

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 19/01/17	Ground Level (mOD) 5.02	Co-Ordinates E 542594.1 N 180293.7	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	CP	17/01/2017	19/01/2017	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					14.00	18.00	25.50	26.40	0:40	Sand
					25.00	27.00	26.70	27.00	0:30	Flinty Chalk
					28.00	31.50	28.50	30.00	1:15	Flinty Chalk
							31.00	32.00	1:00	Flinty Chalk

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	15.00	200				
32.00	150	26.70	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.80	32.00	Cement / Bentonite Grout	19/01/2017

Project

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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
17/01/17	0.00				C	13.00	N50/0.275	4, 7 / 7, 9, 17, 17	12.90	1.00
17/01/17	12.80	12.80	1.00	... see Remark 3	C	14.00	N50/0.07	25 / 50	13.60	2.00
17/01/17	13.00	12.90	1.00		S	15.00	N50/0.07	15, 10 / 50	13.60	2.40
17/01/17	14.00	13.60	2.00		S	16.00	N50/0.105	11, 14 / 35, 15	14.50	3.00
17/01/17	15.00	13.60	2.40		S	17.00	N50/0.16	7, 12 / 22, 20, 8	15.00	3.10
17/01/17	16.00	14.50	3.00		S	18.00	N50/0.21	8, 12 / 17, 20, 13	15.00	3.60
17/01/17	17.00	15.00	3.10		S	19.50	N50/0.2	7, 15 / 15, 23, 12	15.00	3.10
17/01/17	18.00	15.00	3.60		S	21.00	N50/0.25	5, 7 / 11, 16, 18, 5	15.00	2.90
17/01/17	19.50	15.00	3.10		S	22.50	N50/0.19	8, 12 / 18, 20, 12	15.00	1.00
17/01/17	21.00	15.00	2.90		S	24.00	N50/0.28	7, 10 / 12, 13, 15, 10	15.00	1.50
18/01/17	21.00	15.00	1.00		S	25.50	N38	5, 8 / 8, 9, 10, 11	25.00	1.70
18/01/17	24.00	15.00	1.50		S	27.00	N50/0.255	6, 7 / 8, 15, 15, 12	26.70	1.80
18/01/17	25.50	25.00	1.70		S	28.50	N50	8, 13 / 10, 20, 7, 13	26.70	1.00
18/01/17	27.00	26.70	1.80		S	30.00	N50/0.265	5, 7 / 8, 10, 20, 12	26.70	1.20
18/01/17	27.00	26.70	2.10		S	31.50	N43	8, 8 / 6, 7, 11, 19	26.70	1.50
19/01/17	27.00	26.70	1.00							
19/01/17	28.50	26.70	1.00							
19/01/17	30.00	26.70	1.30							
19/01/17	31.50	26.70	1.50							
19/01/17	32.00	26.70	1.50							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 15.00m depth. Bentonite seal inserted between 14.00m and 15.00m and borehole re-drilled with Ø150mm casing to 26.70m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- HOLE TYPES
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project	
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CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 19/01/17	Ground Level (mOD) 5.02	Co-Ordinates E 542594.1 N 180293.7	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17											

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 19/01/17	Ground Level (mOD) 5.02	Co-Ordinates E 542594.1 N 180293.7	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17	12.80	1.00	-7.78		12.80		12.80-13.00	B01			
17/01/17	12.90	1.00	-7.98		13.00	Dark grey, very clayey SILT. (DOCK SEDIMENT)	13.00		N50/ 275 mm	4, 7 / 7, 9, 17, 17	
					(1.00)	Dark grey, clayey sandy angular to well rounded fine to coarse flint GRAVEL with occasional flint cobbles (<70mm). (RIVER TERRACE DEPOSITS)	13.00-13.50	B02			
17/01/17	13.60	2.00	-8.98		14.00		14.00		N50/ 70 mm	25 / 50	
						Light grey, silty fine SAND. (THANET SAND FORMATION: THANET SAND) 14.00 ... becoming slightly sandy	14.00-14.50	B03			
17/01/17	13.60	2.40					15.00		N50/ 70 mm	15, 10 / 50	
							15.00-15.20 15.50-16.00	D04 B05			
17/01/17	14.50	3.00					16.00		N50/ 105 mm	11, 14 / 35, 15	
							16.00-16.40 16.50-17.00	D06 B07			
17/01/17	15.00	3.10					17.00		N50/ 160 mm	7, 12 / 22, 20, 8	
							17.00-17.45 17.50-18.00	D08 B09			
17/01/17	15.00	3.60					18.00		N50/ 210 mm	8, 12 / 17, 20, 13	
						18.00 ... becoming clayey	18.00-18.35	D10			
							19.00-19.50	B11			
17/01/17	15.00	3.10					19.50		N50/ 200 mm	7, 15 / 15, 23, 12	
							19.50-19.85 20.00-20.50	D12 B13			

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Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17	15.00	2.90		x	(12.70)	20.00 ... becoming very clayey	21.00		N50/ 250 mm	5, 7 / 11, 16, 18, 5	
18/01/17	15.00	1.00		x			21.00-21.45	D14			
				x			22.00-22.50	B15			
				x			22.50		N50/ 190 mm	8, 12 / 18, 20, 12	
				x			22.50-23.00	D16			
				x			23.50-24.00	B17			
18/01/17	15.00	1.50		x			24.00		N50/ 280 mm	7, 10 / 12, 13, 15, 10	
				x			24.00-24.50	D18			
				x			25.00-25.50	B19			
18/01/17	25.00	1.70		x			25.50		N38	5, 8 / 8, 9, 10, 11	
				x			25.50-25.90	D20			
				x			26.40-26.80	B21			
			-21.68	x	26.70		26.70-27.00	B22			
18/01/17	26.70	1.80	-21.98	x	27.00	Black, silty angular to subangular fine to coarse rinded flint GRAVEL with rare angular to subangular black rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BEDS)	27.00		N50/ 255 mm	6, 7 / 8, 15, 15, 12	
19/01/17	26.70	1.00				[NI] White CHALK recovered as: soft, white gravelly SILT. Gravel is weak, medium to low density angular to subangular fine to coarse chalk fragments. (SEAFORD CHALK FORMATION)	27.00-27.50	D23			
						28.00 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint with rare black angular to subangular rinded flint cobbles	28.00-28.50	B24			
19/01/17	26.70	1.00				28.50 ... [NI] recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint with rare black rinded flint cobbles	28.50-28.90	D25	N50	8, 13 / 10, 20, 7, 13	
						29.50 ... with occasional cobble size medium density, angular to subangular chalk fragments	29.50-30.00	B26			
19/01/17	26.70	1.30					30.00		N50/ 263 mm	5, 7 / 8, 10, 20, 12	

