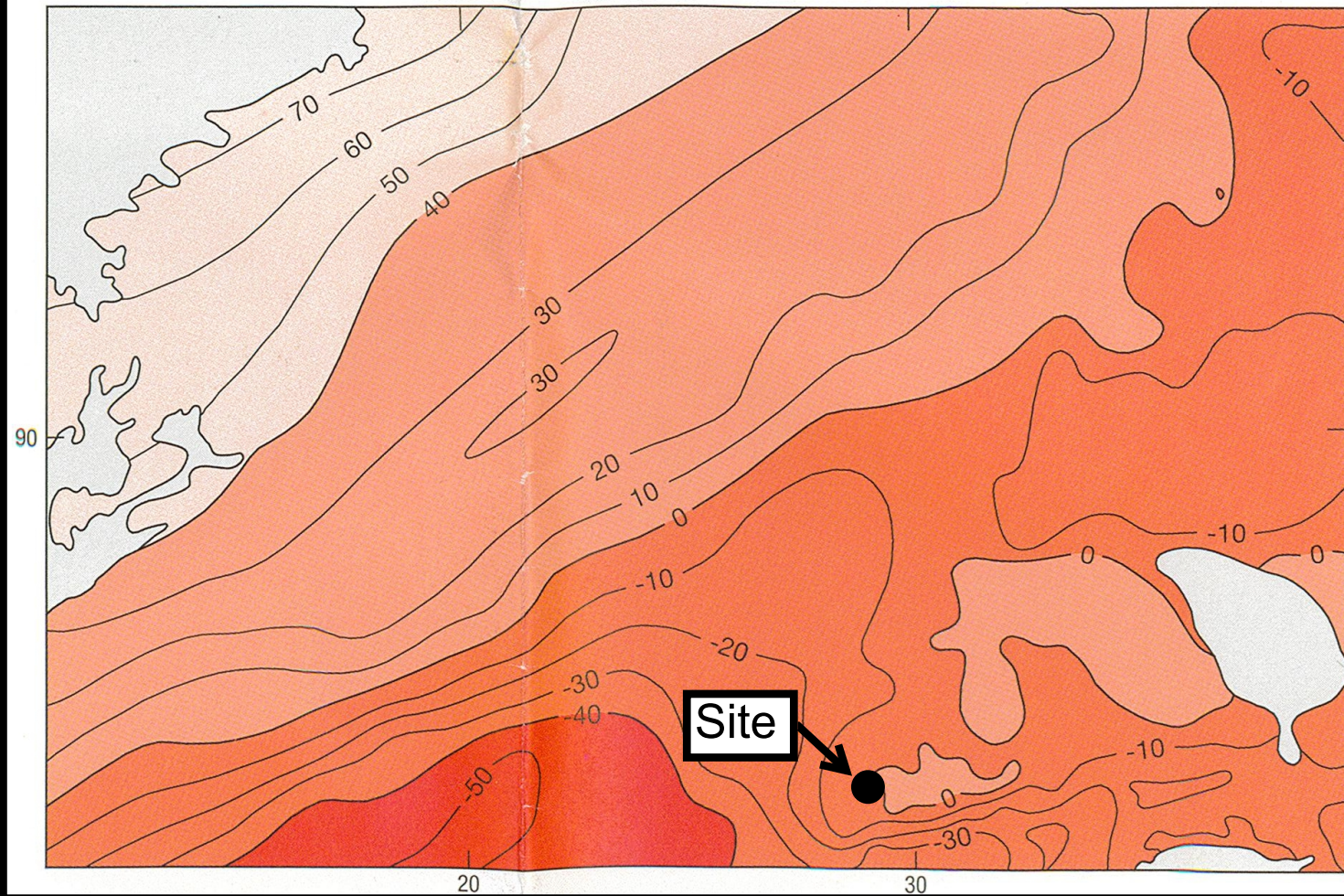
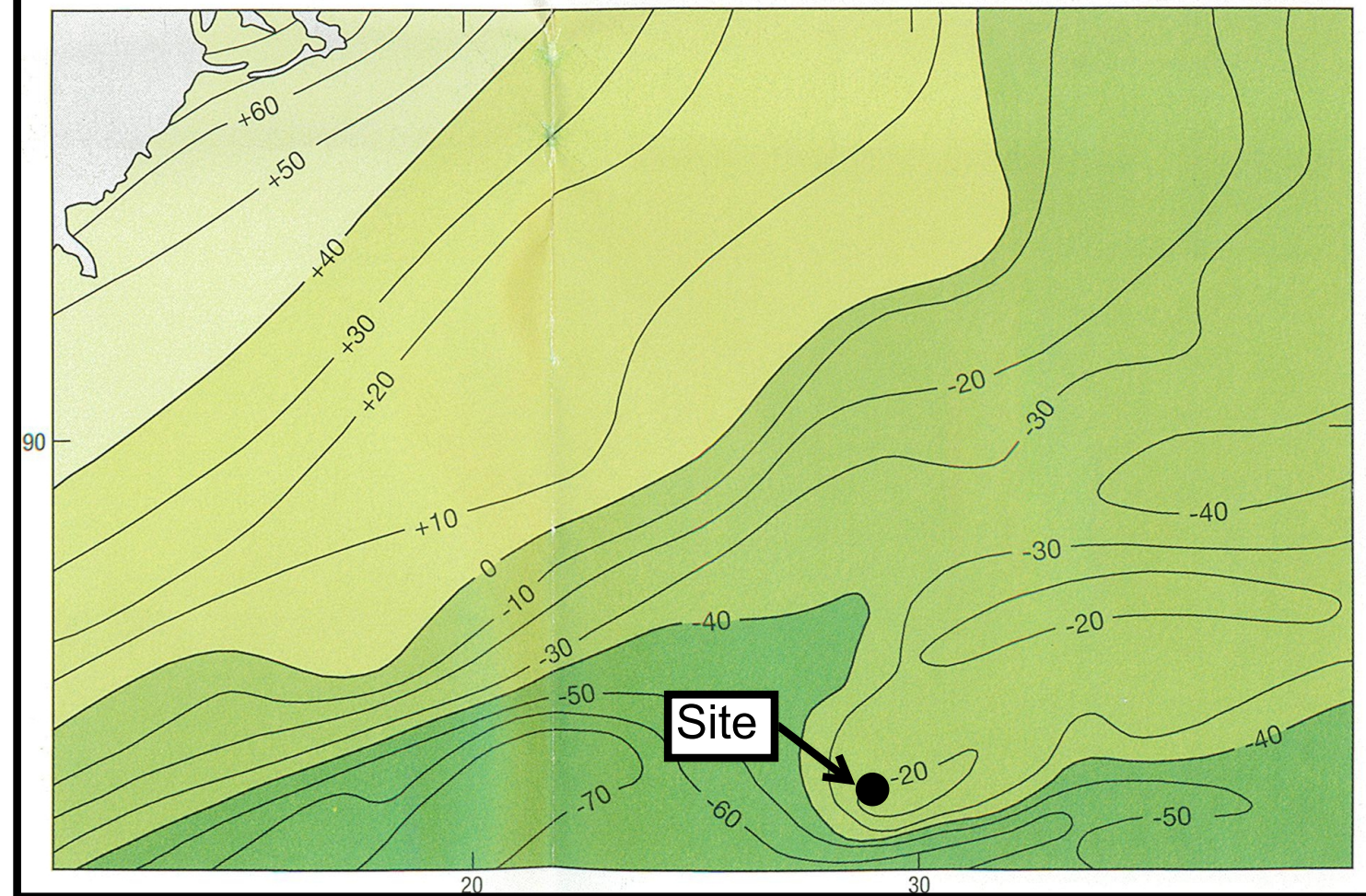


