

APPENDICES

- A – Proposed Site Layout
- B – Proposed Landscaping Layout
- C – Existing Surface Water Run-Off Calcs
- D – Southern Water Asset Plan
- E – Utility Mapping Drawing
- F – Extract from Ground Investigation Report on Groundwater
- G – Exceedance Flow Paths
- H – Proposed Levels Strategy
- I – Extract from Ground Investigation Report on infiltration tests
- J – Microdrainage Calcs
- K – Proposed Drainage strategy
- L – Foul Water Peak Flow Rate Calcs
- M – Southern Water Capacity Check

Appendix A – Proposed Site Layout



Unit No.	GF GiA (m2)	(ft2)	Mezz. GiA (m2)	(ft2)	TOTAL (m2)	TOTAL (ft2)	Mezz. %
1	356	3832	98	1055	454	4886	22%
2	356	3832	98	1055	454	4886	22%
3	413	4445	114	1227	527	5672	22%
4	351	3778	113	1216	464	4994	24%
5	351	3778	114	1227	465	5005	25%
6	352	3789	114	1227	466	5016	24%
7	383	4122	114	1227	497	5349	23%
8	381	4101	114	1227	495	5328	23%
9	381	4101	114	1227	495	5328	23%
10	383	4122	114	1227	497	5349	23%
11	253	2723	98	1055	351	3778	28%
12	253	2723	98	1055	351	3778	28%
	4213	45345	1303	14024	5516	59369	

Total GiA:	5516	59369
Total GeA:	5820	62641

Parking:	134	1/43m2
Site Area(m2):	10,234	
Site Density (GF GeA):		43%
Site Density (Total GeA) :		57%

This drawing is the copyright of HNW Architects Ltd Registered No. 3589904
All dimensions must be verified on site prior to construction.
Do not scale this drawing except for Planning Application purposes.
Ordinance Survey Licence No. 100000200
Only PDF issues of this drawing are controlled. All other formats of this drawing (e.g. dwg Autocad or .rvt Revit files) are un-controlled and are used at your own risk.
This drawing must not be copied, transmitted or passed to a third party, without written consent.

Rev	Amendments	by	chkd	Date

Legend:



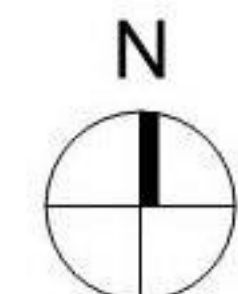
Existing trees



Proposed trees



Low shrub ground cover



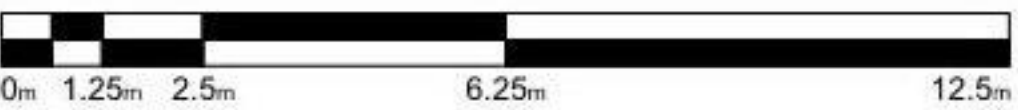
Havant BC Parking SPD

Land Use (Minimum/GEA)	Car parking std.
B1(a) office	1 space per 30 sqm
B1 (b)(c)	1 space per 45 sqm
B2	1 space per 45 sqm
B8 warehouse	1 space per 90 sqm

Land Use (Minimum/GEA)	Cycle parking std.	Long Stay	Short Stay
B1(a) office	1/150 sqm	1/500sqm	
B1 (b)(c)	1/250 sqm	1/500sqm	
B2	1/350 sqm	1/500sqm	
B8 warehouse	1/500 sqm	1/1000sqm	

One motorcycle space is to be provided for every 25 car parking spaces.
Disabled people's car parking spaces should be provided in a ratio of 5% of the total allocation.

NOTES:
All measurements are preliminary/ approximate & subject to tree survey, spot level / analysis, full utilities search, legal boundaries, drainage analysis and detailed layouts/design development through consultation.



Scale 1:250

Project
Kingsbridge Estates
New Lane
Havant

Drawn By: LJ Checked By: KW HNW Project No.: 18041 Date Created: JUN 19

Scale
A1- 1:250

Drawing Title
Site Plan as Proposed

Drawing Status
PRELIMINARY

Drawing Number
18041-HNW-ZZ-ZZ-DR-A-2115

61 North Street, Chichester, West Sussex, PO19 1NB

Appendix B – Proposed Landscaping Layout



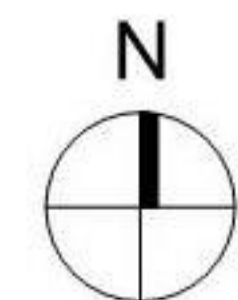
- This drawing is the copyright of HNW Architects Ltd Registered No. 3589904
- All dimensions must be verified on site prior to construction.
- Do not scale this drawing except for Planning Application purposes.
- Ordinance Survey Licence No. 100000209
- Only PDF issues of this drawing are controlled. All other formats of this drawing (e.g. dwg Autocad or .rvt Revit files) are un-controlled and are used at your own risk.
- This drawing must not be copied, transmitted or passed to a third party, without written consent.

Rev	Amendments	by	chkd	Date

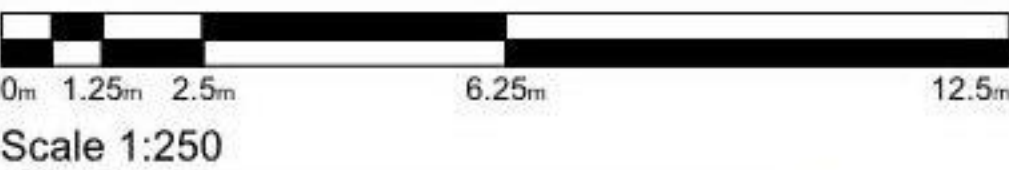
- KEY TO HARD LANDSCAPING FEATURES**
- P1 - Vehicular access and Pedestrian pavement**
Bitmac - to engineers specification
- P2 - Shared yard and parking surface area**
Brush finished reinforced concrete - to engineers specification
- P3 - Permeable reinforced paving**
Ground reinforcement paving system to be: Sure Green PP40 Porous Grass Paver, or equal and approved. Heavy duty plastic paving grid ground reinforcement system to be laid in accordance with the manufacturers recommendations
- P4 - Gravel Edging**
- KEY TO SOFT LANDSCAPING FEATURES**
- S1 - Native Tree Planting (Standard Select)**
10-12cm girth size, Standard (Select) Nursery Stock; trees to be long single stacked
- S2 - Native Mixed-Species Understorey Shrub Planting**
Proposed native mixed-species understorey shrub planting to the site boundaries. Native understorey shrub planting to be 60-80cm height multi-branched set at 1000 mm centres; planted in random groups of 3-5 plants
- S3 - Native Mixed-Species Hedge Planting**
Proposed mixed species native boundary hedge line planting areas to the boundary. Hedge planting to be bare root stock 60-80cm in height; planted at 400mm centres
- S4 - Native Tree Planting (Standard)**
8-10cm girth size; Standard Nursery Stock; trees to be long single stacked
- KEY TO BOUNDARY TREATMENTS**
- B1 - Boundary fencing**
Proposed boundary to be secured with 1.8m height blue palisade fencing
- B2 - Timber fenced compound area**
Proposed compound area to be enclosed with 1.8 height close board timber fencing with gate
- KEY TO KERB TYPES**
- Flat Top Edging (pin kerb) - 50mm wide x 150mm high
CS3 Channel - Square Top - 150mm wide x 125mm high
BN (Bullnose) Kerb Profile - 125mm wide x 150mm high
Half Battered Kerb Profile - 125mm face
ACO Drain Channel profile



Example of Sure Green PP40



NOTES:
All measurements are preliminary/ approximate & subject to tree survey, spot level / analysis, full utilities search, legal boundaries, drainage analysis and detailed layouts/design development through consultation.