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Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
19/01/17	26.70	1.50				30.00 ... [NI] recovered as: soft, white gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	30.00-30.45	D27		8, 8 / 6, 7, 11, 19	
							31.00-31.50	B28			
							31.50		N43		
							31.50-31.90	D29			
19/01/17	26.70	1.50	-26.98		32.00	31.50 ... becoming silty with rare cobble size chalk fragments 31.51 ... [NI] recovered as: soft, white gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments End of Borehole	31.50-32.00	B30			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.50	CP	23/11/2016	24/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					23.50	27.50				

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
17.50	200	17.50	200				
32.50	150	24.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.80	32.50	Cement / Bentonite Grout	24/11/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
23/11/16	0.00			... see Remark 3	C	12.50	N18	3, 4 / 5, 5, 4, 4	12.50	1.20
23/11/16	12.50	12.50	1.20		C	13.50	N12	2, 3 / 3, 4, 3, 2	13.50	1.50
23/11/16	13.50	13.50	1.50		C	14.50	N16	2, 2 / 3, 4, 4, 5	14.50	1.60
23/11/16	14.50	14.50	1.60		C	15.50	N28	3, 4 / 5, 7, 7, 9	15.50	1.30
23/11/16	15.50	15.50	1.30		S	16.50	N50/0.085	4, 10 / 39, 11	16.50	1.80
23/11/16	16.50	16.50	1.80		S	18.00	N50/0.153	5, 14 / 21, 24, 5	18.00	1.10
23/11/16	17.50	16.60	1.65		S	19.50	N50/0.13	7, 15 / 25, 25	19.00	1.40
24/11/16	17.50	16.60	1.10		S	21.00	N50/0.17	6, 15 / 17, 21, 12	19.00	2.10
24/11/16	18.00	18.00	1.10		S	22.50	N50/0.165	4, 10 / 16, 23, 11	19.00	2.70
24/11/16	19.50	19.00	1.40		S	24.00	N50/0.155	7, 15 / 21, 21, 8	24.00	GL
24/11/16	21.00	19.00	2.10		S	25.50	N50/0.155	6, 12 / 19, 24, 7	24.00	GL
24/11/16	22.50	19.00	2.70		S	27.00	N55/0.25	4, 13 / 20, 15, 12, 8	24.00	GL
24/11/16	24.00	24.00	GL		S	28.50	N31	3, 5 / 7, 7, 8, 9	24.00	1.10
24/11/16	25.50	24.00	GL		S	30.00	N36	4, 6 / 8, 8, 10, 10	24.00	1.90
24/11/16	27.00	24.00	GL		S	31.50	N42	5, 7 / 8, 10, 12, 12	24.00	2.70
24/11/16	28.50	24.00	1.10							
24/11/16	30.00	24.00	1.90							
24/11/16	31.50	24.00	2.70							
24/11/16	32.50	24.00	2.70							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 17.50m depth. Bentonite seal inserted between 16.00m and 17.50m and borehole re-drilled with Ø150mm casing to 24.00m depth.
- Borehole collapsing at 23.50m up to 19.00m depth. Casing advanced and borehole re-drilled.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
DS - Dynamic Sampling, DS/R-Dynamic Sampling / Rotary
DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

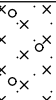
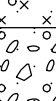
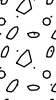
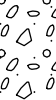
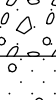
Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
23/11/16					(11.80)	Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

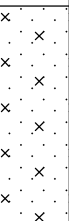
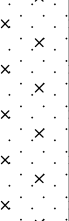
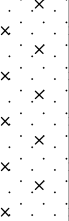
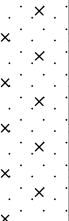
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Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
23/11/16	12.50	1.20	-7.46		11.80		11.80			... VOC 0.4ppm	
					(0.70)	Dark grey slightly sandy gravelly SILT with strong hydrocarbon odour. Gravel is angular to subrounded fine to coarse flint. Sand is fine to coarse. (DOCK SEDIMENT)	11.80-12.20	ES01 B02			
			-8.16		12.50		12.50		N18	3, 4 / 5, 5, 4, 4 ... VOC 0.2ppm	
23/11/16	13.50	1.50			(0.75)	Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with rare well rounded flint cobbles and strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	12.50-13.00	ES03 B04			
			-8.91		13.25		13.25	D05			
23/11/16	14.50	1.60			(2.25)	Dark brown very sandy angular to well rounded fine to coarse flint GRAVEL with rare subangular flint cobbles. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.50-14.00	ES06 B07	N12	2, 3 / 3, 4, 3, 2 ... VOC 0.5ppm	
						14.25 ... becoming slightly sandy	14.25	D08			
23/11/16	14.50	1.60					14.50-15.00	B09	N16	2, 2 / 3, 4, 4, 5	
							15.25	D10			
23/11/16	15.50	1.30	-11.16				15.50-15.80	B11	N28	3, 4 / 5, 7, 7, 9	
			-11.46			15.80	Dark brown very gravelly fine to coarse SAND. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	15.80-16.00	B12		
23/11/16	16.50	1.80				Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	16.25	D13		4, 10 / 39, 11	
							16.50				
23/11/16	16.60	1.65				17.00 ... becoming clayey	16.50-17.50	D14 B15			
24/11/16	16.60	1.10									
24/11/16	18.00	1.10					18.00		N50/ 153 mm	5, 14 / 21, 24, 5	
							18.00-18.50	D16 B17			
24/11/16	19.00	1.40					19.50		N50/ 130 mm	7, 15 / 25, 25	
							19.50-20.00	D18 B19			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
24/11/16	19.00	2.10			(11.20)	21.50 ... becoming slightly clayey	21.00	D20 B21	N50/ 170 mm	6, 15 / 17, 21, 12		
							21.00 21.50-22.00					
24/11/16	19.00	2.70					22.50					
							22.50 23.00-23.50	D22 B23	N50/ 165 mm	4, 10 / 16, 23, 11		
24/11/16	24.00	GL				24.00						
						24.00 24.50-25.00	D24 B25					
24/11/16	24.00	GL					25.50	D26 B27	N50/ 155 mm	6, 12 / 19, 24, 7		
						25.50 26.00-26.50						
24/11/16	24.00	GL	-22.66		27.00	27.00						
			-23.16		(0.50) 27.50	White CHALK recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint with occasional pockets of dark green glauconitic fine sand (<10mm). (SEAFORD CHALK FORMATION)	27.00 27.50-28.00	D28 B29	N55/ 250 mm	4, 13 / 20, 15, 12, 8		
24/11/16	24.00	1.10				White CHALK recovered as: very silty angular to subangular fine to coarse GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel comprises weak, medium density white chalk fragments and black rinded flint. (SEAFORD CHALK FORMATION)	28.50 28.50	D30				
						28.50 ... [NI] recovered as: soft to firm, white gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint	29.00-29.50	B31				
24/11/16	24.00	1.90					30.00		N36	4, 6 / 8, 8, 10, 10		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 24/11/16	Ground Level (mOD) 4.34	Co-Ordinates E 542647.5 N 180376.8	Final Depth 32.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
24/11/16	24.00	2.70			(5.00)	30.00 ... [NI] recovered as: soft to firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium extremely weak, low density chalk fragments	30.00	D32			
						31.00 ... [NI] recovered as: very soft, white gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	31.00	D33			
						31.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel comprises angular to subangular fine to medium weak, medium density chalk fragments and black rinded flint	31.50	D34	N42	5, 7 / 8, 10, 12, 12	
						32.00 ... with rare angular to subangular fine to coarse black rinded flint gravel	32.00-32.50	B35			
24/11/16	24.00	2.70	-28.16		32.50	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 16.00	16.00 32.80	DS RC	29/11/2016 29/11/2016	29/11/2016 01/12/2016	TC TC	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	12.00	12.70		100
17.00	150	17.00	150	12.70	13.70		100
32.00	146			13.70	14.40		100
				14.40	15.40		100
				15.40	16.00		100
				16.00	16.50		100
				16.50	17.80		100
				17.80	20.00		0
				20.00	21.00		100
				21.00	21.90		100
				21.90	23.00		100
				23.00	24.50		100
				24.50	26.00		0
				26.00	27.50		90
				27.50	29.00		100
				29.00	29.80		100
				29.80	31.30		100
				31.30	32.80		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
16.00	16.50	Water	20	
16.50	17.80	Water	30	
17.80	20.00	Water	90	
20.00	24.50	Water	30	
24.50	26.00	Water	90	
26.00	32.80	Water	30	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	32.80	Cement / Bentonite Grout	01/12/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
29/11/16	0.00									
29/11/16	16.50	15.50	0.90	... see Remark 4						
30/11/16	16.50	15.50	1.60							
30/11/16	17.80	15.50	1.40							
01/12/16	17.80	15.50	2.10							
01/12/16	21.90	17.00	GL							
01/12/16	32.80	17.00	1.20							
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Dynamic sampling techniques used from 12.00m to 16.00m. Rotary boring carried out thereafter. 4. Water present in the borehole from casing installation through the dock. 5. Pressuremeter tests carried out at 19.00m and 25.10m depth.										
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPG/GW - Gas / Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key										
HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary DC -Diamond Coring, CPR-Cable Percussion Rotary follow on										

