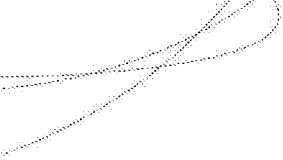
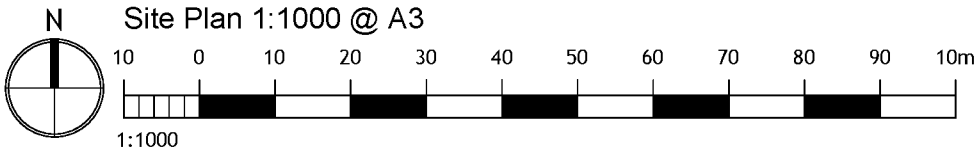


APPENDICIES



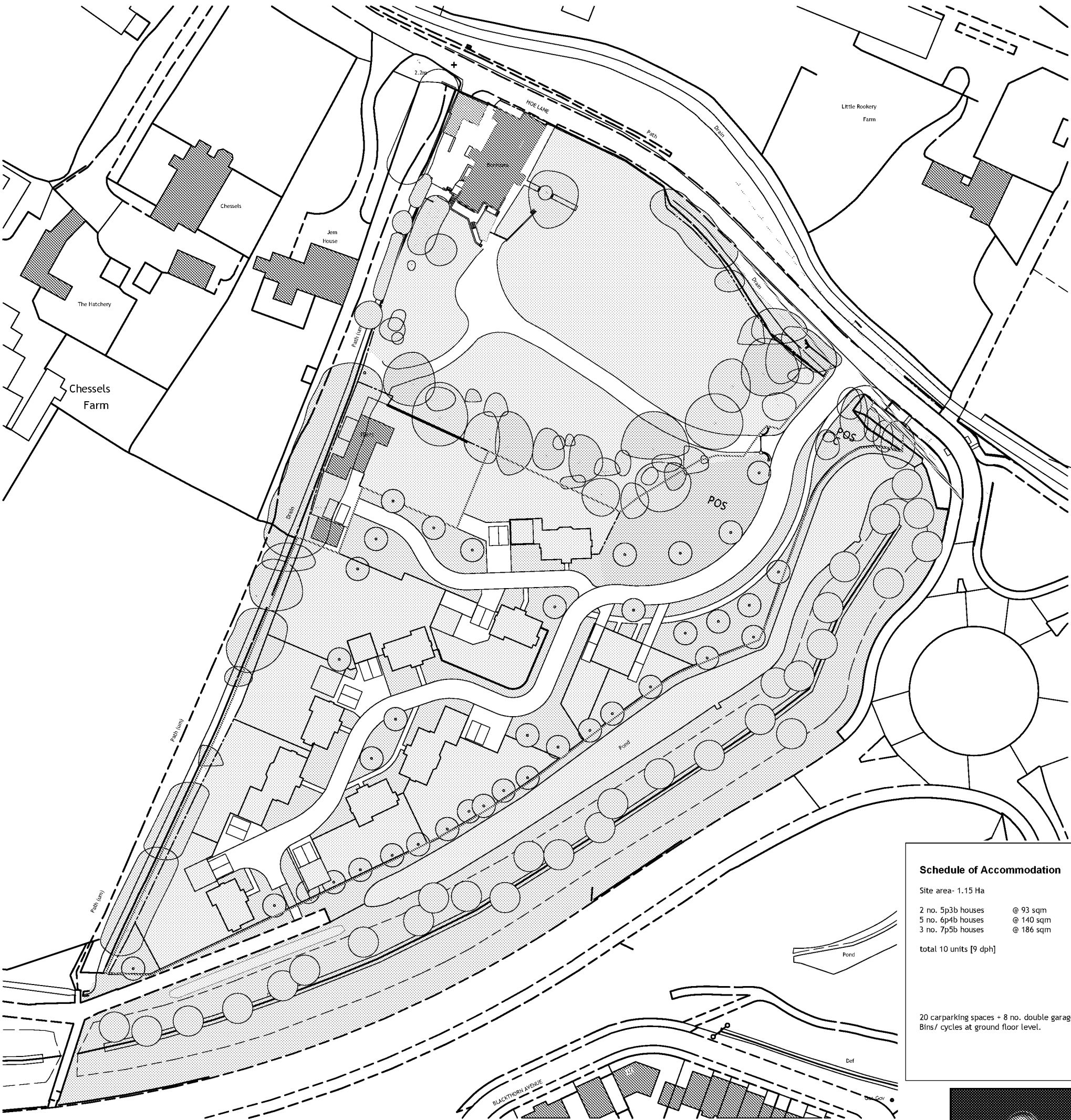
Appendix A Architects Layout GA



- Notes
1. This drawing is the copyright of MH Architects Ltd
 2. Do not scale this drawing except for Local Authority planning purposes
 3. All dimensions must be checked on site by the contractor prior to commencement of the works.



Rev.	Revision	By	Date	Check	Date
A	Planning Issue	HG	Mar 18	CJP	Mar 18



Schedule of Accommodation

Site area- 1.15 Ha

2 no. 5p3b houses @ 93 sqm
5 no. 6p4b houses @ 140 sqm
3 no. 7p5b houses @ 186 sqm

total 10 units [9 dph]

20 carparking spaces + 8 no. double garages
Bins/ cycles at ground floor level.

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Land at Bonhams

Hoe Lane
Flansham, Felpham
Pallant Homes

Project & Drawing title

Proposed Site plan

Drawn	Date	Checked	Date	Scale at A3	
HG	Mar 18	CJP	Mar 18	1:1000	
Job N°	17-071	Drawing N°	003	Rev.	A
Status	PLANNING APPLICATION				

Ground Floor 1 Bicentennial Building
Southern Gate 1 Chichester
West Sussex PO19 8EZ

