

Drainage Maintenance Schedule

Project Phase 2 Norton Heights, Lovedean

Project Number 23246

By S Burgess

Date April 2021



The Civil Engineering Practice

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HAVANT BOROUGH COUNCIL

19 OCT 2021

RECEIVED

1 Schedule of Maintenance

1.1 Maintenance during construction

- 1.1.1 Once appointed the Contractor will prepare a site specific method statement for the control of silt and other pollutants during construction. CIRIA Report C532 'Control of Water Pollution from Construction Sites' provides further guidance on this.
- 1.1.2 During the construction phase, should hardstanding areas be constructed prior to the completion of the proposed drainage scheme, surface water flow will be temporarily channelled into localised lined storage units before being discharged at no greater than 5/l/s into the existing surface water sewers. Appropriate water quality mitigation in accordance with CIRIA Report C532 will be provided. This approach allows for surface water to be attenuated and sediments captured during the construction phase.
- 1.1.3 The Contractor will maintain the proposed drainage system during construction and until the site is handed over to the private Management Company.

1.2 Management and Maintenance of Proposed SuDS Drainage System

- 1.2.1 Upon completion, management of the shared drainage facilities will be passed on to a private Management Company appointed by the Developer on behalf of the new Residents.
- 1.2.2 The regular and corrective maintenance of all shared elements of the drainage systems, including the storage structures, catchpits, Downstream Defender Vortex Separators and Hydrobrakes will be managed and funded through the private Management Company on behalf of the Residents.
- 1.2.3 Provisions will be made to replace any infrastructure that has reached the end of its serviceable design life and will be replaced on a like for like basis as far as reasonably practicable.
- 1.2.4 The Downstream Defender Vortex Separators will be maintained in accordance with the 'Hydro International - Operation and Maintenance Manual' which has been included within the Application Pack.
- 1.2.5 In the event that the private Management Company becomes unable to discharge its duties within 2 years of first appointment the developer will endeavour to appoint an alternative on behalf of the Residents.
- 1.2.6 Regular maintenance of all private drainage, gullies, gutters, rainwater pipes and connections will be the responsibility of the individual homeowner and should be undertaken every 3 months.



ISO
9001 : 2008
REGISTERED

Cert No. 14221350

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove sediment and debris from silt trap chambers, gullies traps, channel drains and inlet chambers	3 monthly
	Litter and debris removal – catch pits	Monthly or as required
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
	Vortex Separators inspected. (A log should be maintained detailing the depth of oil found any oil volume removed, and any silt removal or cleaning carried out)	Regularly during first year of installation then every 6 months after the first year of installation
	Remove sediment, oil and suspended solids from the Vortex Separators	Once per year, or following a spill in the drainage area
	Manage other vegetation and remove nuisance plants – aesthetics	As required
	Inspect for sediment and debris in pre-treatment components and floor of storage structure inspection tubes or chambers.	Annually
	Cleaning of gutters and any filters on down pipes.	Annually (or as required based on inspection)
Occasional Maintenance	Trim any roots that may be cause blockages to the system.	Annually (or as required)
	Remove sediment and debris from pre-treatment components and floor of storage structure inspection tubes or chambers and inside of concrete manhole rings.	As required based on inspections
Corrective Maintenance	Repairs to access chambers / manhole covers	As required
	Remove debris / blockages to silt traps / channel drains	As required
	Surface remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipes, channel drains and gullies for blockages, standing water and clear	As required
	Alarm probes should be removed and cleaned with water	Whenever waste material is removed from the separator
	Reconstruct storage structures if performance deteriorates or failure occurs	As required
	Replacement of defective geotextile (will require reconstruction of storage structures)	As required
Monitoring	Inspect silt traps and note the rate sediment has accumulated	Monthly in the first year and then annually
	Inspect storage structures to ensure it is fully emptying	Annually

Maintenance Schedule	Required Action	Frequency
Corrective Maintenance	Remove debris / blockages to silt traps / channel drains	As required
	Repairs to access chambers / manhole covers	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipe and gullies for blockages, standing water and clear	As required

Indicative Schedule of Maintenance for the Proposed Drainage System

2 Financing

- 2.1 The regular maintenance of all private drainage, channels, gutters, rainwater pipes and connections will be the responsibility of the individual homeowner.
- 2.2 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents.

Inspection / Action Required	Gullies, Channels and Gutters	Catchpits	Vortex Separators	Surface Water Pipework	Storage Crates
1 Month		✓			✓
3 Months	✓	✓			
6 Months			✓		
1 Year					✓
After leaf fall in Autumn	✓	✓			
2 Years				✓	
When waste material is removed from the separator			✓		

Drainage System Maintenance Summary



1. All dimensions are to be finished in size. All details and dimensions relating to sub-Contractors work must be measured and agreed between the Architect and the Contractor at the time of the work.
2. This drawing is to be used in conjunction with all relevant Architect's and Engineer's drawings and specifications.
3. The name Contractor is responsible for ensuring the stability of the structure under the works are in progress.
4. Any information given regarding existing underground services is given in good faith (consultation with the relevant authority). No liability is accepted for the Contractor and the main Contractor is responsible for any damage to existing services and taking the same out of action.

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Burgate Homes Limited
Nation Heights
Phase 2
Loveclan Lane, Hornboun

Name		Date	
PR		Jan 2021	
Total		Total	
SB		SB	
Total		Total	
1,250 @ A1			

23246
 211 B



1

3. All documents to be retained in case. All details and transactions relating to sub-contractors must be preserved and agreed between the sub-contractor or supplier and the prime Contractor.
4. This drawing is to be used in conjunction with all relevant drawings and Employer's specifications.
5. The prime Contractor is responsible for ensuring the stability of the structure above the works are in progress.
6. Any information given relating to existing underground services is given in good faith only. Consultation with the relevant authority. Its liability is accepted by the Contractor and the prime Contractor is responsible for ensuring that the information and taking the necessary care and attention.

Drainage Maintenance Legend To be maintained by the homeowner - Final Water Manholes and Pipes - Surface Water Manholes and Pipes - Yard Gully - ACIO Channel	To be maintained by Management Company - Final Drainage - Surface Water Manholes and Pipes - Surface Water Gully - Final Gully - ACIO Channel - Storage Cistern/Catchment Slateway
To be maintained by Southern Water - Surface Sewers - Final Sewers	



	PM	Scale Bar added	Scale
C 18.03.21	PM	Updated and typed	Scale
B 18.03.21	PM	Final PM Review corrections marked	Scale
A 02.02.21	PM		Scale
PM	PM		Scale

by: Status

PRELIMINARY

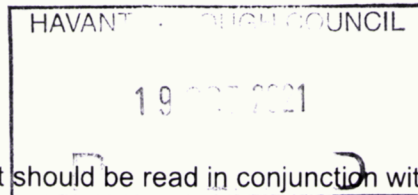
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Barclay Homes Limited
Norton Heights
Phase 2
Lovedean Lane, Hornbrian

NAME	DATE	TIME	DATE
PR		JAN 2021	
TEST QTR		TEST ID	
SB		SB	
TEST			
1250 @ A1			

PR	DATE
212	23246
C	



This document should be read in conjunction with the Surface Water Checklist Guidance document located on our website

SURFACE WATER SUBMITTED INFORMATION

Some applications have a considerable number of documents associated with them. To make sure we are reviewing the correct documentation, please ensure the following table is completed.