Scale 1:250

Project
Kingsbridge Estates
New Lane
Havant

Drawn By LJ Checked By KW HNW Project No. 18041 Date Created JUN 19

Scale
A1- 1:250

Drawing Title
Site Landscaping as Proposed

Drawing Status
PRELIMINARY

Drawing Number
18041-HNW-ZZ-ZZ-DR-A-2116

61 North Street, Chichester, West Sussex, PO19 1NB

Revision

Revision



Native Tree Planting			
Name	Size	Pot	Density
Alnus glutinosa (Common Alder)	10 – 12 cm Girth Size; Standard (Select).	Roor Balled Stock	Specimen
Carpinus betulus (Hornbeam)	10 – 12 cm Girth Size; Standard (Select).	Roor Balled Stock	Specimen
Quercus robur (Pedunculata Oak)	10 – 12 cm Girth Size; Standard (Select).	Roor Balled Stock	Specimen
Acer campestre (Field Maple)	08 – 10 cm Girth Size; Standard	Roor Balled Stock	Specimen
Alnus glutinosa (Common Alder)	08 – 10 cm Girth Size; Standard	Roor Balled Stock	Specimen
Betula pendula (Silver Birch)	08 – 10 cm Girth Size; Standard	Roor Balled Stock	Specimen

Native Mixed Species Understorey Shrub Planting			
Name	Size	Pot	Density
Acer campestre (Field Maple)	60 – 80 cm height; Multi-Branching.	Bare Rooted Stock	1 / m2
Cornus sanguinea (Common Dogwood)	60 – 80 cm height; Multi-Branching.	Bare Rooted Stock	1 / m2
Corylus avellana (Common Hazel)	60 – 80 cm height; Transplant.	Bare Rooted Stock	1 / m2
Crataegus monogyna (Common Hawthorn)	60 – 80 cm height; Transplant.	Bare Rooted Stock	1 / m2
Ilex aquifolium (Common Holly)	60 – 80 cm height; Multi-Branching.	3 ltr Container Grown Stock	1 / m2
Ligustrum vulgare (Wild Privet)	60 – 80 cm height; Multi-Branching.	3 ltr Container Grown Stock	1 / m2
Ulex europaeus (Common Broomrape)	60 – 80 cm height; Transplant.	2 ltr Container Grown Stock	1 / m2
Prunus spinosa (Blackthorn)	60 – 80 cm height; Multi-Branching.	Bare Rooted Stock	1 / m2
Rosa canina (Dog Rose)	60 – 80 cm height; Transplant.	Bare Rooted Stock	1 / m2
Salix caprea (Goat Willow)	60 – 80 cm height; Transplant.	Bare Rooted Stock	1 / m2
Sambucus nigra (Elder)	60 – 80 cm height; Transplant.	Bare Rooted Stock	1 / m2
Viburnum opulus (Guelder Rose)	60 – 80 cm height; Transplant.	Bare Rooted Stock	1 / m2

Native Mixed Species Hedge Planting			
Name	Size	Pot	Density
Cornus sanguinea (Common Dogwood)	60 – 80 cm height; Multi-Branching.	Bare Rooted Stock	400 mm centres
Corylus avellana (Common Hazel)	60 – 80 cm height; Multi-Branching.	Bare Rooted Stock	400 mm centres
Crataegus monogyna (Hawthorn)	60 – 80 cm height; Multi-Branching.	Bare Rooted Stock	400 mm centres

Appendix C – Existing Surface Water Run-Off Calcs

Existing Surface Water Peak Run-off Rates

Modified Rational Method

Site characteristics: $M_{5-60} = 19.5 \text{ mm}$, $r = 0.35$

Impervious area = $8,010 \text{ m}^2$

For a time concentration of 15 mins $Z_1 = 0.617$

$$M_{5-15} = M_{5-60} \times Z_1 = 12.0 \text{ mm}$$

$Z_2 = 0.614, 1.505, 1.941$ for a storm return period of 1, 30 and 100 years respectively

$$M_{x-15} = Z_2 \times M_{5-15}$$

$$M_{1-15} = 7.4, \quad M_{30-15} = 18.1, \quad M_{100-15} = 23.4 \text{ mm}$$

Average peak intensity

29.5 mm/hr , 72.4 mm/hr and 93.4 mm/hr

for a storm return period of 1, 30, 100 years respectively

$$Q_p = 3.61 \times C_u \times i \times A \quad C_u = 0.75$$

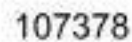
$$Q_p = 64.1 \text{ l/s} \quad \text{For the 1 in 1 year storm}$$

$$= 157.0 \text{ l/s} \quad \text{For the 1 in 30 year storm}$$

$$= 202.6 \text{ l/s} \quad \text{For the 1 in 100 year storm}$$

Appendix D – Southern Water Asset Plan

107666



SU7207NE

Drawn by: rohandas

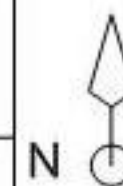
Scale: 1:1250

Date: 28/11/2018

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.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement
WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement

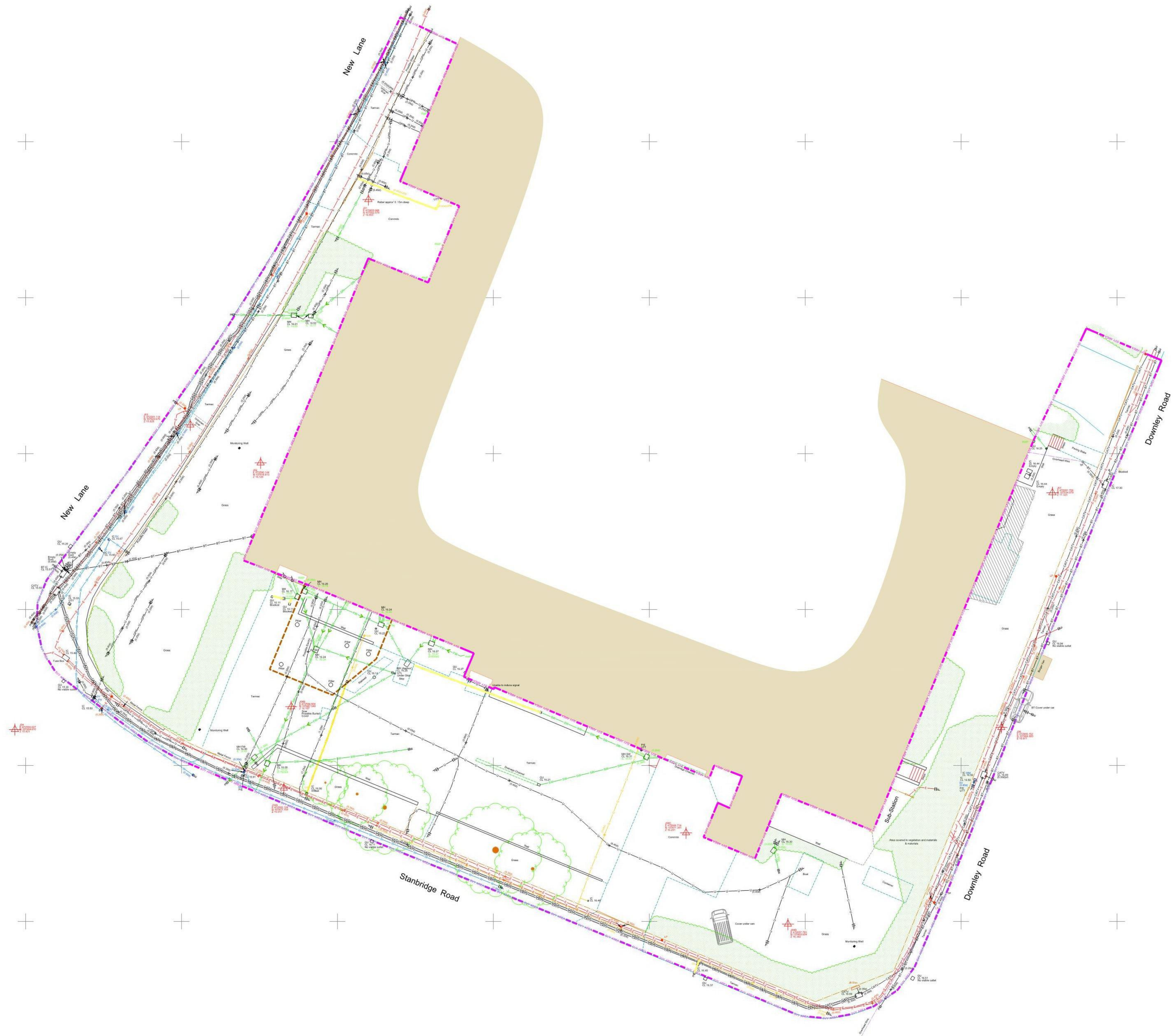
Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved
Licence No. WJ 298530.



Southern
Water

412865

Appendix E – Utility Mapping Drawing



LEGEND

UTILITY LINE TYPES

Utility Type	Symbol	Utility Type	Symbol
Water Mains	Blue line	Gas Mains	Red line
Water Services	Blue line	Gas Services	Red line
Electricity Mains	Black line	Electricity Services	Black line
Electricity Cables	Black line	Telecommunications	Green line
Telecommunications	Green line	Drainage	Orange line
Drainage	Orange line	Storm Drainage	Blue line
Storm Drainage	Blue line	Other	Other

UTILITY SURVEY INFORMATION

Utility Survey Date: 28/05/2019
Utility Survey Time: 10:00 AM
Utility Survey Location: 38 New Lane, Havant

GENERAL NOTES

Utility Survey Date: 28/05/2019
Utility Survey Time: 10:00 AM
Utility Survey Location: 38 New Lane, Havant

SHEET LAYOUT

Sheet 01

Rev Notes

Rev	Notes	Drawn	Date
1	Survey is referenced to OS Grid and Level Datum.		