T: 01243 774738
E: admin@mharchitects.co.uk
www.mharchitects.co.uk

Limited Company
Registered in England No 1999495

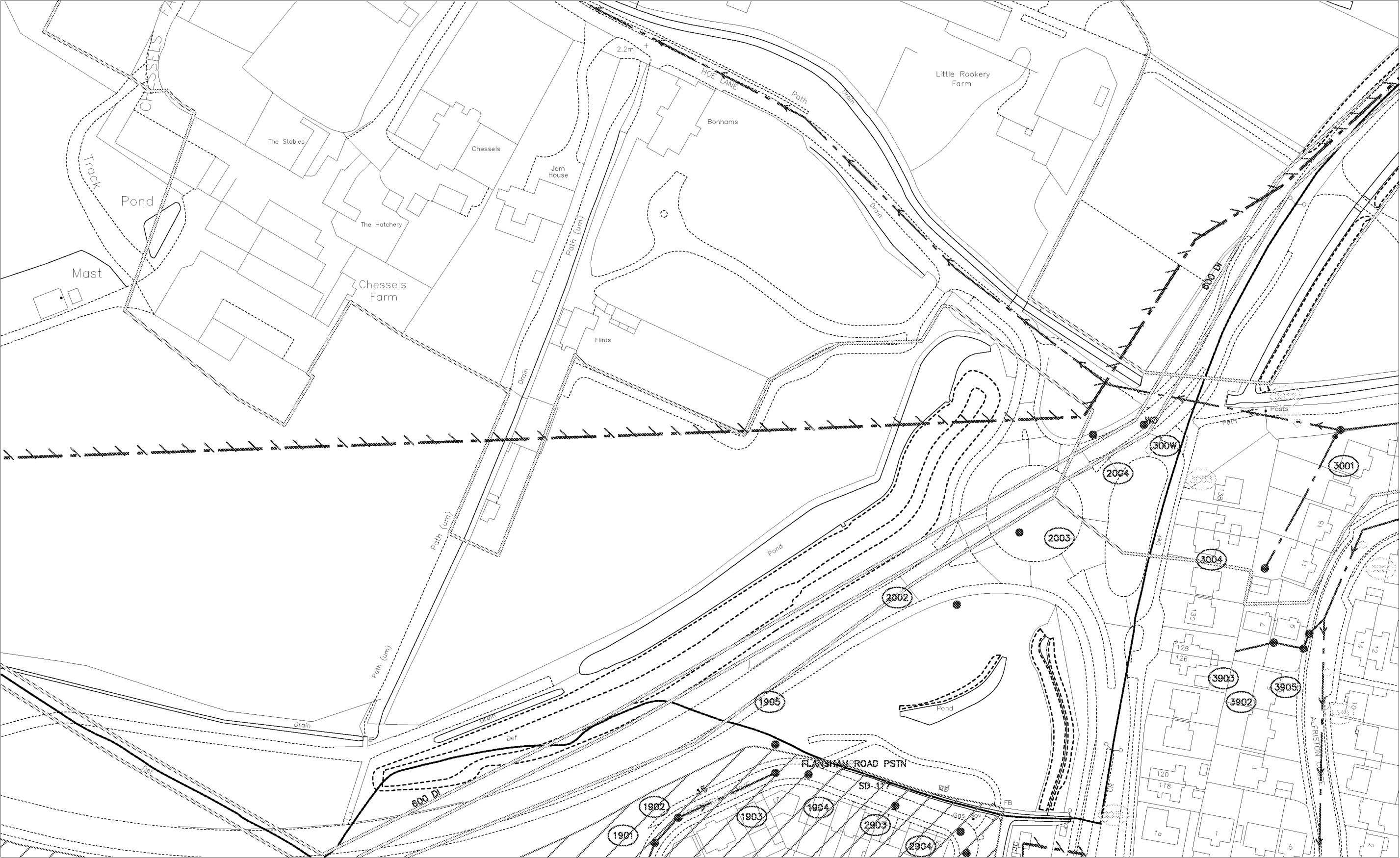
pallant
HOMES

mh
ARCHITECTS

Appendix B Public Sewer Maps

SEWER RECORDS PAGE 1 OF 2

101212



100924

95920	O.S. REF. SU9601SW		Drawn by: yadavs	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 determined on site. WARNING: BAC pipes are constructed of Bonded Asbestos Cement WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement		
			Scale: 1:1250			
	Title: 240409_Bonhams, Hoe Lane, Felp		Date: 06/04/2017	Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.		

496391

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape
1101X	2.11	-0.42	525	BAC	RECT
1901X	4.801	1.577	150	VC	CIRC
1902X	4.751	1.494	150	VC	CIRC
1903X	4.437	1.172	225	VC	CIRC
1904X	4.338	1.948	150	VC	CIRC
1905X	4.35	1.082	225	VC	CIRC
2001X	2.06	0.035	525	BAC	RECT
2002X	3.69	0.625	225	VC	CIRC
2003X	3.65	0.325	225	VC	CIRC
2004X	3.2	0.057	225	VC	CIRC
