Supplementary Report to Discharge Condition 9 – July 2021



Supplementary Report to Discharge Condition 9

This report has been prepared in response to a request for further information from the Planning Officer, in order to discharge condition 9. The officer requested the following:

Consideration to the London Plan drainage hierarchy is required including justification for the selected drainage strategy features on the proposed development.

London Plan Drainage Hierarchy -

s	2b. Drainage Hierarchy		
gement		Feasible (Y/N)	Proposed (Y/N)
rang	1 store rainwater for later use	N	N
Discharge Arrangements	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
Proposed	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	N	N
2. Pr	5 discharge rainwater direct to a watercourse	N	N
2	6 discharge rainwater to a surface water sewer/drain	N	N
	7 discharge rainwater to the combined sewer.	Υ	Y

1. Store rainwater for later use.

Conventional roofwater recycling utilises roofwater only as this is a relatively clean, uncontaminated source of water. The proposal does not have a roof as such and is a landscaped area of external paving above the proposed basement. This is has a potential high level of contamination and is and is therefore unsuitable for reuse.

We suggest the client could install a water butt to provide some additional benefit and watering of the lower terrace.

2. Use infiltration techniques, such as porous surfaces in non-clay areas.

Site investigation by Soiltechnics identified competent clay material of the Claygate Member throughout the site, therefore infiltration is not a viable means of stormwater management for the site. See Appendix A for extract from the site investigation.

3. Attenuate rainwater in ponds or open water features for gradual release.

There is a relatively small formal garden area around the existing terrace. The terrace is to be removed and replaced and there is not deemed to be sufficient space to replace the small formal garden with surface attenuation features.

4. Attenuate rainwater by storing in tanks or sealed water features for gradual release.

An attenuation manhole with a maximum discharge rate of 2l/s has been utilised, see Appendix B. Calculations are as 'SUDS Discharge report iss1' under planning reference 2021/1003/P.

5. Discharge direct to a watercourse.

N/A – there are no nearby watercourses.

6. Discharge rainwater to a surface water sewer/drain.

N/A - there are no nearby surface water sewers.

7. Discharge rainwater to the combined sewer.

Utilised within design, along with attenuation to flow as 4.



Appendix A – Site Investigation Extract

Proposed redevelopment 19 Well Road, Hampstead



6 Ground conditions encountered

6.1	Soils
6.2	Groundwater
6.3	Evidence of contamination
6.4	Obstructions and instability
6.5	Existing foundation arrangements

6.1 Soils

- 6.1.1 Each exploratory excavation encountered a similar profile of soils considered to be Made Ground overlying Claygate Member.
- 6.1.2 Brick paving and reinforced concrete and were present at surface in DTS01 and HDTS02/TP02, respectively. Beneath the hardstanding and from surface in the remaining excavations, Made Ground was encountered to depths in the range of 0.4m to 0.7m and locally to 1.9m in TP01. Made Ground comprised dark brown, brown and orange brown slightly clayey to clayey slightly gravelly to gravelly sand. Gravels consisted of brick, sandstone, concrete, gabbro and timber.
- 6.1.3 The Claygate Member was encountered in the borehole excavations to depths in excess of 4.0m and generally comprised firm orange brown very sandy clay and medium dense very clayey sand.

6.2 Geotechnical parameters

6.2.1 The following table summarises test data in the Made Ground and Claygate Member:

Geotechnical	Geological	Method	Value	Characteristic	Comments	Notes
parameter	unit		range	value		
Bulk density	Made Ground	Laboratory testing	1.9	1.9		1
Dry density	Made Ground	Laboratory testing	1.5	1.5		1
Weight density (above water table)	Claygate Member	Soil descriptions – Medium strength Clay	16 to 20	16	Derived from BS 8004 figure 1. Most onerous value to be used in structural design	-
Weight density (below water table)	Claygate Member	Soil descriptions – Medium strength Clay	16 to 20	16	Derived from BS 8004 figure 2. Most onerous value to be used in structural design	-



DTS01

Date(s) 18/09/2018 Sheet number Sheet 1 of 2

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۵ ۵ 0 0 2 E 3.00 FBOM (m) 0.60 0.30 1.30 1.50 1.90 PP=125 PP=100 PP=100 PP=79 PP=75 OTHER IN SITU TESTING TYPE / DEPTH (m) PP 0.50 PP 0.80 PP 1.00 PP 1.20 PP 1.50 PP 1.75 DRY DRY RESULT (4) 18 (3) 10 C 1.00-1.45 C 2.00-2.45 TYPE / DEPTH (m) WATER 47.62 47.34 46.14 45.84 0.40 1.60 1.90 DEPTH (m) Medium dense orange brown slightly gravelly very clayey SAND. Gravel consists of fine to medium sub-rounded flint. (CLAYGATE MEMBER) Firm high strength orange brown slightly gravelly very sandy CLAY. Gravel consists of fine to medium (CLAYGATE MEMBER) BRICK PAVING.