Document / Drawing Title	Document / Drawing Reference (and revision)
Proposed Drainage – 1 of 2	201_J
Proposed Drainage – 2 of 2	202_J
Proposed Drainage Manhole Schedule	205_D
Proposed Drainage Maintenance Plan – 1 of 2	211_B
Proposed Drainage Maintenance Plan – 2 of 2	212_C
Proposed Levels – 1 of 2	401_G
Proposed Levels – 2 of 2	402_F
Construction Details – 1 of 3	501_B
Construction Details – 2 of 3	502_E
Construction Details – 3 of 3	503_A
Site Location Plan	01
Existing Overland Flow Route	02
Proposed Overland Flow Routes	03_B
Impermeable Areas Plan	04_B
Technical Note - Discharge of Planning Conditions	Technical Note
Flow Surface Water Calculations	SW Drainage System 1 & SW Drainage System 2
Site Investigation	Desk Study Report

PRE-APPLICATION / PREVIOUS PLANNING APPLICATIONS

If this site was subject to a previous planning application i.e. an outline application in relation to a wider strategic site, pre-application enquiry or if you are reliant on information previously submitted, please provide the relevant reference numbers below.

Planning / Pre-app Titles	Reference Number
East Hampshire DC Outline	54139/001
Havant BC Outline	APP/20/00455

ORDINARY WATERCOURSE CONSENTING – to be completed and signed by the applicant

I confirm that I have reviewed the site and there are no watercourses / ditches / flow routes that will be affected or amended by the works. I understand that works to any of these features without consent constitutes a criminal offence and breaches the Land Drainage Act 1991.

29/01/2020



Or (delete as appropriate).

I confirm that I have reviewed the site and there are watercourses / ditches / flow routes that will be affected or amended by the works. I understand that these works require Ordinary Watercourse Consent under the Land Drainage Act 1991 and confirm that applications will be made for these works prior to works starting on site.

Name: STEVE BURGESS

Job Title: Project Engineer

Signature: STEVE BURGESS

SURFACE WATER CHECKLIST

Site Name		Norton Heights - Lovedean Lane		54139/001 and APP/20/00455	
Ref	SURFACE WATER REQUIREMENTS	PLANNING STAGE		SUBMISSION CHECKLIST	
		OUTLINE PLANNING	DETAILED PLANNING	Included Yes/Not	DOCUMENT Ref
	EXISTING INFORMATION	X	X		
1	Topographical Survey.	X	X	YES	Drawing 02
2	Existing Drainage	X	X	YES	Drawing 201 & 202
3	Discharge Rates and Volumes	X	X	YES	See Technical Note - Discharge of Planning Conditions Report
4	Existing Overland Flow Paths	X	X	YES	Drawing 02
5	Site Investigations	X	X	YES	See Desk Study Report
	OUTLINE DRAINAGE STRATEGY				
6	Confirmation of a discharge location	X	X	YES	Drawings 201 & 202
7	Outline Surface Water Calculations	X			
8	Flood Risk Assessment / Drainage Strategy	X	X	YES	See FRA V2.2 in Application Pack
9	Potential Flood Risk	X	X	YES	See FRA V2.2 in Application Pack
10	Outline Drainage Layout Plan	X			
	DETAILED DRAINAGE STRATEGY		X		
11	Detailed Drainage Assessment		X	YES	See Technical Note - Discharge of Planning Conditions Report
12	Detailed Drainage Layout Drawings		X	YES	Drawings 201 & 202
13	Detailed Hydraulic Calculations		X	YES	Flow Calculations
14	Water Treatment		X	YES	See Technical Note - Discharge of Planning Conditions Report
15	Exceedance Flows		X	YES	Drawing 03
16	Urban Creep		X	YES	See Technical Note - Discharge of Planning Conditions Report
17	Maintenance		X	YES	See Technical Note - Discharge of Planning Conditions Report & Drawing 211 & 212



- GENERAL NOTES:**
1. All dimensions to be checked on site. All details and dimensions relating to sub-Contractors work must be checked and agreed between the sub-Contractor or supplier and the general Contractor.
 2. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and specification.
 3. The main Contractor is responsible for ensuring the stability of the structure whilst the works are in progress.
 4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority. No liability is accepted by the Consultant and the main Contractor is responsible for obtaining and checking all information and taking due care and attention whilst undertaking the works.

Drainage Maintenance Legend:	
To be maintained by the homeowner	
	Foul Water Manhole and Pipe
	Surface Water Manhole and Pipe
	Yard Gully
	ACO Channel
To be maintained by Management Company	
	Foul Drainage
	Surface Water Manhole and Pipe
	Road Gully
	ACO Channel
	Storage Crate/Cellular Soakaway
To be maintained by Southern Water	
	Surface Sewers
	Foul Sewers



D	01.06.21	PR	Latest site layout added. Drainage updated to	SAB
C	18.03.21	PR	Scale Bar added	SAB
B	16.02.21	SAB	Updated site layout	SAB
A	02.02.21	PR	Final FW Sewer connection manhole revised	SB

