Foul & Surface Water Drainage Assessment

The Orchard House, Western Avenue, Emsworth PO10 7LP

McCarthy & Stone Ltd
Ringwood

June 2017

Such·Salinger·Peters
CONSULTING ENGINEERS

Issue Record

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Revision	Date	Details
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One	Kirsten Hill

First Issue	Name	Signature	Date
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Reviewer	K Dye		
Authoriser	K Dye		

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Contents

1. Introduction

2. Consultants' Brief

3. Existing Information

4. Existing Drainage

5. Foul Water Drainage

6. Surface Water Drainage

7. Conclusions and Recommendations

Appendices

1. EA Flood Map

2. 64007-01 Existing Drainage

3. Southern Water Sewer Record Plan

4. Manhole 0801 Level Monitoring Device

5. ACS Soil Infiltration Rate

6. Such Salinger Peter's Drainage Layout Design

7. Future Capacity Calculation - Foul Sewer

GENERAL NOTES

1. This report is provided as a review only, in the context of the stated development proposals and should not be used in a different context.

2. Where any data supplied by the Client or by other external sources have been used it has been assumed that the information is correct unless otherwise stated. No responsibility can be accepted by Such Salinger Peters Limited for inaccuracies within the data supplied by others.

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5. New information, improved practices and legislation may necessitate an alteration to the report in whole, or in part, after its submission. Therefore with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to Such Salinger Peters Limited for re-assessment and, if necessary, re-appraisal.

1. Introduction

1.1 McCarthy & Stone Ltd are planning to build a block of 25 double bedroom retirement apartments with associated parking on a site currently occupied by a large residential house on Western Avenue, Emsworth, Hampshire, PO10 7LP.

1.2 Prior to purchase of the site, Such Salinger Peters have been instructed to investigate the foul and surface water drainage options for the site.

1.3 The foul sewer arrangements and surface water drainage options have been investigated and are presented in this report.

2. Consultants' Brief

2.1 Such Salinger Peters were instructed by McCarthy & Stone Ltd to review the information supplied to them, to assess what further information was required, to carry out the necessary investigations and to report on the available options for foul and surface water drainage for the site.

2.2 The brief requires that the existing drainage arrangements be surveyed in order to prove the entitlement to connect the proposed development to the public sewerage system.

2.3 The output requirements of the work for Such Salinger Peters is to produce a report on the drainage disposal for foul and surface water for the future development.

3. Existing Information

3.1 McCarthy & Stone Developments Ltd provided the following drawings and information:

Promap	Extract map showing site
Technics	Topographical Survey SD16467-01
Southern Water	Sewer Record

3.2 The existing drainage was investigated during a site visit in June 2016 which established a foul sewer connection coming from the site discharging into the public foul sewer just outside the existing entrance to the site in Western Avenue.

3.3 The land for the proposed development is situated on Western Avenue, Emsworth, Hampshire, PO10 7LP. The site is rectangular shaped covering an area of approximately 0.46 Hectares.

3.4 The site is currently occupied by a large residential house accompanied by two garages, access road and a large garden.

3.5 The site slightly slopes from North to South. There is a level change of 0.8m over the length of the site.

3.6 The site lies within Flood Zone 1 on the Environment Agency Flood Map (copy in Appendix 1). The development is therefore classed as being at a low risk of flooding from rivers and the sea, surface water and reservoirs.

3.7 Ground investigations by ACS undertaken on the 21/02/2017 proved soakaways are not a viable option. This is evident in appendix 5 - ACS's soakaway test. It is recommended to pump surface water to MH 9951 as noted in appendix 6.

4. Existing Drainage

4.1 Existing foul sewage and some roof drainage from the property was found to drain to the public foul sewer at Manhole 0801 on Western Avenue via a 100mm connection. Due to the depth of MH0801, it is likely that the private lateral drain connects via a backdrop connection, however this could not be confirmed due to the depth.

4.2 Most of the surface water runoff from the site was found to drain to an existing soakaway within the garden of the property, this was confirmed by the current vendors, however, roughly half of the roof area of the main building was sound tested to the foul drain.

4.3 Although there were existing soakaways, investigations into the sites infiltration rates proved soakaways would not work for the proposal, refer to appendix 5. A percolation test to BRE 365 will be carried out prior to commencement of the development. Pending confirmation of the findings of the prelim site investigation, the surface water drainage design assumes soakaways would not work.

4.4 There is a 225mm diameter foul sewer running parallel to the eastern boundary of the site along Western Avenue. This sewer currently receives foul sewage from the existing site.

4.5 Manhole 0801 on the 225mm diameter foul sewer was lifted during the site survey. A level monitoring device was found within the manhole access (see Appendix 4) – this may be an indication that the foul sewer is prone to flooding at this location.

4.6 There are two surface water sewers present along the A259 Havant Road, a connection to these sewers requires a new surface water drain along Western Avenue to the boundary of the site. It is recommended that any drainage constructed out of the site boundary be offered for adoption to Southern Water via a Section 104 agreement.

5. Foul Water Drainage

5.1 There is currently a 100mm connection to public foul manhole 0801 serving the existing development, this is likely to be connected into the manhole via a backdrop, due to the considerable depth of the manhole.

5.2 The site currently discharges to the 225mm diameter foul sewer running north on Western Avenue towards the A259 Havant Road. The manhole 0801 adjacent to the existing site entrance was measured to be 3.80m deep, therefore a gravity connection to the manhole can be achieved.

5.3 It should be noted that the 225mm system along Western Avenue has several anti-flooding devices fitted within the manholes, including manhole 0801. This suggests that the system is at risk of flooding, therefore it is recommended that a non-return valve is installed on the connection pipe from the proposed development.

5.4 The pre-development enquiry issued to Southern Water designates that there is capacity within the 225mm sewer on Western Avenue to cope with additional flows from the proposed development.