Contours on the base of the London Clay Formation in metres relative to OD Scale 1:250 000



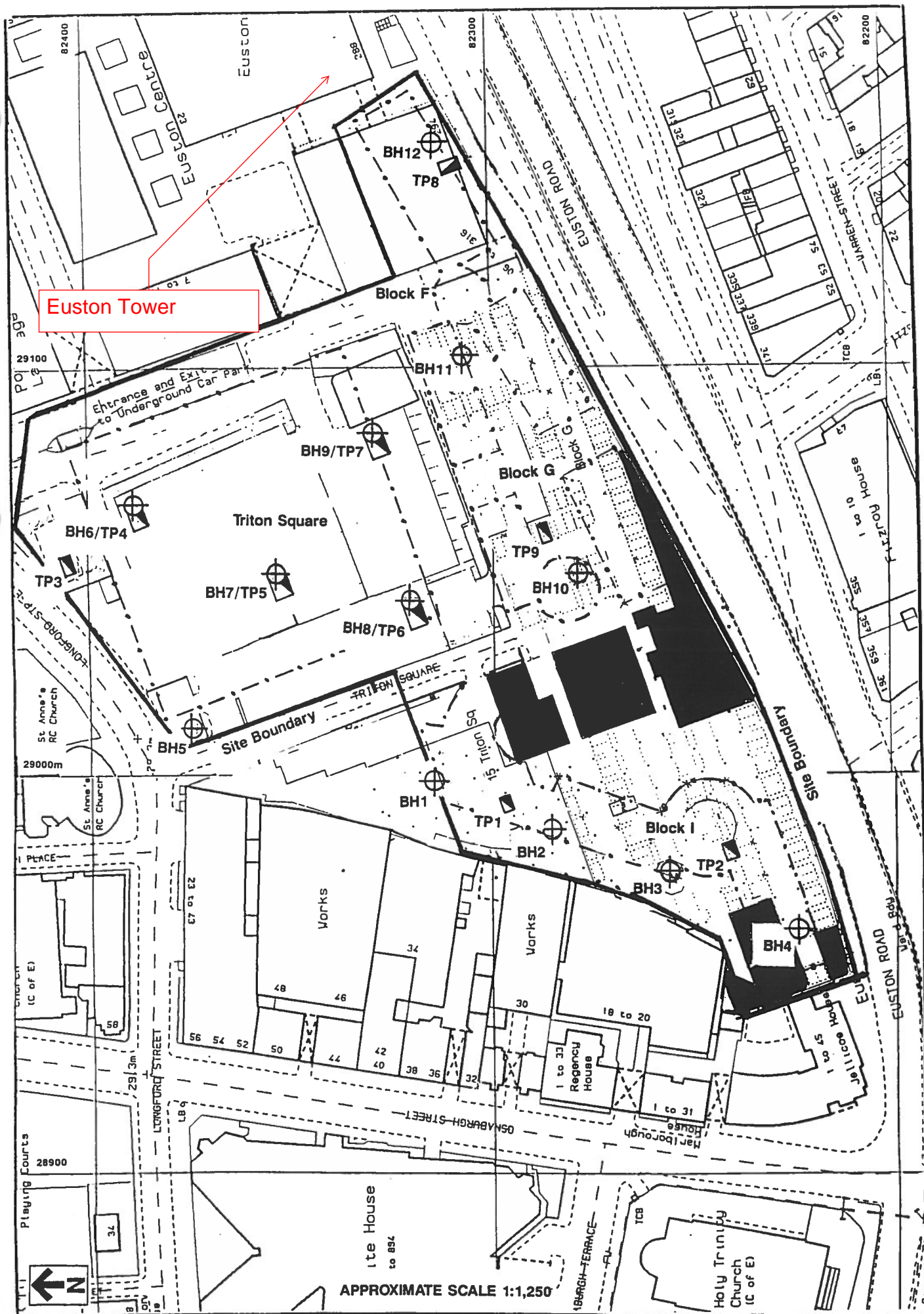
Contours on the top of the Chalk Group in metres relative to OD