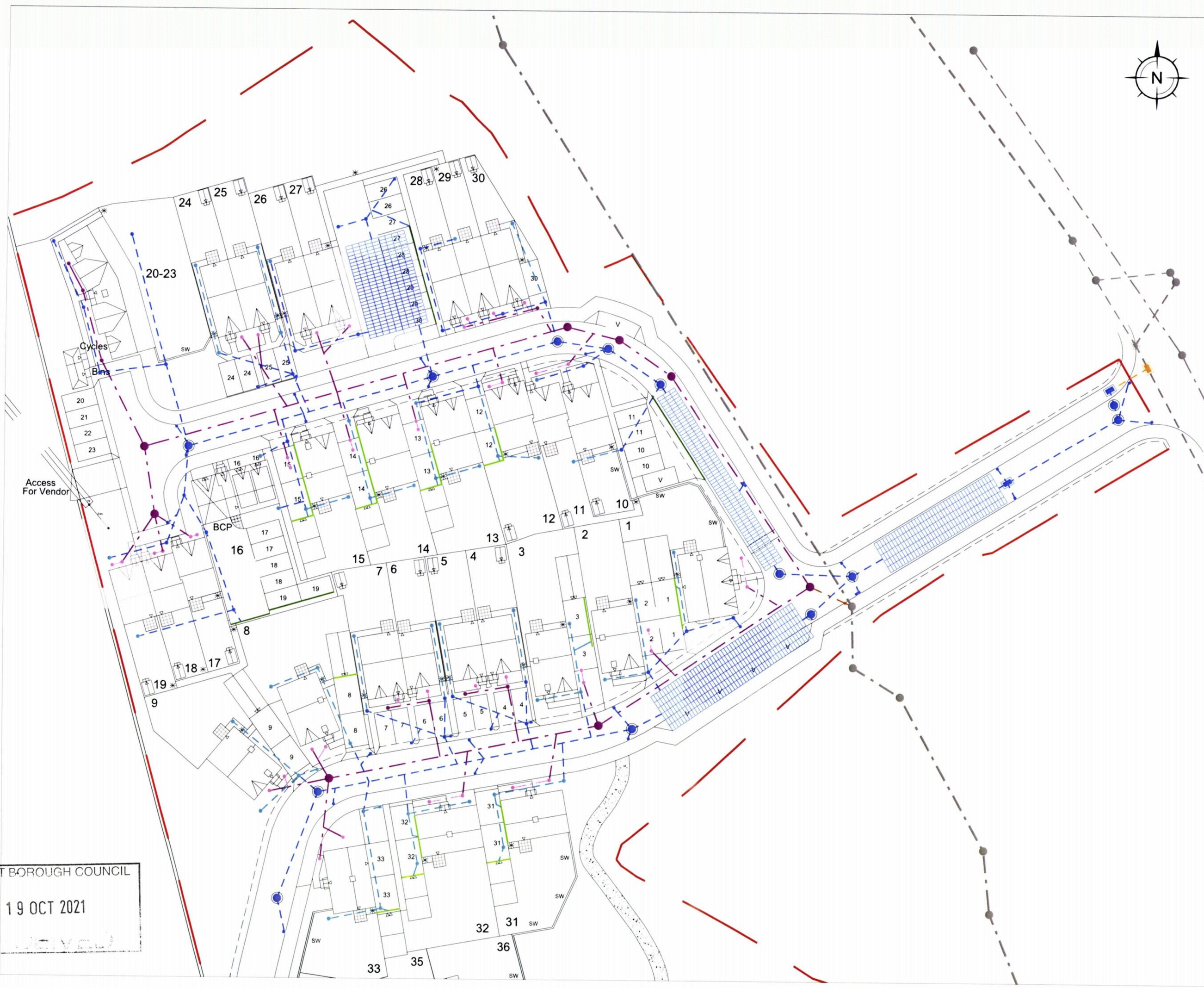
REV	DATE	BY	DESCRIPTION	CHK
Issue Status				
PRELIMINARY				

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CLIENT	Bargate Homes Limited		
PROJECT	Norton Heights Phase 2 Lovedean Lane, Hordean		
TITLE	Proposed Drainage Maintenance Plan Sheet 2 of 2		

DRAWN	DATE	PROJECT NO.	
PR	Jan 2021		23246
DESIGNED		DWG No.	
SB	SB		212
SCALE		REV	D
1:250 @ A1			

HAVANT BOROUGH COUNCIL
19 OCT 2021
PLANNING



GENERAL NOTES:

1. All dimensions to be checked on site. All details and dimensions relating to sub-Contractors work must be checked and agreed between the sub-Contractor or supplier and the general Contractor.
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Drainage Maintenance Legend:

To be maintained by the homeowner

- Foul Water Manhole and Pipe
- Surface Water Manhole and Pipe
- Yard Gully
- ACO Channel

To be maintained by Management Company

- Foul Drainage
- Surface Water Manhole and Pipe
- Road Gully
- ACO Channel
- Storage Crate/Cellular Soakaway

To be maintained by Southern Water

- Surface Sewers
- Foul Sewers



C	02.06.21	PR	Latest site layout added. Drainage updated to suit.	SAB
B	18.03.21	PR	Scale Bar added.	SAB
A	16.02.21	SAB	Updated site layout.	SAB
REV	DATE	BY	DESCRIPTION	CHK

Issue Status: **PRELIMINARY**

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Client: **Bargate Homes Limited**
Project: **Norton Heights Phase 2**
Location: **Lovedean Lane, Horndean**
Title: **Proposed Drainage Maintenance Plan Sheet 1 of 2**

TWAIN	DATE	PROJECT NO	23246
PR	Jan 2021		
SB	SB		
SCALE	1:250 @ A1		211 C

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19 OCT 2021
Received

MAIN SURFACE WATER MANHOLE SCHEDULE - SYSTEM 1								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
SW101	66.123	64.773	1.350	1200	D400	2. Figure B.12	468535.852	112546.455
SW102	64.952	63.552	1.400	1200	D400	2. Figure B.12	468567.233	112556.160
SW103	63.400	61.918	1.482	1200	D400	2. Figure B.12	468586.857	112573.493
SW104	61.450	59.531	1.919	1200	D400	2. Figure B.12	468610.448	112566.446
SW105	60.050	58.402	1.648	1200	D400	2. Figure B.12	468628.837	112570.683
SW106 CP	59.505	57.375	2.130	1200	D400	2. Figure B.12	468637.178	112564.344
SW107	58.860	57.360	1.500	1200	D400	2. Figure B.12	468653.171	112519.147
SW108 R	62.330	60.850	1.480	450	B125	3. Figure B.16	468613.774	112504.561
SW109	61.600	59.850	1.750	1200	D400	2. Figure B.12	468619.124	112517.829
SW110	59.367	58.017	1.350	1200	D400	2. Figure B.12	468643.643	112526.735
SW111 CP	58.850	57.360	1.490	1200	D400	2. Figure B.12	468647.113	112516.907
SW112 R	58.650	57.360	1.290	450	B125	3. Figure B.16	468651.846	112503.230
SW113	58.600	57.360	1.240	450	B125	Catchpit	468651.313	112498.507
SW114	58.300	57.360	0.940	1200	B125	Hydrobrake MH	468654.649	112489.046
SW115	58.250	57.243	1.007	1200	B125	Figure B.10 in the Sewerage Sector Guidance	468666.773	112476.146

Notes:
1. R = Restricted access opening to 350mm Ø or 300mm x 300mm id depth of chamber to invert is >1m
2. CP = 500mm deep catchpit required in manhole

MAIN FOUL WATER MANHOLE SCHEDULE - SYSTEM 1								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
FW101	65.710	64.160	1.550	1200	D400	2. Figure B.12	468546.714	112552.172
FW102	64.660	63.160	1.500	1200	D400	2. Figure B.12	468572.600	112559.522
FW103	61.675	60.225	1.450	1200	D400	2. Figure B.12	468607.237	112565.049
FW104	61.250	59.750	1.500	1200	D400	2. Figure B.12	468623.209	112520.583
FW105	59.240	57.775	1.465	450	B125	4. Figure B.21	468644.519	112528.367
FW106	58.500	57.150	1.350	450	B125	4. Figure B.21	468662.787	112488.564
FW107	58.230	56.000	2.230	1200	B125	Figure B.10 in the Sewerage Sector Guidance	468672.458	112482.653

Notes:
1. R = Restricted access opening to 350mm Ø or 300mm x 300mm id depth of chamber to invert is >1m