5.5 At the time of writing this report, the number of two bedroom apartments is 25 and no one bedroom apartments. Therefore a flow rate based on average occupancy is 0.0651 L/s, as per appendix 7.

5.6 The existing lateral to the 225mm foul water sewer on Western Avenue from site will not be suitable for reuse for the proposed development as the 100mm diameter pipe is too small for the proposed occupancy.

Foul Sewer Recommendations

5.7 Issue Section 106 to Southern Water to confirm connection to manhole 0801.

5.8 Utilise a 150 mm diameter pipe to connect to manhole 0801 with a non-return valve as per appendix 6.

6. Surface Water Drainage

6.1 Soakaways were found to be a non-viable options as per appendix 5. Although the previous site utilised soakaways, the infiltration rate from the soakaway investigation were not adequate for design.

6.2 As soakaways prove to be a non-viable option, a connection to the 375mm diameter surface water sewers on A259 Havant Road will be required. This will require a new pumped main to be constructed along Western Avenue to connect the proposed site; as per appendix 6.

6.3 To confirm a surface water discharge rate from site a developer enquiry is to be issued to Southern water for the existing surface water sewer that exists on Havant Road.

6.4 Furthermore, since the connection on Havant Road is new, a Section 106 will be required from Southern Water to approve the connection to manhole 9951. Refer to appendix 6 & 3.

6.5 As a new surface water drain will be required from the site to the A259 Havant Road, we recommend that this be offered for adoption to Southern Water from the site boundary to the connection manhole via a Section 104 agreement, as illustrated in appendix 6.

Surface Water Recommendations

6.6 Carry out a percolation test to BRE365 to confirm that soakaways are not viable. Preliminary tests indicate that soakaways are not viable, it is recommended to connect the surface water discharged from site via pump to existing the sewer on Havant Road, as detailed in appendix 6.

6.7 Issue a developer enquiry and section 106 to Southern Water to ensure capacity and connection to the existing 375mm sewer on Havant Road.

7. Conclusions and Recommendations

7.1 It is proposed to develop a site currently occupied by a large residential property on Western Avenue, Emsworth, PO10 7LP. The proposal includes a block of 25 Ortis retirement apartments with associated landscaping and car parking.

7.2 Such Salinger Peters have undertaken an assessment of the existing foul and surface water drainage to the site. This has proved that the site currently drains foul water to the public foul sewer at manhole 0801, with the surface water draining to a soakaway within the soft landscaping in front of the existing building, albeit with half of the roof runoff draining to the foul drains on site.

7.3 At 3.80m, the depth of the sewer at manhole 0801 is such that a gravity connection from the proposed development will be achievable.

7.4 Although there was soakaway use, it has been found through borehole tests that soakaways would not be a viable option for the site surface water discharge – as shown in appendix 5. This will be confirmed with a percolation test to BRE365 standard.

7.5 As soakaways prove to be a non-viable option, an attenuated connection to the 375mm diameter public surface water sewers to the north of the site along the A259 Havant Road will be required at Manhole 9951 as indicated in appendix 6. Please note that any communication of flows to the surface water sewer is likely to be restricted, therefore on-site storage in the form of an attenuation tank will be required. A suitable discharge rate will need to be agreed with Southern Water.

Foul Drainage

7.6 Issue a Section 106 to Southern Water to ensure connection to the public foul sewer.

Surface Water Drainage

7.7 Soakaways are a non-viable option, issue a developer enquiry to Southern Water to ensure there is capacity in the surface water sewer for the proposed development.

7.8 Issue Section 106 to confirm connection to existing surface water sewer along Havant Road.

Appendix 1

EA Flood Map

Environment Agency

Enter a postcode or place name:

PO10 7LP Go

Other topics for this area...

Flood Map for Planning (Rivers and Sea)

Flood Map for Planning (Rivers and Sea)

Map legend

Click on the map to see what Flood Zone (National Planning Policy Guidance definitions) the proposed development is in.

- Flood Map for Planning (Rivers and Sea)
  - Flood Zone 3
  - Flood Zone 2
  - Flood defences (Not all may be shown*)
  - Areas benefiting from flood defences (Not all may be shown*)
- Main River Line
  - Main River Line
- Other national environmental organisations
  - Natural Resources Wales Area of responsibility
  - Scottish Environment Protection Agency Area of responsibility