Scale 1:250 000



Euston Tower
BGS CONTOUR MAPS FOR
LONDON CLAY AND CHALK
FIGURE 4

Appendix D – Existing ground investigation information



CROWN COPYRIGHT RESERVED



Borehole



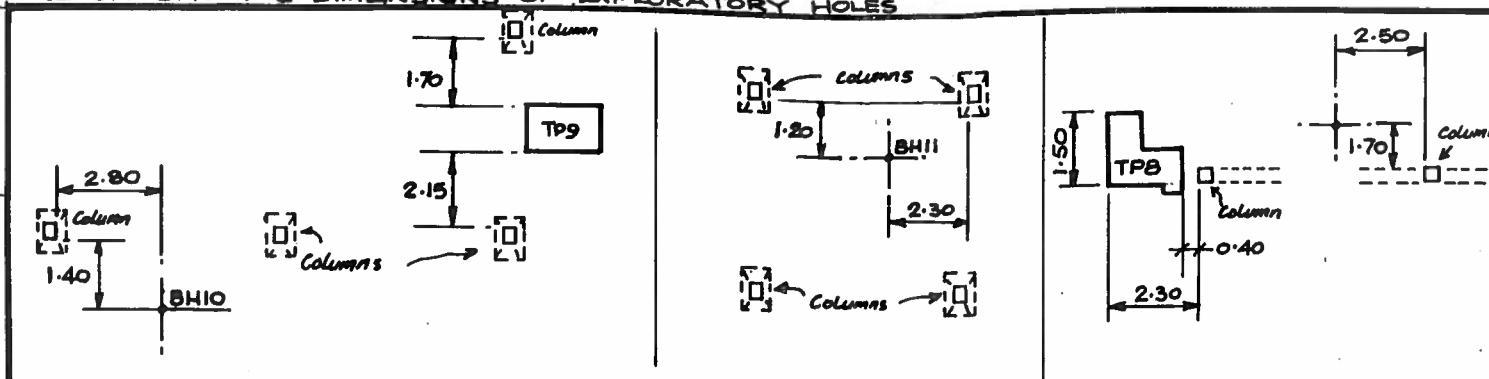
Trial Pit



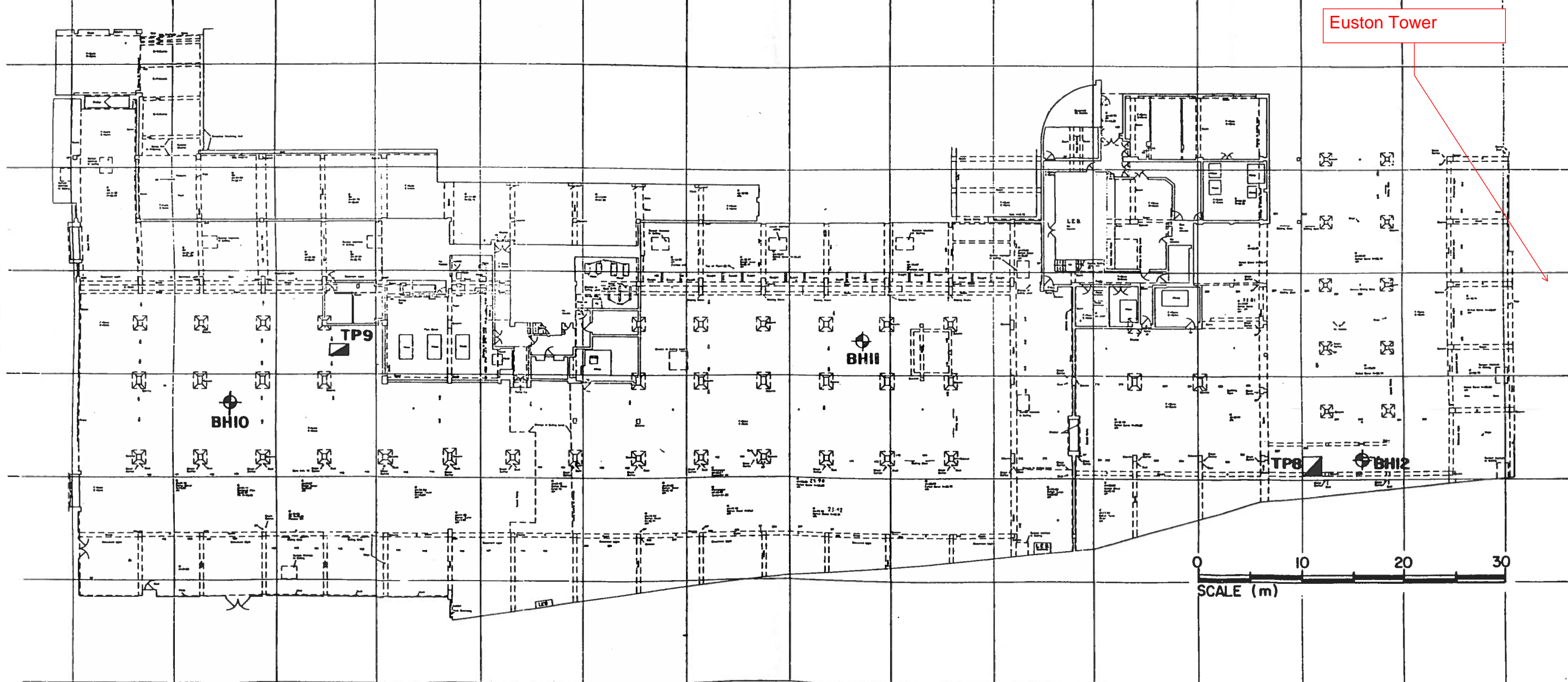
Proposed Development

SITE PLAN SHOWING BASEMENT

SKETCH SHOWING DIMENSIONS OF EXPLORATORY HOLES



KEY
 ◉ BOREHOLE LOCATIONS
 ▣ TRIAL PIT LOCATIONS



EXPLORATORY HOLE LOCATION PLAN

Project Name: TRITON SQUARE/REGENTS PLACE										Record of Borehole No: BH 12	
Project No: 9 4 4 8 4		Client: THE BRITISH LAND CORPORATION									
Co-ordinates (National): 29153.0E 82311.0N				Ground level (mAOD): 23.87		Method: CABLE PERCUSSION					
Date: 24/01/95 to 31/01/95				Depth of Hole: 40.90		Hole diameter: 200/150mm		Casing diameter: 200/150mm		Sheet: 1 of 6	
Machine Number											

Samples & Tests				Strata		Description of Strata	Geology	Legend	Water	Piezo Backfill
Depth (m)	No.	Type	SPT CPT 'N' values	Depth (m)	Reduced Level (m)					
0.25-0.70	1	B		0.25	23.62	MADE GROUND(concrete floor)				
0.60-0.85	2	B		0.35	23.27	MADE GROUND(yellow brown medium to coarse sand and subangular to rounded fine to coarse gravel predominantly of flint).				
0.85	3	D		0.25	23.02	MADE GROUND(red brown subrounded brick and mortar cobbles.				
1.00-1.45	4	BC	37			Medium dense yellow brown fine to coarse SAND and subangular to rounded fine to coarse flint GRAVEL. (TERRACE GRAVEL)				
1.60	6	W								
2.00-2.45	5	BC	24	2.00						
2.90	7	D		2.85	21.02					
3.00-3.45	8	U		3.35	20.67	Firm brown and yellow brown mottled poorly fissured silty CLAY with occasional communitated shell, (fissures degraded by weathering). (WEATHERED LONDON CLAY)				
3.45	9	D	19			Stiff to very stiff dark grey brown very to extremely closely fissured silty CLAY with occasional light blue grey or green grey silt veins and communitated shell debris, fissure planes generally inclined, smooth and planar - curvilinear, commonly and communitated shell debris with black mottling along fissure planes.				
3.50-3.95	10	DS				From 3.20 - 3.45m slight bluish alteration along fissure planes.				
4.50-4.95	11	U	(45)			@3.45m occasional 5mm diameter orange brown clay pockets; (oxidised pyrite?).				
4.95	12	D	19			From 3.50 - 5.00m brown silt or fine sand lining to some fissure planes.				
5.00-5.45	13	DS				(LONDON CLAY)				
6.00-6.45	14	U	(45)							
6.45	15	D	24							
6.50-6.95	16	DS				...@6.50m occasional light grey silt pockets up to 2 - 3mm in diameter.				
7.50-7.95	17	U	(45)							

Boring Progress & Water Obs.							Chiselling			Remarks: Full boring progress, water observations and chiselling details are given on a separate sheet. Full SPT and U100 details are given on separate sheets. Borehole in underground car park.
Date	Time	Depth	Casing	Water	Rose	Sealed	From	To	Mins	

Scale: 1:50		Processed in accordance with BS5930, BS5750 and AGS standards		Processed by: DC		Logged by: SR	
All dimensions in metres							

For abbreviations and symbols see key sheet
 GE/tech 101 Produced by J.M.Davidson on gINT, 1992

Project Name: TRITON SQUARE/REGENTS PLACE										Record of Borehole No: BH 12	
Project No: 9 4 4 8 4		Client: THE BRITISH LAND CORPORATION									
Co-ordinates (National): 29153.0E 82311.0N				Ground level (mAOD): 23.87		Method: CABLE PERCUSSION					
Date: 24/01/95 to 31/01/95				Depth of Hole: 40.90		Hole diameter: 200/150mm		Casing diameter: 200/150mm		Sheet: 2 of 6	
Machine Number											