Notes

Survey is referenced to OS Grid and Level Datum.

sumo SERVICES

SUMO SERVICES LTD
15 HARTWOOD BUSINESS CENTRE
NEW LANE
HANTS
HARTWORTH
RG20 2PL
TEL: 0845 456 1104
FAX: 0845 456 1105
www.sumoservices.com

Title: Utility Mapping

Client: Kingsbridge Estates

Project: 38 New Lane, Havant

Date Completed: 28/05/2019 **Post Code:** PO9 2ND

Surveyed: D.J.B.S./J.H.G. **Scale:** 1/200 (A0 Sheet)

Drawn: M.V.S.

Checked: D.J.B.S./J.H.G.

Job No: SOR015326 **Dwg No:** 01 **Rev:**

Appendix F – Extract from Ground Investigation Report on Groundwater

A Plasticity Index range of 13-34% and Liquid Limit range of 31-55% was measured, classifying the soils as low to high plasticity clay (BS classification) and low to medium volume change potential (NHBC classification).

5.4 Groundwater

Groundwater was recorded within several of the boreholes during drilling; the observations are detailed on the borehole logs. The nature/speed of drilling may have masked some inflows.

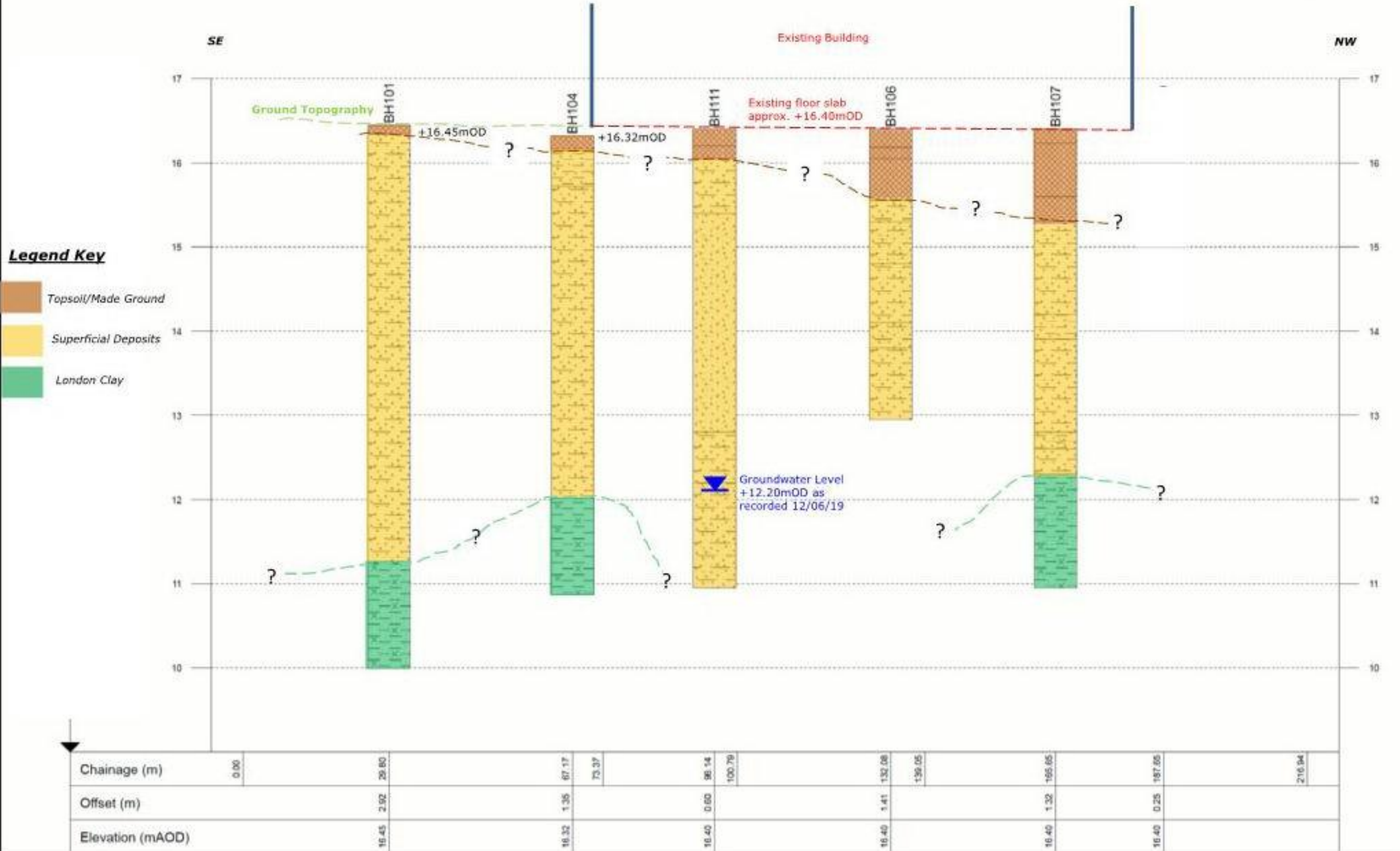
In order to provide steady-state information, 50mm & 35mm ID combined gas/water monitoring pipes were installed in five of the boreholes. During subsequent monitoring of the installations, the following observations were made:

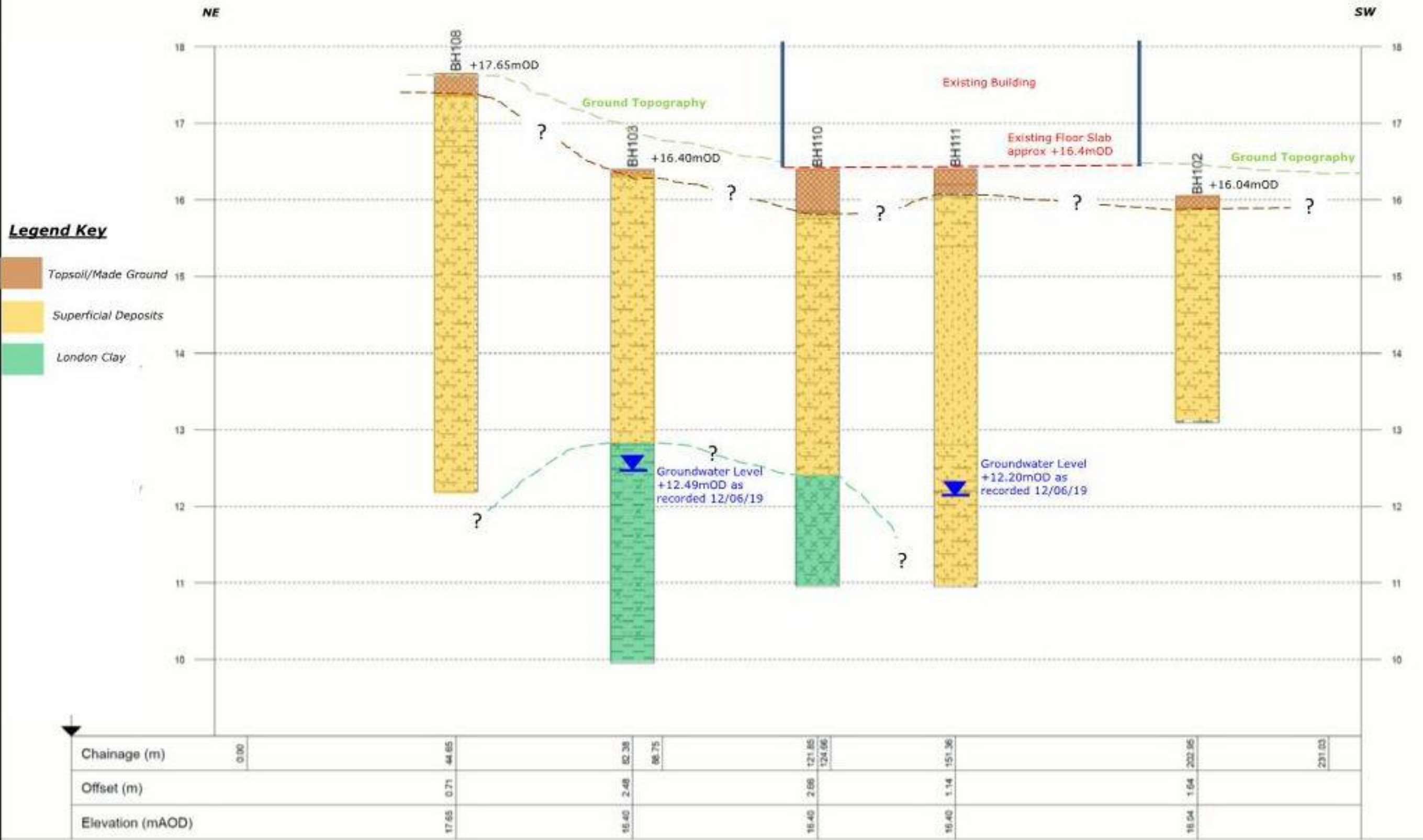
BH	Standpipe depth (mbgl)	Monitoring results (depth – m below lower ground FFL)			
		After drilling	03/06/19	12/06/19	Highest level Approx (mOD)
101	5.0	4.38	Dry	Dry	-
102	2.5	Dry	Dry	Dry	-
103	6.0	4.25	4.15	3.91	+12.49
105	5.0	3.84	3.42	3.26	+12.78
111	4.8	4.36	4.37	4.20	+12.20

Based on the highest recorded water levels on 12 June, groundwater appears to be flowing from west/north-west to east/south-east direction rather than towards the stream/river located to the west of the site.

