58 Satchell Lane, Hamble

Surface Water Drainage Strategy

November 2017

Such·Salinger·Peters

CONSULTING ENGINEERS

Issue Record

Revision	Date	Details
First Issue	03/11/2017	

Copy No	Issued To
One	Wayne Manton

First Issue	Name	Signature	Date
Originator	JHW	JHW	03/11/2017
Reviewer	JEP	JEP	03/11/2017
Authoriser	JHW	JHW	03/11/2017

GENERAL NOTES

1. This report is provided as an assessment 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.

3. The report is provided for the sole use by the Client and is confidential to the Client's professional advisers. No responsibility whatsoever for the contents of this report will be accepted to any person other than the Client.

4. The copyright of this report and other plans and documents prepared by Such Salinger Peters Limited is owned by them and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete copies of this report may, however, be made and distributed by the Client as an expedient in dealing with matters relating to its commission.

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 & Existing Drainage

1.1 Such Salinger Peters has been instructed to prepare a surface water drainage strategy to support a planning application for the redevelopment of a site at 58 Satchell Lane, Hamble.

1.2 The site is currently occupied by a single detached residential dwelling. A survey of the existing drainage arrangements on the site was conducted on 31st October 2017 which identified disposal routes for foul and surface water arisings.

1.3 Foul flows from the property drain to the public sewer running across the eastern end of the site. There is a small diameter shallow pipe network serving the property and the neighbouring house (Boathouse Cottage), which discharges into the public sewer running across the site.

1.4 All of the surface water runoff from the roof of the property was proven to connect to the foul sewer. In addition, a section of the driveway was also proven to connect to the foul sewer. The total area connected to the public foul sewer is 390m². This equates to a peak flow of 15.5 l/s during a 1 in 100 year rainfall event.

1.5 Surface water runoff from the remaining driveway area is not positively drained. The area of this driveway is 130m², which would generate a peak flow of 5.2 l/s during a 1 in 100 year rainfall event.

1.6 A copy of the Southern Water sewer record drawing is included in Appendix A.

2. Site Investigation

2.1 During the site visit on 31/10/2017, two trial pits were dug to identify the ground conditions and to undertake soakaway testing to BRE 365.

2.2 The first trial pit was dug toward the front of the property and extended to a depth of 3.1m below ground level. Beneath a 300mm layer of topsoil, the ground was predominantly clay, with small gravel and sand lenses.

2.3 A soakaway test was undertaken in this trial pit. Over a 60 minute period the water level in the pit did not drop, and so the test was abandoned.

2.4 A second trial pit was dug in the rear garden of the property and extended to a depth of 2.0m below ground level. Beneath a 250mm layer of topsoil, the ground was predominantly clay. Small lenses of gravel and sand were present to a depth of 1.2m.

2.5 A drawing showing the location of the trial pits is included in Appendix 2. Trial pit logs and a scan of the aborted soakaway test recordings are included in Appendix 3.

2.6 Based on the outcome of the trial pits, it is concluded that soakaways are not viable for this site.

3. Surface Water Drainage

3.1 The proposed redevelopment of the site involves the construction of four new residential dwellings with associated driveways and a small access road.

Method of Surface Water Disposal

3.2 Methods for dealing with surface water runoff from the new development have been considered using the SuDs hierarchy as detailed in Building Regulations Part H.

3.3 Infiltration is the preferred solution for dealing with surface water runoff. However, the testing undertaken concluded that soakaways are not a viable solution for this development.

3.4 The next alternative to consider is a direct connection to a watercourse. There is a watercourse located a short distance to the east of the site, however laying a new connection to this watercourse would involve crossing land owned by third parties.

3.5 There is an existing public surface water sewer which runs along the southern boundary of the site, and which discharges directly into the watercourse discussed in 3.4 above. It is the intention to discharge surface water runoff from the new development at an attenuated rate into this public sewer, subject to the approval of Southern Water. By making this connection, the overall outcome of discharging to the watercourse is still achieved, but the impacts on the environment of constructing a new pipeline and outfall are removed.

3.6 As a result of discharging runoff from the new development to the public surface water sewer, there will be a benefit to Southern Water in the form of reduced surface water runoff discharging to the public foul sewer network (the 15.5 l/s currently discharging will be disconnected).

