MERIDIAN

CIVIL ENGINEERING CONSULTANCY

42 BRIGHTON ROAD,

LANCING,

BN15 8ET

DRAINAGE STRATEGY

OCTOBER 2023

Ref: MC0096

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Client : PDE Consulting

Rev	Date	Prepared by	Checked by	Approved by
P1	Apr 2022	Bojidar Boiadjiev	BB	MN
P2	May 2022	Bojidar Boiadjiev	BB	MN
P3	May 2022	Bojidar Boiadjiev	BB	MN
P4	Sep 2023	Bojidar Boiadjiev	BB	MN
P5	Oct 2023	Bojidar Boiadjiev	BB	MN

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1.0 INTRODUCTION

1.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by QED Structures to prepare a document pack to collate information required for discharge of condition 6, Planning Ref: AWDM/0923/21 with Adur District Council. The proposals are for the demolition of existing dwelling and construction of a 4-bedroom detached dwelling over 3 levels with rear terrace and associated works; new outbuilding with raised terrace to the south; new detached garage with guest bedroom over and cycle store to the north.

1.2 Planning condition 6 states:

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. Winter groundwater monitoring to establish highest annual ground water levels and winter infiltration testing to BRE DG365, 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.

Reason: To ensure adequate drainage and to comply with the National Planning Policy Framework and policy 36 of the Adur Local Plan.

1.3 A flood risk assessment (FRA) was produced by Ambiental (reference 6339, dated 02/07/2021) and submitted with the planning application. The general recommendations in this FRA were considered in the production of this drainage strategy.

2.0 DESIGN INFORMATION FOR CONDITION 6

2.1 The proposed drainage strategy for the site is based on following the SuDS hierarchy as set out in the National Flood Risk and Coastal Change Guidance and in the local Adur and Worthing Councils Supplementary Requirements for Surface Water Drainage Proposals. According to the drainage hierarchy, infiltration is the most preferred method for managing surface water runoff.

2.2 Based on site investigation conducted for the site in 2021, the soils on site are expected to be sand and gravel to a depth of at least 2.75m below ground level. This corresponds to approximately 4.6mAOD. No groundwater was struck during the site investigation. See site investigation report in Appendix I.

2.3 Infiltration tests were conducted on site. The tests were done at the location and level of the proposed infiltration devices shown in in drawing MC0096-DR01 P4 in Appendix II. The results of the tests are provided in Appendix IA. The tests show that the slowest rate measured at the front of the property was $1.35x10^{-5}$m/s. The infiltration rate at the far back of the property was extremely good as the water dissipated within 30 seconds of the start of the test, which would indicate infiltration rates in excess of $4x10^{-3}$m/s.

2.4 In order to verify that the groundwater conditions are suitable for infiltration devices, the current strategy is based on the ground investigation information conducted for the site at Land North of 1 to 28 The Haven, Brighton Road (site extent shown in purple in Figure 1 below), which was given planning permission in May 2022 with planning reference AWDM/0384/22 – the data from the adjacent site has been made public on the planning portal.

2.5 The nearby site investigation (at Land North of 1 to 28 The Haven) included infiltration tests and groundwater monitoring. The closest infiltration test to the site is approximately 87m away from 44 Brighton Road as indicated in Figure 1 below.

2.6 The lowest measured infiltration rate for Land North of 1 to 28 The Haven is $2.1x10^{-5}$m/s, which is similar to the infiltration rate measured at 42 Brighton road. For the purposes of sizing the

soakaways on 42 Brighton Road, the more conservative value of $1.35x10^{-5}$m/s has been selected.

2.7 The highest groundwater level measured at Land North of 1 to 28 The Haven corresponded to a depth of 1.98m below ground level. The ground levels at Land North of 1 to 28 The Haven are similar to the ground levels at the proposed location of the soakaway at 42 Brighton Road and it is anticipated that, given the proximity and similar ground conditions, the groundwater depth is likely to be similar in both locations. Therefore, the groundwater table at the proposed soakaway location at 42 Brighton Road is assumed to be at approximately 1.98m below ground which translates to 3.52mAOD. Therefore, the base of the proposed soakaway at 42 Brighton Road should not be lower than 4.52mAOD, in order to leave at least 1m of freeboard to highest recorded groundwater level in line with CIRIA SuDS Manual.



Figure 1: Ground Investigations at Land North of 1 to 28 The Haven in relation to 42 Brighton Road

Redline – boundary of 42 Brighton Road; Purple line – boundary of Land North of 1 to 28 The Haven; Blue Cross – infiltration test location; Red Circle – groundwater level monitoring well location

2.8 Based on the above information, a strategy based on infiltration has been proposed for managing the storm water runoff from the site. Managing the surface water from the main roof in the area with good infiltration rates in the back was not deemed suitable due to the low ground elevation between the proposed house and the back of the plot, which would make a soakaway very low and likely to be impacted by groundwaters. As such, a soakaway is proposed at the front to manage the runoff from the new house and garage. The base of the soakaway is proposed at 4.60mAOD to comply with groundwater requirements (see para 2.7 above). Shallow permeable pavement is proposed for the runoff from the garden kitchen in the back. All major hardstanding areas are proposed to be of constructed of permeable pavement. The proposed drainage strategy is shown in drawings MC0096-DR01 P1 and MC0096-DR10 P1 shown in Appendix II.

2.9 A prefactored infiltration rate of $1.35x10^{-5}$m/s has been adopted for the soakaway in the front. A factor of safety of 3 was used to account for uncertainties in the infiltration rate for the soakaway.

2.10 The depth of the infiltration testing for the soakaway was conducted at 700mm below ground level at an area with approximate ground level of 5.3mAOD. Thus, the base of the trial pit was at approximately 4.6mAOD. The proposed soakaway is proposed to have its base at 4.6mAOD, thus replicating the depth of the tests.

2.11 Supporting calculations for the proposed surface water drainage design are shown in Appendix III. These are based on using the 1:100+40% rainfall event and utilising the FEH rainfall model. The calculations demonstrate that all roof runoff from the 1:100+40% rainfall event would remain underground and not result in flooding.

2.12 A maintenance schedule for the drainage elements is provided in drawing MC0096-DR01.

2.13 A CCTV drain survey report is provided in Appendix IV. It is recommended that the repairs recommended in the CCTV drain report are implemented as part of the development.

3.0 CONCLUSION

3.1 A drainage strategy has been developed for the site at 42 Brighton Road, Lancing to provide information required for discharge of condition 6, Planning Ref: AWDM/0923/21 with Adur District Council.

3.2 The drainage strategy is based on infiltrating the storm water runoff from the proposed site. Site infiltration rates have been based on a site investigation conducted in 2021 which has demonstrated the presence of sands and gravels on site with no strikes of groundwater as well as on infiltration tests conducted in 2022 demonstrating feasible infiltration rates. An estimation of the groundwater table is based on the ground investigation information conducted for the site at Land North of 1 to 28 The Haven, Brighton Road (planning reference planning reference AWDM/0384/22).

APPENDIX I Site Investigation 2021

Orchard End,
7 Finches Court,
Finches Lane,
Lindfield,
West Sussex, RH16 2PG.

[redacted]

Bernard Construction Ltd,
Warren Apartments,
8a Station Rise,
Tulse Hill,
London SE27 9BW

19th July 2021

For the attention of Mr C Sharp

Dear Mr Sharp,

42 Brighton Road, Lancing, BN15 8ET

A new house is to be built to replace the existing property at 42 Brighton Road, Lancing, West Sussex. The existing bungalow is built on a raised bank above the general garden level. This bank is believed to be part of the reserve sea defences on the coastline across the Adur Valley. Drawing No. A1-02 by Domus Architecture shows details of the proposed site plan. The 1/50,000 geological map, Sheet 318, indicates the area to be underlain by the Lambeth Group with a drift of Raised Beach Deposits. The site is at the extreme western edge of the Adur Valley and the surface geology may vary rapidly. A copy of a borehole log from Beachcraft to the west of the site shows a Brickearth overlying the gravel and lignite within the Lambeth Group.

One borehole was drilled on 14th June 2021 at the location shown on the site plan. Access for the rig was not possible up the steep slopes in the front garden and a hand auger was drilled at Borehole No. 2. A shallow trial hole was also dug into the toe of the slope below Borehole No. 2 to confirm the presence of the Raised Beach Deposits.

Borehole No. 1 demonstrated the site to be underlain by brown sub-rounded flint gravel with a thin bed of fine sand and it was evident that the higher ground on the western side of the site was also underlain by gravel. The super heavy dynamic probe profile showed the soils to be dense to a depth of 2 m, N_{100} generally greater than 10 blows/100mm. Below a depth of 5m a relatively uniform blow count of N_{100} = 3 blows/100mm was recorded, typical of the profile in a stiff clay. The window sampler borehole refused at a depth of 2.75 m in dense gravel hence, the underlying

strata could not be positively identified, however the soils below this depth were of a medium relative density.

No ground water was recorded in the boreholes and no infiltration test could be undertaken as the borehole in the gravel collapsed. Given the coarse grading of the gravel the infiltration will be very high and storm run-off from the house may be dispersed to pit soakaways.

The proposed house will be founded on stable dense gravel and simple spread footings will be suitable. Given the high N_{100} values recorded in the gravel an allowable bearing capacity of 200 kN/m^2 may be adopted for the design of foundations. It is noted this value is higher than that usually mobilised by domestic construction.

For the retaining walls in the dense gravel and sand the following design parameters are proposed:

Coefficient of Active earth pressure ($\phi' = 40°$)	(K_a) = 0.22
Allowable bearing capacity	(q_a) = 200 kN/m^2
External water pressure	(u) = 0 m head of water

It is noted the lower storey to the house will be constructed in the bank and at the ground level of the front garden. The filled soils within the bank were not explored and a trial hole should be excavated when the existing dwelling is demolished and it may be necessary to amend the coefficient of earth pressure for the design of the retaining walls.

It is understood excavations adjacent to the properties either side will be undertaken. In the dense gravel a safe slope of 1:1 may be adopted or for vertical excavations propped sheeting should be used.

The site at 42 Brighton Road, Lancing, West Sussex proved to be underlain by dense gravel of an old Raised Beach. These soils will form a stable foundation of a high bearing capacity and simple spread footings may be adopted for the proposed house.

Yours sincerely,

(W K Elson)
PhD, CEng, MICE

APPENDIX

42 Brighton Road, Lancing,

West Sussex, BN15 8ET

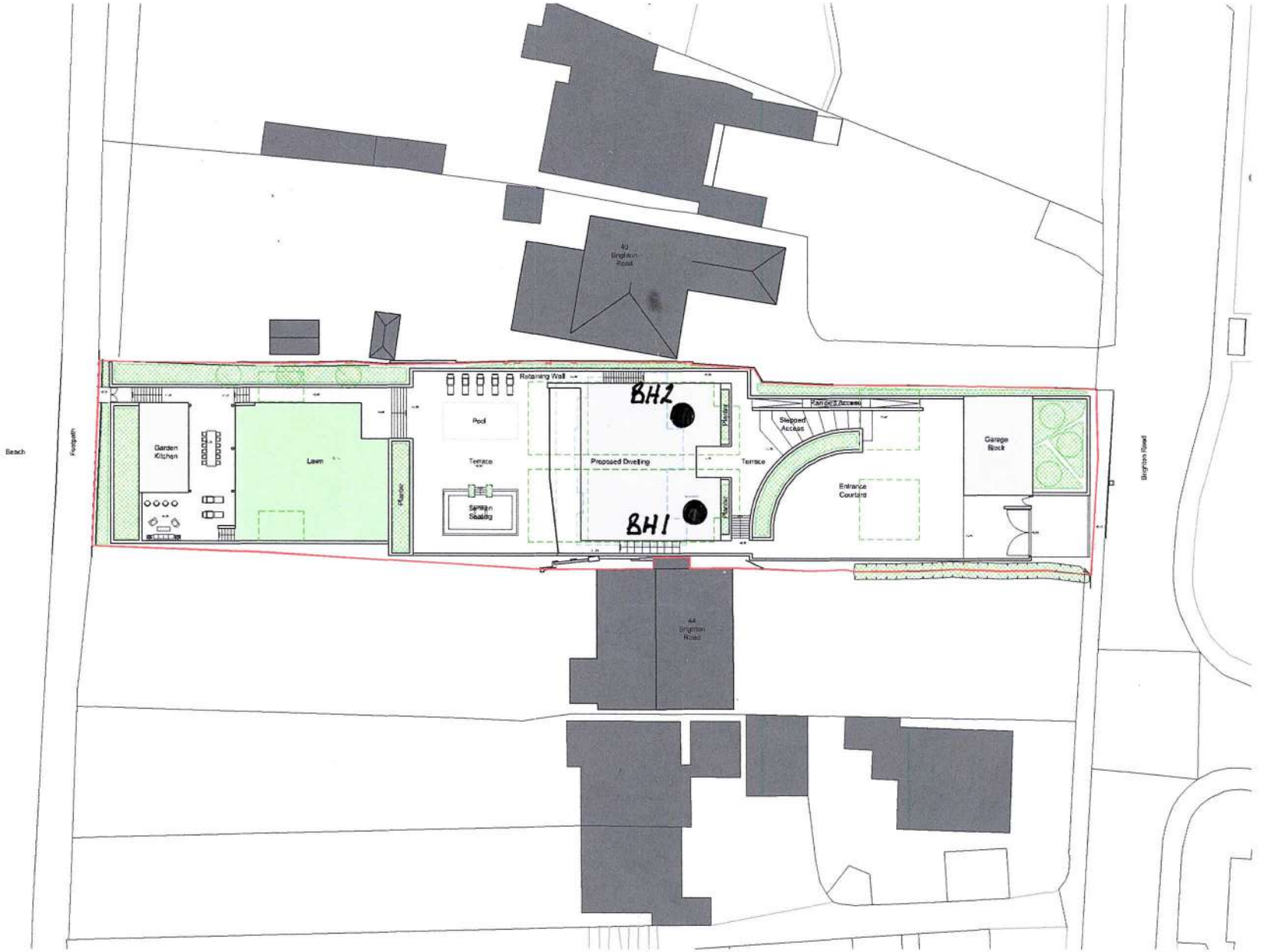
Laboratory Test Results

Water Content

Borehole No.	1	1	1	2
Depth (m)	0.90	1.90	2.70	0.40
Water content (%)	21.5	5.3	5.4	3.3