(MAADE GROUND)

Brown gravelly SAND. Gravel consists of fine to medium sub-angular sandstone and gabbro. (MADE GROUND) STRATA Firm high strength orange brown very sandy CLAY. (CLAYGATE MEMBER) DESCRIPTION

Compiled by TH Checked by KB Logged by DN Level (m OD) Co-ordinates Method 85 55 65 65 Recovery details 0.00 - 1.00 1.00 - 2.00 2.00 - 3.00 3.00 - 4.00 Range (m) Tie Notes
Hand tools used to excavate from 0.0m to 0.4m depth. Borehole sides remained upright and stable to completion. Report ref:

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SAMPLING	TO TYPE (m)	00 0				-	ber	DTS01
	FRDM (m)	3.30			Date(s)	18/09/2018	Sheet number Shape 2 of 2	۵
OTHER IN SITU TESTING	RESULT	PP=42				-		
OTHERIN	TYPE / DEPTH (m)	PP 3.20			L		by	þ
	WATER LEVEL (m)	DRY			Logged by	NO	Compiled by	Checked by
TING	CASING DEPTH (m)					ler		
SPTTESTING	RESULT	(5) 23			Po	Driven tube sampler	Level (m OD)	Co-ordinates
	TYPE / DEPTH (m)	C4.00-4.45		70	Method	一	Level	, Co-00
WATER	_	0		Title Driven tube sampler record	details	Recovery (%)	100	65
	TEGEND			e ven tube sa	Recovery details	Range (m)	0.00 - 1.00	3.00 - 4.00
	REDUCED LVL (m OD)	43.74	-	Title Drive		Ra	0.00	3.00
	(m)	4.00						
STRATA		CLAVGATE MEMBER) Soft medium to high strength orange brown very sandy CLAE. (CLAVGATE MEMBER) BEOMEROLE TERMINATION of 100m BEOMEROLE TERMINATION of 100m BEOMEROLE TERMINATION of 100m BEOMEROLE TERMINATION of 100m		Nates Hand tools used to excavate from 0.0m to 0.4m depth. Borehole sides remained upright and stable upon	completion.		Groundwater observations No entirelydate dentiremend	
14.00	WELL DESCRIPTION	Medium dense orange brown: (CLAYGATE MEMBER) Soft medium to high strength (CLAYGATE MEMBER)		Key D. Small Disturbed Sample D. Built Disturbed Sample	ES Environmental Sample W Water Sample	C. Core tample UT Undisturbed Sample	5 Standard Penetration Test C Standard Penetration Test (solid cone)	PP Pocket Penethornster text SV Shear Vane text PID Photo loniushon Detector text

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Report ref:



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-	STRATA			WATER		TTq5	SPT TESTING		OTHER IN SITU TESTING	U TESTING	SAM	SAMPLING
1		DEPTH REI (m) LVL	REDUCED LEGEND	ND STRIKES	DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO TYPE (m)
	Dark brown slightly clayey slightly gravelly SAND. Gravel consists of fine to coarse sub-angular brick, concrete and sandstone. (MADE GROUND)										0.30	
	Orange brown slightly gravelly clayey SAND. Gravel consists of fine to medium sub-angular brick and sandstone. (MADE GROUND)		49.04	*****								
	Soft medium to high strength orange brown very sandy CLAY. (CLAYGATE MEMBER)	0.70	48.74								0.80	
				11111111					PP 1.10	PP=46	1.10	
	gth orange brown very sandy CLAX.	1.40 4	48.04	ירורי					PP 1.30	PP=113		
	(LLAYGATE MEMBEK)		<u> </u>	1,1,1,1,1					PP 1.70	PP=125	1.60	
				11111					PP 1.90	PP=121	1.90	
				1111					PP 2.10	PP=100		
									PP 2.40	PP=100	2.30	
	Orange brown very clayey SAND. 2. (CLAYGATE MEMBER)	2.60 4	46.84	1119999					PP 2.60	PP=100	2.60	
	LENG NO MENLENCO										2.90	
1	THE PERSON NAMED IN COLUMN			-					1			1