PO10 7LP at scale 1:10,000

Other maps Data search Text only version

Customers in Wales - From 1 April 2013 Natural Resources Wales (NRW) has taken over the responsibilities of the Environment Agency in Wales.
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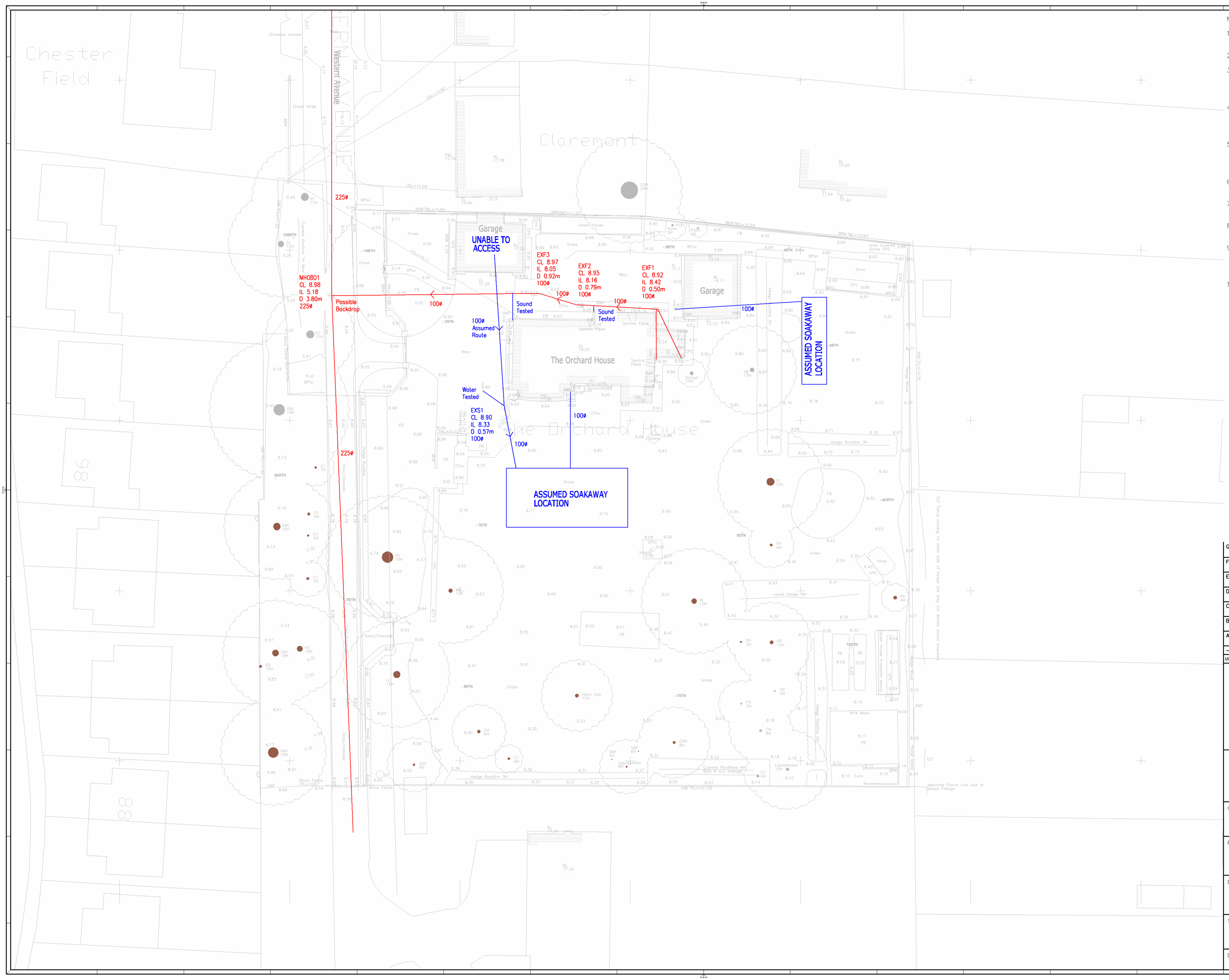
Appendix 2

64007-01 Existing Drainage (McStone ref: SW-2379-01-DE-001-A)



NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
3. SURFACE WATER DESIGN BASED ON A 1 IN 100 YEAR RAINFALL EVENT (PLUS 30% CLIMATE CHANGE) REMAINING BELOW GROUND WITH NO RISK OF SURFACE FLOODING ON OR OFF THE SITE.
4. MANHOLE TYPES ON THE SCHEDULES RELATE TO TYPES AS USED IN SEWERS FOR ADOPTION 7TH EDITION. REFER TO OTHER CONSTRUCTION DRAWINGS IN THE SERIES FOR STANDARD DETAILS.
5. WHERE A SPECIFIC DIAMETER IS SHOWN IN THE MANHOLE SCHEDULE (EG. 2100), THE MANHOLE SHOULD BE CONSTRUCTED TO THE STANDARDS FOR A TYPE 2 MANHOLE IN SEWERS FOR ADOPTION 7TH EDITION.
6. MANHOLES NOT SCHEDULED ARE TYPE 4 INSPECTION CHAMBERS
7. ALL RWP AND SVP CONNECTING PIPEWORK TO BE 100ø UNLESS NOTED OTHERWISE.
8. 100ø FOUL PIPEWORK TO BE LAID NO FLATTER THAN 1 IN 40 INTERNALLY AND 1 IN 70 EXTERNALLY.
9. MINIMUM DEPTH AT HEAD OF INTERNAL SURFACE WATER TO BE 450MM AND FOUL WATER RUNS TO BE 750MM BELOW FINISHED FLOOR LEVEL UNLESS OTHERWISE STATED.
10. FOUNDATIONS TO BE LOCALLY STEPPED WHERE NECESSARY AS PER STRUCTURAL ENGINEERS DETAILS. WHERE STUB STACKS ARE USED, SPECIAL DETAILS WILL BE PROVIDED.