3.7 A Developer Enquiry containing these proposals is currently being prepared and will be issued to Southern Water shortly.

Surface Water Strategy

3.8 It is proposed to connect the new roof areas directly to an attenuation tank prior to discharge to the public sewer.

3.9 It is proposed to drain the small access road and driveways using conventional impermeable surfacing combined with the following treatment train:

- Trapped gullies to remove coarse silt/grit and provide initial interception of oil based contaminants

- Linear Permavoid Biomat to intercept and break down any remaining hydrocarbons
- Lined subbase storage beneath the carriageway to provide attenuation volume and enable the offsite discharge rate to be limited

3.10 It is intended that all roof and paved areas will connect to a shared attenuation tank before being discharged off site.

3.11 The property as a whole generates a peak surface water runoff flow of 20.7 l/s during a 1 in 100 year rainfall event. It is proposed that the new development limits off site flows to 10 l/s, representing a 50% reduction.

3.12 Flows from the attenuation tank will be limited using a proprietary flow control device such as a Hydrobrake or similar.

Appendix A

Sewer Records

SEWER RECORDS PAGE 1 OF 2



O.S. REF. SU4807SW	Drawn by: akhtarh	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: 1:1250		
Title: 179271_58 Satchell Lane Hamble	Date: 14/08/2014	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
1201X	8.21	6.48	225	VC	CIRC
1251X	8.24	7.21	450	CP	CIRC
1252X	8.18	7.26	450	CP	CIRC
125IX	–1	8.08	300	CP	CIRC
2201X	3.52		225	VC	CIRC
2202X	3.48		225	VC	CIRC
220DX			UNK	UNK	UNK
222DX			UNK	UNK	UNK
224DX			UNK	UNK	UNK
2251X	4.53	3.3	225	CP	CIRC
2252X	4.25	2.73	225	VC	CIRC
2253X	4.47	3.44	225	VC	CIRC
2255X	3.7	2.4	200	VC	CIRC
2256X	7.94		225	UNK	CIRC
2301X	9.4	7.93	150	VC	CIRC
2302X	8.56		225	VC	CIRC
2303X	8.05	5.8	225	VC	CIRC
2304X	3.91		300	DI	CIRC
230DX			225	VC	CIRC
231DX			300	DI	CIRC
232DX			UNK	UNK	UNK
2351X	8.42	6.36	450	CP	CIRC
2352X	7.56		450	CP	CIRC
2353X	5.98		600	CP	CIRC
2354X	8.11	6.58	450	CP	CIRC
2355X	4.03	2.09	600	CP	CIRC
2401X	4.97	3.31	225	VC	CIRC
2402X	10.2	8.59	150	VC	CIRC
2403X	11.74	10.13	150	VC	CIRC
3251X	2.83	1.58	225	VC	CIRC
3252X			225	VC	CIRC
3253X			225	VC	CIRC
3351X			600	CP	CIRC
3352X			225	VC	CIRC
3353X	2.69	1.22	600	CP	CIRC
3401X	5.48		225	VC	CIRC
3507X	5.16	3.79	225	VC	CIRC
4251X	2.37	0.57	225	VC	CIRC

Node	Cover	Invert	Size	Material	Shape
Node	Cover	Invert	Size	Material	Shape
Node	Cover	Invert	Size	Material	Shape
Node	Cover	Invert	Size	Material	Shape

LINE STYLES / COLOURS

Brown — Foul
Foul Syphon Sewer
Foul Vacuum Main
Foul Rising Main
Red — Combined
Combined Syphon Sewer
Combined Rising Main
Lateral Drain
Orange — Building Over Agreement Area
Dark Blue — Treated Effluent
Purple — Sludge
Sewer Catchment
Section 104 Area
Light Blue — Surface Water
Surface Water Rising Main
Yellow — Private
Green — Access Shaft
Decommissioned

MATERIALS

AK Alkathene
BAC Bonded Asbestos Cement
BRC Brick (Common)
BRE Brick (Engineering)
CC Concrete Box Culvert
CI Cast Iron
CO Concrete (In-Situ)
CP Concrete (Pre-Cast)
CSB Concrete Segments (bolted)
CSU Concrete Segments (unbolted)
DI Ductile Iron
GRC Glass Reinforced Concrete
GRP Glass Reinforced Plastic
MAC Masonry in regular Courses
MAR Masonry in random Courses
PE Polyethylene
PF Pitch Fibre
PP Polypropylene
PVC Polyvinyl Chloride
RPM Reinforced Plastic Matrix
SI Spun Iron
ST Steel
VC Vitrified Clay
XXX Other
ZZZ Unknown