Sheet 1 of 4

AGS ASSOCIATION OF GASTROENTEROLOGICAL & GASTROENTEROLOGY SOCIETIES

Sheet 2 of 4

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill				
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result						
01/12/16	17.00	GL	100						20.00 ... becoming clayey	20.50	B10							
									20.50 ... becoming slightly clayey									
									21.00 ... becoming locally clayey									
			100						(11.60)	21.50	B11							
									21.90 ... becoming clayey	22.50	B12							
			100											23.50	B13			
										25.10								
			0															
			90															
					-22.84		27.30					... Pressuremeter test at 25.10m depth						
					-23.04		27.50	Black angular to subangular medium to coarse rinded flint GRAVEL with rare flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)										
								Strong, medium density white CHALK with rare coarse flint cobbles. (SEAFORD CHALK FORMATION)	28.10-28.30	C15								
			100	80	73			27.75 ... with 1No horizontal fracture 27.90 ... with 1No wide open horizontal fracture 28.10 ... with 1No wide open horizontal fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments and at 28.25m										
								28.40 ... with 1No horizontal fracture and at 28.50m	29.20-29.50	C16								
			100	84	81			28.50 - 28.90 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density off-white chalk fragments and black rinded flint										
								28.90 - 29.00 ... with a vertical fracture 29.10 ... with rinded flint gravel 29.30 ... with 1No horizontal fracture	29.70-29.95	C17								
			100	73	53													

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.46	Co-Ordinates E 542651.7 N 180376.7	Final Depth 32.80m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 4 of 4

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	
01/12/16	17.00	1.20	100	73	53	-28.34		(5.30)	29.50 ... with rinded flint gravel 29.55 - 29.70 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL with rare weak, medium density white chalk cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint 29.85 ... with 1No horizontal fracture and at 29.90m 30.10 ... with 1No wide open fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments 30.40 - 30.70 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL with occasional weak, medium density white chalk cobbles and rare black rinded flint cobbles. Gravel comprises weak, medium density white chalk fragments and medium to coarse black rinded flint 31.30 - 31.40 ... with 1No vertical fracture 31.40 - 31.50 ... with 1No wide open horizontal fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments 31.60 ... with 1No horizontal fracture and at 31.65m 31.70 ... with 1No wide open horizontal fracture infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint with 1No black rinded flint cobble 32.00 ... with 1No horizontal fracture and at 32.30m and 32.35m 32.60 ... with 1No wide open fracture 32.75 ... with 1No wide open fracture infilled with angular to subangular medium to coarse black rinded flint gravel 32.80 ... with occasional angular to subangular medium to coarse black rinded flint gravel End of Borehole	32.00-32.20	C18		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16 Date Completed 19/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	31.50	CP	15/12/2016	19/12/2016	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							21.00	24.00	2:00	

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	17.40	200				
31.50	150	25.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
13.50	31.50	Cement / Bentonite Grout	19/12/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16 Date Completed 19/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
15/12/16	0.00					14.00	N50/0.08	25 / 42, 8	13.90	3.00
15/12/16	14.00	13.90	3.00	... see Remark 3		15.00	N50/0.075	10, 15 / 50	14.80	0.80
15/12/16	15.00	14.80	0.80			16.00	N50/0.115	14, 11 / 30, 20	15.70	2.00
15/12/16	16.00	15.70	2.00			17.00	N50/0.18	8, 8 / 18, 26, 6	16.90	1.30
15/12/16	17.00	16.90	1.30			18.00	N50/0.155	6, 10 / 15, 23, 12	17.10	2.00
15/12/16	18.00	17.10	2.00			19.50	N50/0.155	8, 16 / 20, 24, 6	17.40	1.60
16/12/16	18.00	17.10	1.50			21.00	N50/0.17	10, 14 / 18, 22, 10	17.40	1.20
16/12/16	19.50	17.40	1.60			22.50	N50/0.275	10, 10 / 12, 14, 8, 16	17.40	2.00
16/12/16	21.00	17.40	1.20			24.00	N50/0.225	4, 8 / 14, 15, 21	17.40	1.50
16/12/16	22.50	17.40	2.00			25.50	N50/0.225	6, 9 / 12, 18, 20	25.00	1.70
16/12/16	24.00	17.40	1.50			27.00	N26	4, 5 / 5, 7, 7, 7	25.00	2.30
16/12/16	25.50	25.00	1.70			28.50	N50/0.23	12, 12 / 12, 14, 20, 4	25.00	3.10
16/12/16	27.00	25.00	2.30			30.00	N41	6, 7 / 8, 7, 9, 17	25.00	4.00
16/12/16	28.50	25.00	3.10			31.50	N33	5, 7 / 6, 8, 8, 11	25.00	5.00
19/12/16	28.50	25.00								
19/12/16	30.00	25.00	4.00							
19/12/16	31.50	25.00	5.00							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 17.40m depth. Bentonite seal inserted between 22.00m and 24.00m and borehole re-drilled with Ø150mm casing to 25.00m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- HOLE TYPES
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