D. Small Disturbed Sample B. Bulk Disturbed Sample	Hand tools used to excavate from 0.0m to 1.0m depth. Infiltration testing performed. Borehole sides remained	Driven tube s	Driven tube sampler record			
ES Environmental Sample W Water Sample	upright and stable upon completion.	Recover	Recovery details	Method	Logged by	Date(s)
C. Core sample UT Undisturbed Sample		Range (m)	Recovery (%)	Driven tube sampler	DN	18/09/2018
5 Standard Penetration Test	Groundwater observations	0.00 - 1.00	100	Level (m OD)	Compiled by	Sheet number
C Standard Penetration Test (solid cone)	No groundwater encountered.	1.00 - 2.00	100		=	Sheet 1 of 2
PP Pocket Penetnometer test SV Shear Vane best		3.00 - 3.40	100	Co-ordinates	Checked by	HDTC01
PID Photo Ionisation Detector test					KB	1001011
Report ref: STQ4531-G01						Revision:

Notes



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		STRATA		WATER		SPT TESTING	TING		OTHER IN SITU TESTING	UTESTING	SAMP	SAMPLING	
U MEIT	DESCRIPTION	(H)	DEPTH REDUCED LEGEND (m)	ND STRIKES	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM To (m)	TO (m)	TYPE
-	Orange brown very clayey SAND. (CLAYGATE MEMBER)		_	97/297									
	Firm high strength oran (CLAYGATE MEMBER)	Firm high strength orange brown very sandy CLAY. (CLAYCATE MEMBER)	8						PP 3.10	PP=88	3.20		
		BONEFICE TERMANDED AS 3-40m	3.40 d6.04										
Key 0 Small Distra	arbed Sample	Notes Notes Linds and and an automate from O Am and O Am dough in Elevation section and formed in a city of an analysis of		and and	Jan College								
B Bulk Distur ES Environme. W Water Sam	B. Built Disturbed Sample ES. Emironmental Sample W. Water Sample	nana tools used to excavate from o.cm to 1.cm bepar, impranton testing performed. Borerous sides remained upon completion.		Priven tube sampler record Recovery details	\vdash	Method		Logged by		Date(s)	•		
C Core tamp UT Undisturba	ple vd Sample		Range (m)	⊢	Recovery (%) Dri	Driven tube sampler	1	NO		18/05	18/09/2018		П
S Standard Pa	5 Standard Penetration Test C Standard Penetration Test (solid cone)	Groundwater observations No groundwater encountered.	0.00 - 1.00		100 Les	Level (m 00)		Compiled by TH		Sheet	Sheet number Sheet 2 of 2		
PP Pocket Per SV Shear Vans PID Photo Ioni	PP Pocket Penetrometer test SV Seear Varie bors PID Photo Ioniushon Detector test		3.00 - 3.4			Co-ordinates		Checked by KB			HDTS01	11	
Report ref:	ef: STQ4531-G01		-							$\left\{ \ \ ight $	~	Revision: 0	0

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> Compiled by TH

Level (m OD)

Recovery (%)

Range (m) 0.00 - 2.00

100

Method

Driven tube sampler record

Hand tools used to excavate from 0.0m to 0.8m depth. Infiltration testing performed. Borehole sides remained upright and stable upon completion.

Recovery details

Logged by DN Revision: 0

HDTS02

Checked by KB

Co-ordinates

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	STRATA			-	0.000		SPTTESTING	178		OTHER IN SITU TESTING	TESTING	SAN	SAMPLING	
WELL	DESCRIPTION	DEPTH RI	REDUCED LE	TIS GN3531	STRIKES TYP DEPTI	TYPE / RE	RESULT DE	CASING DEPTH (m) LE	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	0T (m)	TYPE
	Light grey reinforced CONCRETE comprised of aggregates of flint up to 20mm nominal size. 10mm diameter reinforcement bar concreted at 0.12m depth. (MADE GROUND) Brown very gravelly SAMD with frequent cobbies of sub-angular brick and concrete. Gravel consists of fine to coarse angular concrete and brick. (MADE GROUND)	0.22	47.19									0.40		٥
	Firm medium strength orange brown very sandy CLAX. (CLAYGATE MEMBER)		46.71							PP 0.80	PP=50	0.80		0
1	Grey brown clayey SAND. (CLAYGATE MEMBER)		i i									1.00		0
	Firm medium strength brown very sandy CLAY. (CLAYGATE MEMBER)		15.00 1.1.1.1.1							PP 1.20	PP=71	1.20		00
										PP 1.40	PP=71	1.50		<u> </u>
		2.00	45.41							PP 1.80	PP=54	1.80		a a
	BOREHOLE TERMANATED ALL & DOM													
Κeγ	Notes		Title											

Proposed redevelopment 19 Well Road, Hampstead Groundwater measured at 1.0m on completion

Report ref: STQ4531-G01

Groundwater observations



Appendix B – Proposed Drainage Layout