PRELIMINARY DRAWING ONLY

MK	REVISIONS	DRN	CHK	APP	DATE
G					
F					
E					
D					
C					
B					
A					
–	FIRST ISSUE	DB	KD	KD	29/07/16

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CLIENT
MCCARTHY AND STONE SOUTHERN REGION

PROJECT
THE ORCHARD HOUSE
EMSWORTH

DRAWING TITLE
EXISTING DRAINAGE

SCALE	DATE		
1:200	28/07/16		
	DRAWN	CHECKED	APPROVED
	DB	KD	KD

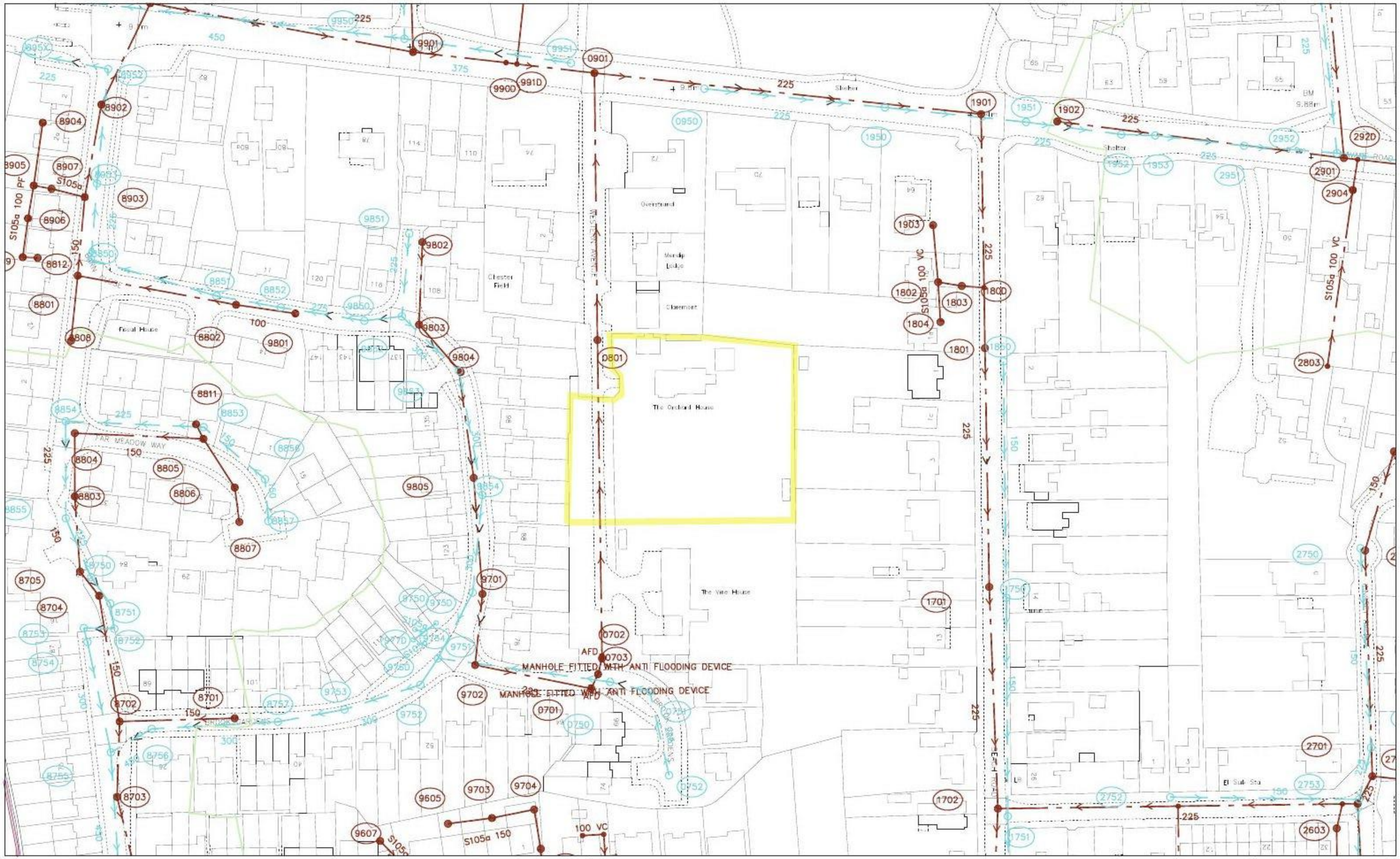
DRAWING No.	REVISION
64007–01	–

Appendix 3

Southern Water Sewer Record Plan

SEWER RECORDS PAGE 1 OF 2

105976



105688

473805

474277

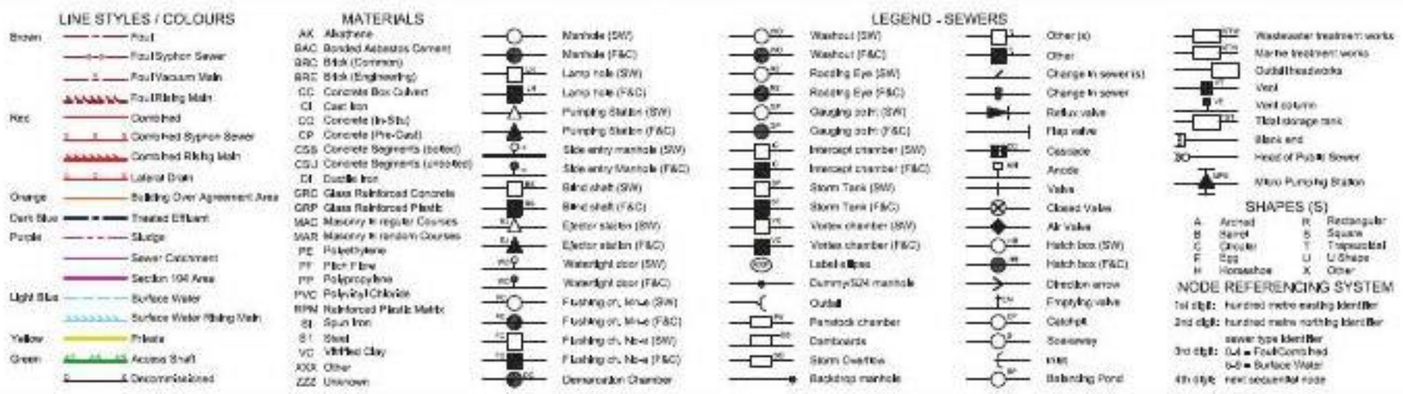
O.S. REF. SU7405NW	Drawn by: kumaria	The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determnined on site. WARNING: BAC pipes are constructed of Bonded Asbestos Cement WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement	N
	Scale: 1:250		
Title: 217087_The Orchard Houe, Weste	Date: 10/06/2016	Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.	Southern Water