MAIN SURFACE WATER MANHOLE SCHEDULE - SYSTEM 2								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
SW201	67.750	66.945	0.805	450	A15	3. Figure B.16	468510.795	112669.562
SW202 R	67.400	65.525	1.875	450	A15	3. Figure B.16	468517.062	112644.898
SW203	67.295	65.395	1.900	1200	D400	2. Figure B.12	468516.420	112657.796
SW204	63.700	61.725	1.975	1200	D400	Hydrobrake MH	468552.550	112668.320
SW205	61.845	60.495	1.350	1200	D400	2. Figure B.12	468570.851	112673.653
SW206	61.240	59.890	1.350	1200	D400	2. Figure B.12	468578.382	112672.637
SW207	60.710	58.250	2.460	1200	D400	2. Figure B.12	468586.135	112667.462
SW208	60.560	58.250	2.310	1200	D400	Hydrobrake MH	468604.076	112639.765
SW209	66.010	64.660	1.350	1200	D400	2. Figure B.12	468536.042	112607.102
SW210	62.800	60.700	1.900	1200	D400	2. Figure B.12	468582.421	112616.717
SW211	60.460	58.200	2.260	1200	D400	Hydrobrake MH	468608.763	112633.867
SW212	60.100	58.100	2.000	1200	D400	2. Figure B.12	468614.781	112639.486
SW213	59.090	57.900	1.190	675 x 1200	D400	Type C	468637.522	112653.479
SW214	58.774	57.763	1.011	1200	D400	Hydrobrake MH	468653.845	112662.918
SW215	58.822	57.737	1.085	675 x 1200	B125	Type C	468652.567	112667.241

Notes:
1. R = Restricted access opening to 350mm Ø or 300mm x 300mm id depth of chamber to invert is >1m
2. CP = 500mm deep catchpit required in manhole

MAIN FOUL WATER MANHOLE SCHEDULE - SYSTEM 2								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
FW201	67.390	66.040	1.350	1200	D400	2. Figure B.12	468511.509	112647.717
FW202	67.450	65.900	1.550	1200	D400	2. Figure B.12	468513.581	112658.738
FW203	61.760	60.160	1.600	1200	D400	2. Figure B.12	468572.329	112675.556
FW204	61.210	59.860	1.350	1200	D400	2. Figure B.12	468579.997	112673.924
FW205	60.760	59.410	1.350	1200	D400	2. Figure B.12	468587.714	112668.666
FW206	65.910	64.560	1.350	1200	D400	2. Figure B.12	468537.648	112609.077
FW207	62.945	61.595	1.350	1200	D400	2. Figure B.12	468577.471	112617.184
FW208	60.445	59.095	1.350	1200	D400	2. Figure B.12	468608.554	112637.887

Notes:
1. R = Restricted access opening to 350mm Ø or 300mm x 300mm id depth of chamber to invert is >1m

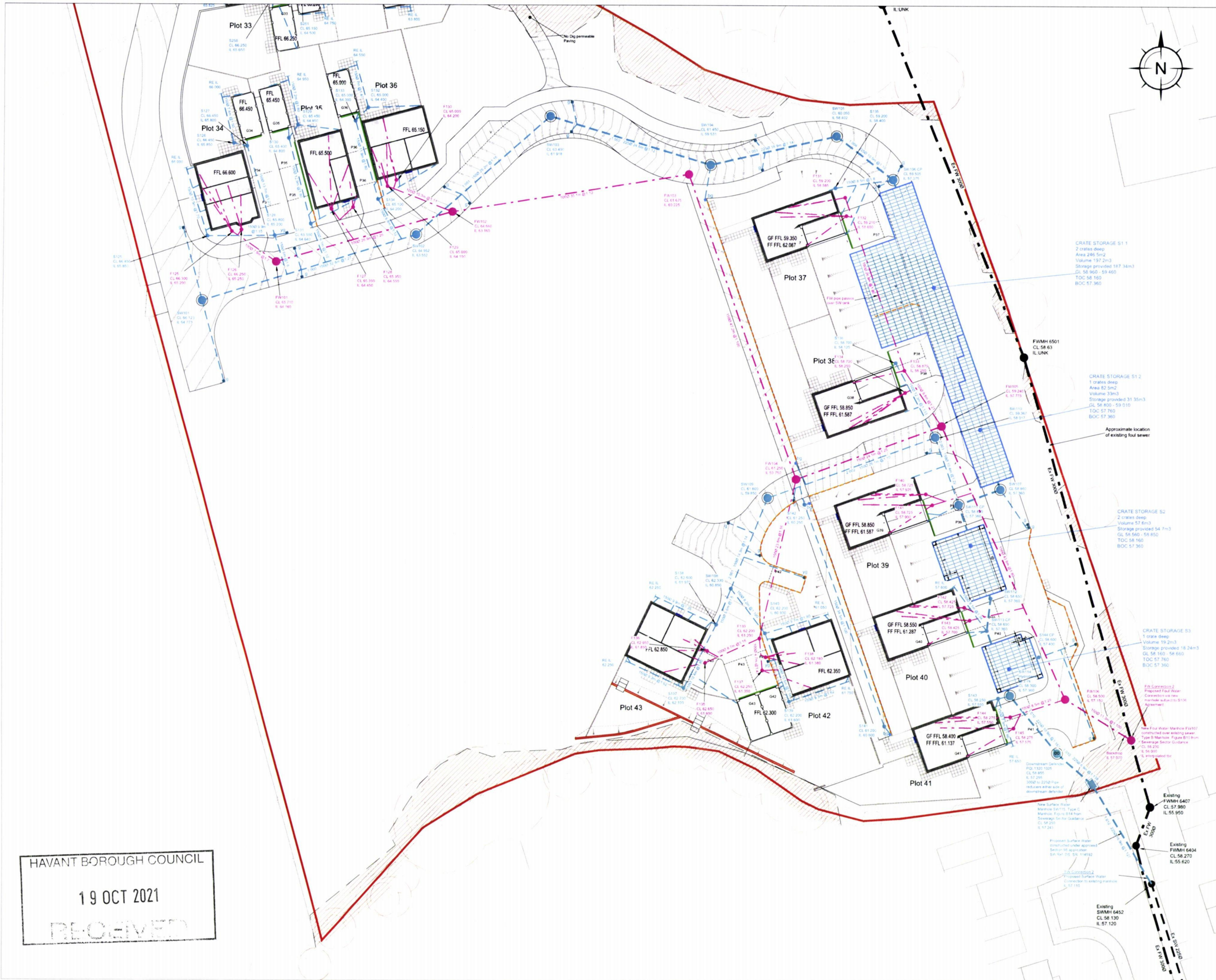
MINOR SURFACE WATER MANHOLE SCHEDULE - SYSTEM 1								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
S125	66.450	65.850	0.600	450	A15	4. Figure B.21	468536.566	112555.878
S126	66.450	65.850	0.600	450	A15	4. Figure B.21	468540.410	112569.451
S127	66.450	65.800	0.650	450	B125	4. Figure B.21	468542.305	112569.004
S128	65.800	65.200	0.600	450	B125	4. Figure B.21	468546.514	112555.983
S129	65.450	64.850	0.600	450	A15	4. Figure B.21	468549.828	112572.137
S130	65.400	64.800	0.600	450	B125	4. Figure B.21	468548.487	112570.211
S131	65.550	64.640	0.910	450	B125	4. Figure B.21	468551.825	112557.710
S132	65.000	64.400	0.600	450	A15	4. Figure B.21	468560.106	112574.680
S133	65.000	64.350	0.650	450	B125	4. Figure B.21	468558.284	112572.759
S134	65.100	64.200	0.900	450	B125	4. Figure B.21	468561.628	112561.318
S135	59.200	58.400	0.800	450	A15	4. Figure B.21	468568.720	112563.115
S136	58.700	58.140	0.560	450	A15	4. Figure B.21	468637.798	112537.566
S137	62.700	62.100	0.600	450	A15	4. Figure B.21	468606.876	112490.041
S138	62.500	61.970	0.530	450	B125	4. Figure B.21	468611.661	112499.322
S139	62.200	61.600	0.600	450	A15	4. Figure B.21	468622.339	112488.098
S140 R	62.200	60.930	1.270	450	A15	4. Figure B.21	468618.813	112498.045
S141	61.200	60.600	0.600	450	A15	4. Figure B.21	468636.315	112484.519
S142	61.250	60.250	1.000	450	A15	4. Figure B.21	468624.510	112516.885
S143	58.250	57.550	0.700	450	A15	4. Figure B.21	468652.949	112488.620
S144 CP R	58.600	57.400	1.200	450	A15	Catchpit	468658.869	112494.690