Grading Analysis

Sample reference	Gravel			Sand			Fines (%)
	Coarse (%)	Medium (%)	Fines (%)	Coarse (%)	Medium (%)	Fines (%)	
BH 1 1.90m	32	32	14	7	6	9	0



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Scale Bar

Revision | Date | Description | Drawn by

Outline of Drawing Notes

Outline of Revision approved under PANAM 1.2/06/25

DOMUS architecture

One Campbell Street
Leeds
LS28 6DP

T: 0113 518 1013
E: info@domusarchitecture.co.uk
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Project: Proposed Dwelling

Site Address: 42 Brighton Road
Lancing BN15 8BT

Client: Bernard Construction UK Ltd

Title: Site Plan
As Proposed

Date	Scale	Drawn by
April 2025	1:200 @ A1	[illegible]
Project	Drawing No.	Revision
1527	4-1-02	-

Project Title : 42 BRIGHTON ROAD LANCING							Project No.:
TRIAL PIT RESULTS							Pit No. & Location
Date : 14 - 06 - 21 Engineer : [redacted]							BH1
Ground Level							
Description	Legend	water Level	Depth	Reduced Level	Samples	Insitu Tests	Remarks
TARMAC / GRAVEL			0m 0.20				
FLINT cobbles and SAND							
			0.60				
Brown fine SAND with iron stained zones		Dry			D		
			1m 1.10				
Brown coarse GRAVEL							
with coarse SAND.							
					D		
			2m				
			2.75		D		
							Window sampler refused
			3m				
							BH2 : hand augered borehole 0.4m deep. No further progress possible in beach gravel
			4m				
			5m				

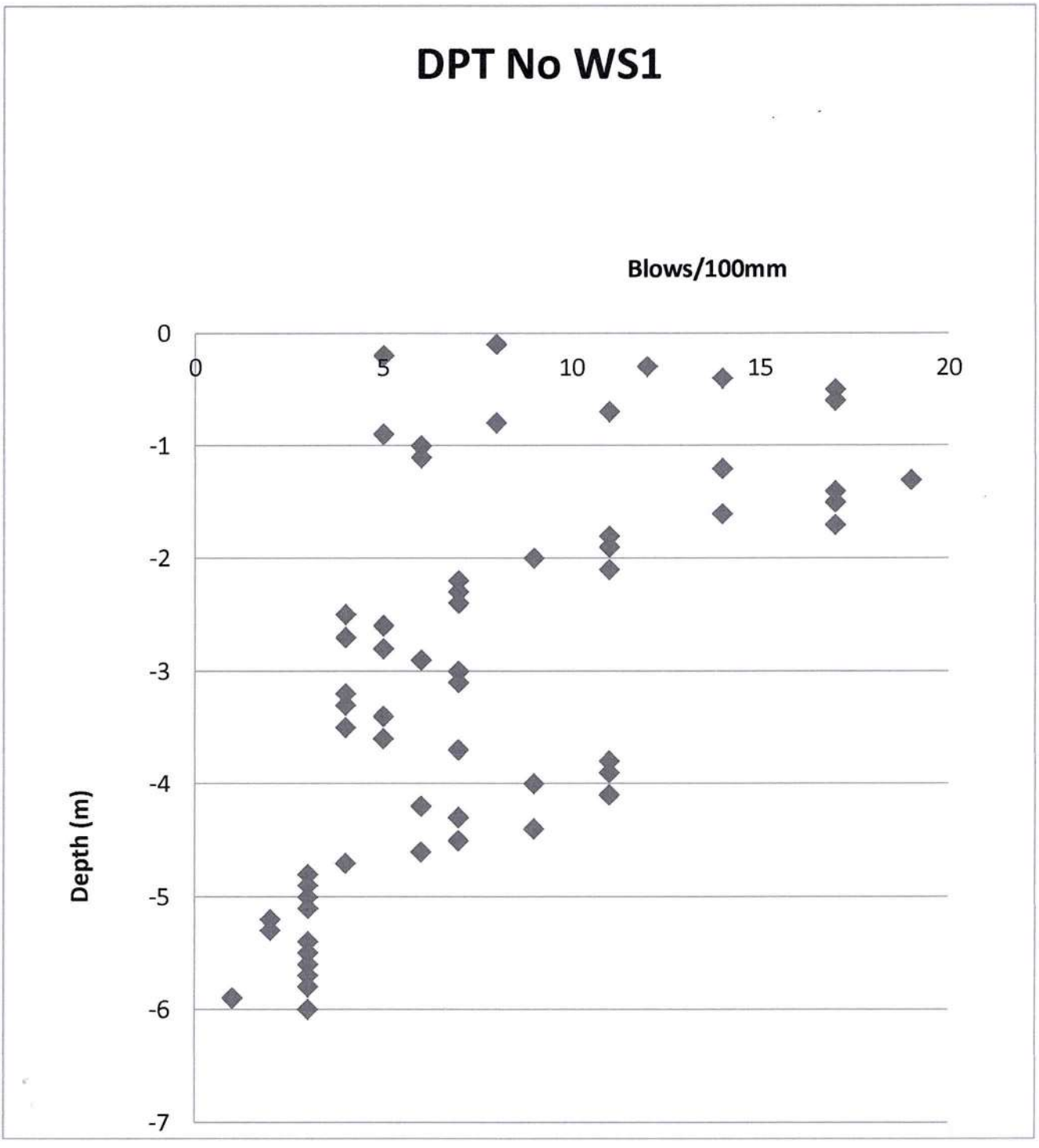
KEY :-

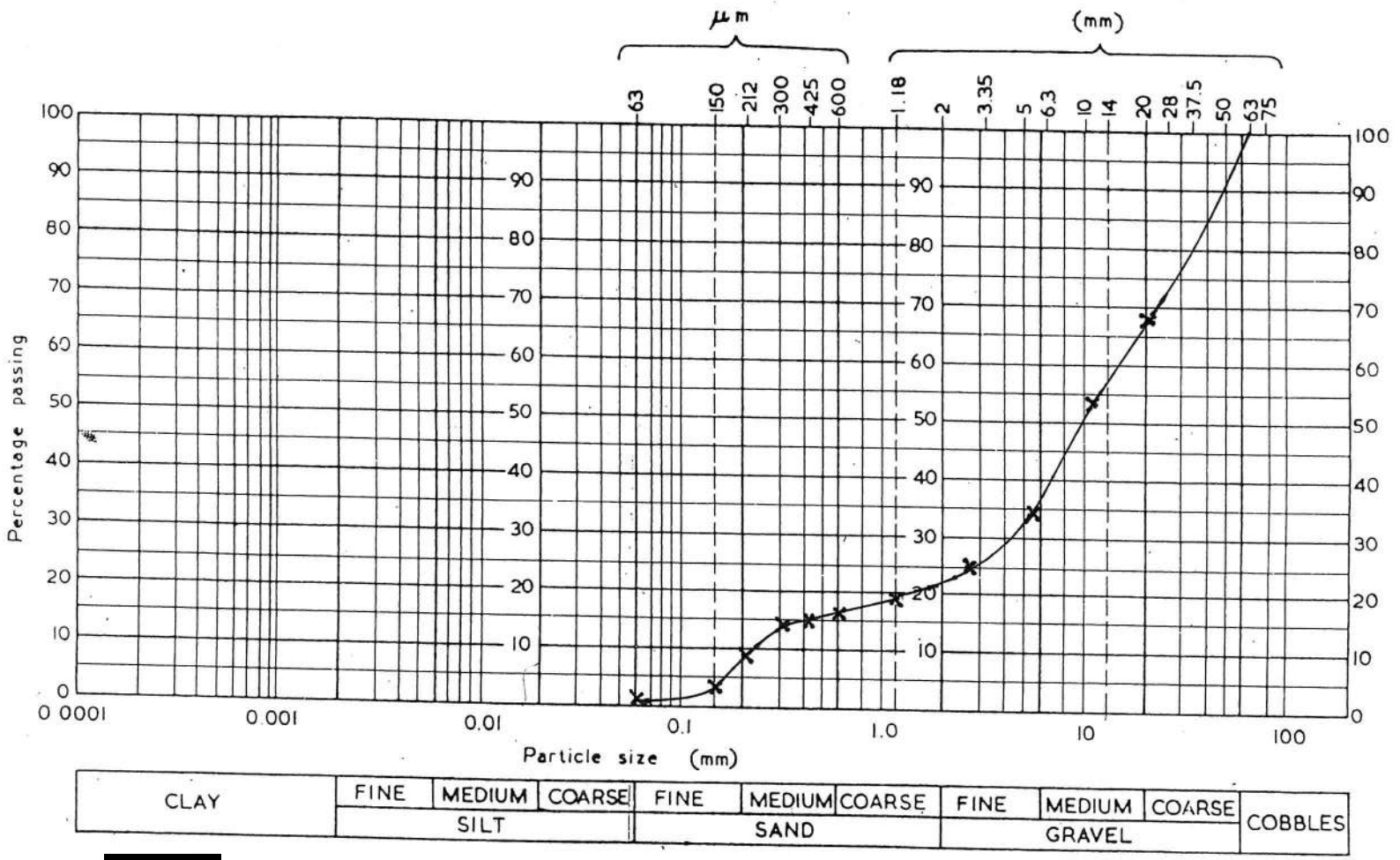
D	Disturbed sample
B	Bulk sample
W	Water sample
U	U100 Undisturbed

INSITU TESTS :-

Shear strength in K Pa

P	Penetrometer
V	Vane test


DPT No WS1
Blows/100mm
0
5
10
15
20
0
-1
-2
-3
-4
-5
-6
-7
Depth (m)



Operator: [redacted]

Job:

Site: 42 BRIGHTON ROAD LANCING

Date: 14-07-21

Borehole No: 1

Description of soil: Brown sub-rounded flint GRAVEL with some SAND

Sample No:

Depth of sample 1·90 m

British Standard test sieves

APPENDIX IA Infiltration Tests 2022

bojidar@meridiancivils.co.uk

From: Joshua Knowles <xxx >
Sent: 05 May 2022 16:41
To: bojidar@meridiancivils.co.uk
Subject: Infiltration TEST RESULTS- BN18 5ET

Hi Bojidar,

Please see images below of test readings

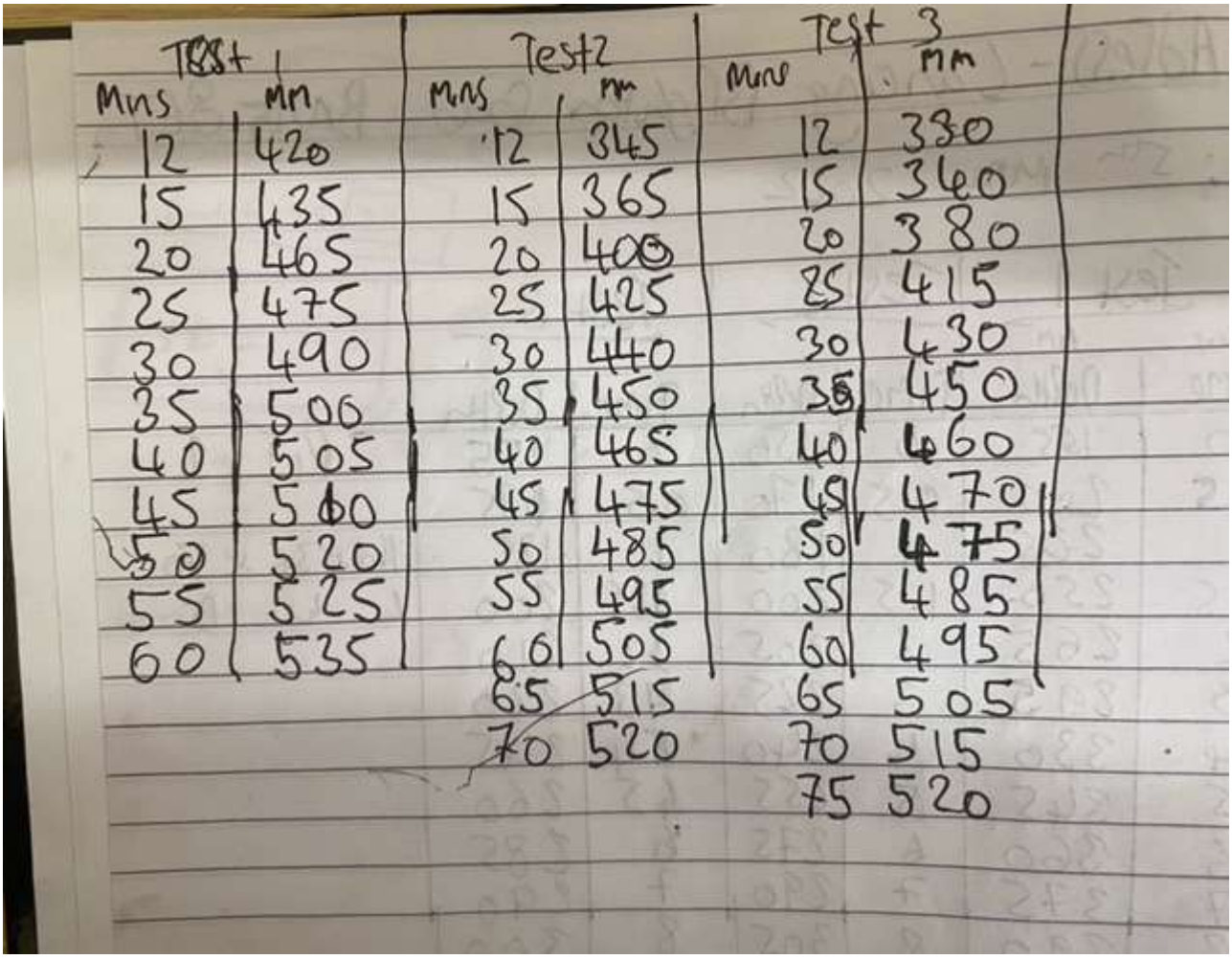
Please note, Pit no2 (Shallow trench at the rear)
each test drained away completely in under 30 seconds - We didn't have time to take a reading

Pit no1 1100L x 360w x 700D

Site Address - Lancing Brighton Road BN15 8ET.