Samples & Tests					Strata		Description of Strata	Geology	Legend	Water	Piezo Backfill
Depth (m)	No.	Type	SPT CPT 'N' value	Depth (m)	Reduced Level (m)						
7.95 8.00-8.45	19	DS	25	8		Stiff to very stiff dark grey brown very to extremely closely fissured silty CLAY with occasional light blue grey or green grey silt veins and communited shell debris, fissure planes generally inclined, smooth and planar - curvilinear, commonly and communited shell debris with black mottling along fissure planes.					
9.00-9.45	20	U	(65)	9							
9.45 9.50-9.95	21 22	D DS	29								
10.50-10.95	23	U	(65)								
10.95 11.00-11.45	24 25	D DS	28								
12.00-12.45	26	U	(55)								
12.45 12.50-12.95	27 28	D DS	28								
13.50-13.65 13.65-14.10	29 30	U B	(100)	13.55	10.32		Grey fresh CLAYSTONE, strong.				
14.00-14.30	31	B		14.00	9.87						
14.50-14.95	32	U	(70)				Very stiff dark grey brown locally grey brown extremely closely fissured silty CLAY with occasional communited shell debris, fissure planes generally inclined smooth planar and mottled black.				
14.95 15.00-15.45	33 34	D DS	30								

Boring Progress & Water Obs.							Chiselling			Remarks: Full boring progress, water observations and chiselling details are given on a separate sheet. Full SPT and U100 details are given on separate sheets. Borehole in underground car park.
Date	Time	Depth	Casing	Water	Rose	Sealed	From	To	Mins	
<div style="display: flex; justify-content: space-between;"> <div>For abbreviations and symbols see key sheet</div> <div> LTG </div> </div>										
Scale: 1:50 All dimensions in metres		Processed in accordance with BS5930, BS5750 and AGS standards			Processed by: DC			Logged by: SR		

Project Name: TRITON SQUARE/REGENTS PLACE										Record of Borehole No: <h1 style="margin:0;">BH 12</h1>	
Project No: 9 4 4 8 4		Client: THE BRITISH LAND CORPORATION									
Co-ordinates (National): 29153.0E 82311.0N				Ground level (mAOD): 23.87		Method: CABLE PERCUSSION					
Date: 24/01/95 to 31/01/95				Depth of Hole: 40.90		Hole diameter: 200/150mm		Casing diameter: 200/150mm		Sheet: 3 of 6	
Machine Number											

Samples & Tests				Strata		Description of Strata	Geology	Legend	Water	Piezo Backfill
Depth (m)	No.	Type	SPT CPT 'N' value	Depth (m)	Reduced Level (m)					
16.00-16.45	35	U	(70)	16		Very stiff dark grey brown locally grey brown extremely closely fissured silty CLAY with occasional communited shell debris, fissure planes generally inclined smooth planar and mottled black. ...@16.45m silty to very silty with occasional light brown silt/fine sand partings.	X	X	X	X
16.45	36	D	29	4.80						
16.50-16.95	37	DS								
17.50-17.95	38	U	(65)	17		Grey fresh CLAYSTONE, strong.	X	X	X	X
17.95	39	D	32	18						
18.00-18.45	40	DS								
18.80-19.00	41	B		18.80	5.07	Very stiff dark grey brown silty to very silty CLAY with occasional communited shell debris, grey green silt veins and pyritised wood fragments. ...@20.00m becoming silty and extremely closely fissured; fissure planes generally inclined smooth planar and mottled black.	X	X	X	X
19.00-19.45	42	U	(80)	19	4.87					
19.45	43	D	33							
19.50-19.95	44	DS		20		...@22.50m with occasional fine brown sand/silt partings; fissure planes show polishing and striated.	X	X	X	X
20.50-20.95	45	U	(60)	21						
20.95	46	D	31							
21.00-21.45	47	DS		22		...@23.50m small 3mm diameter pockets of silt/fine sand partings; fissure planes show polishing in part.	X	X	X	X
22.00-22.45	48	U	(60)	23						
22.45	49	D	34							
22.50-22.95	50	DS		7.50						
23.50-23.95	51	U	(70)	24						

Boring Progress & Water Obs.							Chiselling			Remarks: Full boring progress, water observations and chiselling details are given on a separate sheet. Full SPT and U100 details are given on separate sheets. Borehole in underground car park. <div style="text-align: center;"> For abbreviations and symbols see key sheet </div>
Date	Time	Depth	Casing	Water	Rose	Sealed	From	To	Mins	

Scale: 1:50	Processed in accordance with BS5930, BS5750 and AGS standards	Processed by: DC	Logged by: SR
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Project Name: TRITON SQUARE/REGENTS PLACE										Record of Borehole No: BH 12	
Project No: 9 4 4 8 4		Client: THE BRITISH LAND CORPORATION									
Co-ordinates (National): 29153.0E 82311.0N				Ground level (mAOD): 23.87		Method: CABLE PERCUSSION					
Date: 24/01/95 to 31/01/95				Depth of Hole: 40.90		Hole diameter: 200/150mm		Casing diameter: 200/150mm		Sheet: 4 of 6	
Machine Number											

Samples & Tests				Strata		Description of Strata	Geology	Legend	Water	Piezo Backfill
Depth (m)	No.	Type	SPT CPT 'N' value	Depth (m)	Reduced Level (m)					
23.95 24.00-24.45	53	DS	35	24		Very stiff dark grey brown silty to very silty CLAY with occasional communited shell debris, grey green silt veins and pyritised wood fragments. ...@24.70m grey fresh CLAYSTONE, strong.				
24.70-24.80	54	B								
25.00-25.45	55	U	(70)	25						
25.45 25.50-25.95	56 57	D DS	37			...@25.50m becoming very silty/sandy.				
26.50-26.95	58/59	D/U	(80)	26	26.50 -2.63	Very stiff grey mottled red and brown silty to very silty CLAY; fissure planes generally inclined, polished and curvilinear. (WOOLWICH AND READING BEDS) Firm, probably stiff in-situ, light brown and light blue mottled silty sandy CLAY with occasional small 5mm diameter pockets of fine to medium grey sand. Very stiff brown and blue grey banded and mottled silty CLAY with occasional pockets (up to 5mm) of fine to medium grey sand.				
26.95 27.00-27.35	60 61	D DS	75	27	26.90 -3.03 27.10 -3.23					
28.00-28.45	62	U	(100)	28	28.00 -4.13	Very stiff hard blue grey yellow and purple mottled extremely closely fissured silty CLAY locally with a little sand. Fissure planes generally inclined smooth and planar.				
28.45 28.50-28.83	63 64	D DS	86							
29.50-29.95	65	U	(120)	29	29.70 -5.83	Very stiff to hard red or red brown mottled brown spotted blue very to extremely closely fissured silty CLAY; fissure planes generally inclined smooth polished or striated and planar - curvilinear; locally lined with blue grey clay and undulatory				
29.85 29.90-30.35	66 67	D DS	55	30						
31.00-31.35	68	U	(120)	31						
31.35 31.40-31.80	69 70	D DS	61							

Boring Progress & Water Obs.							Chiselling			Remarks:
Date	Time	Depth	Casing	Water	Rose	Sealed	From	To	Mins	
										Full boring progress, water observations and chiselling details are given on a separate sheet. Full SPT and U100 details are given on separate sheets. Borehole in underground car park.