Notes:
1. R = Restricted access opening to 350mm Ø or 300mm x 300mm id depth of chamber to invert is >1m
2. CP = 500mm deep catchpit required in manhole

MINOR FOUL WATER MANHOLE SCHEDULE - SYSTEM 1								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
F125 R	66.300	65.200	1.100	450	A15	4. Figure B.21	468540.145	112556.581
F126	66.250	65.250	1.000	450	A15	4. Figure B.21	468541.535	112556.803
F127	65.350	64.450	0.900	450	A15	4. Figure B.21	468554.813	112559.888
F128	65.350	64.550	0.800	450	A15	4. Figure B.21	468557.994	112560.134
F129	65.000	64.100	0.900	450	A15	4. Figure B.21	468562.977	112563.209
F130	65.000	64.200	0.800	450	A15	4. Figure B.21	468564.280	112564.136
F131	59.200	58.585	0.615	450	A15	4. Figure B.21	468630.140	112561.759
F132	59.210	58.600	0.610	450	B125	4. Figure B.21	468630.345	112559.046
F133	58.875	58.250	0.625	450	B125	4. Figure B.21	468639.032	112536.499
F134	58.700	58.250	0.450	450	A15	4. Figure B.21	468639.147	112533.248
F135	62.650	61.800	0.850	450	B125	4. Figure B.21	468610.009	112493.723
F136	62.650	61.850	0.800	450	B125	4. Figure B.21	468610.314	112495.470
F137	62.250	61.350	0.900	450	B125	4. Figure B.21	468618.373	112492.655
F138	62.180	61.380	0.800	450	B125	4. Figure B.21	468618.869	112494.586
F139	62.200	61.200	1.000	450	B125	4. Figure B.21	468617.964	112497.322
F140	58.725	57.925	0.800	450	A15	4. Figure B.21	468642.251	112518.456
F141	58.725	57.900	0.825	450	B125	4. Figure B.21	468643.216	112516.848
F142	58.425	57.725	0.700	450	A15	4. Figure B.21	468647.952	112501.900
F143	58.425	57.700	0.725	450	B125	4. Figure B.21	468648.752	112500.028
F144	58.275	57.550	0.725	450	B125	4. Figure B.21	468654.704	112485.941
F145	58.275	57.575	0.700	450	B125	4. Figure B.21	468655.181	112484.291

Notes:
1. R = Restricted access opening to 350mm Ø or 300mm x 300mm id depth of chamber to invert is >1m

MINOR SURFACE WATER MANHOLE SCHEDULE - SYSTEM 2								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
S225	67.850	67.250	0.600	450	A15	3. Figure B.16	468497.545	112686.403
S226	67.850	67.030	0.820	450	A15	3. Figure B.16	468503.886	112670.132
S227	67.800	67.200	0.600	450	A15	3. Figure B.16	468507.685	112687.898
S228	67.800	66.985	0.815	450	A15	3. Figure B.16	468513.154	112671.763
S229	67.350	66.750	0.600	450	A15	4. Figure B.21	468508.359	112629.605
S230 R	66.900	65.700	1.200	450	B125	3. Figure B.16	468526.599	112634.905
S231 R	66.900	65.595	1.305	450	B125	3. Figure B.16	468523.784	112644.698
S232	67.400	66.800	0.600	450	A15	4. Figure B.21	468513.725	112643.710
S233	66.300	65.700	0.600	450	A15	4. Figure B.21	468517.114	112684.326
S234	66.450	65.530	0.920	450	A15	4. Figure B.21	468521.002	112671.416
S235	66.250	65.465	0.785	450	A15	4. Figure B.21	468527.379	112673.286
S236	65.100	64.375	0.725	450	A15	4. Figure B.21	468531.491	112671.588
S237 CP	64.900	63.900	1.000	450	A15	4. Figure B.21	468540.295	112674.160
S238 CP	64.300	63.300	1.000	450	B125	3. Figure B.16	468543.554	112691.531
S239	62.900	62.300	0.600	450	A15	4. Figure B.21	468550.096	112686.851
S240 R	62.900	61.700	1.200	450	A15	4. Figure B.21	468553.457	112675.318
S241 R	62.700	61.000	1.700	450	A15	4. Figure B.21	468562.104	112677.528
S242	62.200	61.400	0.800	450	B125	3. Figure B.16	468568.323	112679.252
S243	66.000	65.400	0.600	450	A15	4. Figure B.21	468535.521	112648.112
S244	66.075	65.350	0.725	450	B125	4. Figure B.21	468532.762	112648.081
S245	66.125	65.220	0.905	450	B125	4. Figure B.21	468529.804	112658.043
S246	64.900	64.300	0.600	450	A15	4. Figure B.21	468544.947	112649.539
S247	64.900	64.250	0.650	450	B125	4. Figure B.21	468542.389	112650.070
S248	65.000	64.140	0.860	450	B125	4. Figure B.21	468539.145	112660.735
S249	63.850	63.250	0.600	450	A15	4. Figure B.21	468554.578	112651.663
S250	63.875	63.200	0.675	450	B125	4. Figure B.21	468552.119	112652.389
S251	64.000	63.080	0.920	450	B125	4. Figure B.21	468548.406	112663.799
S252	63.125	62.525	0.600	450	B125	4. Figure B.21	468561.767	112656.101
S253	63.100	62.405	0.695	450	B125	4. Figure B.21	468558.262	112667.303
S254	61.500	60.900	0.600	450	A15	4. Figure B.21	468571.042	112668.367
S255	61.250	60.650	0.600	450	A15	4. Figure B.21	468573.522	112656.090
S256 CP	60.480	59.480	1.000	450	B125	3. Figure B.16	468590.142	112656.987
S257	66.400	65.715	0.685	450	A15	4. Figure B.21	468536.666	112595.680
S258	66.250	65.650	0.600	450	B125	4. Figure B.21	468546.242	112590.931
S259	66.250	65.510	0.740	450	B125	4. Figure B.21	468543.942	112604.609
S260	65.150	64.550	0.600	450	A15	4. Figure B.21	468552.504	112595.402
S261	65.150	64.500	0.650	450	B125	4. Figure B.21	468550.059	112596.832
S262	65.200	64.000	1.200	450	B125	4. Figure B.21	468549.396	112604.655
S263	64.250	63.650	0.600	450	A15	4. Figure B.21	468565.215	112597.261
S264	64.300	63.600	0.700	450	B125	4. Figure B.21	468562.791	112599.021
S265 R	64.300	63.000	1.300	450	B125	4. Figure B.21	468561.711	112606.925
S266	63.800	62.900	0.900	450	A15	4. Figure B.21	468571.418	112608.563
S267	66.200	65.600	0.600	450	B125	4. Figure B.21	468532.846	112610.056
S268	65.700	65.100	0.600	450	B125	4. Figure B.21	468542.258	112613.671
S269	65.000	64.400	0.600	450	A15	4. Figure B.21	468542.782	112620.071
S270	64.700	64.080	0.620	450	A15	4. Figure B.21	468554.690	112622.520
S271	64.650	63.995	0.655	450	B125	3. Figure B.16	468554.286	112615.757
S272	64.000	63.275	0.725	450	A15	4. Figure B.21	468554.328	112632.225
S273 R	64.100	63.000	1.100	450	A15	4. Figure B.21	468556.174	112622.041
S274	63.900	62.910	0.990	450	A15	4. Figure B.21	468564.851	112622.962
S275	62.750	62.150	0.600	450	B125	4. Figure B.21	468573.278	112631.869
S276	62.975	62.000	0.975	450	B125	4. Figure B.21	468575.338	112620.157
S277	61.575	60.975	0.600	450	B125	4. Figure B.21	468583.005	112636.118
S278	61.600	60.820	0.780	450	B125	4. Figure B.21	468590.619	112628.835
S279 R	61.925	60.750	1.175	450	A15	4. Figure B.21	468584.845	112625.472
S280 R	62.300	60.710	1.590	450	A15	3. Figure B.16	468582.900	112622.959
S281	61.000	60.400	0.600	450	A15	4. Figure B.21	468600.469	112638.470