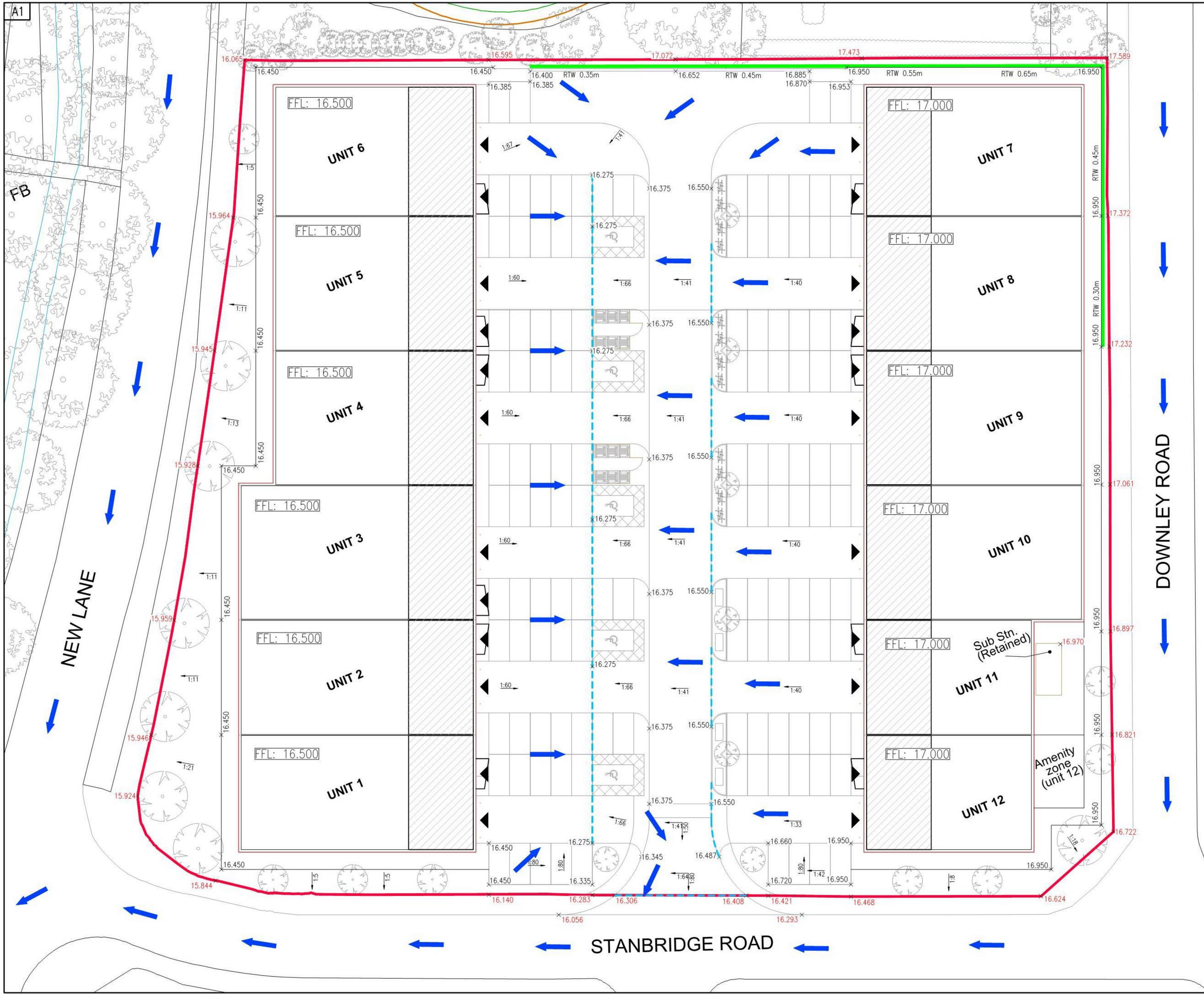
5.5 Environmental observations

No obvious olfactory or visual signs of gross soil or groundwater contamination were present in the soil or water samples, nor evidence of 'free-phase' hydrocarbon contamination was noted during water sampling. PID readings during and following the fieldwork (during monitoring) did not reveal any significantly elevated VOCs, with some slightly elevated readings considered to be associated with the presence of asphalt/bitumen at some locations.





Appendix G – Overland Flow Paths



Notes:

- Do not scale from this drawing.
- In case of any discrepancies in drawings, details or bills, refer to engineers for clarification: unilateral decisions by the Contractor will not be accepted.
- This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- The Contractor is advised that all design drawings and information are to be read concurrently and any discrepancies or omissions reported directly to PTA Civils' Department.
- This drawing is based upon the survey by Shaw Colegate reference 13118_TP_Rev_A dated December 2018 provided in digital format.
- All Levels are relative to O.S. Datum

Key:

- Site Boundary
- Existing Level
- Proposed Level
- Proposed Slope
- Retaining Wall
- Drainage Channel
- Exceedance Flow Path Arrow

© Powell Tolner & Associates Ltd.
The contents of this drawing may not be reproduced in whole or in part without the prior written permission of Powell Tolner & Associates.

Drawing Status
COMMENT/COSTING/APPROVAL
NOT FOR CONSTRUCTION
SUBJECT TO THE FOLLOWING:-

Rev.	Description	By	Date	Chk'd
P1	First Issue	TA	20.06.19	SLW

Project Title
New Lane, Havant

Drawing Title
Exceedance Flow Paths

Date	June 19	This drawing is issued only for the purposes described in the drawing status box.
Drawn	TA	
Scale	1:200	

Project No.	Drawing No.	Rev.
9641	8320	P1

Consulting Civil & Structural Engineers

pta

29 Red Lion Street
Chesham
Bucks.
HP5 1EJ
Tel. 01494 772721

www.ptaconsult.co.uk

Appendix H – Proposed Levels Strategy



Notes:

- Do not scale from this drawing.
- In case of any discrepancies in drawings, details or bills, refer to engineers for clarification: unilateral decisions by the Contractor will not be accepted.
- This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- The Contractor is advised that all design drawings and information are to be read concurrently and any discrepancies or omissions reported directly to PTA Civils' Department.
- This drawing is based upon the survey by Shaw Colegate reference 13118_TP_Rev_A dated December 2018 provided in digital format.
- All Levels are relative to O.S. Datum

Key:

- Site Boundary
- Existing Level
- Proposed Level
- Proposed Slope
- Retaining Wall
- Drainage Channel

© Powell Tolner & Associates Ltd.
The contents of this drawing may not be reproduced in whole or in part without the prior written permission of Powell Tolner & Associates.

Drawing Status
COMMENT/COSTING/APPROVAL
NOT FOR CONSTRUCTION
SUBJECT TO THE FOLLOWING:-

P1	First Issue	TA	20.06.19	SLW
Rev.	Description	By	Date	Chk'd
Project Title New Lane, Havant				
Drawing Title Proposed Levels				
Date	June 19	This drawing is issued only for the purposes described in the drawing status box.		
Drawn	TA			
Scale	1:200			
Project No.	Drawing No.	Rev.		
9641	8300	P1		

Consulting Civil & Structural Engineers

pta

29 Red Lion Street
Chesham
Bucks.
HP5 1EJ
Tel. 01494 772721

www.ptaconsult.co.uk

**Appendix I – Extract from Ground Investigation Report on
Infiltration Rates**

Site Location	38 New Lane Havant, Hampshire PO9 2ND	Report No: 10383/OT
SOAKAGE TEST RESULTS		

Borehole/Trial Pit No: **BH106** Depth: **3.00** Test No: **1**
Date: 24 May 2019

Dimensions:

Width = m
Length = m
Diameter = **0.09** m (90mm)
Casing depth = **0.00** m

Soil description:

