



APPENDIX C

Topographical Survey



APPENDIX D

British Geological Survey Mapping

Bedrock Geology



British
Geological
Survey



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Geolindex Onshore Data Sources: NERC, Natural England, English Heritage and Ordnance Survey

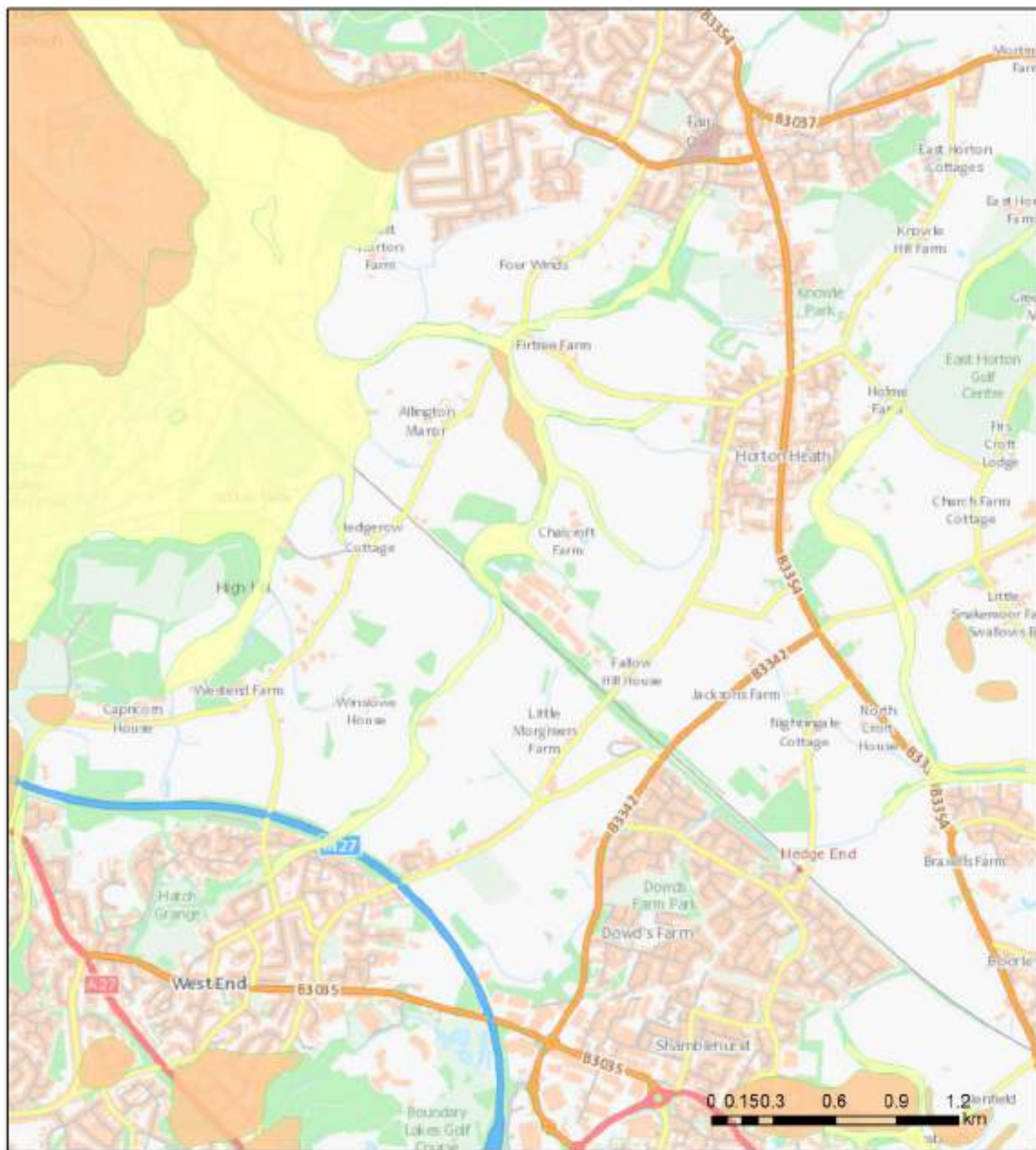
Map Key

Bedrock geology 1:50,000 scale

-  [DURLEY SAND MEMBER - SAND](#)
-  [LONDON CLAY FORMATION - CLAY, SILT AND SAND](#)
-  [PORTSMOUTH SAND MEMBER - SAND](#)
-  [EARNLEY SAND FORMATION - SAND, SILT AND CLAY](#)
-  [LONDON CLAY FORMATION - SAND](#)
-  [MARSH FARM FORMATION - CLAY, SILT AND SAND](#)