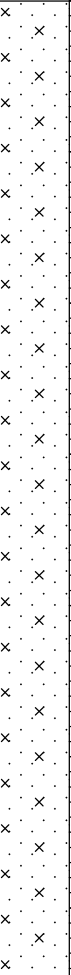
Job No 16/2900	Date Started 15/12/16 Date Completed 19/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
15/12/16	13.90	3.00								25 / 42, 8	
			-8.58		13.50	13.50-13.80	B01				
			-8.88		13.80	13.80-14.00	B02	N50/ 80 mm			
			-9.08		14.00	14.00					
15/12/16	14.80	0.80				Soft, dark grey very gravelly silty CLAY with strong hydrocarbon odour. Gravel is angular to rounded fine to coarse flint. (DOCK SEDIMENT)	14.00-14.50	B03		10, 15 / 50	
						Dark grey very clayey silty sandy angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	15.00		N50/ 75 mm		
						Light grey silty fine SAND. Sand is fine to coarse. (THANET SAND FORMATION: THANET SAND)	15.00 15.50-16.00	D04 B05			
15/12/16	15.70	2.00				16.00 ... becoming clayey	16.00		N50/ 115 mm	14, 11 / 30, 20	
							16.00 16.50-17.00	D06 B07			
15/12/16	16.90	1.30					17.00		N50/ 180 mm	8, 8 / 18, 26, 6	
						17.00 17.50-18.00	D08 B09				
15/12/16 16/12/16	17.10 17.10	2.00 1.50					18.00		N50/ 155 mm	6, 10 / 15, 23, 12	
						18.00 18.50-19.00	D10 B11				
16/12/16	17.40	1.60					19.50		N50/ 155 mm	8, 16 / 20, 24, 6	
						19.50	D12				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16	Ground Level (mOD) 4.92	Co-Ordinates	Final Depth 31.50m
	Date Completed 19/12/16		E 542650.5 N 180345.6	
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS				Field Records	Instrument/ Backfill		
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result					
16/12/16	17.40	1.20			(12.50)	23.00 ... becoming very clayey	20.50-21.00	B13	N50/ 170 mm	10, 14 / 18, 22, 10				
							21.00	D14 B15						
							21.00 21.50-22.00							
16/12/16	17.40	2.00									22.50	D16 B17	N50/ 275 mm	10, 10 / 12, 14, 8, 16
										22.50 23.00-23.50				
16/12/16	17.40	1.50									24.00	D18 B19	N50/ 225 mm	4, 8 / 14, 15, 21
										24.00 24.50-25.00				
16/12/16	25.00	1.70									25.50	D20	N50/ 225 mm	6, 9 / 12, 18, 20
										25.50				
							-21.58		26.50		26.50-27.00	B21		
16/12/16	25.00	2.30					-22.08		(0.50) 27.00	Black angular to subangular fine to coarse rinded flint GRAVEL with rare flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	27.00 27.00	D22	N26	4, 5 / 5, 7, 7, 7
										White CHALK recovered as: firm, white SILT. (SEAFORD CHALK FORMATION) 27.50 ... becoming very gravelly. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	27.50-28.00	B23		
16/12/16 19/12/16	25.00 25.00	3.10					28.50	D24 B25	N50/ 230 mm	12, 12 / 12, 14, 20, 4				
						29.00 - 29.50 ... with rare angular to subangular black rinded flint cobbles	28.50 29.00-29.50							
19/12/16	25.00	4.00			(4.50)		30.00		N41	6, 7 / 8, 7, 9, 17				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 15/12/16 Date Completed 19/12/16	Ground Level (mOD) 4.92	Co-Ordinates E 542650.5 N 180345.6	Final Depth 31.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
19/12/16	25.00	5.00	-26.58		31.50	End of Borehole	30.00 30.50-31.00 31.50 31.50	D26 B27 D28	N33	5, 7 / 6, 8, 8, 11	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17 Date Completed 09/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	RC	06/01/2017	09/01/2017	TC	CB	112	PDC	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	14.00	15.50		73
14.00	150	14.00	150	15.50	17.00		100
32.00	146			17.00	18.50		93
				18.50	20.00		93
				20.00	21.50		93
				21.50	23.00		100
				23.00	24.50		93
				24.50	26.00		87
				26.00	27.50		73
				27.50	29.00		93
				29.00	30.50		100
				30.50	32.00		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
14.00	32.50	Water	100	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
14.00	32.00	Cement / Bentonite Grout	09/01/2017

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17 Date Completed 09/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
06/01/17	0.00				S	17.00	N50/0.225	4, 8 / 10, 17, 23	14.00	
06/01/17	14.00	14.00		... Rotary flush	S	18.50	N50/0.25	6, 9 / 12, 13, 18, 7	14.00	
06/01/17	23.00	14.00	2.10		S	20.00	N50/0.17	7, 10 / 15, 20, 15	14.00	
09/01/17	23.00	14.00			S	21.50	N50/0.21	8, 8 / 15, 18, 17	14.00	
09/01/17	32.00	14.00			S	23.00	N50/0.225	8, 10 / 13, 17, 20	14.00	
					S	24.50	N50/0.225	7, 11 / 14, 16, 19, 1	14.00	
					S	26.00	N34	5, 4 / 6, 8, 9, 11	14.00	
					S	27.50	N50/0.26	5, 7 / 9, 13, 16, 12	14.00	
					S	29.00	N48	4, 7 / 8, 10, 11, 19	14.00	
					S	30.50	N37	3, 6 / 8, 8, 9, 12	14.00	
					S	32.00	N41	4, 7 / 9, 9, 10, 13	14.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Sheet 1 of 4

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Sheet

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:48	 AGS
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17 Date Completed 09/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 3 of 4

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 06/01/17	Ground Level (mOD) 5.29	Co-Ordinates E 542653.4 N 180305.6	Final Depth 32.00m
Date Completed 09/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary			Sheet 4 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/01/17	14.00		100	47	40			32.00	black rinded flint	30.50	D20	N37	3, 6 / 8, 8, 9, 12	
			29.60 ... with 1No horizontal fracture											
			29.80 ... with 1No wide open horizontal fracture											
			infilled with weak, medium density chalk fragments											
09/01/17	14.00		100	67	57	-26.71		29.90 ... with subhorizontal and subvertical fractures	31.20-31.45	C21				
								30.00 - 30.10 ... with occasional subhorizontal and subvertical fractures						
								30.20 ... with 1No subhorizontal fracture						
								30.35 - 30.45 ... with angular to subangular fine to coarse gravel size and cobble size black rinded flint						
								30.50 - 30.80 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel is weak, medium density chalk fragments						
								30.90 ... with 1No subvertical fracture and at 31.10m and 31.40m						
								31.60 ... with 1No horizontal fracture						
								End of Borehole						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	34.50	CP	05/01/2017	10/01/2017	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
19.50	18.53	20	17.50		16.00	23.50	29.50	34.50	4:00	Flinty chalk