Scale: 1:50		Processed in accordance with BS5930, BS5750 and AGS standards		Processed by: DC		Logged by: SR	
All dimensions in metres							

For abbreviations and symbols see key sheet

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LTG

Project Name: TRITON SQUARE/REGENTS PLACE										Record of Borehole No: <h1 style="margin:0;">BH 12</h1>	
Project No: 9 4 4 8 4		Client: THE BRITISH LAND CORPORATION									
Co-ordinates (National): 29153.0E 82311.0N		Ground level (mAOD): 23.87		Method: CABLE PERCUSSION							
Date: 24/01/95 to 31/01/95		Depth of Hole: 40.90		Hole diameter: 200/150mm		Casing diameter: 200/150mm		Sheet: 5 of 6		Machine Number	

Samples & Tests				Strata		Description of Strata	Geology	Legend	Water	Piezo Backfill
Depth (m)	No.	Type	SPT CPT 'N' value	Depth (m)	Reduced Level (m)					
32.50-32.95	71	U	(120)	32		Very stiff to hard red or red brown mottled brown spotted blue extremely to very closely fissured silty CLAY; fissure planes generally inclined planar and silt/fine sand lined.				
32.95	72	D		33						
33.30	73	D		33.40	-9.53	Hard blue grey, yellow, brown and orange brown mottled very to extremely closely fissured silty sandy locally very sandy CLAY with occasional rounded medium flint gravel; fissure planes generally inclined planar and silt/fine sand lined.				
33.50-33.95	74	DS	61	34						
34.50-34.85	75	U	(120)	35	-2.90	...@36.25m with small pockets and lenses of fine to medium brown sand.				
34.85	76	D	64	36						
34.90-35.21	77	DS		36.30	-12.43	Very dense black/dark grey subrounded to rounded fine to coarse clayey sandy GRAVEL with white incrust on some gravel surfaces; probably becoming gravelly with depth.				
36.00-36.25	78	U	(120)	37	-1.10					
36.25	79	D	103	37.40	-13.53	Very dense grey silty fine to medium SAND with occasional gravel sized lumps of soft silt/clay. (THANET SAND)				
36.30-36.59	80	DS		38						
37.00-37.25	81	BC	143	39	-3.50	...from 39.50 - 40.00m occasional thin (3mm) bands of soft? brown silty CLAY.				
37.50-37.70	82	DS	300	40						
38.50-38.78	83	DS	200							
39.50-39.77	84	DS	206							

Boring Progress & Water Obs.							Chiselling			Remarks:
Date	Time	Depth	Casing	Water	Rose	Sealed	From	To	Mins	
										Full boring progress, water observations and chiselling details are given on a separate sheet. Full SPT and U100 details are given on separate sheets. Borehole in underground car park.

Scale: 1:50		Processed in accordance with BS5930, BS5750 and AGS standards		Processed by: DC		Logged by: SR	
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GE/tech 101 Produced by J.M.Davidson on gINT, 1992

[illegible]

[illegible]

DESCRIPTION OF STRATA

STRATA

- 1 a. Concrete floor slab with 6mm diameter mesh with 150mm spacing.
- b&c. Structural concrete with spiral drawn 16mm diameter reinforcement @ 300mm centres & 10-12mm shear reinforcement @ 150mm centres
- d. 150mm wide black rubber water bar
- e. Concrete footing under column
- f. Blinding

- a. Medium dense orange brown medium to coarse SAND and fine to medium angular to rounded GRAVEL with occasional building rubble (concrete & wood)
- b. Black sheet pile section surrounded in concrete
- c. Below 0.6m (2) a becoming SAND and GRAVEL (as (2) a) with soft to firm grey CLAY

NOTES

- * Water level after overnight rise.
- ** Void noticed underneath slab - see section 1-, 1.2m long and up to 0.45m wide. Black pipe visible 1.5m into void.

METHOD OF EXCAVATION

Hand Dug

TP 8

DESCRIPTION OF STRATA



PLAN VIEW

All dimensions in m

NOTES

METHOD OF EXCAVATION

Hand Dug

TP 8

[illegible]

DRG.	1
Job	374

Site investigation at Tolmers Square.
 Type of equipment Shell and Auger
 Diameter of hole 200mm (8") to 6.90m
 150mm (6") to 20.00m



Job 374

LOG OF BOREHOLE No. 1

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG - END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	GROUND LEVEL: 25.48m O.D.
	7.1276			G.L.	2.40	1	D				Ashphalt, concrete and ballast material (Road surface foundations).
1 m											
2 m											
3 m											(Fill)
4 m			3.00	3.15	3.45	2	CP(18)B		2.90	22.58	Medium dense brown sandy fine to coarse GRAVEL with occasional cobbles.
5 m				3.90		3	D				(Taplow Gravel)
6 m			3.50	3.90	4.35	4	U4		3.80	21.68	Firm to stiff brown highly fissured, slightly silty CLAY with occasional grey fissure surfaces.
7 m				4.35		5	D				
8 m				4.50	4.80	6	SP(21)D	X			(London Clay)
9 m											
10 m				6.00		7	D				
11 m				6.00	6.45	8	U4	X			---with traces of organic material
12 m				6.45		9	D				
13 m				6.60	6.90	10	SP(25)D				
14 m				7.50		11	D				
15 m				7.50	7.95	12	U4				
16 m			7.50	7.95		13	D				
17 m	8.40	DRY	7.50	8.10	8.40	14	SP(19)D	X			
18 m	8.1276	DRY									
19 m				9.00		15	D				
20 m				9.00	9.45	16	U4				
21 m				9.45		17	D				
22 m				9.60	9.90	18	SP(24)D				
23 m											
24 m											
25 m											
26 m											
27 m											
28 m											
29 m											
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31 m											
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204 m											
205 m											
206 m											
207 m											
208 m											

continued on next sheet

Key

 sampling depth, soils
 U4 4 in. dia. undisturbed sample (102 mm)
 U3 3 in. dia. undisturbed sample (73 mm)
 D disturbed jar sample
 B disturbed bulk sample
 W water sample
 SP () standard penetration test
 CP () cone penetration test
 (25) number of blows e.g. 25
 * no recovery
 80 core drilling, 80% recovery
 RQD rock quality designation

Notes

(a) Starting pit dug to 1.00m.

BOREHOLE 1

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG - END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	continued from previous sheet
			7.50	13.00 13.45	13.45	24 25	U4 D	X			(Stiff mottled brown and grey fissured silty CLAY with traces of organic staining)
14 m				13.60	13.90	26	SP(34)D				(London Clay)
								X			
15 m											
				16.00		27	D				
16 m				16.00	16.45	28	U4				---with some silt bands
				16.45		29	D				
17 m				16.60	16.90	30	SP(37)D	X			
								X			
18 m											
				19.10		31	D				
19 m				19.10	19.55	32	U4				
				19.55		33	D				
20 m	20.00	DRY	7.50	19.70	20.00	34	SP(41)D	X	20.00	5.48	Borehole completed.
21 m											
22 m											
23 m											
24 m											
25 m											
26 m											
27 m											
28 m											
29 m											
30 m											











For Key to symbols and Notes, see first sheet for this borehole.