Selection Results

Superficial Deposits



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Geotitles Onshore Data Sources: NERC, Natural England, English Heritage and Ordnance Survey

Map Key

Superficial deposits 1:50,000 scale

-  [ALLUVIUM - CLAY, SILT, SAND AND GRAVEL](#)
-  [HEAD - CLAY, SILT, SAND AND GRAVEL](#)
-  [RIVER TERRACE DEPOSITS, 11 - SAND AND GRAVEL](#)
-  [TIDAL FLAT DEPOSITS - CLAY AND SILT](#)

Selection Results

Hydrogeology



British
Geological
Survey



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Geological Data Sources: NERC, Natural England, English Heritage and Ordnance Survey

Map Key

Hydrogeology 1:625,000 scale

Aquifers with significant intergranular flow

-  Highly productive aquifer
-  Moderately productive aquifer
-  Low productivity aquifer

Aquifers in which flow is virtually all through fractures and other discontinuities

-  Highly productive aquifer
-  Moderately productive aquifer
-  Low productivity aquifer
-  Rocks with essentially no groundwater

Selection Results

APPENDIX E

Ground Investigation Extracts

5. GROUND INVESTIGATION RECORDS AND DATA

5.1 Physical ground conditions

5.1.1 Summary of strata encountered

The following presents a summary of the properties of the ground and groundwater conditions encountered, based on field observations, interpretation of the field data and laboratory test results, taking into account drilling, excavation and sampling methods, transport, handling and specimen preparation.

All relevant data from the Hydrock investigation detailed in Section 4.

Details of the Hydrock ground investigation works are provided in the logs in Appendix E, historical data is provided in Appendix D, a summary of the ground model is presented in Table 5.1 and the individual strata are described in the sections below.

Table 5.1: Strata encountered

Stratum	Depth to top (m bgl)	Depth to base (m bgl)	Thickness (m) (range)	Thickness (m) (average)
Topsoil	GL	0.40 - 0.50	0.40 - 0.50	0.40
Head Deposits	0.40 – 0.50	1.35 – 2.00	0.95 – 1.60	1.00
River Terrace Deposits	0.40	2.00	1.60	1.60
Earnley Sand Formation	0.40	2.30	1.90	1.90
Wittering Formation	0.40 – 2.00	>8.00	>6.00 - >7.60	Not proven

5.1.2 Topsoil

Topsoil was generally found to be 0.40m and 0.50m thick, with an average thickness of 0.40m. The topsoil comprised a soft light brown to brown sandy gravelly silt with rootlets.

For the purposes of this report, topsoil is defined as the upper layer of an *in situ* soil profile, usually darker in colour and more fertile than the layer below (subsoil), which is a product of natural chemical, physical, biological and environmental processes, but does not imply compliance with BS 3882:2015. Reuse of topsoil as a growing medium at the site should be determined by the landscape architect or the landscape Contractors.

5.1.3 Head Deposits

Head Deposits were encountered underlying the Topsoil in BH01, BH03, BH04, BH06, BH07 and BH10 in general between 0.95m and 1.60m thick, with an average thickness of 1.00m.

Head Deposits generally comprised light brown to orange brown sandy gravelly silt.

5.1.4 River Terrace Deposits

River Terrace Deposits were encountered underlying the Topsoil in BH09 in the north west of the site and were found to be 1.60m thick.

River Terrace Deposits comprised an orange brown sandy, gravelly and cobbly CLAY/SILT.