See BH106 log

Perimeter = 0.283 m
Base area = 0.006 m²

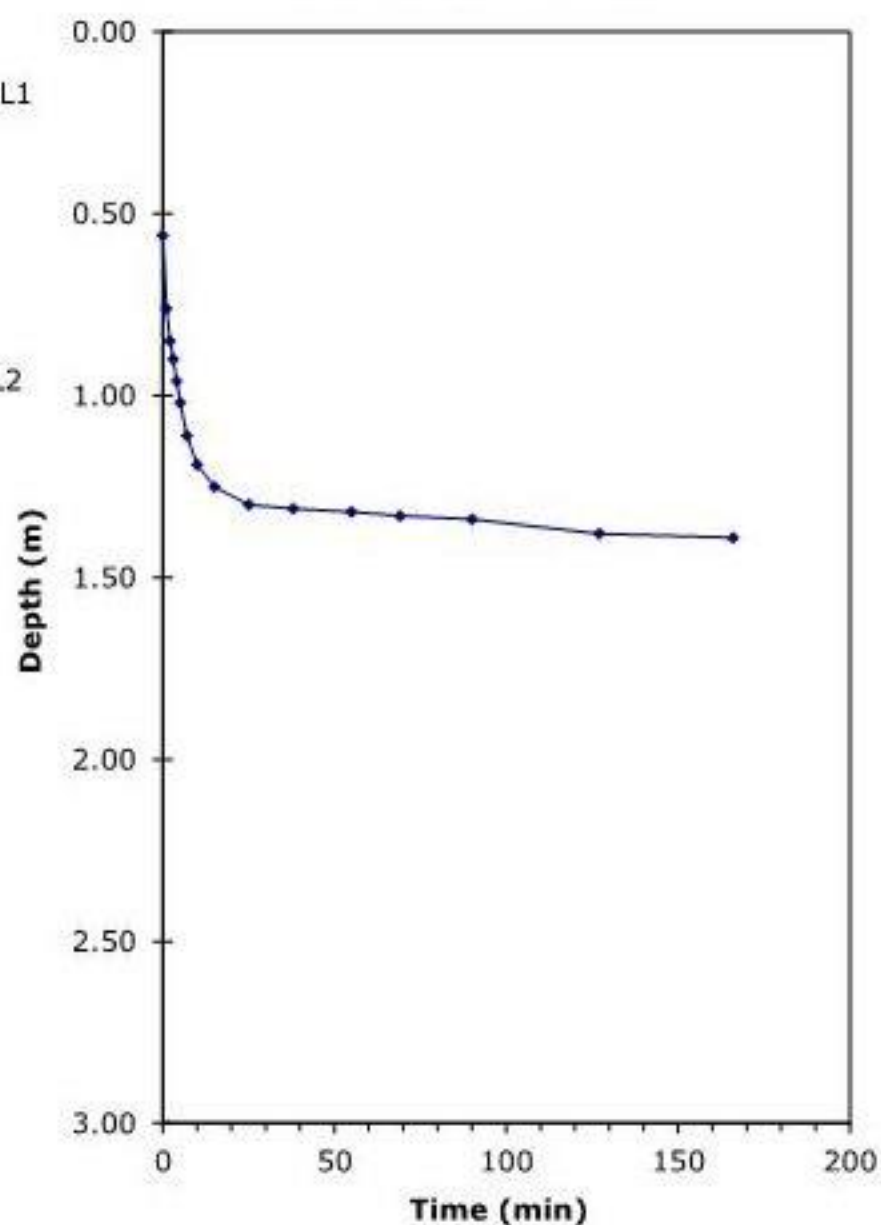
Readings measured from **0.00** m above ground level

Water Level v Time Graph

No	Mins	Depth m	Depth mbgl
1	0	0.56	0.56
2	1	0.76	0.76
3	2	0.85	0.85
4	3	0.9	0.90
5	4	0.96	0.96
6	5	1.02	1.02
7	7	1.11	1.11
8	10	1.19	1.19
9	15	1.25	1.25
10	25	1.3	1.30
11	38	1.31	1.31
12	55	1.32	1.32
13	69	1.33	1.33
14	90	1.34	1.34
15	127	1.38	1.38
16	166	1.39	1.39

<< WL1

<< WL2



	Water Level (m)	Time (sec)
WL 1 [top]	1	0
WL 2 [bottom]	8	600

Vol change = 0.00 m³ V
Soakage area = 0.6073 m² A
Time = 600 sec T

Soakage Rate (shallow) 1.10E-05 m/sec

Soakage Rate is calculated using two selected water levels and is based on BRE Digest DG 365: 2016 Soakaway Design

Site Location	38 New Lane Havant, Hampshire PO9 2ND	Report No: 10383/OT
SOAKAGE TEST RESULTS		

Borehole/Trial Pit No: **BH106** Depth: **3.00** Test No: **1**
Date: 24 May 2019

Dimensions:

Width = m
Length = m
Diameter = **0.09** m (90mm)
Casing depth = **0.00** m

Soil description:

See BH106 log

Perimeter = 0.283 m
Base area = 0.006 m²

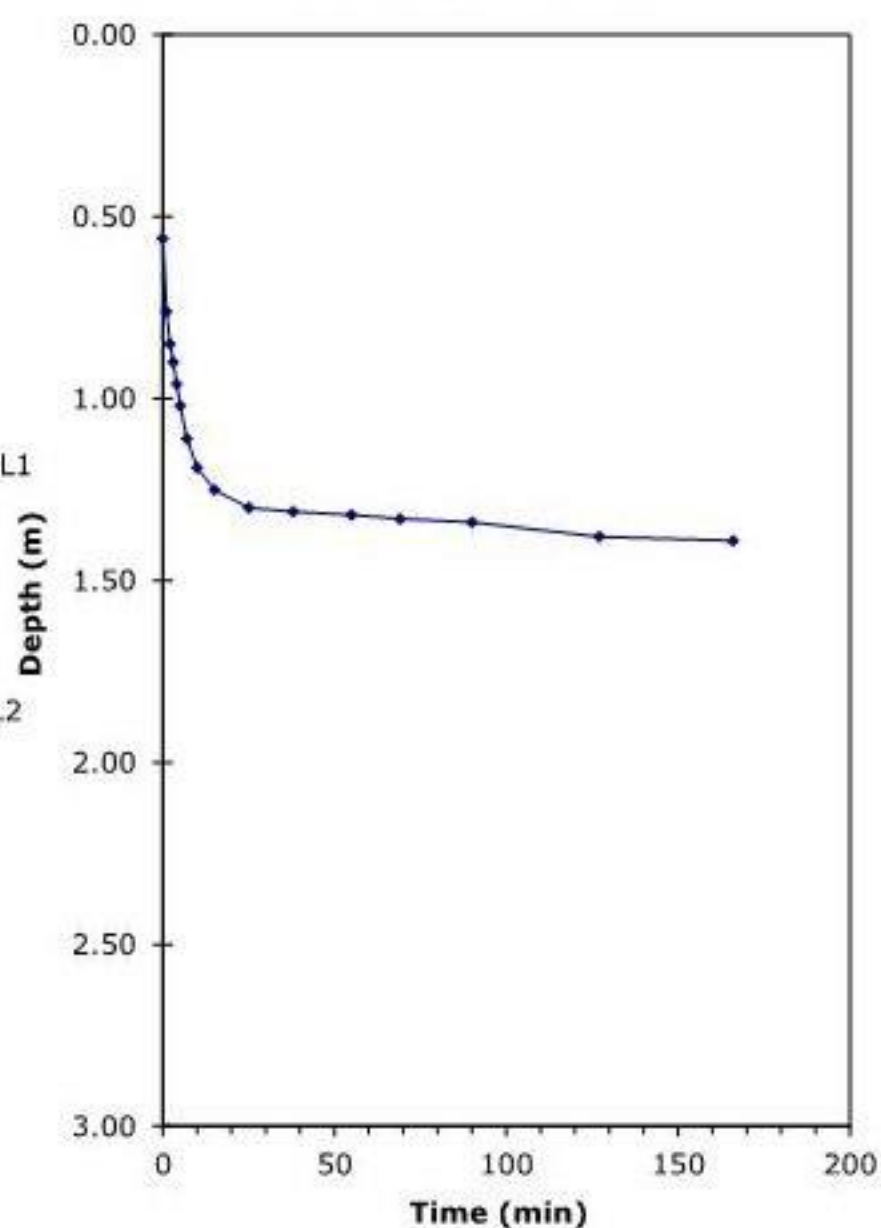
Readings measured from **0.00** m above ground level

No	Mins	Depth m	Depth mbgl
1	0	0.56	0.56
2	1	0.76	0.76
3	2	0.85	0.85
4	3	0.9	0.90
5	4	0.96	0.96
6	5	1.02	1.02
7	7	1.11	1.11
8	10	1.19	1.19
9	15	1.25	1.25
10	25	1.3	1.30
11	38	1.31	1.31
12	55	1.32	1.32
13	69	1.33	1.33
14	90	1.34	1.34
15	127	1.38	1.38
16	166	1.39	1.39

<< WL1

<<WL2

Water Level v Time Graph



	Water Level (m)	Time (sec)
WL 1 [top]	10	1.30 1500
WL 2 [bottom]	16	1.39 9960

Vol change = 0.00 m³ V
Soakage area = 0.4744 m² A
Time = 8460 sec T

Soakage Rate (deep) 1.43E-07 m/sec

Soakage Rate is calculated using two selected water levels and is based on BRE Digest DG 365: 2016 Soakaway Design

Site Location	38 New Lane Havant, Hampshire PO9 2ND	Report No: 10383/OT
SOAKAGE TEST RESULTS		

Borehole/Trial Pit No: **BH109** Depth: **2.00** Test No: **1**
Date: 24 May 2019

