Monitor the process to avoid any damage to the drainage infrastructure.
- Collect dislodged silt and debris at the downstream end using a vacuum or manual removal.

6.4 Silt Removal and Disposal

6.4.1 Equipment Required:

- Vacuum truck or manual removal tools.
- Containers for temporary storage of silt and debris.

6.4.2 Typical Procedure:

- Collect the dislodged silt and debris from the downstream end of pipe or structure.
- Transfer the collected material to the containers.
- Dispose of the collected silt and debris following local regulations and environmental guidelines.

7 Financing

7.1 Maintenance of individual property drainage infrastructure will be funded by the individual property owners.

8 Health and Safety

8.1 Designers Residual Risks

8.1.1 There are no significant residual risks associated with the construction of the proposed surface or foul water drainage network or permeable paving system beyond common site risks that would reasonably be anticipated by a competent Civil Engineering Contractor.

8.2 Construction Phase

8.2.1 The Principal Contractor will undertake a construction phase Health and Safety Plan for the site.

8.2.2 Prior to handover the Principal Contractor will undertake a review of maintenance activities required and prepare suitable Health and Safety documentation as part of the site hand over documents.

9 Design Life

9.1 The design life of the development is likely to exceed the design life of the components within the SuDS network. During the routine drainage inspections it may be determined that some components have reached the end of their functional life cycle.

9.2 Where possible repairs should be the first option considered however if repairs are unviable it will be necessary for the property owner to arrange for the replacement of the faulty component.

10 Emergency Plan

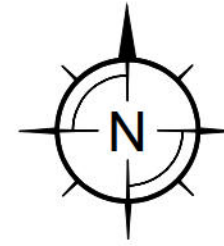
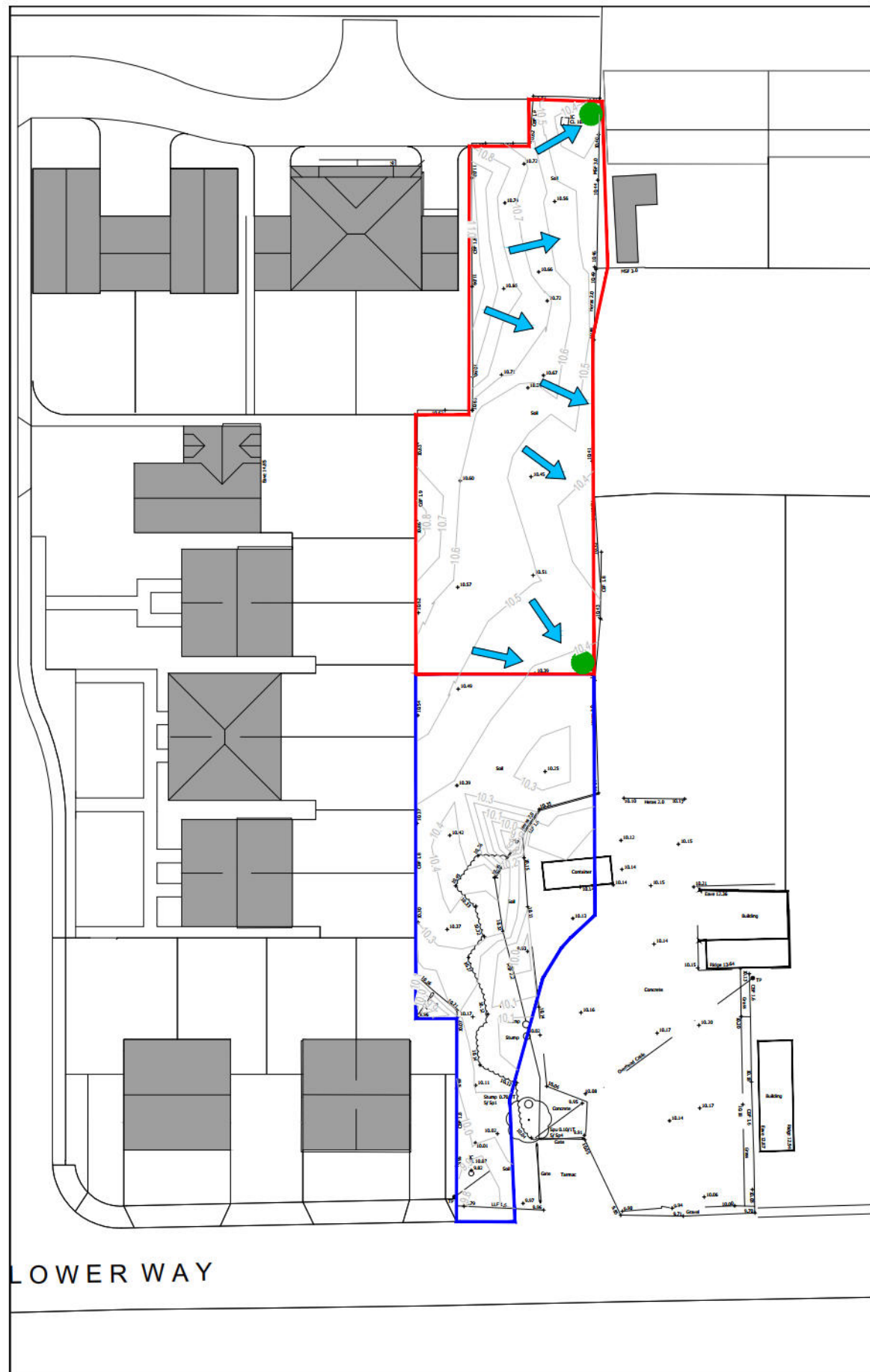
10.1 Potential flood and maintenance indicators:

- Manholes or inspections chambers overflowing
- Gullies overflowing or ponding
- Channel drains overflowing or ponding
- Other visual indicators of the drainage system not performing as it should

10.2 Should any of the items above occur then immediate action as outlined below should be undertaken:

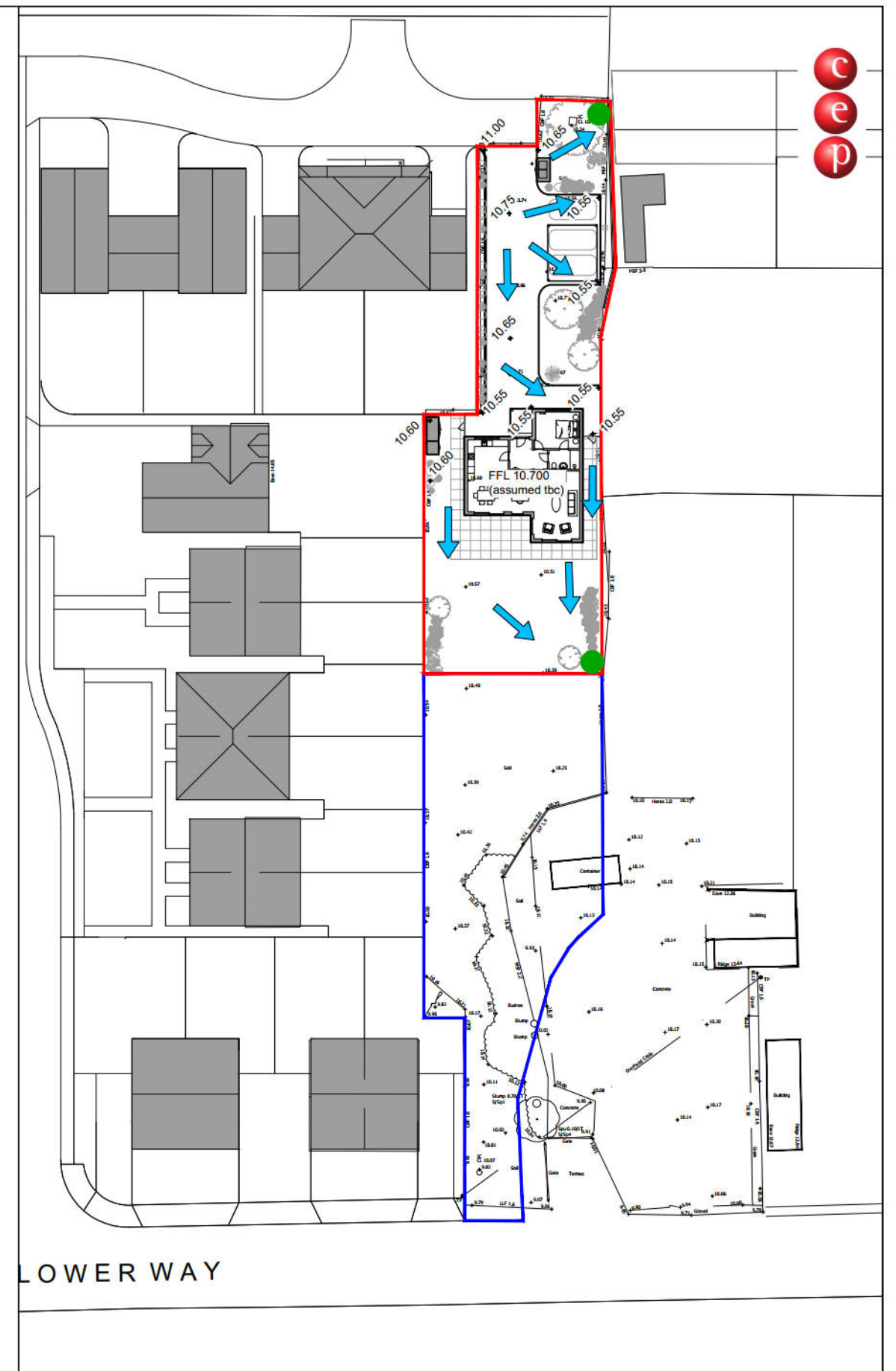
- Inspect for blockages in the problem area
- Should the problem not be identified via an initial inspection:
 - For unadopted onsite drainage the owner should appoint a suitable drainage engineer to inspect and survey the system and jet any blockages
 - For any adopted onsite drainage the relevant statutory undertaker should be alerted
 - Where it is suspected that there is a problem with the downstream drainage network the Owner or relevant statutory undertaker of that system should be alerted

Appendix 7
Exceedance Flow Route Plan



LEGEND

- Existing Spot Levels
- Existing Contours 0.1m intervals
- Proposed Spot Levels
- Exceedance Flow Route
- Site Low Points



c
e
p

TITLE Exceedance Flow Route Plan	
SCALE 1:500 @ A3	PROJECT No. 23685
REPORT TYPE Drainage Statement	DRG. No. 06