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	17.50	200				
34.50	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	34.50	Cement / Bentonite Grout	10/01/2017

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
05/01/17	0.00				C	13.00	N34	5, 6 / 8, 8, 10, 8	12.90	1.80
05/01/17	13.00	12.90	1.80	... see Remark 3	C	14.00	N50/0.115	1, 8 / 25, 25	13.50	1.30
05/01/17	14.00	13.50	1.30		S	15.00	N50/0.04	10, 15 / 50	14.40	1.50
05/01/17	15.00	14.40	1.50		S	16.00	N50/0.06	25 / 50	15.50	1.00
09/01/17	15.00	14.40	1.00		S	17.00	N50/0.07	11, 14 / 50	16.50	1.30
09/01/17	16.00	15.50	1.00		S	18.00	N50/0.07	15, 10 / 50	17.50	2.00
09/01/17	17.00	16.50	1.30		S	19.50	N40/0.2	11, 10 / 7, 23, 10	17.50	1.10
09/01/17	18.00	17.50	2.00		S	21.00	N63	14, 7 / 13, 14, 22, 14	17.50	0.90
09/01/17	19.50	17.50	1.10	... Water Strike	S	22.50	N50/0.18	8, 12 / 16, 22, 12	17.50	1.00
09/01/17	21.00	17.50	0.90		S	24.00	N50/0.22	7, 11 / 13, 20, 17	17.50	1.20
09/01/17	22.50	17.50	1.00		S	25.50	N50/0.155	10, 15 / 20, 27, 3	25.00	1.20
09/01/17	24.00	17.50	1.20		S	27.00	N50/0.2	6, 10 / 17, 20, 13	25.50	1.10
09/01/17	24.00	24.00	1.20		S	28.50	N39	5, 5 / 8, 8, 10, 13	25.50	1.50
10/01/17	24.00	24.00	1.20		S	30.00	N27	5, 5 / 3, 6, 10, 8	25.50	1.60
10/01/17	25.50	25.00	1.20		S	31.50	N38	4, 4 / 6, 7, 10, 15	25.50	2.00
10/01/17	27.00	25.50	1.10		S	33.00	N50	7, 8 / 8, 12, 15, 15	25.50	1.60
10/01/17	28.50	25.50	1.50		S	34.50	N50/0.07	6, 19 / 50	25.50	1.15
10/01/17	30.00	25.50	1.60							
10/01/17	31.50	25.50	2.00							
10/01/17	33.00	25.50	1.60							
10/01/17	34.50	25.50	1.15							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Water seepage encountered at 19.50m depth, rising to 18.40m (5 mins), 18.45m (10 mins), 18.60m (15 mins) and 18.53m (20 mins).
- Ø200mm casing used from pontoon level to 17.50m depth. Bentonite seal inserted between 24.00m and 26.00m and borehole re-drilled with Ø150mm casing to 25.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth <i>(Thickness)</i>	Strata Description	Depth (m)	Type No	Test Result		
05/01/17						Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/01/17	12.90	1.80	-7.62		12.50		12.50			... VOC 0.2ppm	
			-8.12		(0.50) 13.00	Dark grey clayey silty angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (DOCK SEDIMENT / RIVER TERRACE DEPOSITS)	12.50-13.00	ES01 B02			
						Light brown sandy angular to well rounded fine to coarse flint GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to well rounded flint. (RIVER TERRACE DEPOSITS)	13.00		N34	5, 6 / 8, 8, 10, 8	
05/01/17	13.50	1.30			(2.00)		13.00-13.50	ES03 B04		... VOC 0.1ppm	
						14.00 ... with angular to subangular flint gravel	14.00		N50/ 115 mm	1, 8 / 25, 25	
05/01/17	14.40	1.50	-10.12		15.00		14.00-14.50	B05			
09/01/17	14.40	1.00				Light grey fine SAND. (THANET SAND FORMATION: THANET SAND)	15.00		N50/ 40 mm	10, 15 / 50	
							15.50-16.00	D06 B07			
09/01/17	15.50	1.00					16.00		N50/ 60 mm	25 / 50	
							16.00	D08 B09			
09/01/17	16.50	1.30					16.50-17.00				
							17.00		N50/ 70 mm	11, 14 / 50	
09/01/17	17.50	2.00				18.00 ... becoming slightly clayey	17.00	D10 B11			
							17.50-18.00				
							18.00		N50/ 70 mm	15, 10 / 50	
							18.00	D12			
							19.00-19.50	B13			
09/01/17	17.50	1.10				19.50 ... becoming clayey	19.50		N40/ 200 mm	11, 10 / 7, 23, 10	
							19.50	D14			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/01/17	17.50	0.90					20.50-21.00	B15			
							21.00		N63	14, 7 / 13, 14, 22, 14	
							21.00	D16			
							21.50-22.00	B17			
09/01/17	17.50	1.00			(14.50)		22.50		N50/ 180 mm	8, 12 / 16, 22, 12	
							22.50	D18			
09/01/17	17.50	1.20					23.50-24.00	B19			
10/01/17	24.00	1.20				24.00 ... becoming very clayey	24.00		N50/ 220 mm	7, 11 / 13, 20, 17	
							24.00				
							24.50-25.00	D20 B21			
10/01/17	25.00	1.20					25.50		N50/ 155 mm	10, 15 / 20, 27, 3	
							25.50				
							26.00-26.50	D22 B23			
10/01/17	25.50	1.10					27.00		N50/ 200 mm	6, 10 / 17, 20, 13	
							27.00				
							27.50-28.00	D24 B25			
10/01/17	25.50	1.50					28.50		N39	5, 5 / 8, 8, 10, 13	
							28.50				
							28.50-29.00	D26 B27			
							29.50-30.00	B28			
10/01/17	25.50	1.60	-24.62		29.50	Black angular to subangular fine to coarse rinded flint GRAVEL with rare flint cobbles and occasionally weak, medium density chalk	30.00		N27	5, 5 / 3, 6, 10, 8	
			-25.12		(0.50) 30.00						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/01/17 Date Completed 10/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542716.5 N 180368.2	Final Depth 34.50m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 4 of 4		