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape		
060DX			100	VC	CIRC		
061DX			100	VC	CIRC		
0701X	8.22	6.07	UNK	UNK	CIRC		
0702X			UNK	UNK	CIRC		
0703X			UNK	UNK	CIRC		
0750X	8.209	6.159	UNK	UNK	CIRC		
0751X	8.149	6.219	225	UNK	CIRC		
0752X	7.642	6.382	225	UNK	CIRC		
0801X			UNK	UNK	CIRC		
0901X	9.726		225	UNK	CIRC		
0950X	9.615	8.945	225	UNK	CIRC		
1701X	8.169	3.944	225	UNK	CIRC		
1702X	7.45		225	UNK	CIRC		
1750X	8.128	7.228	150	UNK	CIRC		
1751X	7.432	6.292	225	UNK	CIRC		
1801X	9.007	4.16	225	UNK	CIRC		
1802X			100	VC	CIRC		
1803X			100	VC	CIRC		
1804X			100	VC	CIRC		
180DX			225	UNK	CIRC		
1850X	8.988	7.718	150	UNK	CIRC		
1901X	9.571	4.377	225	UNK	CIRC		
1902X	9.522	7.397	225	UNK	CIRC		
1903X			100	VC	CIRC		
1950X	9.554	8.944	225	UNK	CIRC		
1951X	9.586	8.806	225	UNK	CIRC		
1952X	9.541	8.721	UNK	UNK	CIRC		
1953X	9.496	8.696	225	UNK	CIRC		
2603X			150	VC	CIRC		
2701Y	6.571	4.596	225	UNK	CIRC		
2702X	6.958		225	UNK	CIRC		
2703X	7.666	6.306	225	UNK	CIRC		
270DX			225	UNK	CIRC		
271DX			225	UNK	CIRC		
2750X	7.631	6.983	150	UNK	CIRC		
2751X	6.938	6.288	225	UNK	CIRC		
2752X	7.156	5.876	150	UNK	CIRC		
2753X	6.541	5.301	225	UNK	CIRC		
2801X	7.858	6.791	150	UNK	CIRC		
2803X			100	VC	CIRC		
2901X	9.135		225	UNK	CIRC		
2904X			UNK	UNK	CIRC		
292DX			225	UNK	CIRC		
2951X	9.404	8.594	UNK	UNK	CIRC		
2952X	9.212		225	UNK	CIRC		
8701X			150	UNK	CIRC		
8702X			UNK	UNK	CIRC		
8703X			UNK	UNK	CIRC		
8704X	7.67	5.23	150	UNK	CIRC		
8705X	7.71	5.39	UNK	UNK	CIRC		
8750X	7.728	5.97	225	UNK	CIRC		
8751X	7.646	5.615	225	UNK	CIRC		
8752X	7.428	5.45	225	UNK	CIRC		
8753X	7.379	5.139	UNK	UNK	CIRC		
8754X	7.203	5.033	300	UNK	CIRC		
8755X	6.276	4.686	450	UNK	CIRC		
8756X	6.686	4.836	450	UNK	CIRC		
8757X	7.205	5.365	300	UNK	CIRC		
8801X	8.79	7.57	150	UNK	CIRC		
8802X	9.296	7.946	UNK	UNK	CIRC		
8803X	7.832	5.59	150	UNK	CIRC		
8804X	8.008	5.86	225	UNK	CIRC		
8805X	8.356	6.295	150	UNK	CIRC		
8806X	8.364	6.36	UNK	UNK	CIRC		
8807X	8.111	6.5	UNK	UNK	CIRC		
8808X	8.79	7.59	UNK	UNK	CIRC		
8809X			100	PF	CIRC		
8811X			100	VC	CIRC		
8812X			UNK	UNK	CIRC		
8850X	9.021	7.831	225	UNK	CIRC		
8851X	9.169	8.059	225	UNK	CIRC		
8852X	9.511		225	UNK	CIRC		
8853X	8.323	6.56	225	UNK	CIRC		
8854X	7.953	6.19	225	UNK	CIRC		
8855X	7.797	6.04	225	UNK	CIRC		
8856X	8.33	6.65	150	UNK	CIRC		
8857X	8.109	6.925	150	UNK	CIRC		
8901X	9.135		225	UNK	CIRC		
8902X	8.971	6.811	UNK	UNK	CIRC		
8903X	9.084	7.094	UNK	UNK	CIRC		
8904X			100	PF	CIRC		
8905X			UNK	UNK	CIRC		
8906X			100	PF	CIRC		
8907X			UNK	UNK	CIRC		
8952X	8.831	7.481	225	UNK	CIRC		
8953X	9.178	7.678	225	UNK	CIRC		
895XX	8.833	7.253	525	UNK	CIRC		
9605X			150	UNK	CIRC		
9606X			150	UNK	CIRC		
9701X	8.38	6.84	UNK	UNK	CIRC		
9702X	8.26	6.68	225	UNK	CIRC		
9703X			150	UNK	CIRC		
9704X			150	UNK	CIRC		
9750X	8.499	6.259	300	UNK	CIRC		
9751X	8.314		300	UNK	CIRC		
9752X	7.946	5.806	300	UNK	CIRC		
9753X	7.515	5.485	300	UNK	CIRC		
9754X			UNK	UNK	CIRC		
976DX			UNK	UNK	CIRC		
977DX			UNK	UNK	CIRC		
9801X	9.479	8.079	100	UNK	CIRC		
9802X	9.17	7.95	UNK	UNK	CIRC		
9803X	9.29	7.58	UNK	UNK	CIRC		
9805X	8.64		UNK	UNK	CIRC		
9850X	9.902	7.262	225	UNK	CIRC	*	
9850Y	9.902		225	UNK	CIRC	*	
9851X	9.294	7.509	225	UNK	CIRC		
9852X	9.998	7.078	300	UNK	CIRC		
9853Y	9.131		300	UNK	CIRC	*	
9853X	9.131	6.911	UNK	UNK	CIRC	*	
9854X	8.73	6.48	300	UNK	CIRC		
9901X	9.461	4.937	UNK	UNK	CIRC		
990DX			UNK	UNK	CIRC		
991DX			UNK	UNK	CIRC		
9950X	9.466		450	UNK	CIRC		
9951X	9.669	8.769	375	UNK	CIRC		

Node	Cover	Invert	Size	Material	Shape

Node	Cover	Invert	Size	Material	Shape



Drawn by: kumaria	Southern Water
Title: 217087_The Orchard Houe, Weste	
Date: 10/06/2016	