Dimensions:

Width = m
Length = m
Diameter = **0.09** m (90mm)
Casing depth = **0.00** m

Soil description:

See BH109 log

Perimeter = 0.283 m
Base area = 0.006 m²

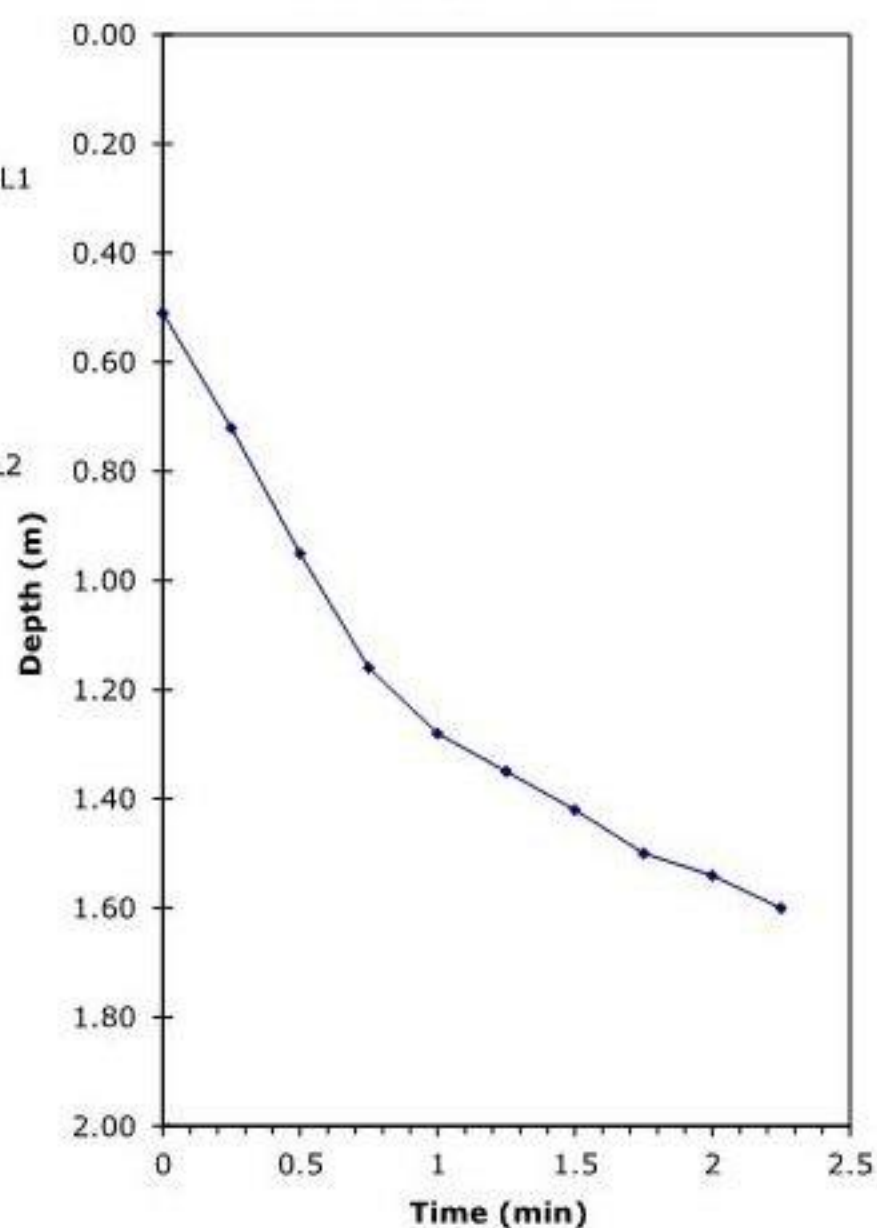
Readings measured from **0.00** m above ground level

No	Mins	Depth m	Depth mbgl
1	0	0.51	0.51
2	0.25	0.72	0.72
3	0.5	0.95	0.95
4	0.75	1.16	1.16
5	1	1.28	1.28
6	1.25	1.35	1.35
7	1.5	1.42	1.42
8	1.75	1.5	1.50
9	2	1.54	1.54
10	2.25	1.6	1.60
Hole collapse			

<< WL1

<< WL2

Water Level v Time Graph



	Water Level (m)	Time (sec)
WL 1 [top]	3	0.95 30
WL 2 [bottom]	10	1.60 135

Vol change = 0.00 m³ V
Soakage area = 0.2114 m² A
Time = 105 sec T

Soakage Rate 1.86E-04 m/sec

Soakage Rate is calculated using two selected water levels and is based on BRE Digest DG 365: 2016 Soakaway Design

Appendix J – Microdrainage Calcs

PTA

29 Red Lion Street

Chesham Bucks

HP5 1EJ

New Lane, Havant

Designed by TA

Checked by SN

Date 14/06/2019

File SW02.MDX

XP Solutions

Network 2019.1

Page 1



STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	19.300	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.595	4-8	0.337

Total Area Contributing (ha) = 0.933

Total Pipe Volume (m³) = 22.047

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	26.769	0.250	107.1	0.025	3.00	0.0	0.600	o	150	Pipe/Conduit	0
S1.001	12.241	0.350	35.0	0.022	0.00	0.0	0.600	o	150	Pipe/Conduit	0
S1.002	46.083	0.385	119.7	0.076	0.00	0.0	0.600	o	300	Pipe/Conduit	0
S1.003	32.290	0.065	496.8	0.095	0.00	0.0	0.600	o	300	Pipe/Conduit	0

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	3.46	16.250	0.025	0.0	0.0	0.0	0.97	17.2	3.4
S1.001	50.00	3.58	16.000	0.047	0.0	0.0	0.0	1.71	30.2	6.4
S1.002	50.00	4.11	15.500	0.124	0.0	0.0	0.0	1.44	101.5	16.8
S1.003	50.00	4.88	15.115	0.219	0.0	0.0	0.0	0.70	49.4	29.7

©1982-2019 Innovyze

PTA		Page 4																				
29 Red Lion Street Chesham Bucks HP5 1EJ	New Lane, Havant																					
Date 14/06/2019 File SW02.MDX	Designed by TA Checked by SN																					
XP Solutions		Network 2019.1																				
<u>Synthetic Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Profile Type</td> <td>Summer</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.300</td> <td>Storm Duration (mins)</td> <td>30</td> </tr> <tr> <td>Ratio R</td> <td>0.350</td> <td></td> <td></td> </tr> </table>			Rainfall Model	FSR	Profile Type	Summer	Return Period (years)	100	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	19.300	Storm Duration (mins)	30	Ratio R	0.350		
Rainfall Model	FSR	Profile Type	Summer																			
Return Period (years)	100	Cv (Summer)	0.750																			
Region	England and Wales	Cv (Winter)	0.840																			
M5-60 (mm)	19.300	Storm Duration (mins)	30																			
Ratio R	0.350																					
©1982-2019 Innovyze																						

PTA		Page 5
29 Red Lion Street Chesham Bucks HP5 1EJ	New Lane, Havant	
Date 14/06/2019 File SW02.MDX	Designed by TA Checked by SN	
XP Solutions	Network 2019.1	

Online Controls for Storm

Hydro-Brake® Optimum Manhole: S6, DS/PN: S1.005, Volume (m³): 8.4

Unit Reference	MD-SHE-0289-4700-0815-4700
Design Head (m)	0.815
Design Flow (l/s)	47.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	289
Invert Level (m)	14.950
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	1800

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.815	47.0
Flush-Flo™	0.415	47.0
Kick-Flo®	0.671	42.8
Mean Flow over Head Range	-	36.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	9.0	1.200	56.6	3.000	88.2	7.000	133.4
0.200	29.8	1.400	61.0	3.500	95.1	7.500	138.0
0.300	45.8	1.600	65.0	4.000	101.5	8.000	142.4
0.400	47.0	1.800	68.9	4.500	107.5	8.500	145.6
0.500	46.5	2.000	72.5	5.000	113.2	9.000	149.9
0.600	44.9	2.200	75.9	5.500	118.6	9.500	154.0
0.800	46.5	2.400	79.2	6.000	123.7		
1.000	51.8	2.600	82.3	6.500	128.7		

