IIT PEARS BUILDING PROJECT

DETAILED BASEMENT CONSTRUCTION PLAN TECHNICAL MEETING

MINUTES OF MEETING

Project	Pears Building
Date	Tuesday - 02.05.2017
Time	10:00 – 12:00hrs
Meeting Ref.	Basement – Technical Meeting
Location	ASquared Offices – 1 Westminster Bridge Road, London SE1 7XW

Present	
Dr Michael de Freitas (MdF)	First Steps Ltd
Michael Eldred (ME)	Eldred Geotechnics Ltd
Ian Stephenson (IS)	Stephenson Davenport Structural Associates Limited (SDStructures)
Gareth Harper (GH)	Campbell Reith
Phill Cracknell (PC)	Willmott Dixon - Construction
Roy Conway (RC)	Willmott Dixon - Construction
Stuart Wagstaff (SW)	Soil Consultants (SC)
Tony Suckling (TS)	ASquared
Angelo Fasano (AF)	ASquared
Najib Sheeka (NS)	Heyne Tillet Steel (HTS)
Apologies	
None	

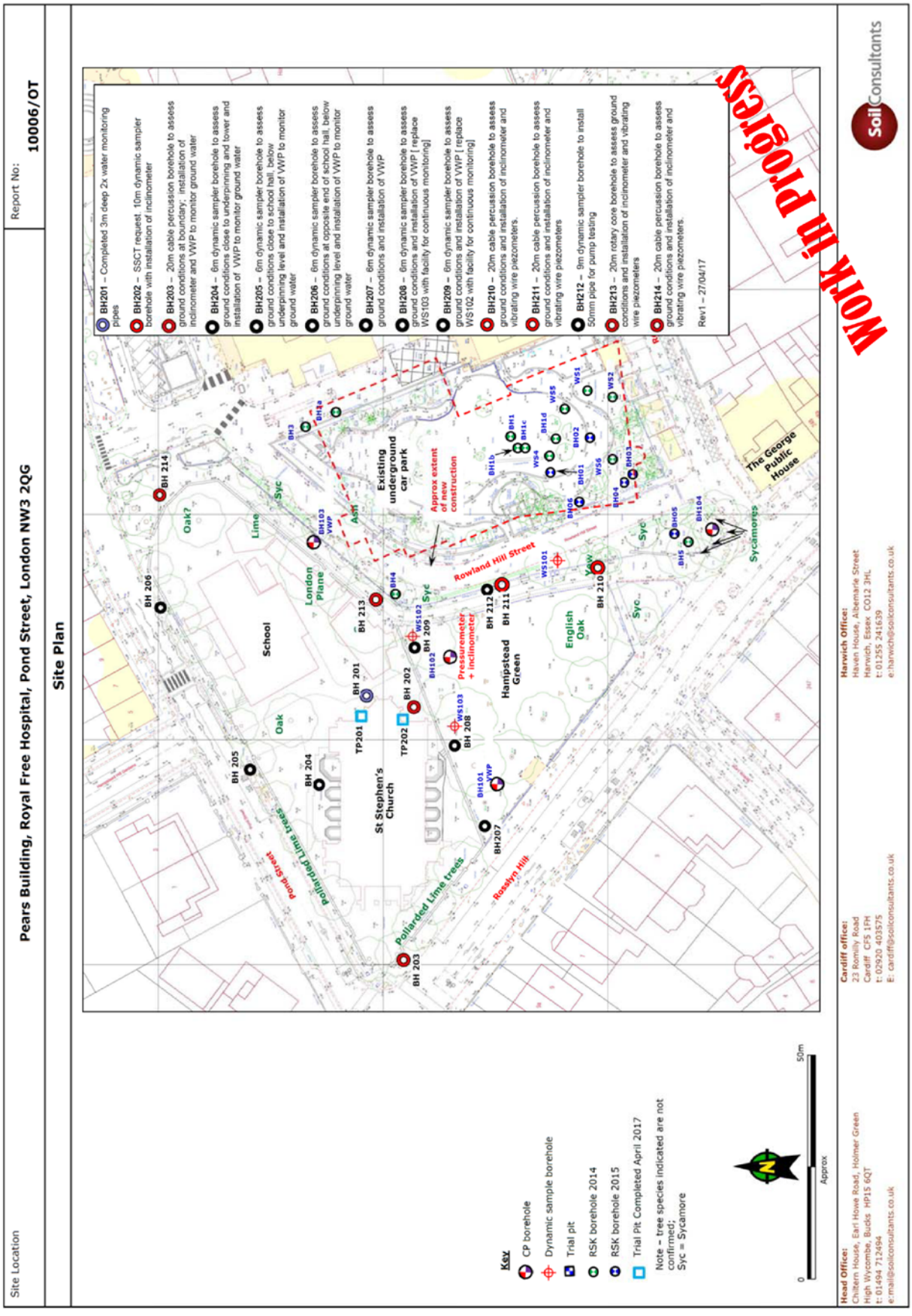
Previous Minutes
Comment to be added to item 14 : SW mentioned that Soil Consultants didn't find evidence of slip planes in the boreholes on Hamsptead Green, to which Mdf stated these things were not planes as such but undulating sub-horizontal surfaces and there were likely to be many of them, none very extensive.