Date: 5th May 2022

Readings	Test 1		Test 2		Test 3		
	Time	Depth	Time	Depth	Time	Depth	Pit 1
1	0	155	0	150	0	155	
2	0.5	200	0.5	170	0.5	175	
3	1	225	1	180	1	185	110 x 36 x 70
4	1.5	250	1.5	200	1.5	200	L W D
5	2	265	2	205	2	210	
6	3	295	3	225	3	220	
7	4	330	4	240	4	245	
8	5	345	5	255	5	260	
9	6	360	6	275	6	285	
10	7	375	7	290	7	290	
11	8	390	8	305	8	300	
12	9	400	9	315	9	310	
13	10	410	10	325	10	315	



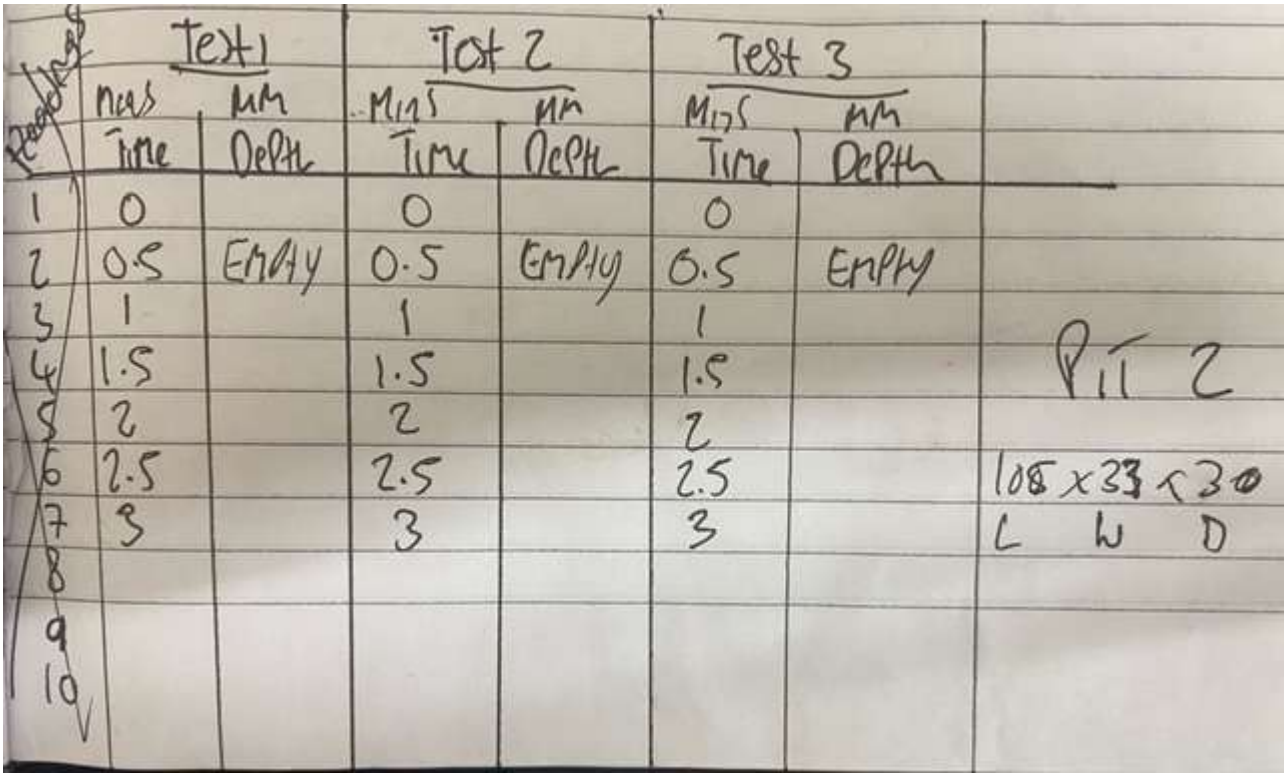
Test 1	
Mins	mm
12	420
15	435
20	465
25	475
30	490
35	500
40	505
45	510
50	520
55	525
60	535

Test 2	
Mins	mm
12	345
15	365
20	400
25	425
30	440
35	450
40	465
45	475
50	485
55	495
60	505
65	515
70	520

Test 3	
Mins	mm
12	330
15	360
20	380
25	415
30	430
35	450
40	460
45	470
50	475
55	485
60	495
65	505
70	515
75	520



Pit no2 1050L x 330W x 300D



Readings	Test 1		Test 2		Test 3		
	Mins Time	mm Depth	Mins Time	mm Depth	Mins Time	mm Depth	
1	0		0		0		
2	0.5	Empty	0.5	Empty	0.5	Empty	
3	1		1		1		
4	1.5		1.5		1.5		Pit 2
5	2		2		2		
6	2.5		2.5		2.5		108 x 33 x 30
7	3		3		3		L W D
8							
9							
10							



Any questions please get in touch

Kind regards
Joshua Knowles
DIRECTOR
M: xxx
E: xxx
W: xxx

To help protect your privacy, Microsoft Office prevented automatic download of this picture from the Internet.

Calculations by: BB
Checked by: MN
Date: 06/05/21

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CIVIL ENGINEERING CONSULTANCY

Project:
MC0096_QED_BrightonRoad

Site Location	42 Brighton Road, Lancing
Pit/Borehole	BRE01 (front)
DATE	05.05.2022
Contractor Test	Soakage Test 1

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.100
pit width (m)	0.360
pit depth (m)	0.700
max water level (m)	0.545
25% Max Water Level (m)	0.136
75% Max Water Level (m)	0.409
25% reached?	NO

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation of the last reading.

Lower limit for measurement	25%	The standard is to use 25%
Upper limit for measurement	75%	The standard is to use 75%

base (m2)	0.396	
sides (m2)	0.600	Up to 50% of effective depth
ends (m2)	0.196	Up to 50% of effective depth
a_{p50} (m2)	1.192	Up to 50% of effective depth
v_{p75} (m3)	0.162	The volume at 75% effective depth
v_{p25} (m3)	0.054	The volume at 25% effective depth
v_{p75-25} (m3)	0.108	Difference in volume

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.155	0.545	0.216
0.5	0.200	0.500	0.198
1.0	0.225	0.475	0.188
1.5	0.250	0.450	0.178
2.0	0.265	0.435	0.172
3.0	0.295	0.405	0.160
4.0	0.330	0.370	0.147
5.0	0.345	0.355	0.141
6.0	0.360	0.340	0.135
7.0	0.375	0.325	0.129
8.0	0.390	0.310	0.123
9.0	0.400	0.300	0.119
10.0	0.410	0.290	0.115
12.0	0.420	0.280	0.111
15.0	0.435	0.265	0.105
20.0	0.465	0.235	0.093
25.0	0.475	0.225	0.089
30.0	0.490	0.210	0.083
35.0	0.500	0.200	0.079
40.0	0.505	0.195	0.077
45.0	0.510	0.190	0.075
50.0	0.520	0.180	0.071
55.0	0.525	0.175	0.069
60.0	0.535	0.165	0.065
74.4	0.564	0.136	0.054
			END
			END
			END
			END
			END
			END
			END
END	END	END	END

Interpolation between	t_{p75}	V_{p75}	
lower	2	0.172	*The reading just before Vp75*
upper	3	0.160	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	60	0.065	*The reading just before Vp25*
upper	74	0.054	*The reading just after Vp25*

t_{p75}(mins)	2.9	*The time reading corresponding to Vp75*
t_{p25}(mins)	74.4	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	71.5	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
2.11E-05	*0.075987*

The test failed to reach 25% total depth. The above infiltration rate is not compliant with BRE365. It is based on linear extrapolation of the last reading during the test.

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
1.192 sq m	0.108 cub m	4290 s

Calculations by: BB
Checked by: MN
Date: 06/05/21

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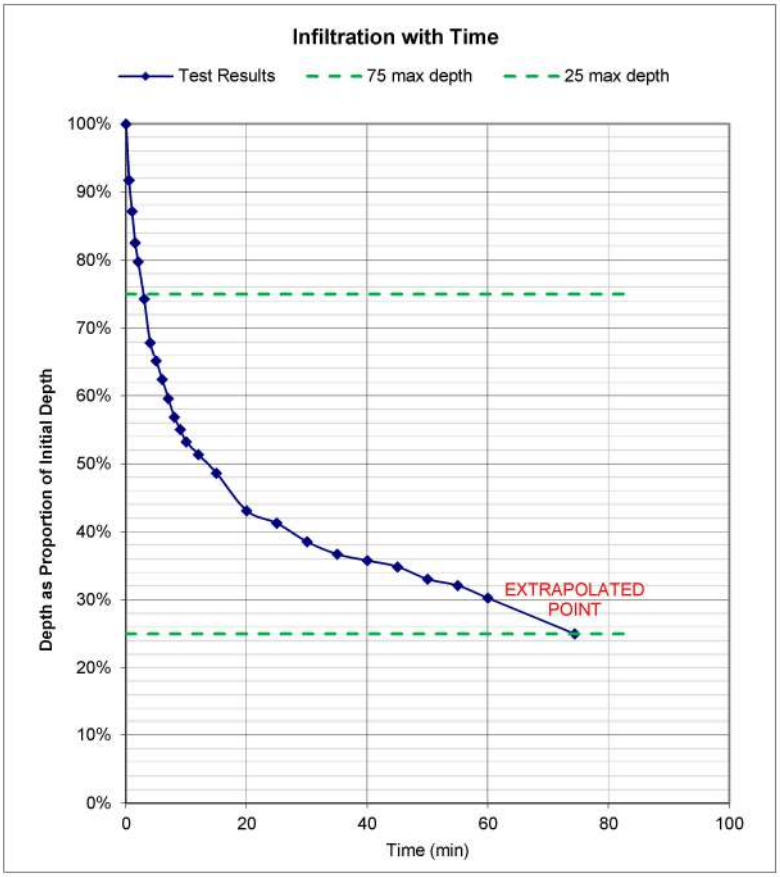
Project:
MC0096_QED_BrightonRoad



time (min)	Proportion infiltrated	Extrapolation
0	100%	
1	92%	
1	87%	
2	83%	
2	80%	
3	74%	
4	68%	
5	65%	
6	62%	
7	60%	
8	57%	
9	55%	
10	53%	
12	51%	
15	49%	
20	43%	
25	41%	
30	39%	
35	37%	
40	36%	
45	35%	
50	33%	
55	32%	
60	30%	
74	25%	EXTRAPOLATED POINT
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	

75% line (of max water depth)

min	proportion
0	0.750
84.38	0.750

25% line (of max water depth)

min	proportion
0	0.250
84.38	0.250

Calculations by: BB
Checked by: MN
Date: 06/05/21

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CIVIL ENGINEERING CONSULTANCY

Project:
MC0096_QED_BrightonRoad

Site Location	42 Brighton Road, Lancing
Pit/Borehole	BRE01 (front)
DATE	05.05.2022
Contractor Test	Soakage Test 2

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.100
pit width (m)	0.360
pit depth (m)	0.700
max water level (m)	0.550
25% Max Water Level (m)	0.138
75% Max Water Level (m)	0.413
25% reached?	NO

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation of the last reading.

Lower limit for measurement	25%	The standard is to use 25%
Upper limit for measurement	75%	The standard is to use 75%

base (m2)	0.396	
sides (m2)	0.605	Up to 50% of effective depth
ends (m2)	0.198	Up to 50% of effective depth
a_{p50} (m2)	1.199	Up to 50% of effective depth
v_{p75} (m3)	0.163	The volume at 75% effective depth
v_{p25} (m3)	0.054	The volume at 25% effective depth
v_{p75-25} (m3)	0.109	Difference in volume

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.150	0.550	0.218
0.5	0.170	0.530	0.210
1.0	0.180	0.520	0.206
1.5	0.200	0.500	0.198
2.0	0.205	0.495	0.196
3.0	0.225	0.475	0.188
4.0	0.240	0.460	0.182
5.0	0.255	0.445	0.176
6.0	0.275	0.425	0.168
7.0	0.290	0.410	0.162
8.0	0.305	0.395	0.156
9.0	0.315	0.385	0.152
10.0	0.325	0.375	0.149
12.0	0.345	0.355	0.141
15.0	0.365	0.335	0.133
20.0	0.400	0.300	0.119
25.0	0.425	0.275	0.109
30.0	0.440	0.260	0.103
35.0	0.450	0.250	0.099
40.0	0.465	0.235	0.093
45.0	0.475	0.225	0.089
50.0	0.485	0.215	0.085
55.0	0.495	0.205	0.081
60.0	0.505	0.195	0.077
65.0	0.515	0.185	0.073
70.0	0.520	0.180	0.071
112.5	0.563	0.137	0.054
			END
			END
			END
			END
			END
END	END	END	END

Interpolation between	t_{p75}	V_{p75}	
lower	6	0.168	*The reading just before Vp75*
upper	7	0.162	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	70	0.071	*The reading just before Vp25*
upper	113	0.054	*The reading just after Vp25*

t_{p75}(mins)	6.8	The time reading corresponding to Vp75
t_{p25}(mins)	112.5	The time reading corresponding to Vp25
t_{p75-25}(mins)	105.7	The time between Vp75 and Vp25

Soil Infiltration Rate	
m/s	m/h
1.43E-05	*0.051573*

The test failed to reach 25% total depth. The above infiltration rate is not compliant with BRE365. It is based on linear extrapolation of the last reading during the test.