PTA		Page 6																																																																								
29 Red Lion Street Chesham Bucks HP5 1EJ	New Lane, Havant																																																																									
Date 14/06/2019 File SW02.MDX	Designed by TA Checked by SN																																																																									
XP Solutions	Network 2019.1																																																																									
<u>Storage Structures for Storm</u> <u>Cellular Storage Manhole: S4, DS/PN: S1.003</u> Invert Level (m) 15.115 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>180.0</td><td>0.0</td><td>0.501</td><td>0.0</td><td>0.0</td></tr><tr><td>0.500</td><td>180.0</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: S5, DS/PN: S1.004</u> Invert Level (m) 14.900 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>180.0</td><td>0.0</td><td>0.501</td><td>0.0</td><td>0.0</td></tr><tr><td>0.500</td><td>180.0</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: S14, DS/PN: S3.003</u> Invert Level (m) 15.020 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>180.0</td><td>0.0</td><td>0.501</td><td>0.0</td><td>0.0</td></tr><tr><td>0.500</td><td>180.0</td><td>0.0</td><td></td><td></td><td></td></tr></table> <u>Cellular Storage Manhole: S6, DS/PN: S1.005</u> Invert Level (m) 14.800 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>180.0</td><td>0.0</td><td>0.501</td><td>0.0</td><td>0.0</td></tr><tr><td>0.500</td><td>180.0</td><td>0.0</td><td></td><td></td><td></td></tr></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	180.0	0.0	0.501	0.0	0.0	0.500	180.0	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	180.0	0.0	0.501	0.0	0.0	0.500	180.0	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	180.0	0.0	0.501	0.0	0.0	0.500	180.0	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	180.0	0.0	0.501	0.0	0.0	0.500	180.0	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	180.0	0.0	0.501	0.0	0.0																																																																					
0.500	180.0	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	180.0	0.0	0.501	0.0	0.0																																																																					
0.500	180.0	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	180.0	0.0	0.501	0.0	0.0																																																																					
0.500	180.0	0.0																																																																								
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																					
0.000	180.0	0.0	0.501	0.0	0.0																																																																					
0.500	180.0	0.0																																																																								
©1982-2019 Innovyze																																																																										

PTA		Page 7	
29 Red Lion Street Chesham Bucks HP5 1EJ		New Lane, Havant	
Date 14/06/2019 File SW02.MDX		Designed by TA Checked by SN	
XP Solutions		Network 2019.1	



1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000	Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0	MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0	Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500	Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000	

Number of Input Hydrographs 0	Number of Storage Structures 4
Number of Online Controls 1	Number of Time/Area Diagrams 0
Number of Offline Controls 0	Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR Ratio R 0.350
Region England and Wales	Cv (Summer) 0.750
M5-60 (mm)	19.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0	DVD Status OFF
Analysis Timestep	Fine Inertia Status OFF
DTS Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	1	+0%	100/15 Summer				16.301
S1.001	S2	15 Summer	1	+0%	100/15 Summer				16.048
S1.002	S3	15 Winter	1	+0%	100/120 Winter				15.578
S1.003	S4	60 Winter	1	+0%	100/60 Summer				15.193
S2.000	S5	15 Summer	1	+0%	100/15 Summer				16.302
S2.001	S6	15 Winter	1	+0%	100/15 Summer				16.031
S2.002	S7	15 Winter	1	+0%	100/15 Summer				15.755
S2.003	S8	15 Winter	1	+0%	100/15 Summer				15.673
S2.004	S9	15 Winter	1	+0%	100/15 Summer				15.390
S1.004	S5	360 Winter	1	+0%	100/30 Winter				15.123
S3.000	S11	15 Summer	1	+0%	100/15 Summer				15.904
S3.001	S12	15 Summer	1	+0%	100/15 Summer				15.751
S3.002	S13	15 Winter	1	+0%	30/15 Summer				15.458
S3.003	S14	60 Winter	1	+0%	100/30 Summer				15.113
S4.000	S15	15 Summer	1	+0%	100/15 Summer				15.941
S4.001	S16	15 Summer	1	+0%	100/15 Summer				15.756
S4.002	S17	15 Winter	1	+0%	100/15 Summer				15.713
S4.003	S18	15 Winter	1	+0%	100/15 Summer				15.438
S4.004	S19	15 Winter	1	+0%	30/15 Summer				15.261
S4.005	S20	15 Winter	1	+0%	30/15 Summer				15.205

©1982-2019 Innovyze

PTA		Page 10	
29 Red Lion Street Chesham Bucks HP5 1EJ		New Lane, Havant	
Date 14/06/2019 File SW02.MDX		Designed by TA Checked by SN	
XP Solutions		Network 2019.1	



30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000	Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0	MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0	Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500	Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000	

Number of Input Hydrographs 0	Number of Storage Structures 4
Number of Online Controls 1	Number of Time/Area Diagrams 0
Number of Offline Controls 0	Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR Ratio R 0.350
Region England and Wales	Cv (Summer) 0.750
M5-60 (mm)	19.300 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0	DVD Status OFF
Analysis Timestep	Fine Inertia Status OFF
DTS Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	30	+0%	100/15 Summer				16.335
S1.001	S2	15 Summer	30	+0%	100/15 Summer				16.086
S1.002	S3	15 Summer	30	+0%	100/120 Winter				15.640
S1.003	S4	180 Winter	30	+0%	100/60 Summer				15.275
S2.000	S5	15 Summer	30	+0%	100/15 Summer				16.338
S2.001	S6	15 Summer	30	+0%	100/15 Summer				16.085
S2.002	S7	15 Summer	30	+0%	100/15 Summer				15.826
S2.003	S8	15 Summer	30	+0%	100/15 Summer				15.734
S2.004	S9	15 Summer	30	+0%	100/15 Summer				15.456
S1.004	S5	180 Winter	30	+0%	100/30 Winter				15.268
S3.000	S11	15 Summer	30	+0%	100/15 Summer				15.941
S3.001	S12	15 Summer	30	+0%	100/15 Summer				15.823
S3.002	S13	15 Winter	30	+0%	30/15 Summer				15.727
S3.003	S14	180 Winter	30	+0%	100/30 Summer				15.265
S4.000	S15	15 Summer	30	+0%	100/15 Summer				15.975
S4.001	S16	15 Summer	30	+0%	100/15 Summer				15.806
S4.002	S17	15 Summer	30	+0%	100/15 Summer				15.769
S4.003	S18	15 Winter	30	+0%	100/15 Summer				15.569
S4.004	S19	15 Winter	30	+0%	30/15 Summer				15.422
S4.005	S20	15 Winter	30	+0%	30/15 Summer				15.343

©1982-2019 Innovyze

PTA		Page 11	
29 Red Lion Street Chesham Bucks HP5 1EJ		New Lane, Havant	
Date 14/06/2019 File SW02.MDX		Designed by TA Checked by SN	
XP Solutions		Network 2019.1	



30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
S1.000	S1	-0.065	0.000	0.56		9.2	OK	
S1.001	S2	-0.064	0.000	0.61		16.8	OK	
S1.002	S3	-0.160	0.000	0.44		41.7	OK	
S1.003	S4	-0.140	0.000	0.29		13.3	OK	
S2.000	S5	-0.062	0.000	0.60		8.3	OK	
S2.001	S6	-0.105	0.000	0.54		23.2	OK	
S2.002	S7	-0.074	0.000	0.75		29.1	OK	
S2.003	S8	-0.091	0.000	0.64		35.4	OK	
S2.004	S9	-0.084	0.000	0.69		41.7	OK	
S1.004	S5	-0.082	0.000	0.20		12.6	OK	
S3.000	S11	-0.059	0.000	0.63		8.6	OK	
S3.001	S12	-0.027	0.000	0.63		14.5	OK	
S3.002	S13	0.152	0.000	1.25		46.8	SURCHARGED	
S3.003	S14	-0.055	0.000	0.30		14.0	OK	
S4.000	S15	-0.065	0.000	0.57		7.8	OK	
S4.001	S16	-0.109	0.000	0.51		15.3	OK	
S4.002	S17	-0.101	0.000	0.56		22.6	OK	
S4.003	S18	-0.006	0.000	0.87		34.3	OK	
S4.004	S19	0.042	0.000	1.19		39.4	SURCHARGED	
S4.005	S20	0.018	0.000	1.16		44.8	SURCHARGED	

©1982-2019 Innovyze

PTA								Page 12	
29 Red Lion Street Chesham Bucks HP5 1EJ				New Lane, Havant					
Date 14/06/2019 File SW02.MDX				Designed by TA Checked by SN					
XP Solutions				Network 2019.1					
30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.005	S6	180 Winter	30	+0%	30/120 Winter				15.255
S1.006	S7	180 Winter	30	+0%					15.070
	US/MH PN	Depth (m)	Surcharged Volume (m³)	Flooded Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded	
	S6	0.005	0.000	0.43		26.3	SURCHARGED		
	S7	-0.135	0.000	0.59		26.2	OK		