BOREHOLE 1

Site Investigation at Tolmers Square
 Type of equipment Shell and Auger
 Diameter of hole 200mm (8")

Job 374

LOG OF BOREHOLE No. 2

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG - END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	GROUND LEVEL: 25.79m O. D.
1 m	27.11.76			G. L.	1.85	1		D			Soft to firm dark brown sandy silty CLAY with some gravel of brick, concrete and flint material and occasional ash fragments.
2 m											(Fill)
				2.20		2		D	2.50	23.29	Soft mottled brown slightly sandy silty CLAY with some iron staining.
3 m				2.80	3.25	3		U4	3.00	22.79	
				3.25		4		D			
4 m				3.45	3.75	5		CP(14)B			Medium dense brown fine to coarse SAND with some fine and medium, angular to sub-rounded gravel.
				4.05	4.35	6		CP(29)B			
5 m											(Taplow Gravel)
6 m				5.60		7		D	5.60	20.19	
				5.60	6.05	8		U4			Stiff mottled grey-brown laminated (2mm) fissured slightly silty CLAY with occasional brown fissure surfaces and hard clay layers.
	6.50	DRY	5.60	6.05		9		D			(London Clay)
7 m				6.20	6.50	10		SP(27)D	6.50	19.29	
											Borehole completed.
8 m											
9 m											
10 m											
11 m											
12 m											
13 m											

Key

	sampling depth, soils
U4	4 in. dia. undisturbed sample (102 mm)
U3	3 in. dia. undisturbed sample (73 mm)
D	disturbed jar sample
B	disturbed bulk sample
W	water sample
SP ()	standard penetration test
CP ()	cone penetration test
(25)	number of blows e.g. 25
.	no recovery
80	core drilling, 80% recovery
RQD	rock quality designation

Notes

- (a) Starting pit dug to 0.25m.
 (b) Standpipe installed with tip at 5.50m.

BOREHOLE 2



Site Investigation at Tolmers Square
 Type of equipment Shell and Auger
 Diameter of hole 200mm (8")

Job 374

LOG OF BOREHOLE No. 3

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG -- END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	GROUND LEVEL: 25.75m O.D.
	23.11.76			0.50		1	D				Fine to coarse GRAVEL of brick rubble, ash and wood material.
1 m											(Fill)
				1.60		2	D		1.45	24.30	Soft brown sandy silty CLAY with some gravel of brick and ash material.
2 m	2.00	DRY	1.50	2.35	2.65	3	SP(1)D		2.75	23.00	(Fill)
	24.11.76	DRY		2.95	3.25	4	CP(33)B				Dense to very dense brown medium to coarse SAND and fine to medium angular to rounded GRAVEL.
3 m				3.65	3.95	5	CP(50)B				
				4.35	4.65	6	CP(30)B				
4 m				4.95	5.25	7	CP(50)B				(Taplow Gravel)
				5.60		8	D		5.60	20.15	Stiff brown and grey laminated fissured CLAY.
5 m				5.80	6.25	9	U4				(London Clay)
				6.55	6.85	10	SP(22)D				
6 m				7.30	7.75	11	U4				---with some mudstone fragments
				8.20	8.50	12	SP(34)D				
7 m	7.00	DRY	5.80	8.80	9.25	13	U4				---with some organic staining
	25.11.76	DRY	5.80	9.75	10.05	14	SP(28)D				
8 m				10.30	10.75	15	U4				---becoming slightly silty with occasional silt pockets
				11.15	11.45	16	SP(24)D				
9 m				11.80	12.25	17	U4				
10 m											
11 m											
12 m											
13 m	12.70	DRY	5.80	12.40	12.70	18	SP(28)D		12.70	13.05	Borehole completed

Key

 sampling depth, soils
 U4 4 in. dia. undisturbed sample (102 mm)
 U3 3 in. dia. undisturbed sample (73 mm)
 D disturbed jar sample
 B disturbed bulk sample
 W water sample
 SP () standard penetration test
 CP () cone penetration test
 (25) number of blows e.g. 25
 • no recovery
 80 core drilling, 80% recovery
 RQD rock quality designation

Notes

- (a) Starting pit dug to 0.80m.
 (b) Piezometer installed with tip at 12.00m.

BOREHOLE 3

344

Site Investigation at Tolmers Square
 Type of equipment Shell and Auger
 Diameter of hole 200mm (8")

Job 374

LOG OF BOREHOLE No. 4

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG- END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	GROUND LEVEL: 28.50m O.D.
	10.1276			G.L.	2.00	1	B				Grey slightly silty fine and medium SAND with much fine to coarse, sub-angular to rounded gravel. (Fill)
1 m											
2 m				2.00		2	D		2.00	26.50	
3 m											Firm to stiff mottled grey and brown slightly sandy, silty CLAY with some fine and medium gravel of flint and brick material and occasional bone material. (Fill)
4 m			3.00	3.50	3.95	3	D		3.50	25.00	
				3.50		4	U4				
				3.95		5	D				Firm dark grey silty CLAY.
5 m			4.20	4.65	4.95	6	CP(54)B		4.50	24.00	
6 m											Medium dense brown medium to coarse SAND with much fine and medium, sub-angular to sub-rounded gravel. (Taplow Gravel)
7 m			5.80	6.15	6.23	7	CP(80)B				
8 m			6.40	6.65	6.95	8	CP(28)B				
				8.20		9	D		8.10	20.40	
			8.00	8.20	8.65	10	U4				Stiff mottled brown and grey fissured CLAY with evidence of iron staining on fissure surfaces. (London Clay)
				8.65		11	D				
9 m	9.10	DRY	8.00	8.80	9.10	12	SP(31)D		9.10	19.40	
10 m											Borehole Completed
11 m											
12 m											
13 m											

Key

	sampling depth, soils
U4	4 in. dia. undisturbed sample (102 mm)
U3	3 in. dia. undisturbed sample (73 mm)
D	disturbed jar sample
B	disturbed bulk sample
W	water sample
SP ()	standard penetration test
CP ()	cone penetration test
(25)	number of blows e.g. 25
•	no recovery
	core drilling, 80% recovery
RQD	rock quality designation
+	No. of blows for 0.30m penetration calculated from actual number of blows.

Notes

- (a) Starting pit dug to 0.50m.
 (b) Standpipe installed with tip at 8.00m.

BOREHOLE 4

Job 374

Site Investigation at Tolmers Square
 Type of equipment Shell and Auger
 Diameter of hole 200mm (8") to 7.00m
 150mm (6") to 22.00m



Job 374

LOG OF BOREHOLE No. 5

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG - END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	GROUND LEVEL: 26.08m O.D.
	13.1276			G.L.	3.00	1	B				Fine to coarse GRAVEL of brick, concrete and paving material with some sand and wood fragments.
1 m											
2 m											
3 m	3.00 4.1276	DRY DRY	3.00								(Fill)
4 m			3.70	3.95	4.25	2	CP(19)B		3.30	22.78	Medium dense grey, medium and coarse SAND with some fine to coarse gravel.
5 m				4.60		3	W				(Taplow Gravel)
6 m				5.50		4	D		5.10	20.98	Firm to stiff brown highly fissured slightly silty CLAY with occasional grey fissure surfaces.
7 m				5.50	5.95	5	U4	X			
				5.95		6	D				
				6.10	6.40	7	SP(23)D				(London Clay)
8 m			6.00	7.50		8					
				7.50	7.95	9	U4	X			
				7.95		10	D				
				8.10	8.40	11	SP(22)D				
9 m											
10 m			9.00	9.65		12	D				
				9.65	10.10	13	U4				
				10.10		14	D	X			
				10.25	10.55	15	SP(26)D				
11 m				11.00		16	D				
				11.00	11.45	17	U4				---with traces of organic material
				11.45		18	D				
12 m	12.00 15.1276	DRY DRY	9.00	11.60	11.90	19	SP(27)D				
13 m				12.80		20	D	X			

continued on next sheet

Key

 sampling depth, soils
 U4 4 in. dia. undisturbed sample (102 mm)
 U3 3 in. dia. undisturbed sample (73 mm)
 D disturbed jar sample
 B disturbed bulk sample
 W water sample
 SP () standard penetration test
 CP () cone penetration test
 (25) number of blows e.g. 25
 • no recovery
 80 core drilling, 80% recovery
 RQD rock quality designation