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
1.199 sq m	0.109 cub m	6340 s

Calculations by: BB
Checked by: MN
Date: 06/05/21

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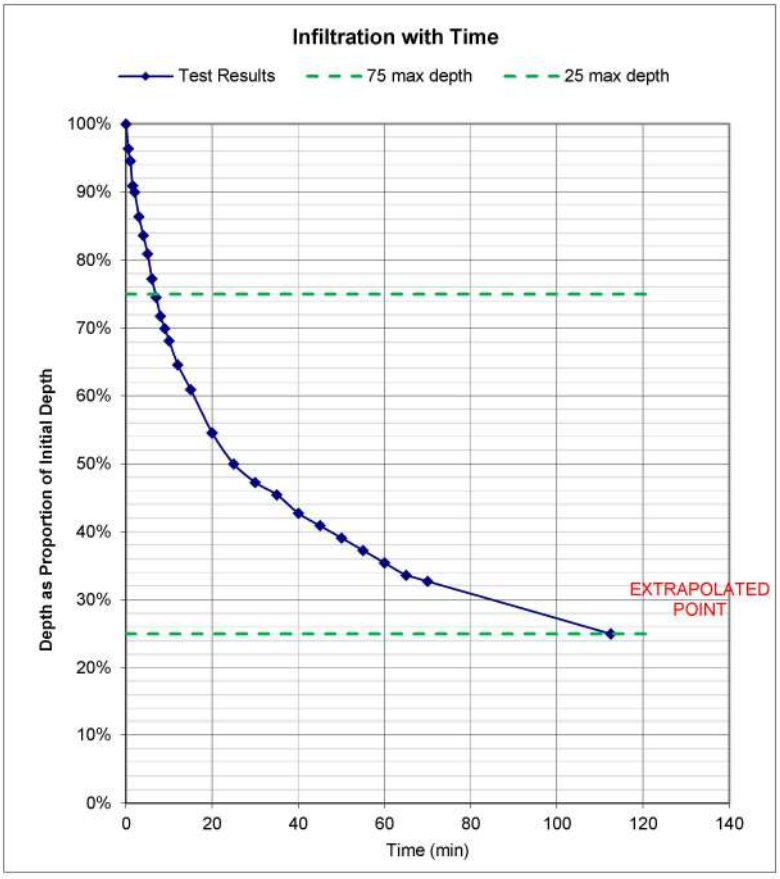
Project:
MC0096_QED_BrightonRoad



time (min)	Proportion infiltrated	Extrapolation
0	100%	
1	96%	
1	95%	
2	91%	
2	90%	
3	86%	
4	84%	
5	81%	
6	77%	
7	75%	
8	72%	
9	70%	
10	68%	
12	65%	
15	61%	
20	55%	
25	50%	
30	47%	
35	45%	
40	43%	
45	41%	
50	39%	
55	37%	
60	35%	
65	34%	
70	33%	
113	25%	EXTRAPOLATED POINT
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	

75% line (of max water depth)

min	proportion
0	0.750
122.51	0.750

25% line (of max water depth)

min	proportion
0	0.250
122.51	0.250

Calculations by: BB
Checked by: MN
Date: 06/05/21

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CIVIL ENGINEERING CONSULTANCY

Project:
MC0096_QED_BrightonRoad

Site Location	42 Brighton Road, Lancing
Pit/Borehole	BRE01 (front)
DATE	05.05.2022
Contractor Test	Soakage Test 3

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.100
pit width (m)	0.360
pit depth (m)	0.700
max water level (m)	0.545
25% Max Water Level (m)	0.136
75% Max Water Level (m)	0.409
25% reached?	NO

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation of the last reading.

Lower limit for measurement	25%	*The standard is to use 25%*
Upper limit for measurement	75%	*The standard is to use 75%*

base (m2)	0.396	
sides (m2)	0.600	*Up to 50% of effective depth*
ends (m2)	0.196	*Up to 50% of effective depth*
a_{p50} (m2)	1.192	*Up to 50% of effective depth*
v_{p75} (m3)	0.162	*The volume at 75% effective depth*
v_{p25} (m3)	0.054	*The volume at 25% effective depth*
v_{p75-25} (m3)	0.108	*Difference in volume*

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.155	0.545	0.216
0.5	0.175	0.525	0.208
1.0	0.185	0.515	0.204
1.5	0.200	0.500	0.198
2.0	0.210	0.490	0.194
3.0	0.220	0.480	0.190
4.0	0.245	0.455	0.180
5.0	0.260	0.440	0.174
6.0	0.285	0.415	0.164
7.0	0.290	0.410	0.162
8.0	0.300	0.400	0.158
9.0	0.310	0.390	0.154
10.0	0.315	0.385	0.152
12.0	0.330	0.370	0.147
15.0	0.340	0.360	0.143
20.0	0.380	0.320	0.127
25.0	0.415	0.285	0.113
30.0	0.430	0.270	0.107
35.0	0.450	0.250	0.099
40.0	0.460	0.240	0.095
45.0	0.470	0.230	0.091
50.0	0.475	0.225	0.089
55.0	0.485	0.215	0.085
60.0	0.495	0.205	0.081
65.0	0.505	0.195	0.077
70.0	0.515	0.185	0.073
75.0	0.520	0.180	0.071
118.8	0.564	0.136	0.054
			END
			END
			END
			END
END	END	END	END

Interpolation between	t_{p75}	V_{p75}	
lower	7	0.162	*The reading just before Vp75*
upper	8	0.158	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	75	0.071	*The reading just before Vp25*
upper	119	0.054	*The reading just after Vp25*

t_{p75}(mins)	7.1	*The time reading corresponding to Vp75*
t_{p25}(mins)	118.8	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	111.6	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
1.35E-05	*0.048673*

The test failed to reach 25% total depth. The above infiltration rate is not compliant with BRE365. It is based on linear extrapolation of the last reading during the test.

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
1.192 sq m	0.108 cub m	6698 s

Calculations by: BB
Checked by: MN
Date: 06/05/21

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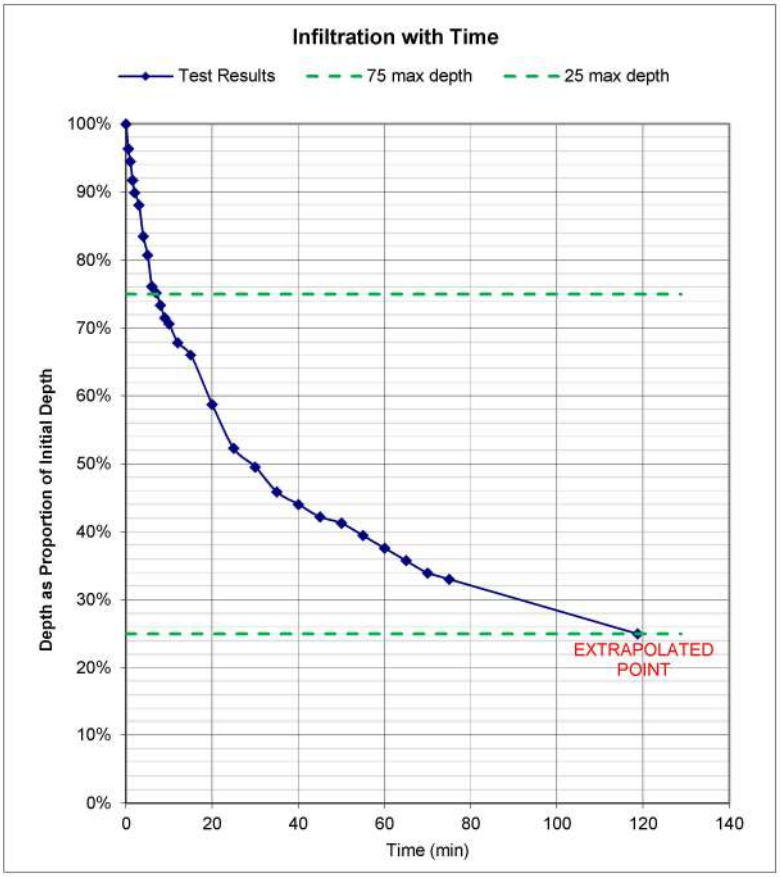
Project:
MC0096_QED_BrightonRoad



time (min)	Proportion infiltrated	Extrapolation
0	100%	
1	96%	
1	94%	
2	92%	
2	90%	
3	88%	
4	83%	
5	81%	
6	76%	
7	75%	
8	73%	
9	72%	
10	71%	
12	68%	
15	66%	
20	59%	
25	52%	
30	50%	
35	46%	
40	44%	
45	42%	
50	41%	
55	39%	
60	38%	
65	36%	
70	34%	
75	33%	
119	25%	EXTRAPOLATED POINT
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	
#N/A	#N/A	

75% line (of max water depth)

min	proportion
0	0.750
128.76	0.750

25% line (of max water depth)

min	proportion
0	0.250
128.76	0.250

Calculations by: BB
Checked by: MN
Date: 06/05/21

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

Project:
MC0096_QED_BrightonRoad

Site Location	42 Brighton Road, Lancing
Pit/Borehole	BRE02 (back)
DATE	05.05.2022
Contractor Test	Soakage Test 1,2,3

Legend: input / calculation / output / explanatory

What type of test is this	Trial pit
How was water depth measured?	Depth from Top of Pit to Water Level (m)
Is time in seconds or min	minutes
pit length (m)	1.050
pit width (m)	0.330
pit depth (m)	0.300
max water level (m)	0.300
25% Max Water Level (m)	0.075
75% Max Water Level (m)	0.225
25% reached?	YES

If 25% was reached, the test is as per BRE365 procedure. Otherwise, the last entry in the table to the right is a linear extrapolation of the last reading.

Time (min)	Depth from Top of Pit to Water Level (m)	Water Level from bottom (m)	Volume
0.0	0.000	0.300	0.104
0.5	0.300	0.000	0.000
			END
			END
			END
			END
			END
			END
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			END
			END
			END
			END
			END
			END
END	END	END	END

Lower limit for measurement	25%	The standard is to use 25%
Upper limit for measurement	75%	The standard is to use 75%

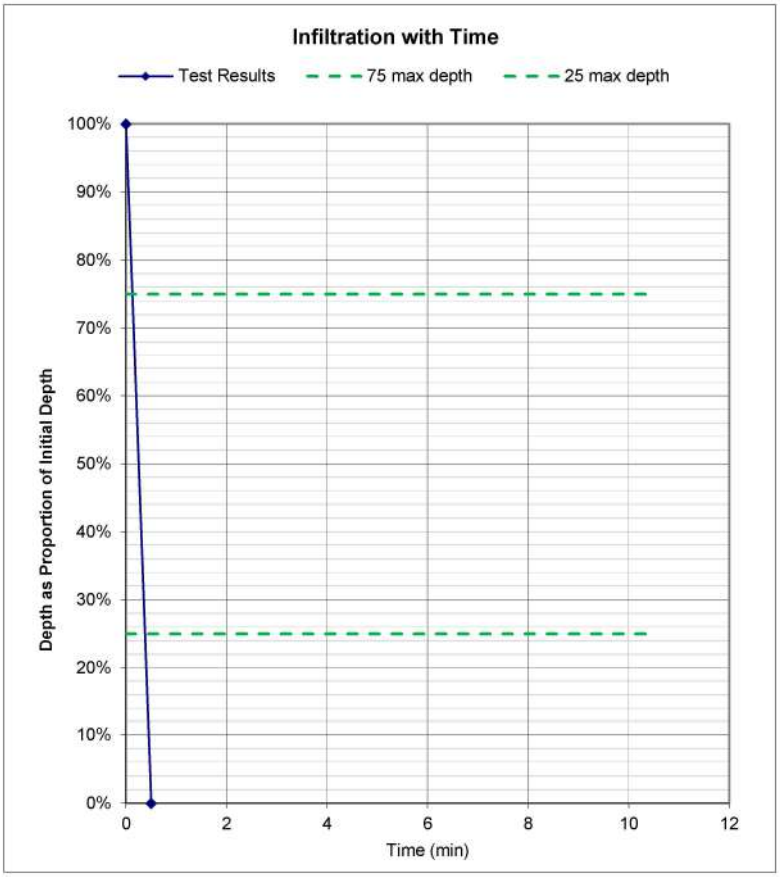
base (m2)	0.347	
sides (m2)	0.315	Up to 50% of effective depth
ends (m2)	0.099	Up to 50% of effective depth
a_{p50} (m2)	0.761	Up to 50% of effective depth
v_{p75} (m3)	0.078	The volume at 75% effective depth
v_{p25} (m3)	0.026	The volume at 25% effective depth
v_{p75-25} (m3)	0.052	Difference in volume

Interpolation between	t_{p75}	V_{p75}	
lower	0	0.104	*The reading just before Vp75*
upper	1	0.000	*The reading just after Vp75*
Interpolation between	**t_{p25}**	**V_{p25}**	
lower	0	0.104	*The reading just before Vp25*
upper	1	0.000	*The reading just after Vp25*

t_{p75}(mins)	0.1	*The time reading corresponding to Vp75*
t_{p25}(mins)	0.4	*The time reading corresponding to Vp25*
t_{p75-25}(mins)	0.3	*The time between Vp75 and Vp25*

Soil Infiltration Rate	
m/s	m/h
4.56E-03	*16.402367*

effective area of infiltration	volume between 75% and 25% effective depth	time for water to fall from 75% to 25% effective depth (sec)
ap50	**Vp75-25**	**tp75-25**
0.761 sq m	0.052 cub m	15 s



time (min)	Proportion infiltrated
0	100%
1	0%
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
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#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A
#N/A	#N/A