2101X	2.17	-0.38	525	BAC	RECT
2903X	4.214	2.138	150	VC	CIRC
2904X	4.402	2.3	150	VC	CIRC
2905X	4.477	2.346	150	VC	CIRC
2951X	3	1.38	150	VC	CIRC
3001X	3.19		525	BAC	RECT
3002X	3.6	1.34	150	CI	CIRC
3003X	3.45	1.6	150	CI	CIRC
3004X	3.64		150	VC	RECT
3051X	3.54	1.88	150	VC	CIRC
3052X	1.88	0.8	150	VC	CIRC
3053X	2.55	1	150	VC	CIRC
3902X	3.8	1.7	150	VC	CIRC
3903X	3.74	1.87	150	VC	CIRC
3904X	3.72	2.01	150	VC	CIRC
3905X	3.76	1.5	150	VC	CIRC
3951X	3.7	2.08	300	VC	CIRC

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

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

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

ARUN DISTRICT COUNCIL Y/2019/OUT

Appendix C BGS Historic Borehole Records (SU90SE27)

SU 96 SE 27

9638 0133

Flansham

Block H

Surface level +3.7 m
 Water struck at -0.8 m
 October 1981

Waste 4.7 m
 Bedrock 1.5 m+

LOG

Geological classification

Lithology

Thickness Depth
 m m

Brickearth

Soil

0.4 0.4

Clay, silty, brown and mottled grey-brown

2.4 2.8

Raised Beach Deposits
(younger)