Appendix 4

Manhole 0801 Level Monitoring Device

LONDON

Appendix 5

ACS Soil Infiltration Rate

ACS Group of Companies
ACS Testing Ltd
Tel: 01202 622858
testing@acstesting.co.uk
www.acstesting.co.uk

SOIL INFILTRATION RATE

Job Reference : 17-80683

Client : McCarthy & Stone Retirement Lifestyles Ltd

Client Reference : WS01

Site : The Orchard House

Test Number : 1

Location : Emsworth

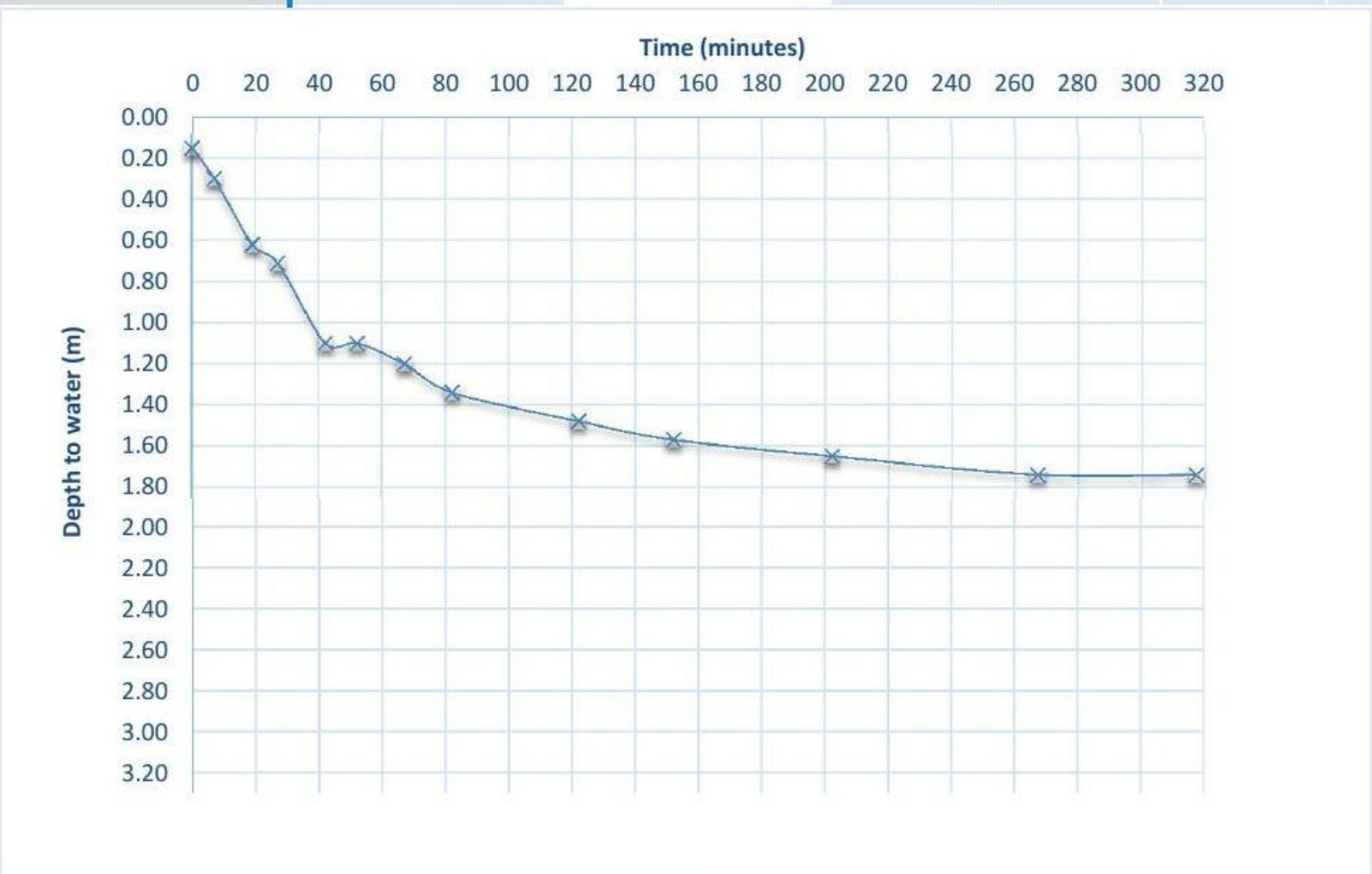
Date Tested : 21/02/2017

Technician : AM

Weather : Overcast

Parameters	
Borehole Diameter	0.116 m
Borehole Depth	3.3 m
Borehole Casing Depth	3.00 m
L (Length of Open Hole)	0.30 m
H_1 (Head Measured at T_1)	3.15 m
H2 (Head Measured at T2)	1.56 m
T_1 (Time 1)	0 mins
T_2 (Time 2)	317 mins
Cross Sectional Area	0.0106 m²
Intake Factor	1.12

Time		Depth to Water (m)	Head (m)
Minutes	Seconds		
0	0	0.15	3.15
7	420	0.30	3.00
19	1140	0.62	2.68
27	1620	0.71	2.59
42	2520	1.10	2.20
52	3120	1.10	2.20
67	4020	1.20	2.10
82	4920	1.34	1.96
122	7320	1.48	1.82
152	9120	1.57	1.73
202	12120	1.65	1.65
267	16020	1.74	1.56
317	19020	1.74	1.56



Remarks:

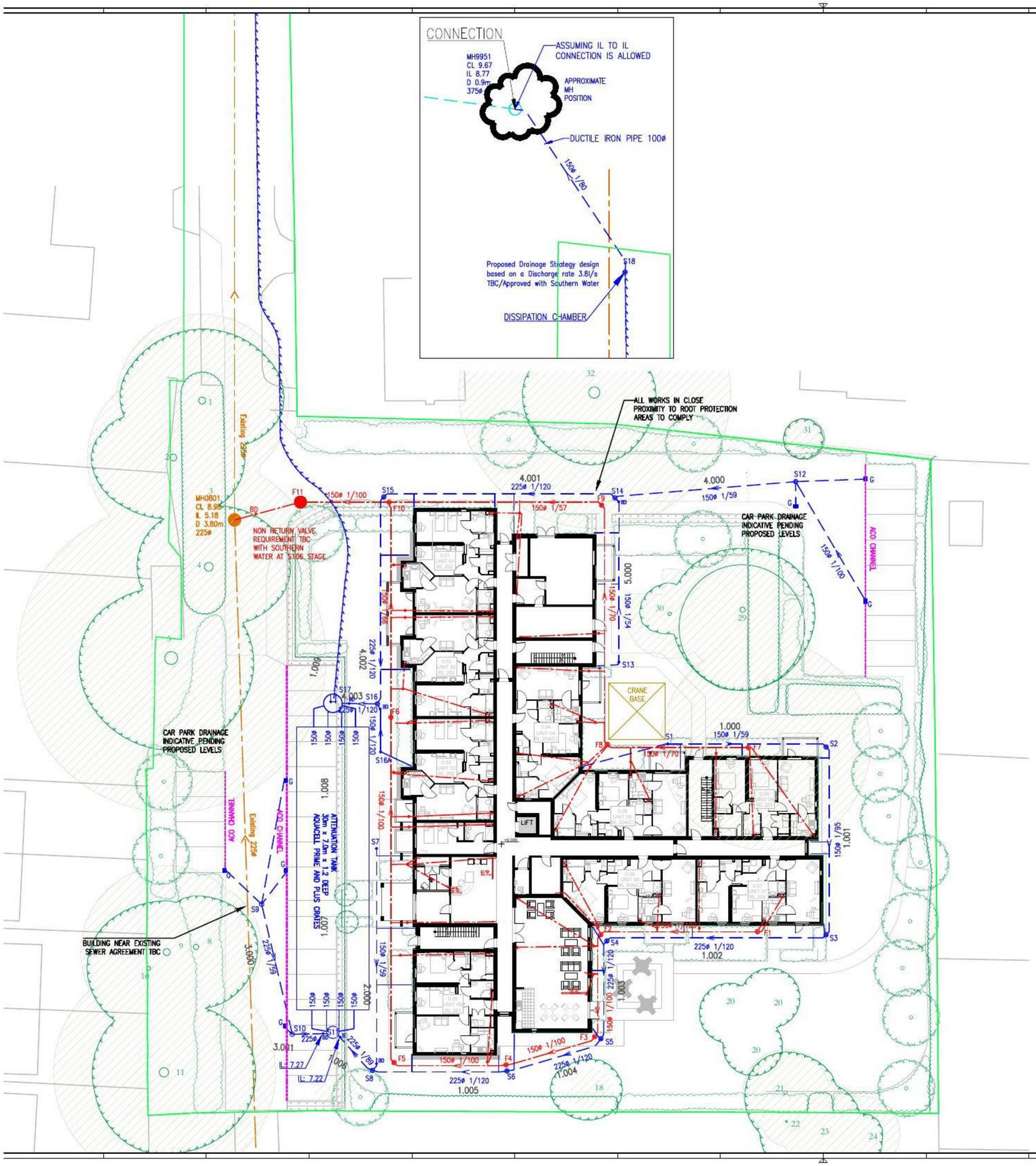
Soil Infiltration Rate m/s : **3.48E-07**

Approved by: R J Holloway - *Principal Geo-Environmental Engineer*

Date: 22/02/2017

Appendix 6

Such Salinger Peter's Drainage Layout Design



KEY

- TYPE 4 INSPECTION CHAMBER – 250 DIA.
- TYPE 3 INSPECTION CHAMBER – 450 DIA.
- TYPE 2 P.C. MANHOLE – MIN 1200ø < 3m DEEP
- TYPE 1 P.C. MANHOLE – MIN 1200ø 3m–6m DEEP
- FOUL WATER SEWER
- SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- SURFACE WATER RISING MAIN
- BOUNDARY
- ACO DRAINAGE CHANNEL

FOUL MANHOLE SCHEDULE

MH No.	COVER	INVERT LEVEL		DEPTH	MAX PIPE	MH	COVER TYPE
		IN	OUT				
F1	8.85	7.84	7.84	1.01	150	3	A15
F2	8.85	7.69	7.69	1.16	150	3	A15
F3	8.85	7.59	7.59	1.26	150	3*	A15
F4	8.85	7.50	7.50	1.35	150	3*	A15
F5	8.85	7.39	7.39	1.46	150	3*	A15
F6	8.85	7.06	7.06	1.79	150	3*	A15
F7	8.85	7.69	7.69	1.16	150	3	A15
F8	8.85	7.50	7.50	1.35	150	3*	A15
F9	8.85	7.17	7.17	1.68	150	3*	A15
F10	8.85	6.75	6.75	2.10	150	3*	A15
F11	8.85	6.65	6.65	2.20	150	2	D400

ALL LEVELS TBC BEFORE WORKS AND REPORTED BACK TO ENGINEER.
ALL PIPEWORK TO BE 100 ø AT MIN. 1/70 UNLESS STATED OTHERWISE.
* RESTTRICTED ACCESS.