75% line (of max water depth)

min	proportion
0	0.750
10.5	0.750

25% line (of max water depth)

min	proportion
0	0.250
10.5	0.250

APPENDIX II Drainage Design Drawings

SVP IL: 3.85
TBC WITH ARCHITECT AND FLOOR STRUCTURE

1.5m WIDE BUFFER SECTION OF PERMEABLE PAVEMENT LINED WITH IMPERMEABLE MEMBRANE TO REDUCE EFFECT OF INFILTRATION ON FOUNDATIONS

APPROACH OF SHALLOW INFILTRATION IN PROXIMITY TO BUILDINGS IS IN LINE WITH CIRIA "USING SUDS CLOSE TO BUILDINGS"

FW001
CL: 4.350
IL: 3.750
DIA: 250mm

PERMEABLE PAVEMENT DRAINING SELF AND ROOF FROM GARDEN KITCHEN
ASSUMED PREFACTORED INFILTRATION RATE:
2.5x10-4m/s
SAFETY FACTOR: 4
INFILTRATION RATE AND GROUNDWATER LEVELS TO BE CONFIRMED PRIOR TO CONSTRUCTION OF SOAKAWAY TO VERIFY THE ASSUMPTIONS

FW004
CL: 4.350
IL: 3.500
DIA: 450mm

EXISTING INSPECTION CHAMBER EX101
CL: 7.49mAOD
IL: 5.77mAOD

CHAMBER REMOVED

NEW DIVERSION ROUTE.
SEWER INDICATIVELY SHOWN - DESIGN OF DIVERSION BY OTHERS. INSPECTION CHAMBERS BY OTHERS RELEVANT APPROVALS AND TEMPORARY DISABLING OF NETWORK TO BE IN PLACE ACCORDINGLY

SVP IL: 3.80
SVP PICKS UP ALL DRAINAGE TO LOWER GROUND FLOOR AND FOUL IS BEING PUMPED
IL TBC WITH FLOOR DEPTH CONSTRUCTION (ASSUMED NO THICKER THAN 200mm)

NOTE: IT MAY BE POSSIBLE TO SPLIT THE FOUL DRAINAGE SUCH THAT ONLY THE LOWER GROUND FLOOR CONNECTION IS PUMPED - OPTION TO BE DISCUSSED WITH ARCHITECT AND STRUCTURAL ENGINEER

GEOCELLULAR S

SOAKAWAY BUILDING BOUNDARY. 2m x 5m GEOMEMB

Retaining Wall

Footpath

Garden Kitchen

Lawn

Pool

Terrace

Planter

Sunken Seating

Proposed Dwelling

Planter

Terrace

Planter

SEE BELOW FOR CONTINUATION

DECOMMISSIONED SEWER.
DIVERSION OF EXISTING SEWER AROUND THE WESTERN SIDE OF THE NEW DWELLING ENSURE NO CONNECTIONS FROM OFFSITE ARE CONNECTING TO THIS DECOMMISSIONED SECTION OF SEWER

Lower Ground Level +4.35m
Ground Level +7.35m
First Floor Level +10.35m
Roof Level: 13.35m

SVP IL: 5.75
TBC WITH INVERT OF EXISTING SEWER
SVP NOT REACHING LOWER GROUND FLOOR TO OMIT PUMPING

IL INCOMING: 3.300

IL INCOMING: 2.000

SW006 7.350 6.600 RE

SW0011 7.350 6.100

SW005 7.350 5.100

SW007 7.410 6.260

SW008 7.410 6.660

SW101 7.410 6.260

SW102 7.350 5.510

SW103 7.350 5.410

SW104 7.350 5.310

SW105 7.350 5.210

FW002
CL: 4.350
IL: 3.150
DIA: 450mm

FW003
CL: 3.450
IL: 2.750
DIA: 450mm

PUMP 1
PROVIDE MINIMUM 900 litres OF EMERGENCY STORAGE BASED ON 6 PEOPLE
PUMP TO MANUFACTURER'S SPECIFICATION
PROVIDE VENT AT SUITABLE LOCATION

FW005
CL: 7.410
IL: 5.450
DIA: 450mm
IL TBC WITH FW101 LEVEL

DECOMMISSIONED SEWER.
DIVERSION OF EXISTING SEWER AROUND THE WESTERN SIDE OF THE NEW DWELLING ENSURE NO CONNECTIONS FROM OFFSITE ARE CONNECTING TO THIS DECOMMISSIONED SECTION OF SEWER

EXISTING INSPECTION CHAMBER EX102
REMOVED

FW102
CL: 6.543
IL: 5.076
DIA: 450mm

EXISTING INSPECTION CHAMBER EX103
CL: 5.66mAOD
IL: 4.92mAOD

CATCHPIT CHAMBER
DIA: 450mm

1. GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. 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.
f. 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.

2. CONSTRUCTION NOTE
a. 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.
b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
c. 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.
d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
e. 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

3. BELOW GROUND DRAINAGE
a. 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
b. ALL ADOPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.
c. 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.
d. 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.
e. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
f. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
g. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
h. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFURBISHED IF NECESSARY.
i. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
j. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

4. MANHOLE COVERS AND FRAMES
a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

NEW DIVERSION ROUTE.
SEWER INDICATIVELY SHOWN - DESIGN OF DIVERSION BY OTHERS. INSPECTION CHAMBERS BY OTHERS. RELEVANT APPROVALS AND TEMPORARY DISABLING OF NETWORK TO BE IN PLACE ACCORDINGLY

SVP IL: 3.80
SVP PICKS UP ALL DRAINAGE TO LOWER GROUND FLOOR AND FOUL IS BEING PUMPED
IL TBC WITH FLOOR DEPTH CONSTRUCTION (ASSUMED NO THICKER THAN 200mm)

NOTE: IT MAY BE POSSIBLE TO SPLIT THE FOUL DRAINAGE SUCH THAT ONLY THE LOWER GROUND FLOOR CONNECTION IS PUMPED - OPTION TO BE DISCUSSED WITH ARCHITECT AND STRUCTURAL ENGINEER

GEOCELLULAR SOAKAWAY POLYSTORM XTRA OR SIMILAR ARRANGEMENT
CL: 5.850
IL: 4.600
PLAN AREA: 28 m
CRATE THICKNESS: 630mm
MEASURED INFILTRATION RATE: 1.35x10-5m/s
SAFETY FACTOR: 3
ROOFS CATCHMENT AREA: 290m²

PROVIDE TANK VENT AT SUITABLE LOCATION
SOAKAWAY SITED A MINIMUM OF 5m FROM EXISTING OR PROPOSED BUILDINGS, RETAINING WALLS AND GARAGES AND 2.5m FROM SITE BOUNDARY. TO KEEP IN LINE WITH THIS, IT IS PROPOSED THAT THE TOP 2m x 5m SECTION OF THE SOAKAWAY IS LINED WITH IMPERMEABLE GEOMEMBRANE - SHOWN WITH RED HATCH. SEE SECTION THROUGH SOAKAWAY IN DETAILS SHEET

NEW DIVERSION ROUTE.
SEWER INDICATIVELY SHOWN - DESIGN OF DIVERSION BY OTHERS. INSPECTION CHAMBERS BY OTHERS. RELEVANT APPROVALS AND TEMPORARY DISABLING OF NETWORK TO BE IN PLACE ACCORDINGLY

NEW DIVERSION ROUTE.
SEWER INDICATIVELY SHOWN - DESIGN OF DIVERSION BY OTHERS. INSPECTION CHAMBERS BY OTHERS. RELEVANT APPROVALS AND TEMPORARY DISABLING OF NETWORK TO BE IN PLACE ACCORDINGLY - TBC WITH ARCHITECT

GENERAL NOTES:

RWP LOCATIONS ASSUMED - TO BE AGREED WITH ARCHITECT
SVP LOCATION OF KITCHEN GARDEN TO BE CONFIRMED

DESIGN SUBJECT TO VERIFICATION VIA INFILTRATION TESTING AND GROUNDWATER LEVELS CONFIRMATION

CONDITION OF EXISTING SEWERS AND CHAMBERS THAT ARE TO BE REUSED IS TO BE VERIFIED VIA CCTV SURVEY.

FOUL SEWER ON SITE MAY BE CLASSED 'ADOPTED' DUE TO SERVING MORE THAN ONE PROPERTY. WORKS TO BE AGREED WITH SOUTHERN WATER

LEGEND

- PROPOSED SW PIPE RUN
- PERFORATED SURFACE WATER DRAIN
- PROPOSED SW CHAMBER TYPE 3
- PROPOSED SW CATCHPIT INSPECTION CHAMBER
- RE RODDING EYE
- RWP RAIN WATER PIPE
- PROPOSED FW PIPE RUN
- NEW POSITION OF DIVERTED PUBLIC FOUL WATER DRAIN - DESIGN BY OTHERS
- EXISTING PUBLIC FW SEWER
- EXISTING FOUL WATER DRAIN
- DECOMMISSIONED DRAIN
- PUMP CHAMBER
- TYPE 3 INSPECTION CHAMBER
- TYPE 4 INSPECTION CHAMBER
- SVP SOIL & VENT PIPE / EXISTING FW PUBLIC MANHOLE
- ATTENUATION SYSTEM
- TYPE 1 PERMEABLE PAVING 300mm SUB-BASE FREE DRAINING
- TYPE 2 PERMEABLE PAVING 150mm SUB-BASE IMPERMEABLE MEMBRANE TO BOTTOM
- TYPE 3 PERMEABLE PAVING 225mm SUB-BASE FREE DRAINING
- TYPE 4 PERMEABLE PAVING 150m SUB-BASE FREE DRAINING
- +3.45 PROPOSED LEVEL BY OTHERS

REUSE EXISTING OFFSITE FOUL CONNECTION PENDING APPROVAL FROM SOUTHERN WATER

CONNECTION BETWEEN SOUTHERN FOUL MANHOLES 6801 AND 7801

Item	Visual Inspection	Cleanse / De-sludge	CCTV Survey	Comments
Foul Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Surface Water Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Gullies/Channels	1 year	1 year	N/A	Cleansing to be carried as necessary
Soakaways and catchpits	1 year		N/A	Cleansing to be carried as necessary
Permeable Tarmac Paving	1 year	'Swept' clean of debris every 2 years.	N/A	Jetwash or suction roadsweep permeable tarmac as performance levels reduce.
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 manufacturers recommendations.

DECOMMISSIONED SEWER.
DIVERSION OF EXISTING SEWER AROUND THE WESTERN SIDE OF THE NEW DWELLING ENSURE NO CONNECTIONS FROM OFFSITE ARE CONNECTING TO THIS DECOMMISSIONED SECTION OF SEWER

EXISTING INSPECTION CHAMBER EX102
REMOVED

FW102
CL: 6.543
IL: 5.076
DIA: 450mm

EXISTING INSPECTION CHAMBER EX103
CL: 5.66mAOD
IL: 4.92mAOD

CATCHPIT CHAMBER
DIA: 450mm

CATCHPIT CHAMBER
DIA: 600mm

EXISTING INSPECTION CHAMBER NOT SHOWN IN TOPOGRAPHIC SURVEY BUT VISIBLE ON SITE

Ramped Access

Stepped Access

Garage Block

Entrance Courtard

Proposed Dwelling

Terrace

Brighton Road

SEE ABOVE FOR CONTINUATION

Lower Ground Level +4.35m
Ground Level +7.35m
First Floor Level +10.35m
Roof Level: 13.35m

1:100 @ A1
0 1m 2m 3m 4m 5m

REV:	DESCRIPTION:	BY:	DATE:
P4	SA SAFETY FACTOR AMENDMENT	BB	18.10.23
P3	DIVERSION AMENDMENT (BY OTHERS)	BB	15.08.22
P2	SHOW OFFSITE CONNECTION	BB	29.07.22

STATUS: PRELIMINARY

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

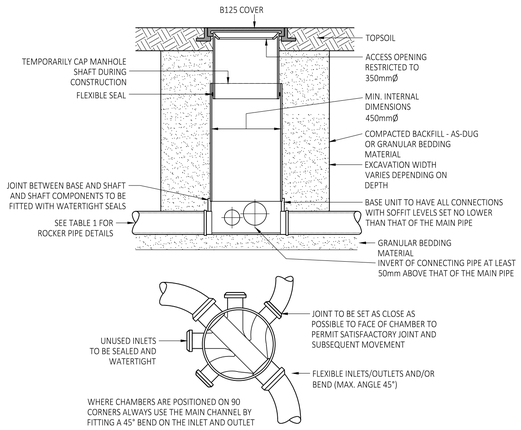
CLIENT: QED Structures

SITE: 42 Brighton Road
Lancing BN15 8ET

TITLE: GROUND FLOOR SITE ARRANGEMENT
DRAINAGE ARRANGEMENT

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:100	27.04.2022	BB	MN

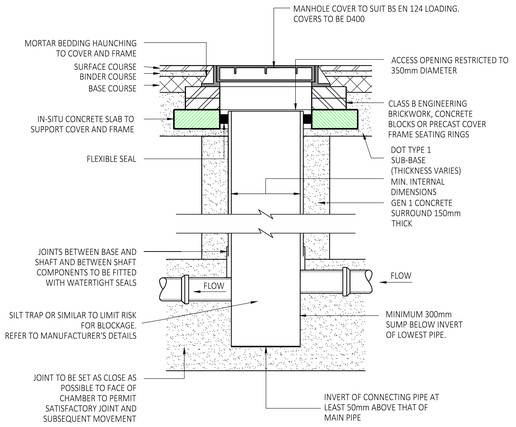
PROJECT NO:	DRAWING NO:	REVISION:
MC0096	DR-01	P4



TYPE 4 ACCESS CHAMBER - FLEXIBLE MATERIAL SOFT LANDSCAPING

(SUBJECT TO LIGHT TRAFFIC LOADS, MAX. DEPTH 3m, NON-ENTRY)

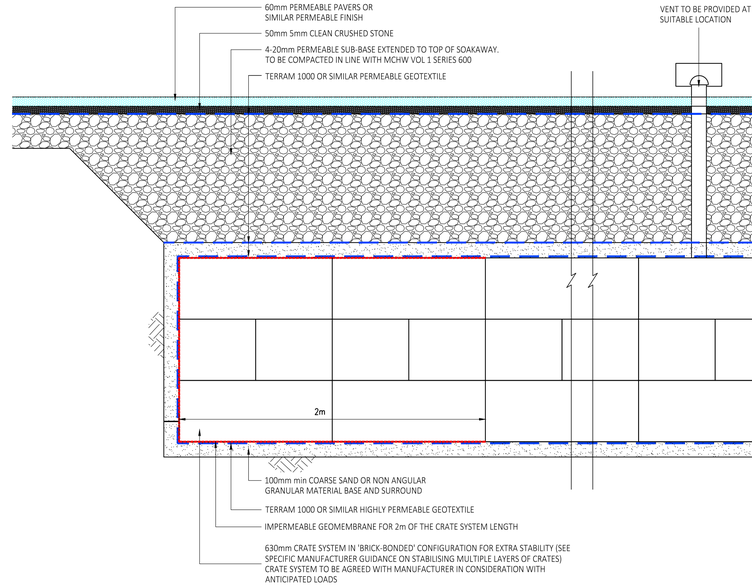
(1:20)



CATCHPIT INSPECTION CHAMBER.