- GENERAL NOTES:**
1. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 2. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and specification.
 3. The main Contractor is responsible for ensuring the stability of the structure whilst the works are in progress.
 4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority. No liability is accepted by the Consultant and the main Contractor is responsible for obtaining and checking all information and taking due care and attention whilst undertaking the works.

- DRAINAGE NOTES:**
1. All adoptable pipes, bends and junctions shall be verified clay in accordance with the current version of BS EN 295-1, with flexible joints and kitemark certified.
 2. All Adoptable sewers shall be in strict accordance with the SSG Appendix C - Design and Construction Guidance. Unless otherwise stated adoptable sewers shall be 150mm diameter and shall be laid in a class S bedding. Where the depth to soffit is less than 1.2m under a public highway or 0.9m elsewhere the pipe shall be laid with a class 2 bedding.
 3. All private building drainage shall be constructed in strict accordance with the current version of BS EN 752:2017. Unless otherwise specified building drainage shall be 100mm diameter and shall be laid at a minimum gradient of 1 in 40 for foul drains and 1 in 80 for surface water drains. All building drains shall be laid in class B bedding unless otherwise specified.
 4. Where a pipe is within 1m of a foundation the trench shall be filled with class GEN 3 concrete up to the lowest level of the foundation. Where the trench is further than 1m from the foundation, the trench shall be filled with class GEN 3 concrete to a level below the lowest level for the foundation equal to the distance from the foundation less 150mm. In both cases the pipe shall be bedded and surrounded in 150mm thick class GEN 3 concrete.
 5. Where pipes, external to the structures, have a depth to soffit from ground level of less than 450mm they shall have a class GEN 3 concrete encasement (150mm thick). In all other cases the pipes shall be bedded and surrounded with 100mm thick granular material.
 6. In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8m centres (conforming with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section. A board thickness of 18mm for pipes up to 450mm nominal diameter and 30mm for pipes over 450mm nominal diameter.
 7. All sumps shall have rodding access plates fitted at their bases (ground floor level).
 8. Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.
 9. Any discrepancy between the drawing and site should be reported immediately to the Engineer.
 10. All manhole and chamber sizes are given as a minimum to meet the SSG Appendix C-Design and Construction Guidance.

KEY:

Existing Sewers

- Existing Storm Sewer
- Existing Foul Sewer

Private Storm Drainage

- Chamber Cover Level
- Chamber Invert Level
- Type 1 and 2 Manhole
- Type 3 / 4 Inspection Chambers
- Road Gully
- Yard Gully
- Bottle Gully
- Raised edge to divert surface water to gullies and drainage channels
- External Acc Channel M1000 0.0 channel unit unless noted otherwise
- Threshold Acc Channel
- Storage Crate

Private Foul Drainage

- Chamber Cover Level
- Chamber Invert Level
- Type 1 and 2 Manhole
- Type 3 / 4 Inspection Chambers

Other

- Retaining Walls
- Refer to Drawings 401 and 402

REV	DATE	BY	DESCRIPTION	CHK
J	27.09.21	PR	Latest site layout added. Drainage updated to suit. SAB	
I	14.09.21	PR	New site layout and block plans added. Drainage SAB	
Updated to suit				
H	24.08.21	PR	Minor updates	SAB
G	28.07.21	PR	Minor updates	SAB
F	02.06.21	PR	Latest site layout added. Drainage updated to suit. SAB	
E	18.05.21	PR	Crate Storage S1 volume figures corrected	SAB
D	18.03.21	PR	Scale Bar added	SAB
C	16.02.21	SAB	Updated to new site layout	SAB
B	02.02.21	PR	Final Manhole FW211 connection revised	SB
A	29.01.21	PR	Drainage updated	SB