5.1.5 Wittering Formation

The Wittering Formation was encountered in all locations. The thickness of the formation was not proven by any of the investigative locations.

The Wittering Formation comprised soft to firm orange and orange brown mottled grey, often lenticular or laminated silt, sand and clay where weathered and soft to stiff, grey, often laminated silt, sand and clay at depth.

5.1.6 Earnley Sand Formation

The Earnley Sand Formation was encountered in BH02 only between 0.40m and 2.30m depth comprised light brownish grey slightly silty and slightly gravelly sand.

5.2 Groundwater

5.2.1 Groundwater strikes and levels

Groundwater strikes were not encountered during the investigation; however, it is considered that water strikes are likely to have been discreet considering the nature of the strata encountered and that such strikes may have been missed due to the addition of water to the borehole to facilitate drilling.

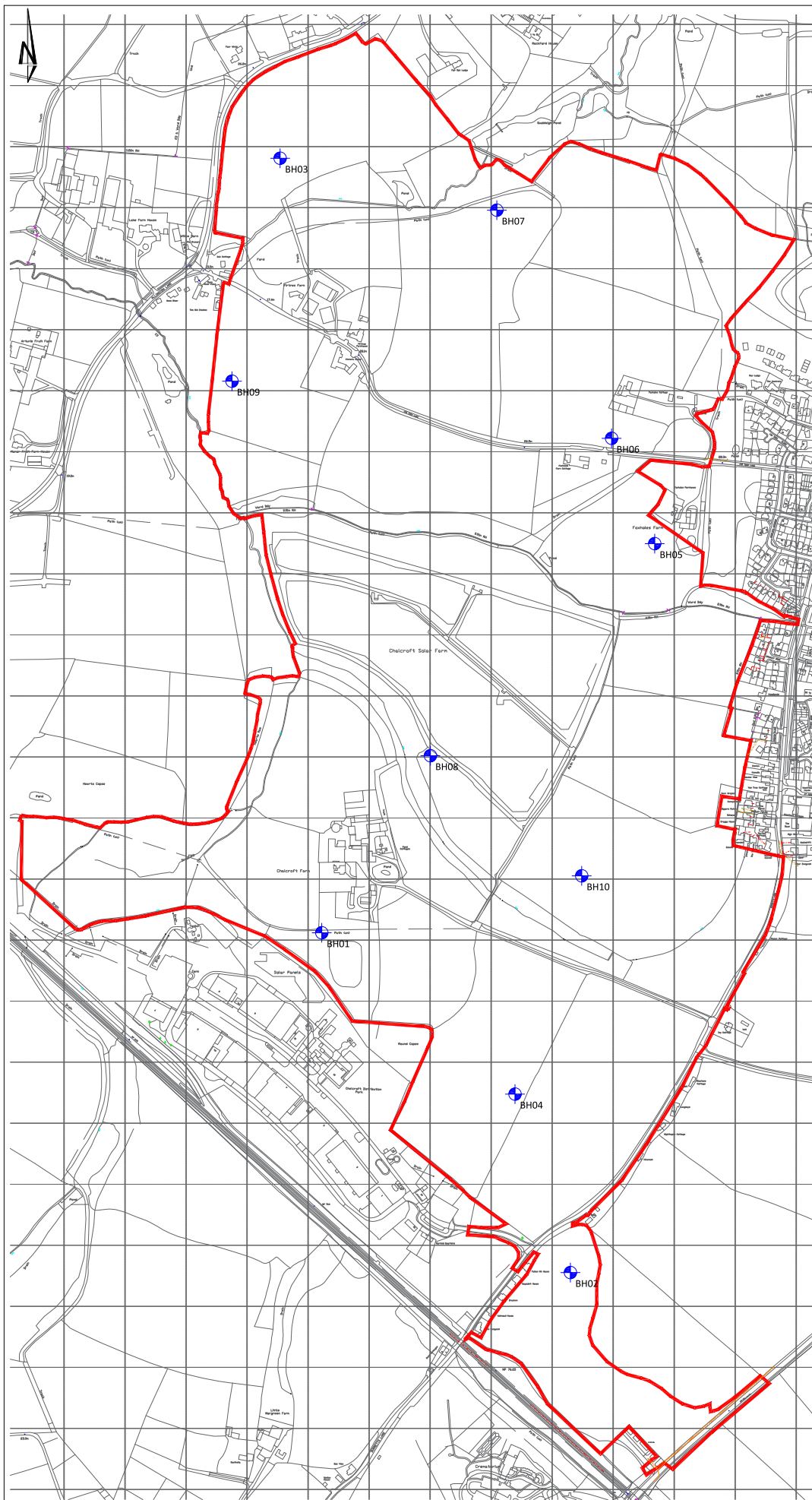
Groundwater levels recorded during post-fieldwork monitoring are summarised in Table 5.2.