(PREFORMED POLYPIPE RIGIDRAIN 600Ø CATCHPIT MANHOLE OR SIMILAR), MAX. DEPTH 3m, NON-ENTRY)

(1:20)

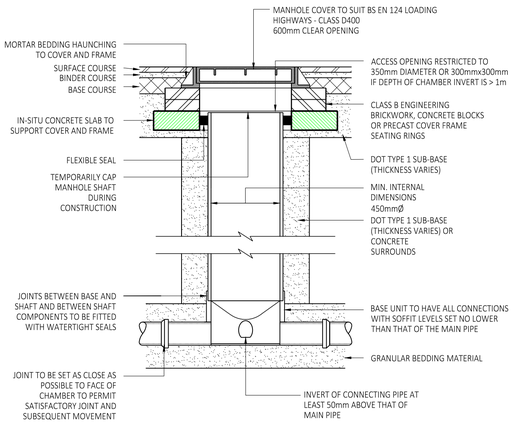


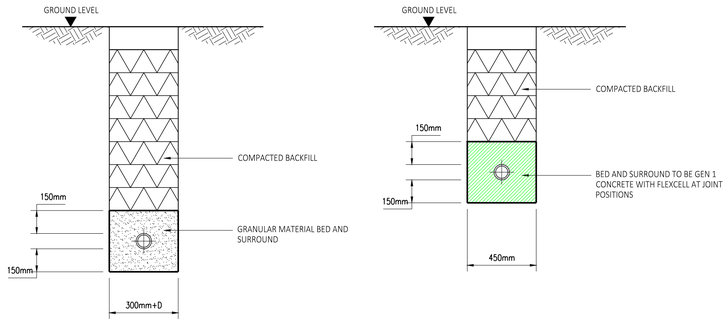
SECTION THROUGH GEOCELLULAR SOAKAWAY

TYPE 3&4 CHAMBER TYPES, SIZES AND DEPTH

MAX INVERT DEPTH (m)	0.6 – 2.01	0.6 – 2.01	1.2 – 3.02	1.2 – 3.02
BASE/SHAFT DIA (mm)	200	315	450	600
SFA7 TYPE	4	4	3 – 4	3 – 4
NO OF INLETS 1	Y	Y	Y	Y
1 TO 3	-	Y	Y	Y
4 TO 5	–	–	Y	–
INLET SIZES (mm)	110/160	110/160	110/160	150/225/300
MAX DEPTH(mm)	600	600	1200	3000

FOR DEPTH GREATER THAN 1200mm RESTRICT ACCESS TO 350mm DIAMETER





GRANULAR BEDDING DETAIL

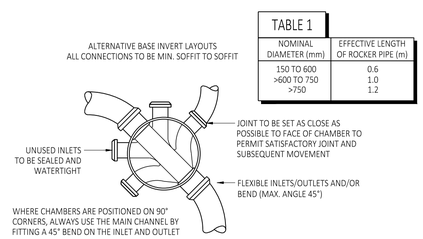
WHERE:
COVER >600mm AND LAID IN SOFT LANDSCAPING
or
COVER >900mm AND LAID IN TRAFFICKED AREAS

CONCRETE BEDDING DETAIL

WHERE:
COVER <600mm AND LAID IN SOFT LANDSCAPING
or
COVER <900mm AND LAID IN TRAFFICKED AREAS

NOTE

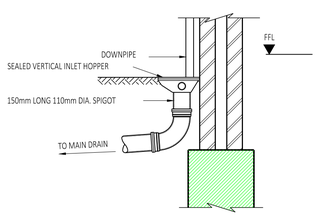
ALL BACKFILLING AND REINSTATEMENT WITHIN ROADS AND STREETS TO BE IN ACCORDANCE WITH THE HIGHWAY AUTHORITY AND HAUC SPECIFICATION.



TYPE 3 ACCESS CHAMBER - FLEXIBLE MATERIAL

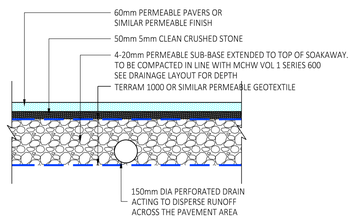
(SUBJECT TO VEHICLE LOADING, MAX. DEPTH 3m, NON-ENTRY)

(1:20)

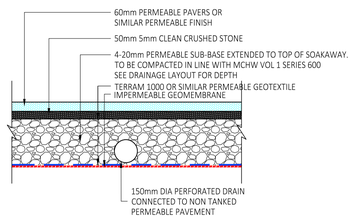


RWP CONNECTION.

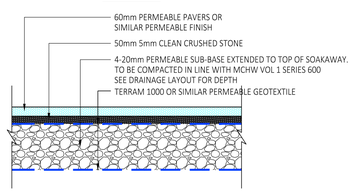
(1:20)



PERMEABLE PAVEMENT TYPE 1



PERMEABLE PAVEMENT TYPE 2



PERMEABLE PAVEMENT TYPE 3 AND 4

1. GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. 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.
f. 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.

2. CONSTRUCTION NOTE
a. 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.
b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
c. 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.
d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
e. 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

3. BELOW GROUND DRAINAGE
a. 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
b. ALL ADOPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.
c. 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.
d. 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.
c. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
d. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
e. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
f. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFURBISHED IF NECESSARY.
g. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
h. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

4. MANHOLE COVERS AND FRAMES
a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

REV:	DESCRIPTION:	BY:	DATE:
-	-	-	-

STATUS: PRELIMINARY

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

CLIENT: QED Structures

SITE: 42 Brighton Road, Lancing BN15 8ET

TITLE: GROUND FLOOR SITE ARRANGEMENT STANDARD DRAINAGE DETAILS

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:20	27.04.2022	BB	MN

PROJECT NO:	DRAWING NO:	REVISION:
MC0096	DR-10	P1

APPENDIX III Hydraulic Calculations

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
10	0.007	4.00	5.850	450	28643.051	27066.064	0.950
9			5.850		28639.302	27065.049	1.040
8	0.012	4.00	7.410		28605.734	27075.689	0.750
7			7.410	450	28606.419	27060.453	0.902
6	0.010	4.00	7.350		28624.001	27076.672	0.750
5			5.850	450	28624.001	27060.453	0.750
4			5.850	450	28628.625	27060.453	0.796
3			5.850		28633.982	27063.360	1.040
2			5.850		28637.249	27063.344	1.249
1			5.850		28637.234	27061.820	1.250
11			7.350	450	28624.001	27063.997	1.250

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.005	2	1	1.524	0.600	4.601	4.600	0.001	1524.1	225	4.58	50.0
3.001	9	2	2.669	0.600	4.810	4.601	0.209	12.8	150	4.06	50.0
1.004	3	2	3.267	0.600	4.810	4.601	0.209	15.6	150	4.50	50.0
1.003	4	3	6.095	0.600	5.054	4.810	0.244	25.0	150	4.48	50.0
1.002	5	4	4.624	0.600	5.100	5.054	0.046	100.5	150	4.43	50.0
2.001	11	5	3.544	0.600	6.100	5.100	1.000	3.5	150	4.12	50.0
1.001	7	5	17.582	0.600	6.508	5.100	1.408	12.5	150	4.36	50.0
1.000	8	7	15.251	0.600	6.660	6.508	0.152	100.3	150	4.25	50.0
2.000	6	11	12.675	0.600	6.600	6.100	0.500	25.3	150	4.11	50.0
3.000	10	9	3.884	0.600	4.900	4.810	0.090	43.2	150	4.04	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.005	0.326	13.0	5.5	1.024	1.025	0.029	0.0	102	0.313
3.001	2.834	50.1	1.3	0.890	1.099	0.007	0.0	17	1.217
1.004	2.560	45.2	4.2	0.890	1.099	0.022	0.0	31	1.607
1.003	2.023	35.7	4.2	0.646	0.890	0.022	0.0	35	1.366
1.002	1.002	17.7	4.2	0.600	0.646	0.022	0.0	50	0.821
2.001	5.392	95.3	1.9	1.100	0.600	0.010	0.0	15	2.159
1.001	2.866	50.6	2.3	0.752	0.600	0.012	0.0	22	1.466
1.000	1.003	17.7	2.3	0.600	0.752	0.012	0.0	37	0.695
2.000	2.008	35.5	1.9	0.600	1.100	0.010	0.0	24	1.075
3.000	1.536	27.1	1.3	0.800	0.890	0.007	0.0	23	0.796

Simulation Settings

Rainfall Methodology	FEH-13	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0		

Storm Durations

15	30	60	120	180	240

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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	0	10	0
100	40	10	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.04860	Safety Factor	3.0	Invert Level (m)	4.600
Side Inf Coefficient (m/hr)	0.04860	Porosity	0.95	Time to half empty (mins)	991

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	28.0	28.0	0.630	28.0	43.1	0.631	0.0	43.1

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Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 92.20%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	10	244	4.979	0.079	0.8	0.0251	0.0000	OK
240 minute summer	9	244	4.979	0.169	1.6	0.0000	0.0000	SURCHARGED
15 minute summer	8	10	6.722	0.062	5.5	0.0220	0.0000	OK
15 minute summer	7	10	6.541	0.033	5.5	0.0053	0.0000	OK
15 minute summer	6	10	6.641	0.041	4.6	0.0120	0.0000	OK
15 minute summer	5	10	5.188	0.088	10.1	0.0139	0.0000	OK
15 minute summer	4	10	5.112	0.058	10.1	0.0092	0.0000	OK
240 minute summer	3	244	4.979	0.169	6.5	0.0000	0.0000	SURCHARGED
240 minute summer	2	244	4.979	0.378	8.0	0.0000	0.0000	SURCHARGED
240 minute summer	1	244	4.979	0.379	8.3	10.0706	0.0000	OK
15 minute summer	11	10	6.122	0.022	4.6	0.0035	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute summer	10	3.000	9	0.8	0.798	0.029	0.0523
240 minute summer	9	3.001	2	1.9	0.388	0.038	0.0470
15 minute summer	8	1.000	7	5.5	1.142	0.310	0.0747
15 minute summer	7	1.001	5	5.5	0.828	0.109	0.1195
15 minute summer	6	2.000	11	4.6	1.721	0.130	0.0346
15 minute summer	5	1.002	4	10.1	1.192	0.569	0.0391
15 minute summer	4	1.003	3	10.1	1.812	0.282	0.0339
240 minute summer	3	1.004	2	6.5	0.486	0.144	0.0575
240 minute summer	2	1.005	1	8.3	0.632	0.637	0.0606
240 minute summer	1	Infiltration		0.2			
15 minute summer	11	2.001	5	4.6	0.923	0.048	0.0218

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Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 92.20%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	10	244	5.372	0.472	1.4	0.1511	0.0000	SURCHARGED
240 minute summer	9	244	5.372	0.562	4.2	0.0000	0.0000	SURCHARGED
15 minute summer	8	10	6.746	0.086	9.8	0.0304	0.0000	OK
15 minute summer	7	10	6.553	0.045	9.8	0.0071	0.0000	OK
15 minute summer	6	10	6.655	0.055	8.2	0.0163	0.0000	OK
240 minute summer	5	244	5.372	0.272	4.6	0.0433	0.0000	SURCHARGED
240 minute summer	4	244	5.372	0.318	4.6	0.0506	0.0000	SURCHARGED
240 minute summer	3	244	5.372	0.562	4.6	0.0000	0.0000	SURCHARGED
240 minute summer	2	244	5.372	0.771	9.3	0.0000	0.0000	SURCHARGED
240 minute summer	1	244	5.372	0.772	9.8	16.7713	0.0000	OK
15 minute summer	11	10	6.130	0.030	8.2	0.0047	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute summer	10	3.000	9	1.4	0.826	0.053	0.0684
240 minute summer	9	3.001	2	3.6	0.331	0.072	0.0470
15 minute summer	8	1.000	7	9.8	1.331	0.553	0.1132
15 minute summer	7	1.001	5	9.8	0.934	0.194	0.1811
15 minute summer	6	2.000	11	8.2	2.014	0.231	0.0526
240 minute summer	5	1.002	4	4.6	0.996	0.260	0.0814
240 minute summer	4	1.003	3	4.6	1.271	0.129	0.1073
240 minute summer	3	1.004	2	8.3	0.484	0.183	0.0575
240 minute summer	2	1.005	1	9.8	0.697	0.752	0.0606
240 minute summer	1	Infiltration		0.2			
15 minute summer	11	2.001	5	8.2	1.559	0.086	0.0330

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Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
102	0.008	4.00	4.350	450	28572.360	27065.942	0.450
101	0.006	4.00	4.350	450	28572.360	27074.321	0.450
103			4.350		28572.360	27070.157	0.451
104			4.350		28573.594	27070.157	0.464