Notes

- (a) Starting pit dug to 0.75m
 (b) Reduced to 150mm (6") casing at 7.00m

BOREHOLE 5

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG - END	CHANGE OF STRATA		DESCRIPTION OF STRATA	
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL		
				FROM	TO							
		m	m	m	m				m	m	continued from previous sheet	
14m			9.00	12.80 13.25 13.40	13.25 13.70	21 22 23	U4 D SP(29)D	X			(Stiff brown fissured CLAY) (London Clay)	
15m												
16m				15.50 15.50 15.95	 15.95	24 25 26	D U4 D	X				
17m				16.10	16.40	27	SP(34)D					
18m								X				
19m				18.50 18.50 18.95 19.10	 18.95	28 29 30 31	D U4 D SP(38)D					
20m								X				
21m												
22m				21.55 21.55 22.00	 22.00	32 33	D U4 D	X	22.00	4.08		---with occasional grey mottling and traces of organic staining
23m	22.00	DRY	9.00									Borehole completed
24m												
25m												
26m												
27m												
28m												
29m												
30m												

For Key to symbols and Notes, see first sheet for this borehole.

BOREHOLE 5

Site Investigation at Tolmers Square
 Type of equipment Shell & Auger
 Diameter of hole 200mm (8") to 13.40m
 150mm (6") to 23.70m

Job 374

LOG OF BOREHOLE No. 6

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG - END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	GROUND LEVEL: 26.62m O.D.
1 m	29.11.76			G.L.	2.00	1	B				Fine to coarse, angular to sub-rounded GRAVEL of flint and brick material, with much fine to coarse sand.
2 m									2.00	24.62	(Fill)
3 m				2.15	2.45	2	SP(8)D		3.00	23.62	Soft to firm mottled brown silty CLAY with some ash material. (Fill)
4 m			3.00	3.15	3.30	3	CP(102)B				Dense brown silty sandy GRAVEL. (Taplow Gravel)
5 m	4.95	DRY	4.60	4.65	4.95	4	CP(15)B		4.60	22.02	Soft to firm brown silty CLAY with traces of sand and medium gravel.
6 m	11.27.6	DRY	4.60	5.00	5.45	5	D		5.40	21.22	Firm to stiff grey-brown laminated, fissured CLAY with some organic staining. ---becoming stiff (London Clay) ---5-10mm band of mudstone ---band of grey, moderately strong mudstone
				5.00	5.45	6	U4				
				5.45	5.90	7	D				
				5.60	5.90	8	SP(15)D				
				6.50		9	D				
				6.50	6.95	10	U4				
				6.95		11	D				
7 m				7.10	7.40	12	SP(24)D				
8 m				8.00		13	D				
				8.00	8.45	14	U4				
				8.45		15	D				
9 m				8.60	8.90	16	SP(31)D				
				9.50		17	D				
				9.50	9.95	18	U4				
10 m				9.95		19	D				
				10.10	10.40	20	SP(37)D				
11 m				11.00	11.45	21	U4*, D				
				11.60	11.90	22	SP(41)D				
				12.50		23	D				
				12.50	12.95	24	U4				
13 m	13.00	DRY	5.00	12.95		25	D				

continued on next sheet

Key

	sampling depth, soils
U4	4 in. dia. undisturbed sample (102 mm)
U3	3 in. dia. undisturbed sample (73 mm)
D	disturbed jar sample
B	disturbed bulk sample
W	water sample
SP ()	standard penetration test
CP ()	cone penetration test
(25)	number of blows e.g. 25
*	no recovery
80	core drilling, 80% recovery
RQD	rock quality designation
+	No. of blows for 0.30m penetration calculated from actual number of blows.

Notes

- (a) Piezometer installed with tip at 23.00m.
 (b) Reduced to 150mm (6") casing at 13.40m.

BOREHOLE 6

DEPTH SCALE	DAILY PROGRESS	DEPTH TO WATER	DEPTH OF CASING	SAMPLING DATA				LEG- END	CHANGE OF STRATA		DESCRIPTION OF STRATA
				DEPTH		No.	TYPE		DEPTH	REDUCED LEVEL	
				FROM	TO						
		m	m	m	m				m	m	continued from previous sheet
	2.1276	DRY	5.00	13.15	13.45	26	SP(31)D	X			(Stiff grey weakly laminated fissured micaceous CLAY)
14m											
				14.50		27	D				(London Clay)
			14.00	14.50	14.95	28	U4				
15m				14.95		29	D				
				15.10	15.40	30	SP(32)D	X			
16m											
				17.00		31	D				
17m				17.00	17.45	32	U4				
				17.45		33	D				---with some partially pyritised wood fragments
18m				17.60	17.90	34	SP(36)D	X			
19m											
20m				20.50		35	D				
				20.50	20.95	36	U4				
21m				20.95		37	D				
				21.10	21.40	38	SP(35)	X			
22m											
				22.05		39	D	X	21.90	4.72	
				22.05	22.50	40	U4	X			Hard, light grey, mottled red, laminated and fissured silty CLAY (Woolwich and Reading Beds)
23m				22.50		41	D				
				23.20		42	D	X			Red-brown from 22.50m.
				23.25	23.70	43	U4				Light grey-green from 23.60m.
24m	23.70	DRY	14.00	23.70		44	D		23.70	2.92	
											Borehole Completed
25m											
26m											
27m											
28m											
29m											
30m											

For Key to symbols and Notes see first sheet for this borehole

BOREHOLE 6

NUTTALL GEOTECHNICAL SERVICES LTD.

Job 374

Appendix E – Crossrail 2 safeguarding correspondence

From: Crossrail2 <Crossrail2@tfl.gov.uk>
Sent: Monday, October 9, 2023 3:07 PM
To: Henry Tayler <Henry.Tayler@arup.com>; Crossrail2 <Crossrail2@tfl.gov.uk>
Cc: G.Williams@Gardiner.com; j.pennell@gardiner.com; Marc Easton <Marc.Easton@arup.com>
Subject: RE: Euston Tower, 286 Euston Road, London. Crossrail 2 Safeguarding

You don't often get email from crossrail2@tfl.gov.uk. [Learn why this is important](#)

Henry,

Euston Tower, 286 Euston Road, does fall within the 2015 Crossrail 2 Safeguarding Directions. This means that any consultation on planning applications submitted to the Local Planning Authority in respect of this site which propose or imply works more than 3 metres below ground level, an increase in height or floor area must include TfL to prevent planning permission being granted for development that might be prejudicial to the subsequent delivery of Crossrail 2.