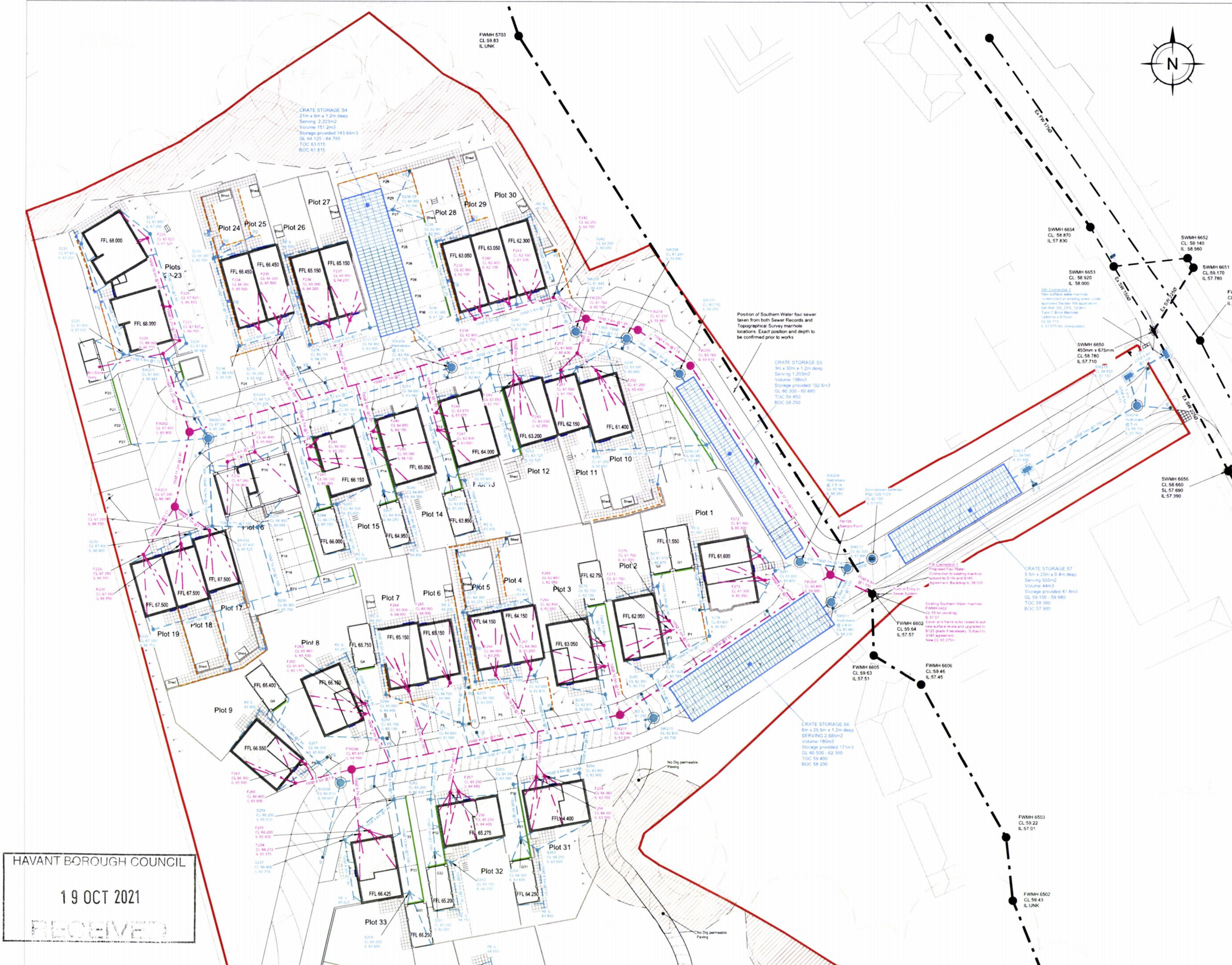
Issue Status

TENDER

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11 Tunstun Building
George Street
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Sussex
BN41 1RA
01273 424424
reception@civil.co.uk
www.civil.co.uk

CLIENT	Bargate Homes Limited
PROJECT	Norton Heights Phase 2 Lovedean Lane, Hordean
TITLE	Proposed Drainage Sheet 2 of 2
DRAWN	PR
CHECKED	SB
DATE	Dec 2020
PROJECT NO	23246
DWG No	202
REV	J
SCALE	1:250 @ A1

HAVANT BOROUGH COUNCIL
19 OCT 2021
RECEIVED



- GENERAL NOTES:**
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 5. Where pipes, external to the structures, have a depth to soffit from ground level of less than 450mm they shall have a class GEN 3 concrete encasement (150mm thick). In all other cases the pipes shall be bedded and surrounded with 100mm thick granular material.
 6. In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8m centres (corresponding with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section. A board thickness of 18mm for pipes up to 450mm nominal diameter and 35mm for pipes over 450mm nominal diameter.
 7. All s/sps shall have ridding access plates fitted at their bases (ground level).
 8. Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.
 9. Any discrepancy between the drawing and site should be reported immediately to the Engineer.
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KEY:

- Existing Sewers
- Existing Storm Sewer
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 - Refer to Drawings 401 and 402

J 27.09.21	PR	Latest site layout added. Drainage updated to suit SAB	SAB
I 14.09.21	PR	New site layout and block plans added. Drainage SAB updated to suit	SAB
G 28.07.21	PR	Minor updates	SAB
F 28.06.21	SAB	Updated for Trade Effluent application	SAB
E 06.06.21	SAB	Updated for Trade Effluent application	SAB
D 02.06.21	PR	Latest site layout added. Drainage updated to suit SAB	SAB
C 18.03.21	PR	Scale Bar added	SAB
B 29.01.21	SAB	Updated to new site layout	SAB
A 29.01.21	PR	Drainage updated	SB

Issue Status

TENDER

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CLIENT: Bargate Homes Limited
PROJECT: Norton Heights
Phase 2
Lovedean Lane, Hordean

TITLE: Proposed Drainage
Sheet 1 of 2

DESIGN	DATE	PROJECT NO.	23246
PR	Dec 2020		
REVISION	CHANGED		
SB	SB		
ISSUED			
1:250 @ A1			

Rosie Hawes

From: Callum Safe
Sent: 14 October 2021 12:08
To: Rachel Davies
Subject: Foundation Scheme for Land at Cottage Farm, Lovedean Lane, Waterlooville
Attachments: 114318-CAL-XX-00-DR-S-0101 P1 - Foundation Plan Plot 1.pdf

Hi Rachel,

The foundation scheme for our development at Land at Cottage Farm, Lovedean Lane, Waterlooville has been designed by our consulting engineers at Calcinotto, their Technical Director Clinton Lee has been the project lead for the structural design.

A reinforced concrete raft solution has been adopted in line with the recommendations made in the ground investigation report from Wilson Bailey Geotechnical & Environmental J19042 Issued February 2021. No piling or deep foundation solutions have been proposed due to the potential impact on the underlying chalk aquifer.

Please see attached a sample raft plan and sections drawing which is indicative of the detail to be used across the site.

Kind regards,

CALLUM SAFE | Assistant Technical Coordinator

t: 02380 602255

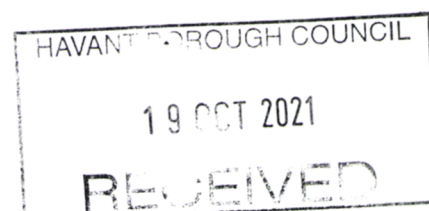
www.bargatehomes.co.uk 



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The New Barn, Vicarage Farm Business Park,
Winchester Road, Fair Oak, Hampshire, SO50 7HD.