Silt, very sandy, chalky, with chalk pebbles

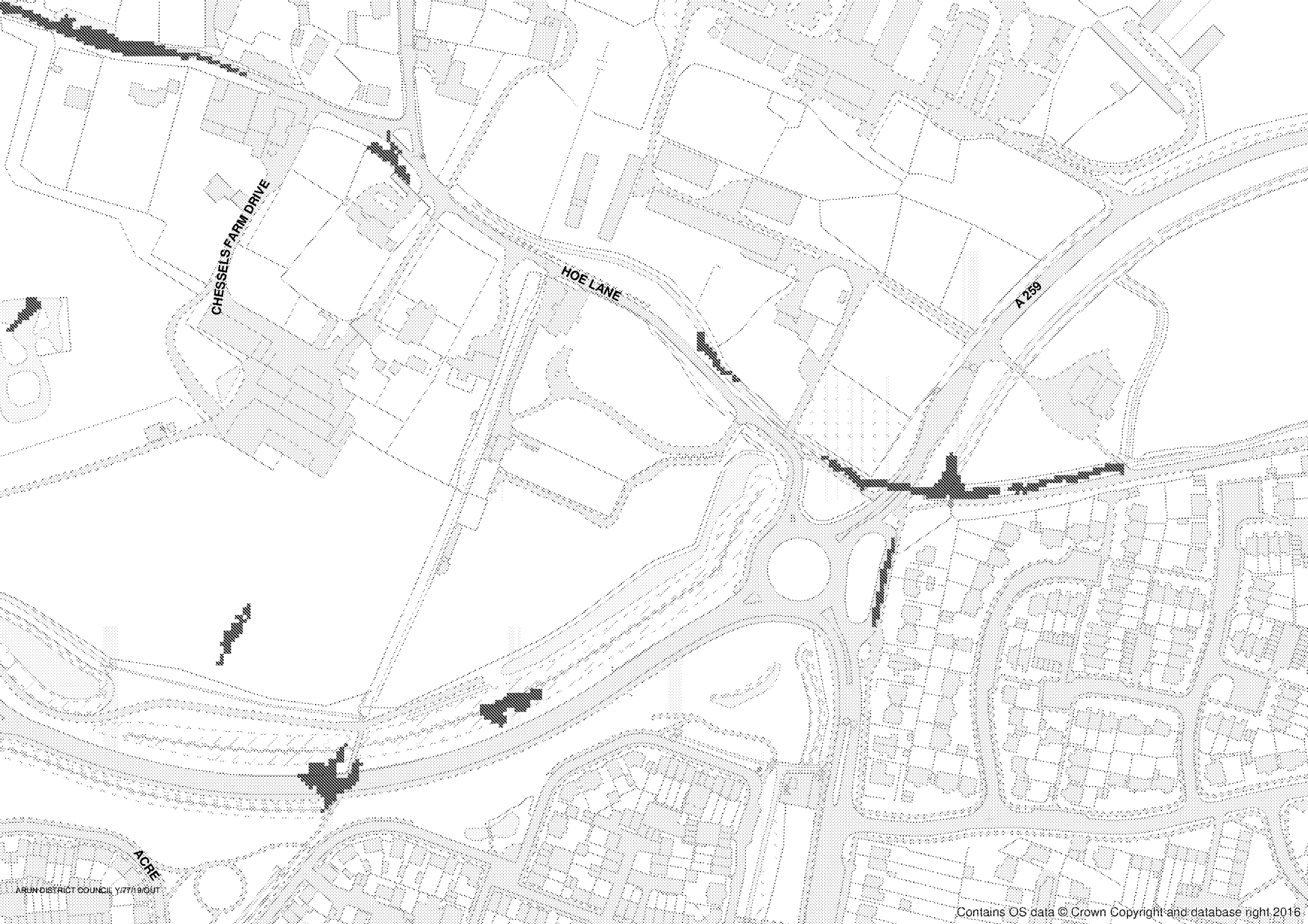
1.9 4.7

Upper Chalk

Chalk, soft, weathered at top

1.5+ 6.2

Appendix D WSCC Flood Risk Mapping and WSCC Highways

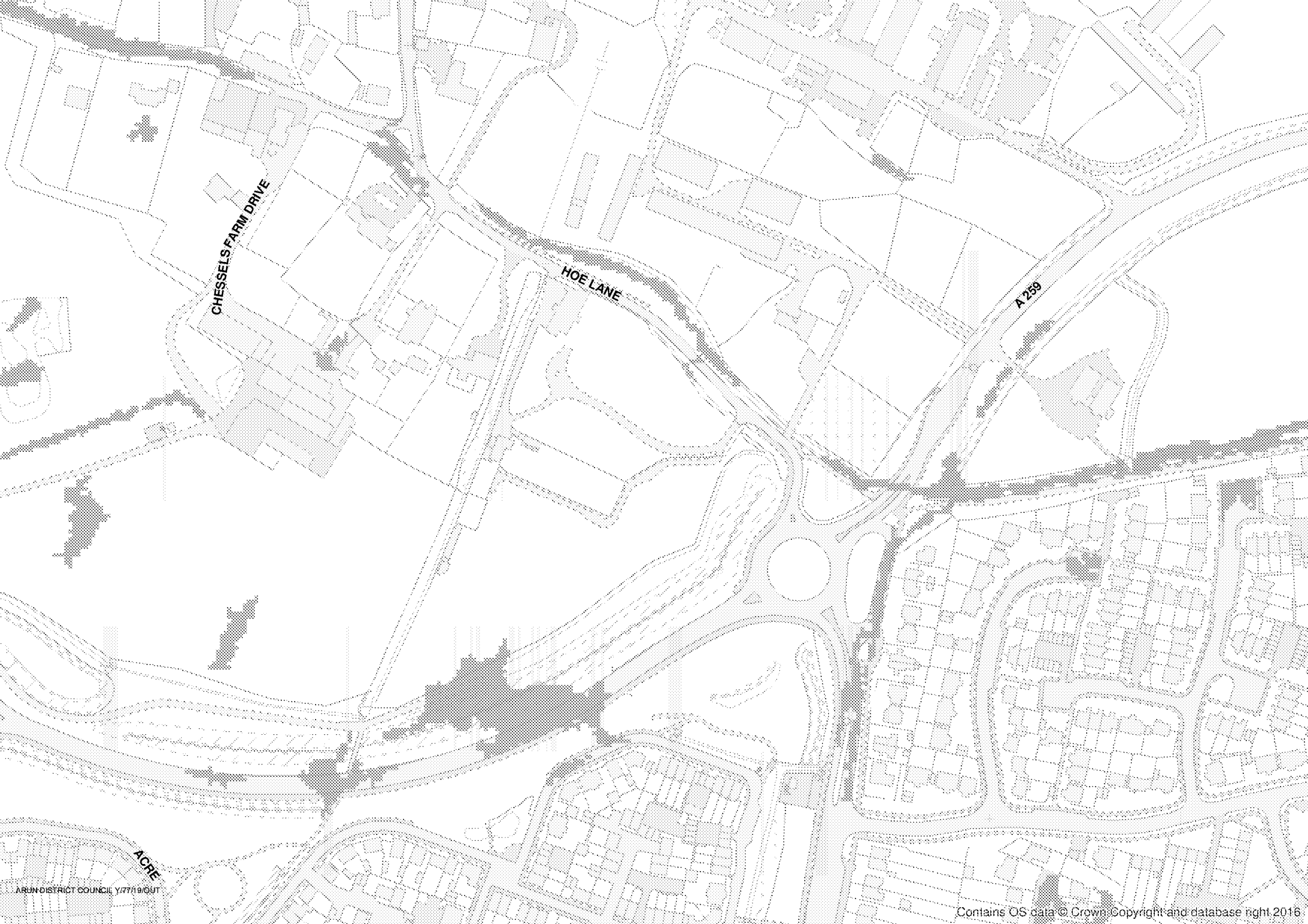


CHESELS FARM DRIVE

HOE LANE

A259

ACRE



CHESSELS FARM DRIVE

HOE LANE

A 259

ACRE



CHESSELS FARM DRIVE

HOE LANE

A 259

ACRE

Appendix E Microdrainage/Run-off Calculations

RGP Design Limited		Page 1
Metro House Northgate Chichester PO19 1BE		
Date 28/03/2018 09:59 File	Designed by sburnett Checked by	
XP Solutions		Source Control 2016.1