Table 5.2: Groundwater level data summary

Exploratory hole	Date	Post-fieldwork monitoring	
		Depth to groundwater (m bgl)	Groundwater elevation (m OD)
BH01	02/11/18	2.41	17.79
BH02	02/11/18	2.77	29.66
BH03	02/11/18	1.95	18.22
BH04	02/11/18	2.70	20.88
BH06	02/11/18	1.95	25.85
BH07	02/11/18	3.04	19.57
BH08	02/11/18	0.93	18.67
BH09	02/11/18	1.60	15.86
BH10	02/11/18	2.31	20.37

5.2.2 Permeability tests

The results of permeability testing using falling head analysis were not suitable to allow conventional calculation of infiltration flow rates due to slow or no ingress of water within the test locations (with exception of a test at 3.0m in BH05, generating a infiltration rate of 3.85×10^{-6} m/sec). This is likely to be due to the cohesive strata encountered and subsequently identified shallow groundwater. The results sheets are given in Appendix F.



Notes:

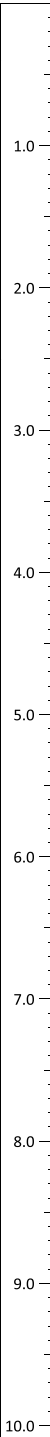
1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineers for verification. Figured dimensions only are to be taken from this drawing.
2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

Legend

- Site boundary (approximate)
- BHXX Cable Percussion Borehole

Rev	Date	Description	By	Chk
Architect				
 Hydrock Consultants Ltd Barton Road Basingstoke, Hampshire RG24 0JL Tel: 01256 341000 www.hydrock.com				
Client				
Eastleigh Borough Council				
Project Title				
HORTON HEATH, HAMPSHIRE				
Drawing Title				
Exploratory Hole Location Plan				
Reference				
HHD-HYD-XX-ZZ-DR-GE-1001				
Hydrock Job No:				
C-09820-C				
Drawn	Checked	Scale @ A3	Date	Issue Date
SD	DP	1:3000	04/12/18	04/12/18
Revision		Status		
P1		S2		