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
102.000	102	103	4.215	0.600	3.900	3.899	0.001	4215.0	150	4.48	50.0
101.000	101	103	4.164	0.600	3.900	3.899	0.001	4164.0	150	4.47	50.0
1.001	103	104	1.234	0.600	3.899	3.886	0.013	94.9	150	4.50	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
102.000	0.146	2.6	1.1	0.300	0.301	0.008	0.0	68	0.139
101.000	0.147	2.6	0.8	0.300	0.301	0.006	0.0	58	0.130
1.001	1.031	18.2	1.9	0.301	0.314	0.014	0.0	33	0.667

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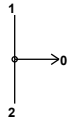
Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
102.000	4.215	4215.0	150	Circular	4.350	3.900	0.300	4.350	3.899	0.301
101.000	4.164	4164.0	150	Circular	4.350	3.900	0.300	4.350	3.899	0.301
1.001	1.234	94.9	150	Circular	4.350	3.899	0.301	4.350	3.886	0.314

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Node Type
102.000	102	450	Manhole	Private_1	103	Junction
101.000	101	450	Manhole	Private_1	103	Junction
1.001	103		Junction		104	Junction

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
102	28572.360	27065.942	4.350	0.450	450				
						0	102.000	3.900	150
101	28572.360	27074.321	4.350	0.450	450				
						0	101.000	3.900	150
103	28572.360	27070.157	4.350	0.451					
						1	101.000	3.899	150
						2	102.000	3.899	150
						0	1.001	3.899	150
104	28573.594	27070.157	4.350	0.464		1	1.001	3.886	150
									

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Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Detailed	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Summer CV	0.750	Skip Steady State	x	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	0	10	0	100	40	10	0

Node 104 Carpark Storage Structure

Base Inf Coefficient (m/hr)	14.40000	Porosity	0.30	Width (m)	6.500	Depth (m)	
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.900	Length (m)	10.000	Inf Depth (m)	
Safety Factor	4.0	Time to half empty (mins)	0	Slope (1:X)	9999.0		

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Results for 30 year +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 (m³)	Flood (m³)	Status
15 minute summer	102	10	3.975	0.075	3.6	0.0413	0.0000	OK
15 minute summer	101	10	3.970	0.070	2.7	0.0315	0.0000	OK
15 minute summer	103	10	3.960	0.061	6.3	0.0000	0.0000	OK
15 minute summer	104	10	3.905	0.019	6.3	0.0838	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	102	102.000	103	3.6	0.465	1.392	0.0326
15 minute summer	101	101.000	103	2.7	0.368	1.036	0.0305
15 minute summer	103	1.001	104	6.3	1.688	0.344	0.0049
15 minute summer	104	Infiltration		6.2			

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Results for 100 year +40% 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 (m³)	Flood (m³)	Status
15 minute summer	102	10	4.003	0.103	6.5	0.0568	0.0000	OK
15 minute summer	101	10	3.996	0.096	4.9	0.0435	0.0000	OK
15 minute summer	103	10	3.985	0.086	11.4	0.0000	0.0000	OK
15 minute summer	104	10	3.909	0.023	11.4	0.1598	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	102	102.000	103	6.5	0.558	2.514	0.0491
15 minute summer	101	101.000	103	4.9	0.438	1.882	0.0464
15 minute summer	103	1.001	104	11.4	1.988	0.624	0.0074
15 minute summer	104	Infiltration		11.3			

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APPENDIX IV CCTV Drain Survey

Happy Drains Ltd
Unit 12B Chalex Industrial Estate, Manor Hall Road, Southwick, BN42 4NH
Tel: 0800 849 8099 Email: service@happydrains.co.uk

Ref: C1004464

Date 2022-05-16

Bernard Construction UK LLP

Warren Apartments

8a Station Rise

Tulse Hill

SE27 9BW

Site Address: 42 Brighton Road, Lancing, BN15 8ET

1. DESCRIPTION OF PROPERTY

Residential

2. DRAINAGE SYSTEM

The pipework surveyed is a Foul drainage system, access via Inspection chamber. The pipework is circular, in Various in diameter and is of VC pipe material. Further specific variations will be in the report content as found.

3. SHARED

We have surveyed both Private and Shared sections

The foul drains are connected to the main sewerage system.

Happy Drains Ltd
Unit 12B Chalex Industrial Estate, Manor Hall Road, Southwick, BN42 4NH
Tel: 0800 849 8099 Email: service@happydrains.co.uk

4. CIRCUMSTANCES

Task type: General survey

5. SUMMARY

The defects noted are in the attached report.

5. Observations

CCTV drainage survey carried out at property. Investergations revealed a foul drainage system collecting services into manholes located around the property. FW01A is concealed, We reccomend carrying out drain tracing to pinpoint manhole location. Please note that defects highlighted in communal drainage are the responsibility of the local water authority.

6. Quotations and Specification of Repairs

To attend the above site and provide crew, materials, labour, and plant to: -

*** Repair 1 Section/s 1**

Sonde and trace (Stand Alone -No CCTV) 1 hours

Our 'Sonde & Trace' drain tracing services can reveal the exact location and depth of your drains after a CCTV survey has been conducted.

We would be pleased to carry out these works for the sum of £125.0 + VAT

7. COST SAVING

Any proposed repair methods are specially selected, as the most cost-effective method and expedient to rectify the defects noted.

Happy Drains Ltd
Unit 12B Chalex Industrial Estate, Manor Hall Road, Southwick, BN42 4NH
Tel: 0800 849 8099 Email: service@happydrains.co.uk

8. GUARANTEE

Please note that all repair works proposed are guaranteed for up to 5 years for repairs, and our guarantee does not affect your statutory rights.

Due to the nature of working underground, it is not possible to state that there will be no further damage discovered. Once the repairs commence, if this occurs, we will make all efforts to mitigate the costs and seek authority through the proper channels before carrying out additional repairs.

Please ensure that appropriate access to water and electricity provided on-site to complete the repair (the engineer will confirm these details with you). If you require more information or wish to discuss this matter, please contact us.

Yours sincerely

Happy Drains Ltd

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000



Project

Project Name:	C1004464 - 42 Brighton Road - Lancing - BN15 8ET
Project Description:	General CCTV
Project Number:	C1004464
Project Status:	Complete
Project Date:	04/05/2022

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

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C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

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Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

Project Information

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

Client

Company: Bernard Construction LLP
Contact: Craig Sharpe
Street: 42 Brighton Road
Town or City: London
Post Code: BN15 8ET
Phone: [redacted]

Contractor

Company: Happy Drains Ltd
Contact: David/William
Street: Unit 12a Chalex Industrial Estate
Town or City: Southwick
Post Code: BN42 4NH
Phone: 01273 447000
Mobile: 07824 757572

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

Project Information

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

Drawing Legend



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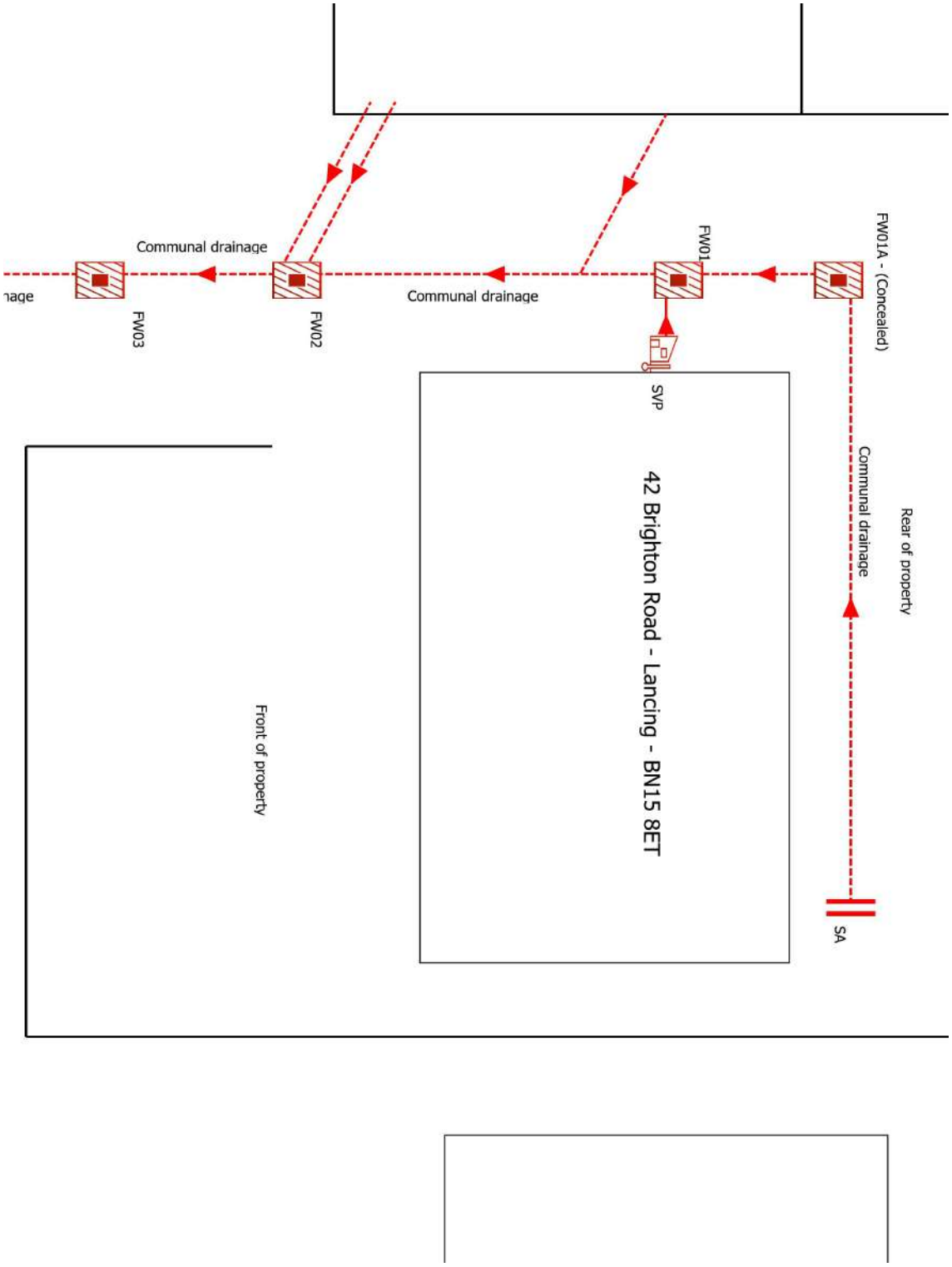
Tel. 01273 447000

Project Information

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

Project Drawing, Page 'C1004464.wcs'



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Scoring Summary

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

Structural Defects

Section	PLR	Grade	Description
All inspected pipes are in an acceptable structural condition (< grade 3).			

Service / Operational Condition

Section	PLR	Grade	Description
All inspected pipes are in an acceptable service condition (< grade 3).			

Abandoned Surveys

Section	PLR	Description
2	SAX	Survey abandoned
5	FW02X	Survey abandoned

Information

These scoring summaries are based on the SRM grading from the WRc.

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

Project Pictures

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022



Rear of property



Rough location of FW01A

Happy Drains Ltd
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Section Profile

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

Circular, 100 mm

Item No.	Upstream Node	Downstream Node	Date	Road	Material	Total Length	Inspected Length
3	SVP	FW01	04/05/2022	42 BRIGHTON RD	Vitrified clay	0.95 m	0.95 m

Total: 1 Inspection x Circular 100 mm = 0.95 m Total Length and 0.95 m Inspected Length

Circular, 150 mm

Item No.	Upstream Node	Downstream Node	Date	Road	Material	Total Length	Inspected Length
1	FW01A	FW01	04/05/2022	42 BRIGHTON RD	Vitrified clay	4.56 m	4.56 m
4	FW01	FW02	04/05/2022	42 BRIGHTON RD	Vitrified clay	7.64 m	7.64 m
6	FW02	FW03	04/05/2022	42 BRIGHTON RD	Vitrified clay	20.37 m	20.37 m

Total: 3 Inspections x Circular 150 mm = 32.57 m Total Length and 32.57 m Inspected Length

Total: 4 Inspections = 33.52 m Total Length and 33.52 m Inspected Length

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

Section Summary

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

Number of sections	6
Total length of sections	74.10 m
Total length of inspected sections	74.10 m
Total length of not inspected sections	0.00 m
Number of abandoned inspections	2
Number of section inspection photos	22
Number of section inspection videos	6
Number of section inspection scans	0
Number of section inclination measurements	0

PLR:	FW01AX	**Upstream Node:**	FW01A
Inspection Direction:	Upstream	**Downstream Node:**	FW01
Inspected Length:	4.56 m	**Dia/Height:**	150 mm
Total Length:	4.56 m	**Material:**	Vitrified clay

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: FW01
2	0.00	WL	Water level, 0% of the vertical dimension
3	0.65	JN	Junction at 12 o'clock, 150mm dia
4	4.56	MHF	Finish node, manhole, reference: FW01A

PLR:	SAX	**Upstream Node:**	SA
Inspection Direction:	Upstream	**Downstream Node:**	FW01A
Inspected Length:	12.46 m	**Dia/Height:**	150 mm
Total Length:	12.46 m	**Material:**	Vitrified clay

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: FW01A
2	0.00	WL	Water level, 0% of the vertical dimension
3	12.46	SA	Survey abandoned

PLR:	SVPX	**Upstream Node:**	SVP
Inspection Direction:	Upstream	**Downstream Node:**	FW01
Inspected Length:	0.95 m	**Dia/Height:**	100 mm
Total Length:	0.95 m	**Material:**	Vitrified clay

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: FW01
2	0.00	WL	Water level, 0% of the vertical dimension
3	0.27	LU	Line deviates up
4	0.95	BRF	Finish node, major connection without manhole, reference: SVP

Happy Drains Ltd
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Section Summary