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.400
Area (ha)	1.160	Urban	0.000
SAAR (mm)	732	Region Number	Region 7

Results l/s

QBAR Rural	4.2
QBAR Urban	4.2
Q100 years	13.3
Q1 year	3.5
Q30 years	9.4
Q100 years	13.3

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RGP Design Limited		Page 1
Metro House Northgate Chichester PO19 1BE		
Date 28/03/2018 10:00 File	Designed by sburnett Checked by	
XP Solutions		Source Control 2016.1

Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	19.000
Ratio R	0.350
Areal Reduction Factor	1.00
Area (ha)	1.160
SAAR (mm)	739
CWI	110.032
Urban	0.000
SPR	37.000

Results

Percentage Runoff (%)	37.30
Greenfield Runoff Volume (m ³)	272.719

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RGP Design Limited							Page 1
Metro House Northgate Chichester PO19 1BE			D1298 Bonhams, Flansham, Felpham, West Sussex PO22 8NP				
Date 28/03/2018 File Porous Paving Rev C 201...			Designed by SPB Checked by MJA				
XP Solutions			Source Control 2016.1				
<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 276 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	2.951	0.101	0.0	5.4	5.4	71.6	O K
30 min Summer	2.989	0.139	0.0	5.5	5.5	98.7	O K
60 min Summer	3.026	0.176	0.0	5.5	5.5	124.4	Flood Risk
120 min Summer	3.054	0.204	0.0	5.6	5.6	144.3	Flood Risk
180 min Summer	3.061	0.211	0.0	5.6	5.6	149.4	Flood Risk
240 min Summer	3.059	0.209	0.0	5.6	5.6	148.2	Flood Risk
360 min Summer	3.051	0.201	0.0	5.6	5.6	142.2	Flood Risk
480 min Summer	3.043	0.193	0.0	5.6	5.6	136.8	Flood Risk
600 min Summer	3.036	0.186	0.0	5.6	5.6	131.5	Flood Risk
720 min Summer	3.028	0.178	0.0	5.5	5.5	126.1	Flood Risk
960 min Summer	3.012	0.162	0.0	5.5	5.5	115.2	Flood Risk
1440 min Summer	2.982	0.132	0.0	5.5	5.5	93.7	O K
2160 min Summer	2.941	0.091	0.0	5.4	5.4	64.7	O K
2880 min Summer	2.908	0.058	0.0	5.4	5.4	41.2	O K
4320 min Summer	2.866	0.016	0.0	5.3	5.3	11.0	O K
5760 min Summer	2.850	0.000	0.0	5.2	5.2	0.0	O K
7200 min Summer	2.850	0.000	0.0	4.3	4.3	0.0	O K
8640 min Summer	2.850	0.000	0.0	3.8	3.8	0.0	O K
10080 min Summer	2.850	0.000	0.0	3.3	3.3	0.0	O K
15 min Winter	2.966	0.116	0.0	5.5	5.5	82.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	124.633	0.0	76.6	22			
30 min Summer	83.789	0.0	107.1	35			
60 min Summer	53.779	0.0	141.1	64			
120 min Summer	33.337	0.0	177.5	122			
180 min Summer	24.832	0.0	199.3	180			
240 min Summer	20.006	0.0	214.4	226			
360 min Summer	14.706	0.0	237.8	284			
480 min Summer	11.818	0.0	255.1	348			
600 min Summer	9.966	0.0	269.1	416			
720 min Summer	8.665	0.0	280.8	484			
960 min Summer	6.943	0.0	299.9	620			
1440 min Summer	5.071	0.0	327.7	884			
2160 min Summer	3.696	0.0	356.2	1268			
2880 min Summer	2.949	0.0	377.1	1620			
4320 min Summer	2.142	0.0	405.8	2292			
5760 min Summer	1.705	0.0	426.2	0			
7200 min Summer	1.427	0.0	440.8	0			
8640 min Summer	1.235	0.0	452.5	0			
10080 min Summer	1.093	0.0	462.1	0			
15 min Winter	124.633	0.0	87.1	22			
©1982-2016 XP Solutions							