SURFACE WATER MANHOLE SCHEDULE

MH No.	COVER	INVERT LEVEL		DEPTH	MAX PIPE	MH	COVER TYPE
		IN	OUT				
S1	8.85	–	8.30	0.55	150	4	A15
S2	8.85	8.03	8.03	0.82	150	3	A15
S3	8.85	7.85	7.85	1.00	150	3	A15
S4	8.85	7.63	7.56	1.29	225	3*	A15
S5	8.85	7.46	7.46	1.39	225	3*	A15
S6	8.85	7.38	7.38	1.47	225	3*	A15
S7	8.85	–	8.30	0.55	150	4	A15
S8	8.85	7.27	7.27	1.58	225	3*	A15
S9	8.85	–	7.55	1.30	225	3*	D400
S10	8.85	7.33	7.33	1.52	225	3*	D400
S11	8.85	7.21	6.45	2.40	225	1200	D400
S12	8.85	–	7.55	1.30	150	3*	D400
S13	8.85	–	8.30	0.55	150	4	A15
S14	8.85	7.25	7.25	1.60	150	3*	D400
S15	8.85	7.02	6.95	1.90	225	3*	D400
S16A	8.85	–	8.30	0.55	150	4	A15
S16	8.85	6.70	6.70	2.15	225	3*	A15
S17	8.85	6.74	6.35	2.50	225	2100	D400
S18	9.56	9.01	9.01	0.55	150	3	D400
9951	9.67	8.77	8.77	0.90	375	Ex	Ex

ALL LEVELS TBC BEFORE WORKS AND REPORTED BACK TO ENGINEER.
ALL PIPEWORK TO BE 100 ø AT MIN. 1/80 UNLESS STATED OTHERWISE.
* RESTRICTED ACCESS.
S14 TO HOUSE PUMPING STATION WITH 2 PUMPS WORKING; ONE DUTY AND ANOTHER STANDBY AT 3.8L/s.
S8 AND S14 TO HAVE ADDITIONAL 500mm DEEP SILT TRAP

ATTENUATION TANK SCHEDULE

PLAN DIMENSIONS	EFFECTIVE DEPTH	TOP OF TANK	BASE OF TANK	LOWEST COVER LEVEL	LOWEST IL IN	MAX. CONSTRUCTION DEPTH
30 x 7m	1.2	7.65–7.55	6.45–6.35	8.85	6.45	2.50

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
3. SURFACE WATER DESIGN BASED ON A 1 IN 100 YEAR RAINFALL EVENT (PLUS 40% CLIMATE CHANGE) REMAINING BELOW GROUND WITH NO RISK OF SURFACE FLOODING ON OR OFF THE SITE.
4. MANHOLE TYPES ON THE SCHEDULES RELATE TO TYPES AS USED IN SEWERS FOR ADOPTION 7TH EDITION. REFER TO CONSTRUCTION DRAWINGS IN THE SERIES FOR STANDARD DETAILS.
5. WHERE A SPECIFIC DIAMETER IS SHOWN IN THE MANHOLE SCHEDULE (EG. 2100), THE MANHOLE SHOULD BE CONSTRUCTED TO THE STANDARDS FOR EITHER A TYPE 1 OR TYPE 2 MANHOLE IN SEWERS FOR ADOPTION 7TH EDITION.
6. MANHOLES NOT SCHEDULED ARE TYPE 4 INSPECTION CHAMBERS.
7. ALL RWP AND SVP CONNECTING PIPEWORK TO BE 100ø UNLESS NOTED OTHERWISE.
8. 100ø FOUL PIPEWORK TO BE LAID NO FLATTER THAN 1 IN 40 INTERNALLY AND 1 IN 70 EXTERNALLY.
9. MINIMUM DEPTH AT HEAD OF INTERNAL SURFACE WATER TO BE 450MM AND FOUL WATER RUNS TO BE 750MM BELOW FINISHED FLOOR LEVEL UNLESS OTHERWISE STATED.
10. FOUNDATIONS TO BE LOCALLY STEPPED WHERE NECESSARY AS PER STRUCTURAL ENGINEERS DETAILS. WHERE STUB STACKS ARE USED, SPECIAL DETAILS WILL BE PROVIDED.
11. PUBLIC MANHOLE DETAILS FROM PUBLIC SEWER RECORDS.
12. AREA CONTRIBUTING TO THE SW SYSTEM TAKEN AS 2350 m2.
13. THIS DRAWING IS FOR STRATEGY PURPOSES ONLY AND MUST NOT BE USED FOR CONSTRUCTION.
14. FORMAL APPLICATION AND APPROVAL FOR CONNECTIONS INTO PUBLIC SYSTEM MUST BE OBTAINED BEFORE WORKS.
15. SOIL INVESTIGATION LOOKING @ 500mm INFILTRATION TESTS AFTER PLANNING FOR POSSIBLE PERMEABLE PAVING OPTION.

PRELIMINARY ONLY

MK	REVISIONS	DRN	CHK	APP	DATE
G					
F					
E					
D					
C	Rising main route amended	DL	PP	KD	06.06.2017
B	Rising Main route amended	KD	PP	KD	25.05.2017
A	Rising main and attenuation tank moved as requested. F11 moved back and RP'Ss added.	KD	DL	KD	25.05.2017
–	FIRST ISSUE	DL	KD	KD	19.05.2017

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www.sspconsulting.co.uk

CLIENT: MCCARTHY AND STONE SOUTHERN REGION

PROJECT: THE ORCHARD HOUSE EMSWORTH

DRAWING TITLE: 'T' BUILDING DRAINAGE LAYOUT

SCALE: 1:200 | DATE: 25/05/2017 | DRAWN: KD | CHECKED: PP | APPROVED: KD

McCarthy & Stone — Later Life. Greater Life

McCarthy & Stone drawing Ref: SO-2379-03-DE-003

DRAWING No. 64007–03 | REVISION B

Appendix 7

Future Capacity Calculation – Foul Sewer

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PROJECT			
EMSWORTH			
CALC. BY: OL	CHECKED BY	APPROVED BY	JOB No. 64007
DATE: 28/04/17	DATE	DATE	SHEET No. 1 of 1
DRAWING REF. 64007			REV. -

ELEMENT

FOUL CAPACITY OUTFLOW CALCULATION.

25 x 2 BEDS

AVG OCCUPANCY =

2 BEDS = 1.5 PERSONS.

ALLOW 150 L/p/d

25 x 1.5 x 150 = 5,625 L/d

∴ = 0.0651 L/s

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