©1982-2019 Innovyze

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	100	+40%	100/15 Summer				16.441
S1.001	S2	15 Summer	100	+40%	100/15 Summer				16.192
S1.002	S3	180 Winter	100	+40%	100/120 Winter				16.004
S1.003	S4	180 Winter	100	+40%	100/60 Summer				15.994
S2.000	S5	15 Summer	100	+40%	100/15 Summer				16.458
S2.001	S6	15 Winter	100	+40%	100/15 Summer				16.230
S2.002	S7	15 Winter	100	+40%	100/15 Summer				16.009
S2.003	S8	180 Winter	100	+40%	100/15 Summer				16.000
S2.004	S9	180 Winter	100	+40%	100/15 Summer				15.989
S1.004	S5	180 Winter	100	+40%	100/30 Winter				15.981
S3.000	S11	15 Winter	100	+40%	100/15 Summer				16.481
S3.001	S12	15 Summer	100	+40%	100/15 Summer				16.465
S3.002	S13	15 Winter	100	+40%	30/15 Summer				16.310
S3.003	S14	180 Winter	100	+40%	100/30 Summer				15.975
S4.000	S15	15 Winter	100	+40%	100/15 Summer				16.394
S4.001	S16	15 Winter	100	+40%	100/15 Summer				16.337
S4.002	S17	15 Winter	100	+40%	100/15 Summer				16.318
S4.003	S18	15 Winter	100	+40%	100/15 Summer				16.122
S4.004	S19	180 Winter	100	+40%	30/15 Summer				15.972
S4.005	S20	180 Winter	100	+40%	30/15 Summer				15.965

PTA		Page 15	
29 Red Lion Street Chesham Bucks HP5 1EJ		New Lane, Havant	
Date 14/06/2019 File SW02.MDX		Designed by TA Checked by SN	
XP Solutions		Network 2019.1	



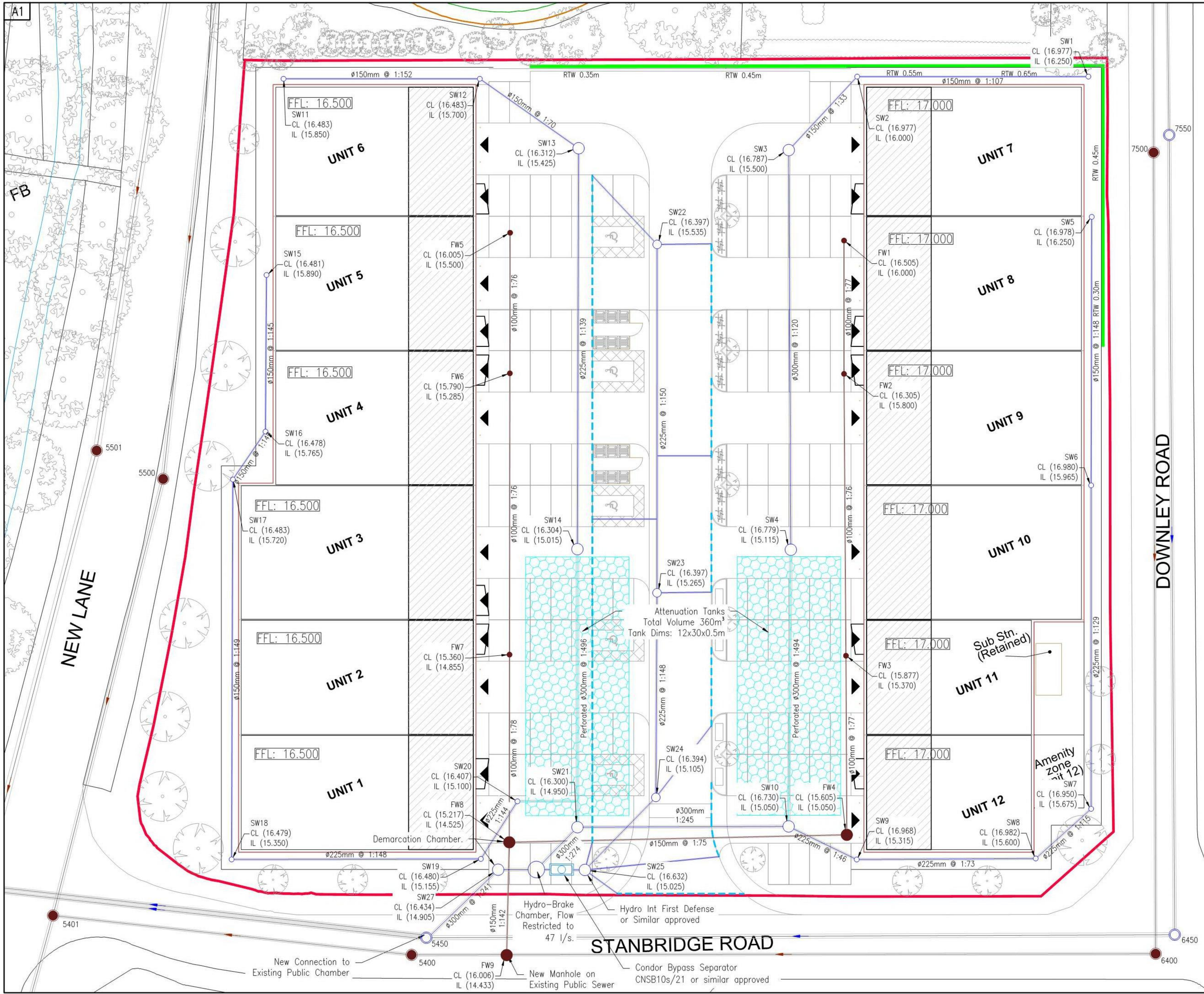
100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.005	S6	180 Winter	100	+40%	30/120 Winter				15.957
S1.006	S7	180 Winter	100	+40%					15.205

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.005	S6	0.707	0.000	0.77		46.9	SURCHARGED	
S1.006	S7	0.000	0.000	1.05		46.9	OK	

©1982-2019 Innovyze

Appendix K – Proposed Drainage Strategy



Notes:

- Do not scale from this drawing.
- In case of any discrepancies in drawings, details or bills, refer to engineers for clarification: unilateral decisions by the Contractor will not be accepted.
- This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- The Contractor is advised that all design drawings and information are to be read concurrently and any discrepancies or omissions reported directly to PTA Civils' Department.
- This drawing is based upon the survey by Shaw Colegate reference 13118_TP_Rev_A dated December 2018 provided in digital format.
- All Levels are relative to O.S. Datum
- Existing drainage locations based on Southern Water Asset Plan, O.S. REF SU7207NE, Dated 14.12.19

Key:

- Site Boundary
- Existing Level
- Proposed Level
- Proposed Slope
- Retaining Wall
- Drainage Channel

© Powell Tolner & Associates Ltd.
The contents of this drawing may not be reproduced in whole or in part without the prior written permission of Powell Tolner & Associates.

Drawing Status
COMMENT/COSTING/APPROVAL
NOT FOR CONSTRUCTION
SUBJECT TO THE FOLLOWING:-

Rev.	Description	By	Date	Chk'd
P3	Proprietary Systems Added	TA	25.06.19	SLW
P2	Existing Drainage Added, Attenuation Tank Location Adjusted	TA	20.06.19	SLW
P1	First Issue	TA	10.06.19	SLW

Project Title
New Lane, Havant

Drawing Title
Proposed Drainage Strategy

Date	June 19	This drawing is issued only for the purposes described in the drawing status box.
Drawn	TA	
Scale	1:200	

Project No.	Drawing No.	Rev.
9641	8101	P3

Consulting Civil & Structural Engineers

pta
29 Red Lion Street
Chesham
Bucks.
HP5 1EJ
Tel. 01494 772721
www.ptaconsult.co.uk

Appendix L – Foul Water Peak Flow Rate Calcs

Foul Water Peak Flow Rates

5518m² of commercial area

300 l/day / 100m² of commercial area of Dry Water Flow

Assumed 8 hour proposed use

Peak flow = (6 × Dry water flow) + 10%

$$= \left(\frac{5518}{100} \times 300 \times \frac{1}{8 \times 3600} \times 6 \right) \times 1.1$$

$$= 3.794 \quad \text{or} \quad 3.8 \text{ l/s}$$

Appendix M – Southern Water Capacity Check

**WATER
for LIFE**

Mr Tom Aldridge
Powell Tolner Associates
29 Red Lion Street
Chesham
Bucks
HP5 1EJ

Received Chesham			
DIRECTOR			
SAP		BB	
AGM		SLW	
PP		JV	
PF		MDF	
19 JUN 2019			
ACTION	MEET	FILE	

from
**Southern
Water** 

Your ref

Our ref
DS_CC_PDE-109727

Date
14 June 2019

Contact

Tel 0330 303 0119

Site: Butterick Co Ltd, 38 New Lane, Havant, Hampshire, PO9 2ND.

Dear Mr Aldridge,

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

Following initial investigations, there is currently adequate capacity in the local sewerage network to accommodate a foul flow for the above development at/downstream of manhole reference SU72075400. Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system.

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal S106 connection application is required to be completed and approved by Southern Water Services. Please see the link below:

<https://developerservices.southernwater.co.uk/ConnectiontoPublicSewer/ApplicationForm>

Should you require any further information, please contact us at the above mentioned phone number or address shown in the footer.

Yours sincerely,



Developer Services

Please note: - The information provided above does not grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter.

Southern Water Developer Services, Sparrowgrove House, Sparrowgrove, Otterbourne, Winchester, Hampshire, SO21 2SW
southernwater.co.uk

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing BN13 3NX Registered in England No. 2386670