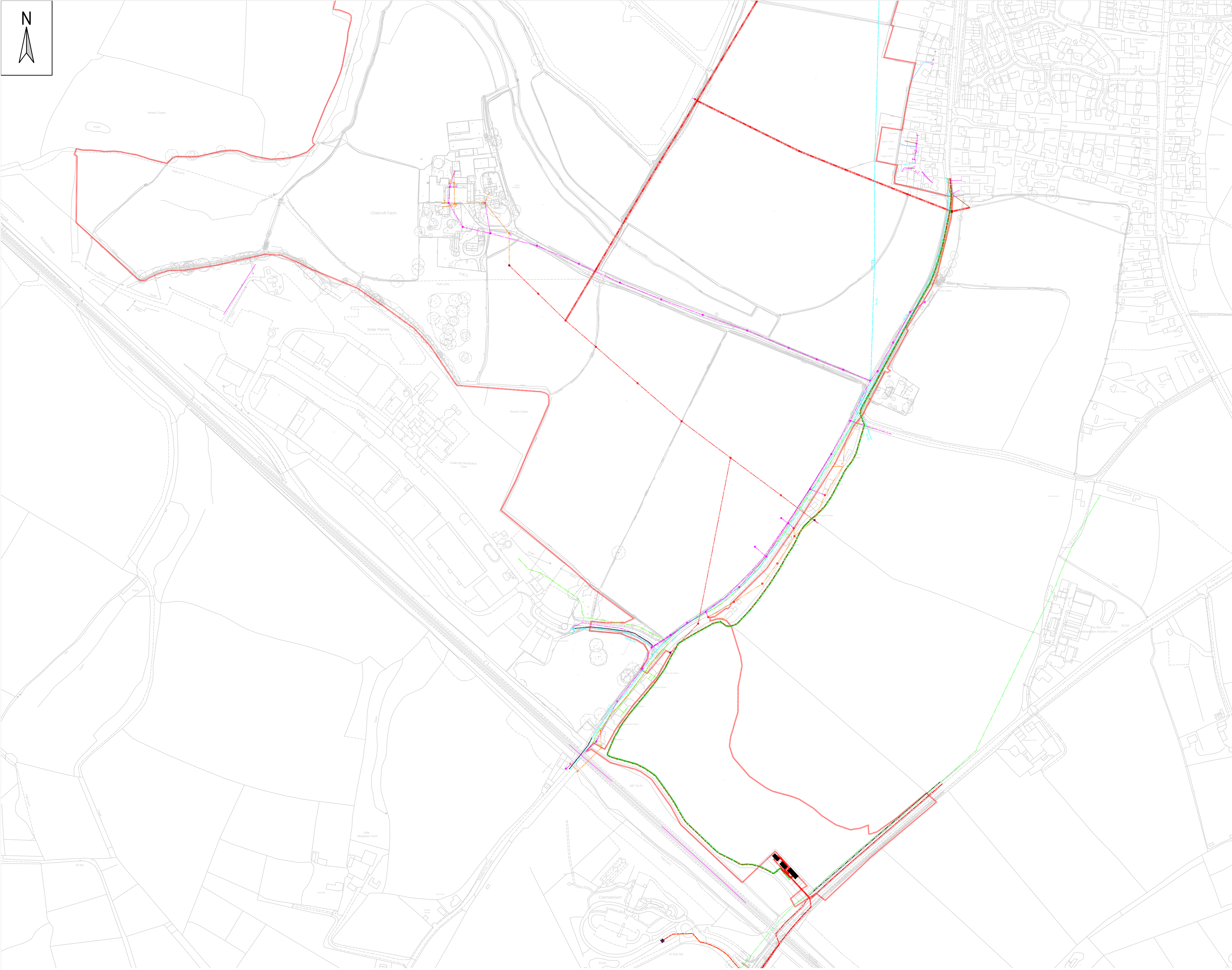
Hydrock www.hydrock.com						Cable Percussion		Borehole No. BH01 Sheet 1 of 1	
Project Name: Horton Heath						Co-ords: 448523E, 116512N		Hole Type: CP	
Location: Horton Heath, Hampshire				Project No: C-09820-C		Ground Level: 20.20m OD		Scale: 1:50	
Client: Eastleigh Borough Council						Date(s): 22/10/18		Hole Diameter: 150mm	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					