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
10/01/17	25.50	2.00				fragments. (THANET SAND FORMATION: BULLHEAD BED) White CHALK recovered as: soft to firm, silty gravelly SILT. Gravel comprises weak medium density, angular to subangular fine to coarse chalk fragments. (SEAFORD CHALK FORMATION) 31.00 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint 31.50 ... [NI] recovered as: soft to firm, white gravelly SILT. Gravel comprises weak, medium density angular to subangular fine to coarse chalk fragments	30.00 31.00-31.50 31.50 31.50 32.50-33.00	D29 B30 D31 B32	N38	4, 4 / 6, 7, 10, 15	
10/01/17	25.50	1.60			(4.50)	32.50 ... becoming very gravelly. Gravel comprises weak, medium density angular to subangular fine to coarse chalk fragments and black rinded flint 33.00 ... becoming slightly gravelly. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	33.00 33.00 34.00	D33 D34	N50	7, 8 / 8, 12, 15, 15	
10/01/17	25.50	1.15	-29.62		34.50	34.49 ... becoming gravelly. Gravel comprises angular to subangular fine to coarse black rinded flint and rare weak, medium density angular to subangular fine to coarse chalk fragments End of Borehole	34.50 34.50	D35	N50/ 70 mm	6, 19 / 50	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16 Date Completed 15/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	31.50	CP	13/12/2016	15/12/2016	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					19.00	23.50	26.50	28.00	1:00	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	16.80	200				
31.50	150	26.40	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	31.50	Cement / Bentonite Grout	15/12/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Date Completed 15/12/16				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
13/12/16	0.00			... see Remark 3	C	13.50	N9	2, 2 / 3, 3, 2, 1	13.45	3.50
13/12/16	13.50	13.45	3.50		C	14.50	N50/0.295	3, 3 / 7, 7, 13, 23	14.30	2.00
13/12/16	14.50	14.30	2.00		S	15.50	N50/0.17	2, 8 / 15, 20, 15	15.40	1.50
13/12/16	15.50	15.40	1.50		S	16.50	N50/0.22	3, 5 / 11, 20, 19	15.90	4.00
13/12/16	16.50	15.90	4.00		S	17.50	N50/0.21	4, 7 / 15, 20, 15	15.90	3.10
13/12/16	17.50	15.90	3.10		S	19.00	N50/0.225	5, 8 / 11, 17, 22	15.90	5.00
13/12/16	19.00	15.90	5.00		S	20.50	N50/0.285	3, 7 / 16, 12, 13, 9	15.90	
13/12/16	23.50	15.90	1.50		S	22.00	N50/0.19	6, 5 / 16, 22, 12	15.90	
14/12/16	23.50	15.90	2.00		S	23.50	N50/0.195	7, 11 / 17, 12, 21	15.90	1.50
14/12/16	25.00	24.90	1.00		S	25.00	N30	4, 7 / 7, 8, 6, 9	24.90	1.00
14/12/16	26.50	26.40	2.00		S	26.50	N43	5, 6 / 9, 9, 10, 15	26.40	2.00
14/12/16	28.00	26.40	1.90		S	28.00	N45	4, 7 / 10, 11, 7, 17	26.40	1.90
14/12/16	29.50	26.40	1.30		S	29.50	N29	5, 5 / 7, 6, 6, 10	26.40	1.30
15/12/16	29.50	26.40	3.50		S	31.00	N50	5, 5 / 13, 10, 14, 13	26.40	5.00
15/12/16	31.00	26.40	5.00							
15/12/16	31.50	26.40	5.00							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 16.80m depth. Bentonite seal inserted between 22.00m and 24.00m and borehole re-drilled with Ø150mm casing to 26.40m depth.
- Borehole blowing in the gravels between 19.00m and 23.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- HOLE TYPES
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:44

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16 Date Completed 15/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
13/12/16					(12.50)	Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started	13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
	Date Completed	15/12/16			
Client London City Airport Limited				Method/ Plant Used	Cable Percussion
				Sheet	2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
			-7.83		12.50		12.50-13.00	B01			
13/12/16	13.45	3.50	-8.83		(1.00) 13.50	Dark grey silty very clayey angular to well rounded fine to coarse flint GRAVEL with rare angular to subrounded flint cobbles and strong hydrocarbon odour. (DOCK SEDIMENT / RIVER TERRACE DEPOSITS)	13.50 13.50-14.00	B02	N9	2, 2 / 3, 3, 2, 1	
13/12/16	14.30	2.00			(2.00) 14.50	Yellowish brown very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	14.50 14.50-15.00	B03	N50/ 295 mm	3, 3 / 7, 7, 13, 23	
13/12/16	15.40	1.50	-10.83		15.50	Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	15.50 15.50-16.00	D04 B05	N50/ 170 mm	2, 8 / 15, 20, 15	
13/12/16	15.90	4.00			16.00 ... becoming slightly clayey		16.00-16.50 16.50	D06 B07	N50/ 220 mm	3, 5 / 11, 20, 19	
13/12/16	15.90	3.10					16.50 17.00-17.50	D08 B09	N50/ 210 mm	4, 7 / 15, 20, 15	
13/12/16	15.90	5.00					17.50 18.00-18.50	D10 B11	N50/ 225 mm	5, 8 / 11, 17, 22	
					19.50 ... becoming clayey		19.00 19.00-20.00				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Date Completed 15/12/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
13/12/16	15.90	1.50					20.50		N50/ 285 mm	3, 7 / 16, 12, 13, 9	
14/12/16	15.90	2.00			(11.00)	21.00 ... becoming very clayey	20.50 21.00-21.50	D12 B13			
							22.00		N50/ 190 mm	6, 5 / 16, 22, 12	
							22.00	D14			
							23.00-23.50	B15			
							23.50		N50/ 195 mm	7, 11 / 17, 12, 21	
							23.50 24.00-24.50	D16 B17			
14/12/16	24.90	1.00					25.00 25.00	D18	N30	4, 7 / 7, 8, 6, 9	
							25.50-26.00	B19			
14/12/16	26.40	2.00	-21.83		26.50	White CHALK recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint. (SEAFORD CHALK FORMATION) 27.00 - 27.50 ... with angular to subangular fine to coarse black rinded flint with occasional flint cobbles	26.50 26.50	D20	N43	5, 6 / 9, 9, 10, 15	
							27.00-27.50	B21			
14/12/16	26.40	1.90				28.00 ... becoming soft	28.00 28.00	D22	N45	4, 7 / 10, 11, 7, 17	
							28.50-29.00	B23			
					(5.00)	28.50 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint					
14/12/16	26.40	1.30				29.50 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse	29.50 29.50	D24	N29	5, 5 / 7, 6, 6, 10	
15/12/16	26.40	3.50					30.00-30.50	B25			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 13/12/16 Date Completed 15/12/16	Ground Level (mOD) 4.67	Co-Ordinates E 542716.9 N 180326.6	Final Depth 31.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
15/12/16	26.40	5.00				chalk fragments	31.00 31.00	D26	N50	5, 5 / 13, 10, 14, 13	
15/12/16	26.40	5.00	-26.83		31.50	31.00 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	30.45	CP	08/12/2016	12/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							24.60 26.50	25.00 28.50	1:00 2:00	Gravel Gravel