Since the 2015 Directions were confirmed the current alignment of Crossrail 2 has been the subject of ongoing review and the latest proposal, shown below, are for the Mk.20.1 alignment which has moved the running tunnels slightly east of the above site. The purple lines show the centrelines of each of the two running tunnels.



Given the distance between the Crossrail 2 running tunnels and the site, in the event an application for planning permission were to be submitted I would still expect TfL to be notified of the proposals. Your email speaks about modifications to the existing building and, depending on the nature of the works and whether any below ground works are proposed, TfL may recommend to the local planning authority its Crossrail 2 conditions relating to ground movement and noise and vibration be attached to a grant of planning permission. If we do recommend conditions

the Crossrail 2 information for Developers guidance document provides further advice on how these may be discharged in conjunction with the local planning authority.

I am happy to meet but don't necessarily see there being an immediate need unless you would like to share the proposals in more detail.

Regards,

Michael Johnson BSc. Hons BTP MRTPI
Safeguarding Manager Crossrail 2
Investment Delivery Planning
Transport for London

M: 0751 505 2717 E: michaeljohnson@tfl.gov.uk

TfL RESTRICTED

From: Henry Tayler <Henry.Tayler@arup.com>

Sent: 07 October 2023 10:00

To: Crossrail2 <Crossrail2@tfl.gov.uk>; Safeguardcrossrail2 <Safeguardcrossrail2@tfl.gov.uk>

Cc: G.Williams@Gardiner.com; j.pennell@gardiner.com; Marc Easton <Marc.Easton@arup.com>

Subject: Euston Tower, 286 Euston Road, London. Crossrail 2 Safeguarding

For attention of the safeguarding manager, Crossrail 2-TfL.

This correspondence is to request details of TfL Crossrail 2 safeguarding in proximity to the above site and to make initial contact with the safeguarding manager in relation to proposed feasibility studies for modifications to the existing building and development of the site.

Brief summary:

On behalf of our client, British Land, Arup are carrying out structural/geotechnical studies for the 286 Euston Road, "Euston Tower" site, Euston Road, within the London Borough of Camden.

The site is located at the corner of Euston Road and Hampstead Road and the existing 1960s constructed Euston Tower building and associated 2 storey podium structure are located within the Regents Place /former Euston Centre development. The existing 36 storey 1960s constructed Euston Tower building has a single level basement and is founded on deep piled foundations.

Existing TfL engagement.

The project team have held initial screening sessions with TfL related to the public realm and highways aspects of the proposal since April 2023.

The lead contact for engagement within TfL related to this scheme is Nahuel Mainard-Sardon.

The project team are in contact with TfL/LUL Infrastructure Protection in relation to tube assets adjacent to the site, the lead contact within TfL is Lydia Wong.

Crossrail 2 safeguarding:

An extract from the Crossrail 2 safeguarding directions is provided below, showing the location of the existing Euston Tower building in blue.

The Euston Tower and associated basement surrounding the tower is shown as located within the limited of land subject to consultation (safeguarding limits).



Figure 14 - Crossrail 2 safeguarding directions Sheet No24. March 2015. [MMD-307346-C-DR-SG-XX-1124]

An extract from the Crossrail2 interactive webmap is below, also showing the location of the existing Euston Tower building in blue.

<https://cr2.maps.arcgis.com/apps/webappviewer/index.html?id=21a7f72dfd0c443db5733bd81a707a67>

The Euston Tower site falls within the Crossrail 2 safeguarding limits, however we note that the proposed tunnel alignment, shown in brown, falls outside the safeguarding limits to the east.

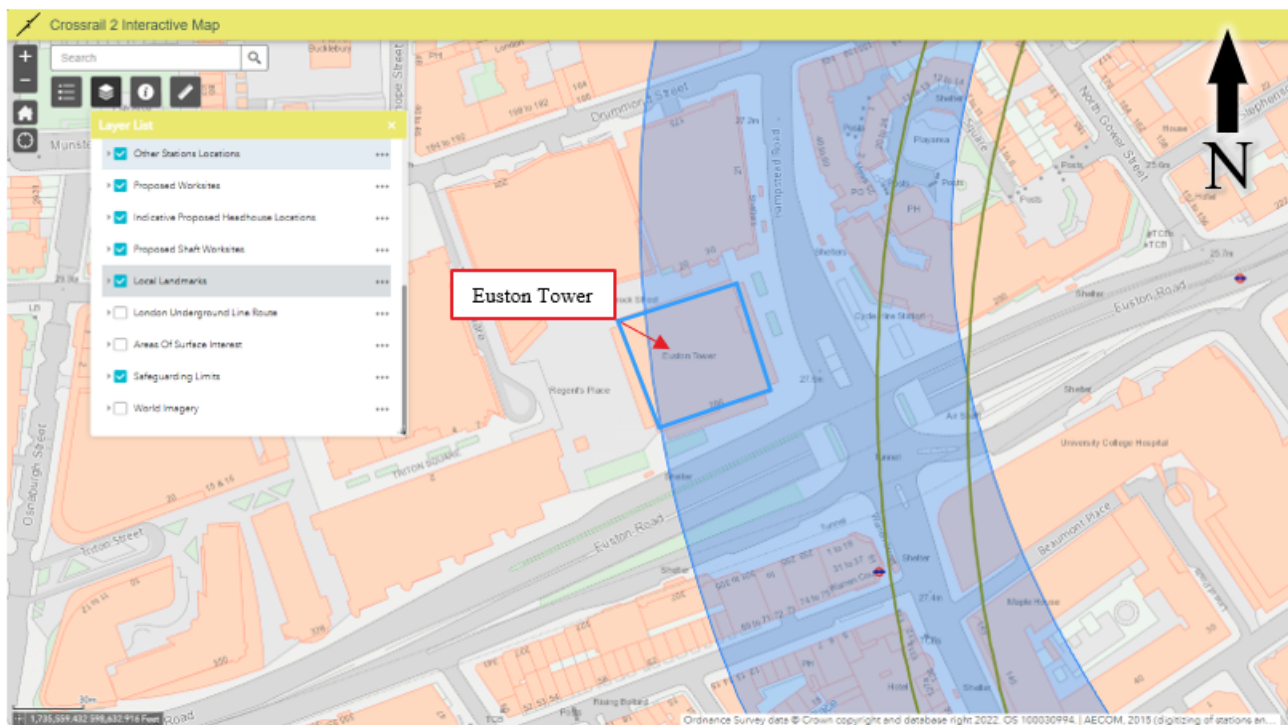


Figure 15 - Crossrail 2 safeguarding map extract – accessed 13/1/2023.

The team are aware of the guidance information available on <https://crossrail2.co.uk/discover/safeguarding/> and the associated “Information for Developers” guidance - CRL2-CRL2-GEN-ROUTWID-NOT-LP-00003. The team request details of the latest safeguarding arrangements, tunnel alignment and exclusion zones to inform engineering assessment at the site and ahead of a Planning Application.

We would like to arrange an initial meeting to discuss the current feasibility proposals and establish the requirements for further studies or submissions.

Please let us know if we can provide any further information to assist in this enquiry. Our contact details are given below.

Kind regards,

Henry

Henry Tayler

Associate | Geotechnics - Transport London
MEng CEng MICE MAPM

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