Manhole (SW)
Manhole (F&C)
Lamp hole (SW)
Lamp hole (F&C)
Pumping Station (SW)
Pumping Station (F&C)
Side entry manhole (SW)
Side entry Manhole (F&C)
Blind shaft (SW)
Blind shaft (F&C)
Ejector station (SW)
Ejector station (F&C)
Watertight door (SW)
Watertight door (F&C)
Flushing ch. Nt=e (SW)
Flushing ch. Nt=e (F&C)
Flushing ch. Ne=s (SW)
Flushing ch. Ne=s (F&C)
Demarcation Chamber

LEGEND - SEWERS

Washout (SW)
Washout (F&C)
Rodding Eye (SW)
Rodding Eye (F&C)
Gauging point (SW)
Gauging point (F&C)
Intercept chamber (SW)
Intercept chamber (F&C)
Storm Tank (SW)
Storm Tank (F&C)
Vortex chamber (SW)
Vortex chamber (F&C)
Label ellipse
Dummy/S24 manhole
Outfall
Penstock chamber
Damboards
Storm Overflow
Backdrop manhole

Other (s)
Other
Change in sewer (s)
Change in sewer
Reflux valve
Flap valve
Cascade
Anode
Valve
Closed Valve
Air Valve
Hatch box (SW)
Hatch box (F&C)
Direction arrow
Emptying valve
Catchpit
Soakaway
Inlet
Balancing Pond

Wastewater treatment works
Marine treatment works
Outfall headworks
Vent
Vent column
Tidal storage tank
Blank end
Head of Public Sewer
Micro Pumping Station

SHAPES (S)

A Arched
B Barrel
C Circular
E Egg
H Horseshoe
R Rectangular
S Square
T Trapezoidal
U U Shape
X Other

NODE REFERENCING SYSTEM

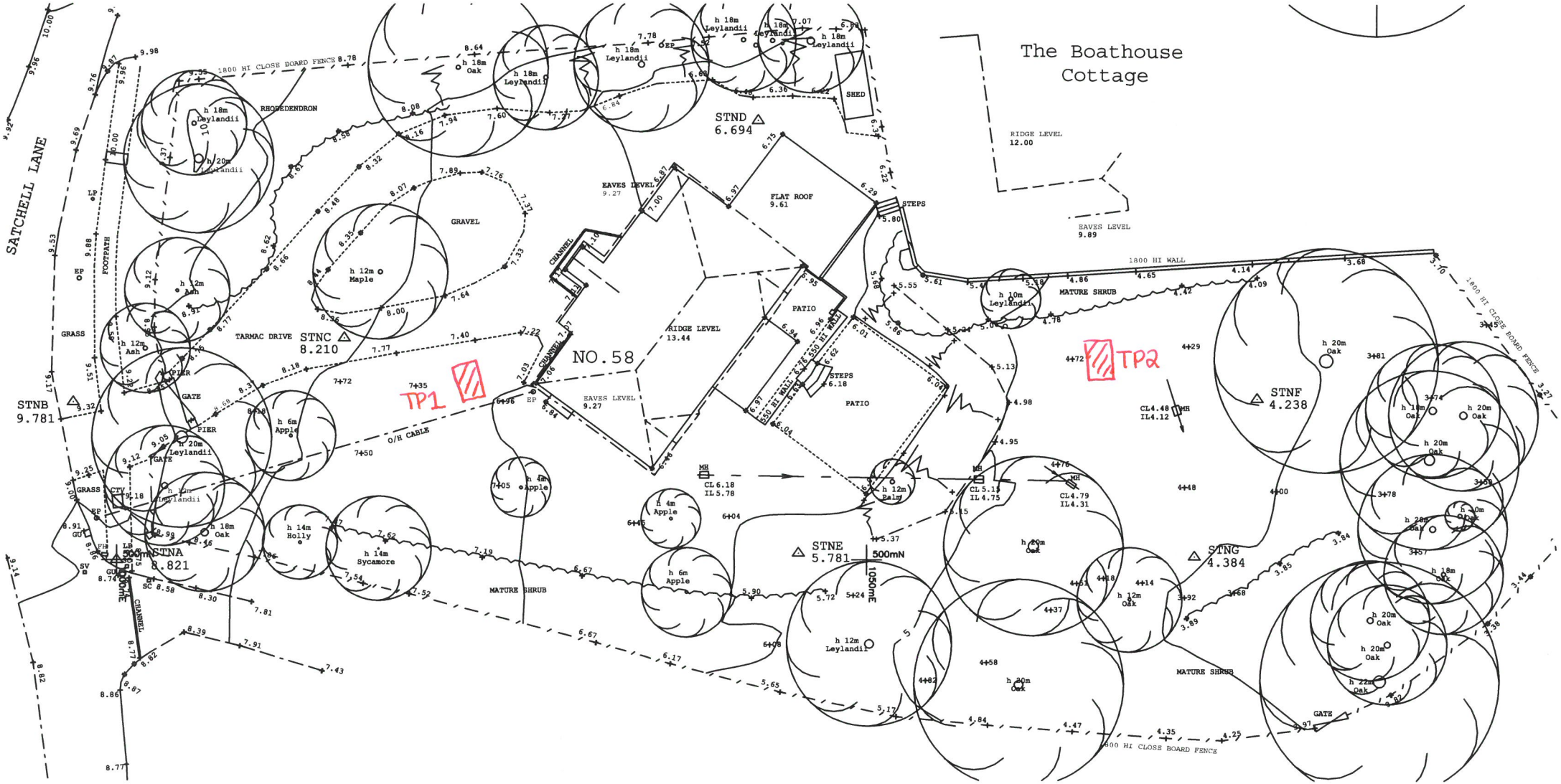
1st digit: hundred metre easting identifier
2nd digit: hundred metre northing identifier
3rd digit: sewer type identifier
0-4 = Foul/Combined
5-9 = Surface Water
4th digit: next sequential node