HOLE

CASING

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)
0.00	200	0.00	200
23.50	200	15.10	200
30.45	150	23.80	150

ROTARY RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
10.60	30.45	Cement / Bentonite Grout	12/12/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
08/12/16	0.00			... see Remark 3	S	12.00	N18	0, 0 / 2, 4, 6, 6	12.00	1.30
08/12/16	11.00	11.00	1.10		C	13.00	N50/0.182	4, 7 / 10, 19, 21	13.00	1.10
08/12/16	12.00	12.00	1.30		S	14.00	N50/0.065	13, 12 / 50	14.00	1.30
08/12/16	13.00	13.00	1.10		S	15.00	N50/0.135	10, 15 / 20, 30	15.00	1.00
08/12/16	14.00	14.00	1.30		S	16.50	N50/0.15	7, 13 / 20, 30	15.00	1.30
08/12/16	14.50	14.50	1.35		S	18.00	N50/0.21	9, 11 / 12, 19, 19	15.00	0.50
09/12/16	14.50	14.50	1.10		S	19.50	N50/0.22	10, 13 / 15, 17, 18	15.00	0.40
09/12/16	15.00	15.10	1.00		S	21.00	N50/0.19	10, 15 / 17, 20, 13	15.00	0.90
09/12/16	16.50	15.10	1.30		S	22.50	N50/0.225	5, 10 / 15, 16, 19	15.00	0.50
09/12/16	18.00	15.10	0.50		S	24.00	N43	4, 6 / 7, 9, 15, 12	23.80	1.00
09/12/16	19.50	15.10	0.40		S	25.50	N25	4, 7 / 7, 6, 5, 7	23.80	1.40
09/12/16	21.00	15.10	0.90		S	27.00	N50/0.22	15, 10 / 16, 16, 18	23.80	1.25
09/12/16	22.50	15.10	0.50		S	28.50	N41	5, 4 / 7, 7, 8, 19	23.80	1.40
09/12/16	24.00	23.80	1.00		S	30.00	N50	9, 13 / 9, 13, 18, 10	23.80	1.35
09/12/16	25.50	23.80	1.40							
09/12/16	26.50	23.80	1.85							
12/12/16	26.50	23.80	1.25							
12/12/16	28.50	23.80	1.40							
12/12/16	30.00	23.80	1.35							
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 15.10m depth. Bentonite seal inserted between 21.50m and 23.50m and borehole re-drilled with Ø150mm casing to 23.80m depth.										
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPG/GW - Gas / Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds										
HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling / Rotary DC - Diamond Coring, CPR-Cable Percussion Rotary follow on										
Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key										

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
08/12/16					(10.60)	Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
08/12/16	11.00	1.10	-6.50		10.60		10.60-11.00	B01		0, 0 / 2, 4, 6, 6		
				(1.60)	Very soft, dark grey clayey slightly gravelly SILT with strong hydrocarbon odour. Gravel is angular to subangular fine to coarse flint. (DOCK SEDIMENT)	11.00-11.45	UT02					
					11.50 ... becoming firm with occasional fine red brick gravel	11.50	D03					
08/12/16	12.00	1.30	-8.10		12.20	12.00 ... with no gravel	12.00-12.20 12.20-12.50	B04 B05	N18			
				(0.55) (1.25)	Dark grey sandy angular to subangular fine to coarse flint GRAVEL with strong hydrocarbon odour and rare pieces of metal pipe. Sand is fine to coarse. (DOCK SEDIMENT / RIVER TERRACE DEPOSIT)	12.75	D06					
08/12/16	13.00	1.10			-8.65		12.75	13.00	N50/ 182 mm		4, 7 / 10, 19, 21	
				(1.25)	Yellowish brown to dark grey very gravelly fine to coarse SAND with strong hydrocarbon odour. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	13.00-13.20 13.20-13.50	B07 B08					
08/12/16	14.00	1.30			-9.90		14.00	14.00	N50/ 65 mm		13, 12 / 50	
					Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	14.00-15.00	D09 B10					
08/12/16 09/12/16	14.50 14.50	1.35 1.10					14.50 - 15.00 ... becoming dark grey with strong hydrocarbon odour (possibly from above)	15.00	N50/ 135 mm	10, 15 / 20, 30		
							15.50 ... becoming clayey	15.00 15.50-16.00	D11 B12			
09/12/16	15.10	1.30					16.50	N50/ 150 mm	7, 13 / 20, 30			
							16.50 17.00-17.50	D13 B14				
09/12/16	15.10	0.50					18.00	N50/ 210 mm	9, 11 / 12, 19, 19			
							18.00 ... becoming very clayey	18.00 18.50-19.00	D15 B16			
09/12/16	15.10	0.40					19.50	N50/ 220 mm	10, 13 / 15, 17, 18			
							19.50 20.00-20.50	D17 B18				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
09/12/16	15.10	0.90		x			21.00		N50/ 190 mm	10, 15 / 17, 20, 13	
				x			21.00	D19			
				x			21.50-22.00	B20			
09/12/16	15.10	0.50		x			22.50		N50/ 225 mm	5, 10 / 15, 16, 19	
				x			22.50	D21			
				x			23.00-23.50	B22			
09/12/16	23.80	1.00		x			24.00		N43	4, 6 / 7, 9, 15, 12	
				x			24.00	D23			
			-20.40	x	24.50		24.50-25.00	B24			
09/12/16	23.80	1.40		o	(1.00)	Black angular to subangular fine to coarse rinded flint and weak, medium density white chalk GRAVEL with occasional flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	25.50		N25	4, 7 / 7, 6, 5, 7	
			-21.40	o	25.50		25.50	D25			
09/12/16	23.80	1.85				White CHALK recovered as: firm, white SILT. (SEAFORD CHALK FORMATION)	26.00-26.50	B26			
12/12/16	23.80	1.25				26.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint	27.00		N50/ 220 mm	15, 10 / 16, 16, 18	
						27.00 ... with a band of fine to coarse rinded flint gravel and flint cobbles	27.00	D27			
							28.00	B28			
12/12/16	23.80	1.40			(4.95)	28.50 ... [NI] recovered as: firm, slightly gravelly SILT. Gravel is fine to coarse weak, medium density chalk fragments	28.50	D29	N41	5, 4 / 7, 7, 8, 19	
						29.00 ... with rare weak, medium density white chalk cobbles	29.00-29.50	D30			
12/12/16	23.80	1.35					30.00		N50	9, 13 / 9, 13, 18, 10	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 08/12/16 Date Completed 12/12/16	Ground Level (mOD) 4.10	Co-Ordinates E 542718.8 N 180279.0	Final Depth 30.45m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
			-26.35		30.45	30.00 ... [NI] recovered as: firm white SILT	30.00	D31			
						End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	39.00	RC	17/01/2017	24/01/2017	FD	CB	112	PDC	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	13.00	16.50		0
16.00	150	16.00	150	16.50	18.00		0
39.00	146			18.00	19.50		0
				19.50	21.00		0
				21.00	22.50		0
				22.50	24.00		100
				24.00	25.50		100
				25.50	27.00		100
				27.00	28.50		67
				28.50	30.00		40
				30.00	31.50		93
				31.50	33.00		100
				33.00	34.50		33
				34.50	36.00		67
				36.00	37.50		67
				37.50	39.00		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
13.00	36.00	Water	100	
36.00	39.00	Water	0	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
13.00	39.00	Cement / Bentonite Grout	24/01/2017