ITEM	Description	Action By	Target Date
1	**MEETING DISCUSSION** AF & TS demonstrated their model on screen identifying a number of various thickness's of stratum with their corresponding properties namely: - Their undrained strength (KPa) – all undisturbed London Clay 90+7z - Their unit weight – all generally 20(kN/m^3) - Their permeability, k (m/s) NOTE: This information can be found within Tables 4.2 & 4.3 of ASquare's (A^2) Ground Movements Assessment Report. It was also stated that conducting Standard Penetration Tests (SPT) provided good information on the geotechnical engineering properties of the soil but so also did taking undisturbed samples.	Note Note	
2	Reference was also made that the upper 2m comprised of made ground over laid on 1m of head deposits on top of various sub layers of London Clay. Such information was obtained from the ground investigation which also indicated sloping surfaces to certain layers of London Clay. With a 13^o angle of shearing resistance used for of the upper layers as agreed with LBH Wembley.	Note	
3	In addition A^2 demonstrated how the estimated 'conservative' loads (provided by HTS) associated with the church tower and school had been incorporated into the model. It was agreed that the actual configuration of the foundations and the actual loads should where possible be ascertained. MdF suggested some research be carried out on other structures designed by Teulon (namely St Mary's Parish Church Ealing W5 5RH) to assist in uncovering his basis of design. There was also comment on the limited outstand / absence of outstand of the church tower foundations in the TP's which highlights the need to undertake a verticality check of the tower and possibly eccentric loadings of the foundations.	Note Note HTS WD	

ITEM	Description	Action By	Target Date
4	MdF drew attention to the ARUP Report dated June 1969 and in particular the reference made to potential slip circles. It was emphasised that this should not be ignored in the re-modelling exercise and should rotation exists this is a further complication that needs to be taken into account. It was noted that ARUP were particularly concerned with potential slip circles in a nort-south direction i.e. not towards the church or school.	A^2	
5	Whilst it was acknowledged that to comply with the Section 106 Agreement, the use of conservative figures should be adopted, it was agreed that more realistic view ie (Serviceability Limit State (SLS)) figures should be taken into consideration. In this regard; it was agreed that before re-running the model joint agreement should be sought from all parties incl. Camden.	Note A^2/RFC	
6	MdF stated that we need to be confident that the model is providing us with a factual account of what is actually occurring underground and where possible such should be tested by proving on site.	A^2	
7	The layout showing the proposed additional site investigations was tabled (copy attached) and MdF requested the reasoning behind each of the boreholes be added. Soil Consultants to review the layout and add such information.	Note SC	08.05.17
8	SW stated that the key objective of undertaking further ground investigation was to uncover the following: a) Further information in closer proximity to the church. b) Gain a better understanding of groundwater levels and flow patterns c) Evidence of deep slips.	) Note)))	
9	MdF clarified that BH202 was being suggested by him to assist in detecting the depth of the existing church tower foundations. In this regard he proposed contact be made with a Geophysicist to ascertain what is feasible in terms of detection. Note: KF Geotechnical Report dated 6th Sep'06 indicates a foundation depth of 1.02m on trial pit Nr.16. Further enquiries to be made thro. KF to validate findings.	Note SC SC	08.05.17 08.05.17
10	MdF stated he was under the impression that 'a dam' was built behind the crypt wall to allow construction of the tower diverting water around the sides of the church.	Note	
11	To measure both groundwater levels and the presence of deep slips SW explained that a number of 20m boreholes (ie 5 No.) were to be sunk incorporating inclinometers and piezometers (albeit BH203 will probably need to be changed to 5m deep due to the proximity of the London Underground) and BH207 to possibly be moved further east.	Note	
12	Site Investigation Report – MdF stated once the additional investigation works has been carried out we need to explain in a coherent way what has been found.	SC	
13	TS stated that the intent was to produce more detailed slices from the new model and carryout a number of 'what ifs'. A^2 are to provide a proposal of what they intend to show at a further meeting prior to the next iteration of the model being run. It was also stated that the model geological boundaries would be extended further North and West.	Note A^2	
14	Mdf questioned how the model responded to rainfall, furthermore it was recommended contact be made with a specialist in Hampstead Heath to obtain historic recordings. IS to provide contact details.	Note IS	08.05.17