RGP Design Limited							Page 2	
Metro House Northgate Chichester PO19 1BE			D1298 Bonhams, Flansham, Felpham, West Sussex PO22 8NP					
Date 28/03/2018 File Porous Paving Rev C 201...			Designed by SPB Checked by MJA					
XP Solutions			Source Control 2016.1					
<u>Summary of Results for 100 year Return Period (+40%)</u>								
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status	
30 min Winter	3.009	0.159	0.0	5.5	5.5	112.8	Flood	Risk
60 min Winter	3.051	0.201	0.0	5.6	5.6	142.6	Flood	Risk
120 min Winter	3.086	0.236	0.0	5.6	5.6	167.1	Flood	Risk
180 min Winter	3.097	0.247	0.0	5.6	5.6	174.9	Flood	Risk
240 min Winter	3.098	0.248	0.0	5.6	5.6	179.7	Flood	Risk
360 min Winter	3.088	0.238	0.0	5.6	5.6	168.7	Flood	Risk
480 min Winter	3.077	0.227	0.0	5.6	5.6	161.2	Flood	Risk
600 min Winter	3.067	0.217	0.0	5.6	5.6	153.7	Flood	Risk
720 min Winter	3.055	0.205	0.0	5.6	5.6	145.5	Flood	Risk
960 min Winter	3.031	0.181	0.0	5.5	5.5	128.5	Flood	Risk
1440 min Winter	2.984	0.134	0.0	5.5	5.5	95.1	O K	
2160 min Winter	2.923	0.073	0.0	5.4	5.4	51.8	O K	
2880 min Winter	2.878	0.028	0.0	5.3	5.3	19.5	O K	
4320 min Winter	2.850	0.000	0.0	4.7	4.7	0.0	O K	
5760 min Winter	2.850	0.000	0.0	3.7	3.7	0.0	O K	
7200 min Winter	2.850	0.000	0.0	3.1	3.1	0.0	O K	
8640 min Winter	2.850	0.000	0.0	2.7	2.7	0.0	O K	
10080 min Winter	2.850	0.000	0.0	2.4	2.4	0.0	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)				
30 min Winter	83.789	0.0	121.3	35				
60 min Winter	53.779	0.0	158.9	64				
120 min Winter	33.337	0.0	200.2	120				
180 min Winter	24.832	0.0	224.5	178				
240 min Winter	20.006	0.0	241.8	232				
360 min Winter	14.706	0.0	267.4	330				
480 min Winter	11.818	0.0	287.4	374				
600 min Winter	9.966	0.0	302.8	452				
720 min Winter	8.665	0.0	316.4	528				
960 min Winter	6.943	0.0	337.5	676				
1440 min Winter	5.071	0.0	369.5	954				
2160 min Winter	3.696	0.0	402.1	1340				
2880 min Winter	2.949	0.0	425.5	1668				
4320 min Winter	2.142	0.0	459.2	0				
5760 min Winter	1.705	0.0	482.4	0				
7200 min Winter	1.427	0.0	499.7	0				
8640 min Winter	1.235	0.0	513.8	0				
10080 min Winter	1.093	0.0	525.5	0				
©1982-2016 XP Solutions								

RGP Design Limited		Page 4
Metro House Northgate Chichester PO19 1BE	D1298 Bonhams, Flansham, Felpham, West Sussex PO22 8NP	
Date 28/03/2018 File Porous Paving Rev C 201...	Designed by SPB Checked by MJA	
XP Solutions	Source Control 2016.1	

Model Details

Storage is Online Cover Level (m) 3.300

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0
Membrane Percolation (mm/hr)	1000	Length (m)	236.3
Max Percolation (l/s)	656.4	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.850	Membrane Depth (m)	0