Company Registration No. 05626135



GENERAL NOTES:

1. This drawing is to be read in conjunction with all relevant Architect's, Engineer's and specialist Sub-contractor's drawings and specifications.
2. All setting out to be in accordance with the Architects drawings, any discrepancies between the Engineers and Architects drawings to be referred to the Architect before proceeding. Dimensions must not be scaled.
3. All dimensions are in millimetres, levels are in metres A.O.D. (Above Ordnance Datum).

FOUNDATIONS

1. Foundations have been designed on a safe increase in bearing pressure of 50kN/m² based upon the geotechnical investigation report prepared by Wilson Bailey Geotechnical and environmental dated February 2021.

Particular note should be taken of trial pit locations when excavating foundations, as they may need to be deeper locally at these positions.

2. Concrete mixes to BS 8500 and BS EN 206-1:

Location - Raft foundations
Grade - RC 28/35

3. The Principal Contractor is to locate and clearly mark the position of all existing services and drains running beneath the building area.
4. The Principal Contractor is to provide all necessary sleeves or linters where drainage pipes pass through walls or foundations.
5. Drainage runs adjacent to or through foundations may result in deepening foundations locally. Refer to note 10.
6. The Principal Contractor to provide and fix suitable bracing and propping for all elements in the temporary condition during the construction stage, such as to ensure structural stability at all times.
7. The Principal Contractor is to ensure that at all times the excavations shall remain free from standing water.
8. All load bearing blockwork below ground to be 7N/mm² dense concrete blocks with grade (i) mortar.
9. Provide Ancon ST1 wall ties in accordance with BS EN 845-1 and PD6697 @ 450mm centres vertically and @ 900mm centres horizontally staggered u.n.o.

10. Foundations adjacent existing proposed excavation Proposed building

Legend/Notes

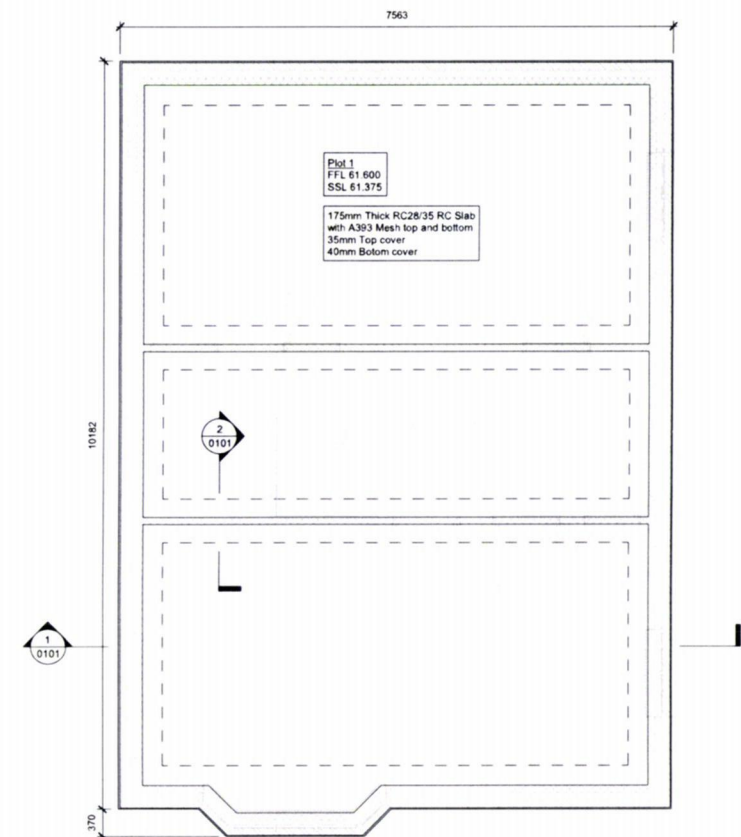
Graded Granular Fill

All works to be carried out and materials specified in accordance with specification for highway works - Volume 1, Series 500

Type 6F2 or similar approved, to be placed in Max. 225mm layers and compacted in accordance with Table 6/4 Method 6

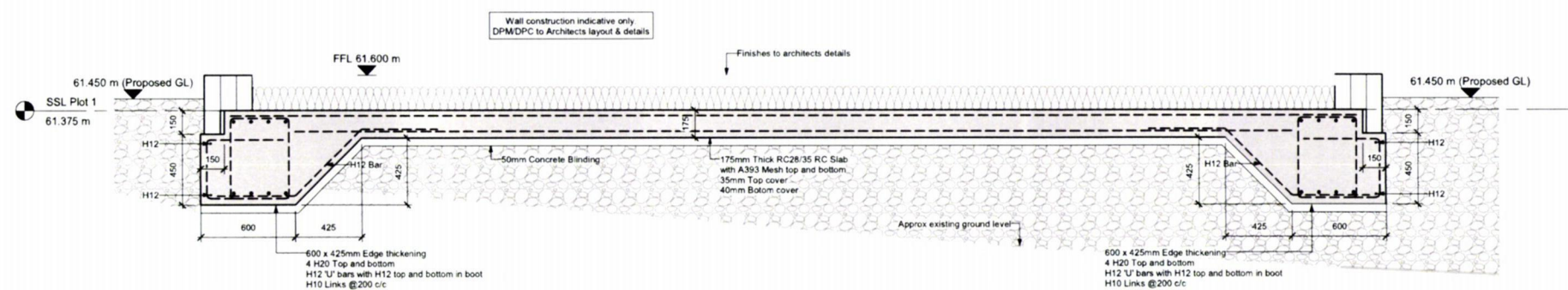
All materials to be clean graded granular fill with no deleterious material.

Approximate existing ground



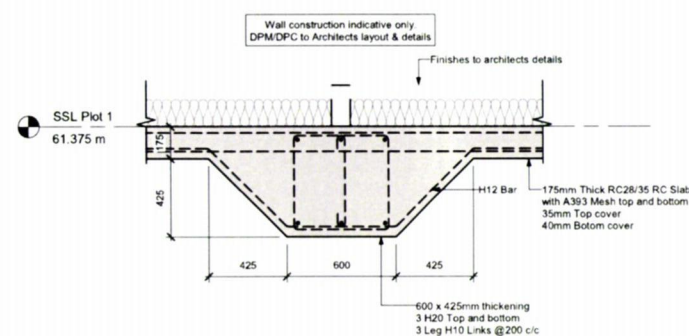
Foundation Plan Plot 1

1 : 50



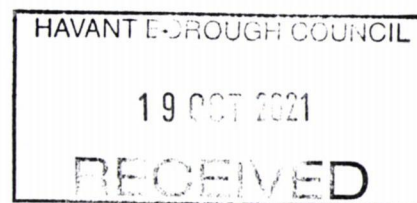
Foundation Section 1 Plot 1

1 : 20



Foundation Section 2 Plot 1

1 : 20



Rev: 001/2021
Date: 19/10/2021
Description: Foundation Plan Plot 1



Client: Bargate Homes
Project: Norton Heights Phase 2 Hordean
Drawing: Foundation Plan Plot 1

Drawing Status: SO WORK IN PROGRESS

Original: 114318 AP CL As indicated

114318-CAL-XX-00-DR-S-0101 P1