Hydrock www.hydrock.com						Cable Percussion		Borehole No. BH04 Sheet 1 of 1	
Project Name: Horton Heath						Co-ords: 448840E, 116248N		Hole Type: CP	
Location: Horton Heath, Hampshire				Project No: C-09820-C		Ground Level: 23.58m OD		Scale: 1:50	
Client: Eastleigh Borough Council						Date(s): 15/10/18		Hole Diameter: 150mm	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00-0.40	B		0.40	23.18		Soft light brown to brown slightly sandy slightly gravelly SILT with rootlets. Sand is fine. Gravel is angular to sub-angular fine to medium flint. (TOPSOIL)	
		0.00-0.40	ES						
		0.50	D						
		0.60-1.30	B	25 Blows	1.40	22.18		Brown to orangish brown slightly sandy slightly gravelly SILT. Sand is fine. Gravel is of sub-angular to sub-rounded fine to medium flint. (HEAD DEPOSITS)	
		1.40	D						
		1.50-1.95	U						
		2.00	D						
		2.40	D						
		2.50	D	N=15 (2,2/3,3,4,5)	2.40 2.50	21.18 21.08		Soft light grey mottled orange sandy SILT. Sand is fine. (WITTERING FORMATION)	
		2.50	SPT						
		3.40	D						
		3.50-3.95	U	50 Blows	3.40	20.18		Firm light grey mottled orange silty CLAY (WITTERING FORMATION) 2.00-2.40m becoming soft to firm and very silty.	
4.50	D								
4.50	SPT	N=23 (4,4/4,6,6,7)							
5.90	D								
6.00-6.45	U	60 Blows							
6.50	D								
7.30	D								
7.40	D								
7.40	SPT	N=28 (3,3/7,7,6,8)							
8.00	D								
End of Borehole at 8.00m									
Remarks:		Inspection pit hand-dug to 1.2m bgl.						B = Bulk Sample D = Disturbed Sample U = Undisturbed Sample UT = Undisturbed Sample (Thin Wall) ES = Environmental Sample W = Water Sample PID = Photoionization Detector (ppm) SPT = Standard Penetration Test AB = Asbestos Bulk Sample	
Groundwater:		No groundwater encountered.						Logged: DAP Checked: AJ	

Horton Heath, Hampshire Hydrock Groundwater Monitoring Summary				
Location ID	Date	Ground Level	Groundwater level	
			m bgl	mAOD
BH01	02/11/2018	20.2	2.41	17.8
BH02	02/11/2018	32.4	2.77	29.7
BH03	02/11/2018	20.2	1.95	18.2
BH04	02/11/2018	23.6	2.7	20.9
BH05	02/11/2018	27.5	N/A	N/A
BH06	02/11/2018	27.8	1.95	25.9
BH07	02/11/2018	22.6	3.04	19.6
BH08	02/11/2018	19.6	0.93	18.7
BH09	02/11/2018	17.5	1.6	15.9
BH10	02/11/2018	22.7	2.31	20.4

APPENDIX F

Existing Services



Do not scale from this drawing.
Verify dimensions by site measurement.
Read this drawing in conjunction with the latest architectural and structural drawings.
This drawing is based on the following information:-

Notes

- Do not scale from this drawing.
- All dimensions are in millimetres unless stated otherwise.
- The service information given on this drawing is given without obligation or warranty. The accuracy thereof cannot be guaranteed. Any site based activity should be carried out in accordance with [HS\(G\)47 Avoiding Danger From Underground Services](#) and [HSE GS6 Avoiding Danger From Overhead Power Lines](#).
- Existing utility services taken from asset records aligned to topographical survey.
- The position of all apparatus should be verified independently prior to any invasive operation on site.

Legend

Site Boundary

Electricity Services

OH HV Cable
HV Cable
Substation
OH LV Cable
LV Cable
Electric (HV) Pole
Electric (LV) Pole

Water Services

Water Main
Washout/Fire Hydrant
End Cap
Valve

Gas Services

LP Gas Main
MP Gas Main
Reducer
End Cap
Valve

BT Services

OH BT Cable
BT Duct Route
BT Joint Box
BT Pole

Virgin Media Services

Virgin Media

Existing Drainage

Existing Surface Water Sewer
Existing Foul Water Sewer

General Services

Existing CLH Pipeline
Abandoned DIO Pipeline

P1	04/10/19	FOR INFORMATION	GP	NC
Revision	Date	Description	Drawn	Checked



hilsonmoran.com info@hilsonmoran.com

Client
Galliford Try Partnership Ltd

Project
Horton Heath

Drawing Title
Existing Services
Sheet 2 of 2

Scale	Sheet Size	Checked	Approved
1:2500	A1	NC	JH

Status	For Information	26114
Drawing No.	26114-HM-ZZ-XX-DR-IF-0002	Rev
		P1

ONE
HORTON
HEATH



Detailed Planning Application Upper Acre

Flood Risk Assessment and Water
Management Strategy Part 2

December 2020

APPENDIX G

Indicative Surface Water Management Strategy and MicroDrainage Calculations