Drawn by:	akhtarh
Title:	179271_58 Satchell Lane Hamble
Date:	14/08/2014

Southern Water

Appendix B

Trail Pit Locations



80317 58 Satchell Lane
Trial Pit Locations

Appendix C

Trail Pit Logs and Soakaway Records

Such Salinger Peters
Middle Site, Jesmond Avenue
80270

Such·Salinger·Peters
CONSULTING ENGINEERS

Suite 1, Fourth Floor, Dean Park House,
10 Dean Park Cresent, Bournemouth Tel. 01202 293213
enquiries@sspconsulting.co.uk

PROJECT			
58 Satchell Lane, Hamble			
CALC. BY	CHECKED BY	APPROVED BY	JOB No.
JW			80317
DATE	DATE	DATE	SHEET No.
01/11/17			1
DRAWING REF.			REV.
—			—

ELEMENT

TRIAL PIT LOG

Trial Pit 1

▽ GL = 7.10 (approx)

300 Topsoil

2800 CLAY with small pockets of sand/gravel

(0 - 3.1m)

Trial Pit 2

▽ GL = 4.72 (approx)

250 Topsoil

1650 CLAY with small pockets of sand / gravel to 1200

Such·Salinger·Peters
CONSULTING ENGINEERS

Suite 1, Fourth Floor, Dean Park House,
10 Dean Park Cresent, Bournemouth Tel. 01202 293213
enquiries@sspconsulting.co.uk

PROJECT			
Satchell Lane, Hamble			
CALC. BY	CHECKED BY	APPROVED BY	JOB No.
JHW			80317
DATE	DATE	DATE	SHEET No.
01/11/17			1
DRAWING REF.			REV.
			—

ELEMENT

SOAKAWAY TEST

Located in TP1.

Time(m)	Depth to Water Level (mm)
0:00	340
1:00	340
2:00	340
3:00	340
5:00	340
10:00	340
15:00	340
20:00	340
30:00	340
40:00	340
50:00	340
60:00	340

Test abandoned after 1 hour

Such Salinger Peters Ltd

Fourth Floor
Dean Park House
8-10 Dean Park Crescent
Bournemouth
BH1 1HL

(01202) 293 213



ace
consultancy engineering business environment