Hydro-Brake Optimum® Outflow Control

Unit Reference	MD-SHE-0097-4200-1000-4200
Design Head (m)	1.000
Design Flow (l/s)	4.2
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	97
Invert Level (m)	1.200
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	4.2
Flush-Flo™	0.299	4.2
Kick-Flo®	0.635	3.4
Mean Flow over Head Range	-	3.7

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	3.2	1.200	4.6	3.000	7.0	7.000	10.4
0.200	4.1	1.400	4.9	3.500	7.5	7.500	10.8
0.300	4.2	1.600	5.2	4.000	8.0	8.000	11.1
0.400	4.1	1.800	5.5	4.500	8.5	8.500	11.5
0.500	4.0	2.000	5.8	5.000	8.9	9.000	11.8
0.600	3.6	2.200	6.0	5.500	9.3	9.500	12.1
0.800	3.8	2.400	6.3	6.000	9.7		
1.000	4.2	2.600	6.5	6.500	10.1		

Appendix F WSCC Correspondence

From: Kevin Macknay <kevin.macknay@westsussex.gov.uk>
Sent: Friday, March 31, 2017 4:50:23 PM
To: Mark Akmenkalns
Cc: Thomas Callaway; Paul Cann
Subject: RE: D1298 - Bonhams Felpham, West Sussex, PO22 8NP - FRA Enquiry

Mark,

Re. your recent enquiry:

Flood Zones

- **Please confirm the Flood Zones for this area.**
The site is within Flood Zone 1.
- **Please confirm surface water, reservoir flooding, sewer flooding. Please provide plans and depth data from your GIS UFMSW for 30yr, 100yr & 1000yr as applicable (OS Datum).**
See attached plans showing flood outlines for 30yr, 100yr & 1000yr events.
- **Please confirm mapping and records for any surface water assets owned or maintained.**
We do not have details of the new drainage layout recently constructed. You may be able to obtain this information from Andrew Howick.
- **Please confirm if there are any future drainage improvements proposed for this area.**
We are not aware of any currently planned.
- **Please confirm details of existing or planned flood alleviation and defences in this area.**
We are not aware of any current flood defences within the area.
- **Please confirm if you are aware of any historic flooding within the confines of the site.**
We are not aware of any historic flooding within the confines of the site. However, we are aware that the area has flooded
- **Please confirm if you are aware of any historic flooding in close vicinity and/or on the public highway.**
Yes, we are aware that the area adjacent to the site, including Hoe Lane and the A259 (old layout) has flooded in the past.

Groundwater

- **Please confirm details of any groundwater flooding issues in the area, including flood levels, flood extents and any available anecdotal information.**
ESI Groundwater mapping shows that the NE section of the site is at moderate to low risk of ground water flooding.
The SE section of the site is at high risk of ground water flooding.
The whole site has a low susceptibility rating for ground water flooding.

Assets

- **Please confirm mapping and records for any surface water assets owned or maintained.**
We do not have details of the new drainage layout recently constructed. You may be able to obtain this information from Andrew Howick.
- **Please confirm if there are any historic culverted watercourses within or in close vicinity to the site. Please provide map records where available.**
The site once had historic ditches running around most of its boundaries. It may also of had an historic watercourse running north / south across the site.

- **Please can you provide any map records denoting the highway drainage network. Is this a piped system or soakaways?**

We do not have details of the new drainage layout recently constructed. You may be able to obtain this information from Andrew Howick.

Policy/Future

- **Please confirm the most recent Strategic Flood Risk Assessment (SFRA).**

WSSC Strategic Flood Risk Assessment – January 2010

<https://www.westsussex.gov.uk/about-the-council/strategies-plans-and-policies/environment-planning-and-waste-plans-and-policies/minerals-and-waste-policy/new-minerals-local-plan/mineral-site-selection/>

WS Local Flood Risk Management Study – May 2014

<https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/dealing-with-flooding/flood-risk-management/local-flood-risk-management-strategy/>

- **Please confirm if there are any future drainage improvements proposed for this area.**
We are not aware of any currently planned.
- **Please confirm if any drainage studies and/or SWMP have/are being assess for this area.**
The EA are currently working on a catchment study for the Aldingbounre rife. However, we do not have a date for the publication of this study.

Kevin Macknay