ITEM	Description	Action By	Target Date
15	It was also commented that it would be worthy to investigate the presence of a drain/culvert running beneath the Royal Free Hospital.	WD	12.05.17
16	In conclusion; it was agreed that focus should be made on the following actions: a) Undertake addition on site ground investigations; gather data and share findings, including exploring depth and configuration of church tower foundations. b) Discuss with Camden/Campbell Reith the need to adopt more realistic parameters and/or SLS figures. c) Ensure model is truly reflecting actual underground conditions and where possible test and prove on site.	SC TS/SW/ NS/PC TS	
17	It was agreed that the next Technical Meeting would be held 16th May'17 at Willmott Dixon's Offices in Islington (details below), principally to agree the revised Site Investigation Layout and the various responses to the number of questions raised.	Note	

Date and Time of Next Meeting		
Date: 16th May'17	**Time:** 10:00am	**Location:** 44A Pentonville Road, London N1 9HF


Additional Site Investigations
Site Location
Pears Building, Royal Free Hospital, Pond Street, London NW3 2QG
Report No: 10006/OT
Site Plan
WORK IN PROGRESS
BH201 – Completed 3m deep 2x water monitoring pipes
BH202 – SSCT request. 10m dynamic sampler borehole with installation of inclinometer
BH203 – 20m cable percussion borehole to assess ground conditions at boundary; installation of inclinometer and VWP to monitor ground water
BH204 – 6m dynamic sampler borehole to assess ground conditions close to underpinning and tower and installation of VWP to monitor ground water
BH205 – 6m dynamic sampler borehole to assess ground conditions close to school hall, below underpinning level and installation of VWP to monitor ground water
BH206 – 6m dynamic sampler borehole to assess ground conditions at opposite end of school hall, below underpinning level and installation of VWP to monitor ground water
BH207 – 6m dynamic sampler borehole to assess ground conditions and installation of VWP
BH208 – 6m dynamic sampler borehole to assess ground conditions and installation of VWP [replace WS103 with facility for continuous monitoring]
BH209 – 6m dynamic sampler borehole to assess ground conditions and installation of VWP [replace WS102 with facility for continuous monitoring]
BH210 – 20m cable percussion borehole to assess ground conditions and installation of inclinometer and vibrating wire piezometers.
BH211 – 20m cable percussion borehole to assess ground conditions and installation of inclinometer and vibrating wire piezometers
BH212 – 9m dynamic sampler borehole to install 50mm pipe for pump testing
BH213 – 20m rotary core borehole to assess ground conditions and installation of inclinometer and vibrating wire piezometers
BH214 – 20m cable percussion borehole to assess ground conditions and installation of inclinometer and vibrating wire piezometers.
Rev1 – 27/04/17
Existing underground car park
Approx extent of new construction
Rowland Hill Street
Pond Street
Rosslyn Hill
Pollarded Lime trees
Hampstead Green
St Stephen's Church
The George Public House
Sycamores
School
Oak
Oak?
Lime
London Plane
Ash
Syc
English Oak
Pressuremeter + inclinometer
Key
CP borehole
Dynamic sample borehole
Trial pit
RSK borehole 2014
RSK borehole 2015
Trial Pit Completed April 2017
Note – tree species indicated are not confirmed;
Syc = Sycamore
0
50m
Approx
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