Project Name	Project Number	Project Date
C1004464 - 42 Brighton Road - Lancing - BN15 8ET	C1004464	04/05/2022

PLR:	FW01X	**Upstream Node:**	FW01
Inspection Direction:	Downstream	**Downstream Node:**	FW02
Inspected Length:	7.64 m	**Dia/Height:**	150 mm
Total Length:	7.64 m	**Material:**	Vitrified clay

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: FW01
2	0.00	WL	Water level, 0% of the vertical dimension
3	1.03	JN	Junction at 2 o'clock, 100mm dia
4	4.33	JN	Junction at 2 o'clock, 150mm dia
5	7.64	MHF	Finish node, manhole, reference: FW02

PLR:	FW02X	**Upstream Node:**	FW02
Inspection Direction:	Downstream	**Downstream Node:**	FW03
Inspected Length:	28.12 m	**Dia/Height:**	150 mm
Total Length:	28.12 m	**Material:**	Vitrified clay

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: FW02
2	0.00	WL	Water level, 0% of the vertical dimension
3	8.21	JN	Junction at 12 o'clock, 100mm dia
4	28.12	SA	Survey abandoned

PLR:	FW02X	**Upstream Node:**	FW02
Inspection Direction:	Upstream	**Downstream Node:**	FW03
Inspected Length:	20.37 m	**Dia/Height:**	150 mm
Total Length:	20.37 m	**Material:**	Vitrified clay

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: FW03
2	0.00	WL	Water level, 0% of the vertical dimension
3	0.34	GP	General photograph taken at this point
4	2.24	DEEJ	Attached deposits, encrustation at joint from 4 o'clock to 7 o'clock, 20% cross-sectional area loss
5	11.74	DEEJ	Attached deposits, encrustation at joint from 5 o'clock to 7 o'clock, 10% cross-sectional area loss
6	14.74	DEEJ	Attached deposits, encrustation at joint from 4 o'clock to 7 o'clock, 10% cross-sectional area loss
7	20.37	JN	Junction at 12 o'clock, 100mm dia
8	20.37	BRF	Finish node, major connection without manhole, reference: FW02

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Section Inspection - 04/05/2022 - FW01AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	04/05/22	10:55	01	No Rain Or Snow	No	FW01AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Section 105A Sewer	Not Specified

Town or Village:	Lancing	**Inspection Direction:**	Upstream	**Upstream Node:**	FW01A
Road:	42 Brighton Rd	**Inspected Length:**	4.56 m	**Upstream Pipe Depth:**	0.000 m
Location:	Property or buildings	**Total Length:**	4.56 m	**Downstream Node:**	FW01
Surface Type:	Concrete Footway	**Joint Length:**		**Downstream Pipe Depth:**	2.100 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:		**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Position [m]	Code	Observation	Grade
		Depth: 2.10 m **FW01**	
0.00	MH	Start node, manhole, reference: FW01	
0.00	WL	Water level, 0% of the vertical dimension	
0.65	JN	Junction at 12 o'clock, 150mm dia	
4.56	MHF	Finish node, manhole, reference: FW01A: BURIED	
		FW01A **Depth: 0.00 m**	


MH - 0.00


JN - 0.65


MHF - 4.56

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0

Happy Drains Ltd
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Tel. 01273 447000

Section Pictures - 04/05/2022 - FW01AX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Upstream	FW01AX	01	



20220504-105550-snap0000.jpg, 00:00:03, 0.00 m
Start node, manhole, reference: FW01



20220504-105550-snap0001.jpg, 00:00:20, 0.65 m
Junction at 12 o'clock, 150mm dia



20220504-105550-snap0002.jpg, 00:01:05, 4.56 m
Finish node, manhole, reference: FW01A, BURIED

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Section Inspection - 04/05/2022 - SAX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	2	04/05/22	10:58	01	No Rain Or Snow	No	SAX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Section 105A Sewer	Not Specified

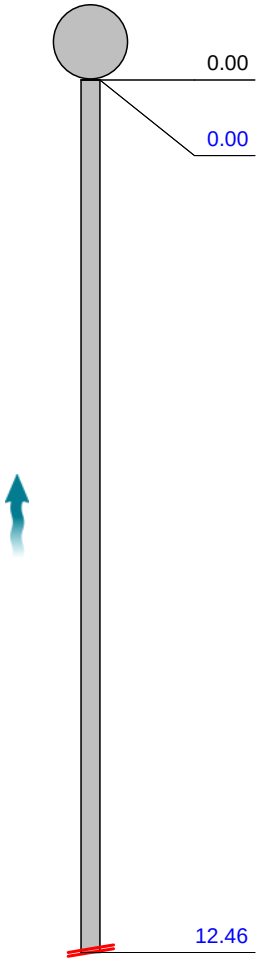
Town or Village:	Lancing	**Inspection Direction:**	Upstream	**Upstream Node:**	SA
Road:	42 Brighton Rd	**Inspected Length:**	12.46 m	**Upstream Pipe Depth:**	0.000 m
Location:	Property or buildings	**Total Length:**	12.46 m	**Downstream Node:**	FW01A
Surface Type:	Concrete Footway	**Joint Length:**		**Downstream Pipe Depth:**	0.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:		**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:108 **Position [m]** **Code** **Observation** **Grade**

Depth: 0.00 m
FW01A



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: FW01A: BURIED	
0.00	WL	Water level, 0% of the vertical dimension	
12.46	SA	Survey abandoned: UNABLE PUSH	



MH - 0.00



SA - 12.46

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0

Happy Drains Ltd
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Section Pictures - 04/05/2022 - SAX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Upstream	SAX	01	



20220504-105824-snap0000.jpg, 00:00:02, 0.00 m
Start node, manhole, reference: FW01A, BURIED



20220504-105824-snap0001.jpg, 00:02:01, 12.46 m
Survey abandoned, UNABLE PUSH

Happy Drains Ltd
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Tel. 01273 447000

Section Inspection - 04/05/2022 - SVPX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	3	04/05/22	11:02	01	No Rain Or Snow	No	SVPX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Section 105A Sewer	Not Specified

Town or Village:	Lancing	**Inspection Direction:**	Upstream	**Upstream Node:**	SVP
Road:	42 Brighton Rd	**Inspected Length:**	0.95 m	**Upstream Pipe Depth:**	0.000 m
Location:	Property or buildings	**Total Length:**	0.95 m	**Downstream Node:**	FW01
Surface Type:	Concrete Footway	**Joint Length:**		**Downstream Pipe Depth:**	2.100 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:		**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Position [m]	Code	Observation	Grade
		Depth: 2.10 m	
		FW01	
0.00	MH	Start node, manhole, reference: FW01	
0.00	WL	Water level, 0% of the vertical dimension	
0.27	LU	Line deviates up	
0.95	BRF	Finish node, major connection without manhole, reference: SVP	
		SVP	
		Depth: 0.00 m	


MH - 0.00


LU - 0.27


BRF - 0.95

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

Section Pictures - 04/05/2022 - SVPX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Upstream	SVPX	01	



20220504-110209-snap0000.jpg, 00:00:02, 0.00 m
Start node, manhole, reference: FW01



20220504-110209-snap0001.jpg, 00:00:14, 0.27 m
Line deviates up



20220504-110209-snap0002.jpg, 00:00:28, 0.95 m
Finish node, major connection without manhole, reference: SVP

Happy Drains Ltd
Unit 12a Chalex Industrial Estate, Southwick
Tel. 01273 447000

Section Inspection - 04/05/2022 - FW01X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	4	04/05/22	11:04	01	No Rain Or Snow	No	FW01X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Section 105A Sewer	Not Specified

Town or Village:	Lancing	**Inspection Direction:**	Downstream	**Upstream Node:**	FW01
Road:	42 Brighton Rd	**Inspected Length:**	7.64 m	**Upstream Pipe Depth:**	2.100 m
Location:	Property or buildings	**Total Length:**	7.64 m	**Downstream Node:**	FW02
Surface Type:	Concrete Footway	**Joint Length:**		**Downstream Pipe Depth:**	0.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:66

Position [m]	Code	Observation	Grade
		Depth: 2.10 m	
		FW01	
0.00	MH	Start node, manhole, reference: FW01	
0.00	WL	Water level, 0% of the vertical dimension	
1.03	JN	Junction at 2 o'clock, 100mm dia	
4.33	JN	Junction at 2 o'clock, 150mm dia	
7.64	MHF	Finish node, manhole, reference: FW02	
		FW02	
		Depth: 0.00 m	


MH - 0.00


JN - 1.03


JN - 4.33


MHF - 7.64

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0

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Section Pictures - 04/05/2022 - FW01X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	FW01X	01	



20220504-110428-snap0000.jpg, 00:00:03, 0.00 m
Start node, manhole, reference: FW01



20220504-110428-snap0001.jpg, 00:00:18, 1.03 m
Junction at 2 o'clock, 100mm dia



20220504-110428-snap0002.jpg, 00:00:53, 4.33 m
Junction at 2 o'clock, 150mm dia



20220504-110428-snap0003.jpg, 00:01:22, 7.64 m
Finish node, manhole, reference: FW02

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Section Inspection - 04/05/2022 - FW02X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	5	04/05/22	11:06	01	No Rain Or Snow	No	FW02X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Section 105A Sewer	Not Specified

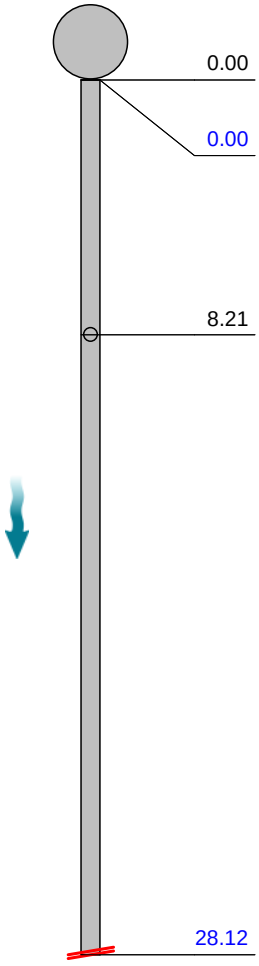
Town or Village:	Lancing	**Inspection Direction:**	Downstream	**Upstream Node:**	FW02
Road:	42 Brighton Rd	**Inspected Length:**	28.12 m	**Upstream Pipe Depth:**	0.600 m
Location:	Property or buildings	**Total Length:**	28.12 m	**Downstream Node:**	FW03
Surface Type:	Concrete Footway	**Joint Length:**		**Downstream Pipe Depth:**	0.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:243

Depth: 0.60 m
FW02



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: FW02	
0.00	WL	Water level, 0% of the vertical dimension	
8.21	JN	Junction at 12 o'clock, 100mm dia	
28.12	SA	Survey abandoned: CABLE	


MH - 0.00


JN - 8.21


SA - 28.12

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0

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Section Pictures - 04/05/2022 - FW02X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
5	Downstream	FW02X	01	



20220504-110637-snap0000.jpg, 00:00:03, 0.00 m
Start node, manhole, reference: FW02



20220504-110637-snap0001.jpg, 00:00:38, 8.21 m
Junction at 12 o'clock, 100mm dia



20220504-110637-snap0002.jpg, 00:04:31, 28.12 m
Survey abandoned, CABLE

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Section Inspection - 04/05/2022 - FW02X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	6	04/05/22	11:22	01	No Rain Or Snow	No	FW02X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Private Drain	Not Specified

Town or Village:	Lancing	**Inspection Direction:**	Upstream	**Upstream Node:**	FW02
Road:	42 Brighton Rd	**Inspected Length:**	20.37 m	**Upstream Pipe Depth:**	0.000 m
Location:	Property or buildings	**Total Length:**	20.37 m	**Downstream Node:**	FW03
Surface Type:	Concrete Footway	**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:		**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:176

Depth: 0.60 m
FW03

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: FW03	
0.00	WL	Water level, 0% of the vertical dimension	
0.34	GP	General photograph taken at this point	
2.24	DEEJ	Attached deposits, encrustation at joint from 4 o'clock to 7 o'clock, 20% cross-sectional area loss	
11.74	DEEJ	Attached deposits, encrustation at joint from 5 o'clock to 7 o'clock, 10% cross-sectional area loss	
14.74	DEEJ	Attached deposits, encrustation at joint from 4 o'clock to 7 o'clock, 10% cross-sectional area loss	
20.37	JN	Junction at 12 o'clock, 100mm dia	
20.37	BRF	Finish node, major connection without manhole, reference: FW02	

FW02
Depth: 0.00 m


MH - 0.00


GP - 0.34


DEEJ - 2.24


DEEJ - 11.74


DEEJ - 14.74

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Section Inspection - 04/05/2022 - FW02X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	6	04/05/22	11:22	01	No Rain Or Snow	No	FW02X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Private Drain	Not Specified



JN - 20.37



BRF - 20.37

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0

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Section Pictures - 04/05/2022 - FW02X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Upstream	FW02X	01	



20220504-112246-snap0000.jpg, 00:00:03, 0.00 m
Start node, manhole, reference: FW03



20220504-112246-snap0001.jpg, 00:00:17, 0.34 m
General photograph taken at this point



20220504-112246-snap0002.jpg, 00:00:41, 2.24 m
Attached deposits, encrustation at joint from 4 o'clock to 7 o'clock, 20% cross-sectional area loss



20220504-112246-snap0003.jpg, 00:01:38, 11.74 m
Attached deposits, encrustation at joint from 5 o'clock to 7 o'clock, 10% cross-sectional area loss

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Section Pictures - 04/05/2022 - FW02X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Upstream	FW02X	01	



20220504-112246-snap0004.jpg, 00:02:18, 14.74 m
Attached deposits, encrustation at joint from 4 o'clock to 7 o'clock, 10% cross-sectional area loss



20220504-112246-snap0005.jpg, 00:02:58, 20.37 m
Junction at 12 o'clock, 100mm dia



20220504-112246-snap0006.jpg, 00:03:15, 20.37 m
Finish node, major connection without manhole, reference: FW02