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
17/01/17	0.00				S	18.00	N50/0.04	25 / 50	16.00	
17/01/17	19.50	16.00	13.00	... Rotary flush	S	19.50	N50/0.11	3, 9 / 30, 20	16.00	
17/01/17	22.50	16.00	13.00		S	21.00	N50/0.075	9, 16 / 50	16.00	
18/01/17	22.50	16.00	13.00		S	22.50	N50/0.125	13, 12 / 30, 20	16.00	
18/01/17	31.50	16.00	13.00		S	24.00	N50/0.125	8, 14 / 20, 30	16.00	
19/01/17	31.50	16.00	13.00		S	25.50	N50/0.09	7, 18 / 26, 24	16.00	
19/01/17	36.00	16.00	13.00		S	27.00	N50/0.17	8, 13 / 18, 25, 7	16.00	
24/01/17	36.00	16.00	13.00		S	28.50	N50/0.195	5, 9 / 16, 19, 15	16.00	
24/01/17	39.00	16.00	13.00		S	30.00	N50/0.175	7, 16 / 21, 22, 7	16.00	
					S	31.50	N50/0.175	6, 12 / 20, 23, 7	16.00	
					S	33.00	N50/0.21	5, 7 / 11, 18, 21	16.00	
					S	34.50	N36	5, 4 / 6, 7, 9, 14	16.00	
					S	36.00	N49	15, 10 / 12, 12, 12, 13	16.00	
					S	37.50	N36	5, 6 / 8, 9, 9, 10	16.00	
					S	39.00	N50/0.01	11, 14 / 50	16.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Borehole carried out open hole between 13.00m and 16.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key



Borehole No

BH16

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth <i>(Thickness)</i>	Strata Description	Depth (m)	Type No	Test Result		
17/01/17														

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 2 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
17/01/17	16.00	13.00	0			-7.99		13.00	Open Hole.	18.00		N50/ 40 mm	25 / 50		
								(3.50)							
						-11.49		16.50							
						0			(3.00)						No recovery (loose SAND).
0				Light grey, slightly clayey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	19.50	D01	N50/ 110 mm	3, 9 / 30, 20							

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 3 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
17/01/17 18/01/17	16.00 16.00	13.00 13.00	0				x .							

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 17/01/17 Date Completed 24/01/17	Ground Level (mOD) 5.01	Co-Ordinates E 542785.3 N 180379.7	Final Depth 39.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 4 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill		
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result				
18/01/17 19/01/17	16.00 16.00	13.00 13.00	93							30.00	D12	N50/ 175 mm	6, 12 / 20, 23, 7			
										31.00	B13					
										31.50						
										31.50	D14					
										32.50	B15					
			33.00		N50/ 210 mm	5, 7 / 11, 18, 21										
			33.00	D16												
			34.00	B17												
			34.50 34.50													
			34.50	D18												
19/01/17 24/01/17	16.00 16.00	13.00 13.00	67	13	7			Black, angular to subangular fine to coarse rinded flint GRAVEL with occasional black angular to subangular rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED) [NI] White CHALK recovered as: soft, white slightly gravelly SILT. Gravel comprises angular to subangular fine to medium black rinded flint and rare weak, medium density chalk fragments. (SEAFORD CHALK FORMATION) 35.60 - 35.80 ... becoming strong, medium density chalk 35.80 ... [NI] recovered as: very silty angular to subangular fine to coarse GRAVEL. Gravel comprises black rinded flint and weak, medium density white chalk fragments with rare black rinded flint cobbles 36.00 ... [NI] recovered as: white, weak to moderately weak medium density chalk COBBLES 36.50 ... with rare coarse gravel size and cobble size angular to subangular black rinded flint 37.50 - 38.00 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint Strong, medium density white CHALK. (SEAFORD CHALK FORMATION) 38.00 ... becoming strong, medium density CHALK 38.20 ... with 1No subhorizontal fracture 38.50 ... with 1No subhorizontal fracture and at 38.60m 38.65 ... with rare black rinded flint cobbles 38.70 ... with 1No subhorizontal fracture and at 38.80m 38.90 ... with 1No angular to subangular black rinded flint cobble End of Borehole	35.00 35.10							
									36.00 36.00							
									36.50	B20						
									37.50 37.50							
									37.50	D21	N36	5, 6 / 8, 9, 9, 10				
			38.00-38.30	C22												
			24/01/17	16.00	13.00	100	67		60			39.00			N50/ 10 mm	11, 14 / 50
												39.00	D23			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 22/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 15.90	15.90 35.90	DS RC	18/11/2016 21/11/2016	21/11/2016 22/11/2016	TC TC	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	11.70	12.70		100
12.50	150	12.50	150	12.70	13.60		100
35.90	146			13.60	14.00		100
				14.00	14.20		100
				14.20	15.70		0
				15.70	15.90		100
				15.90	17.00		100
				17.00	18.50		0
				18.50	20.00		13
				20.00	21.30		100
				21.30	23.00		0
				23.00	24.50		80
				24.50	26.00		100
				26.00	27.50		0
				27.50	29.00		93
				29.00	30.40		86
				30.40	31.40		100
				31.40	32.90		100
				32.90	34.40		100
				34.40	35.90		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
15.90	17.00	Water	30	
18.50	21.30	Water	30	
23.00	24.50	Water	20	
26.00	27.50	Water	90	
27.50	29.00	Water	10	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.70	35.90	Cement / Bentonite Grout	22/11/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:42

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 22/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
18/11/16	0.00			... see Remark 3 & 4	C	12.70	N50/0.115	2, 14 / 21, 29	12.50	
18/11/16	14.00	12.50	3.80		C	13.60	N50/0.17	6, 5 / 18, 24, 8	12.50	
21/11/16	14.00	12.50	6.10		S	15.70	N50/0.155	2, 14 / 22, 26, 2	12.50	
21/11/16	21.30	12.50	3.10		S	18.50	N50/0.15	3, 14 / 21, 29	12.50	
22/11/16	21.30	12.50	2.10		S	20.00	N50/0.135	8, 17 / 26, 24	12.50	
22/11/16	35.90	12.50	3.80		S	23.00	N50/0.155	3, 14 / 18, 24, 8	12.50	
					S	24.50	N50/0.155	6, 15 / 22, 26, 2	12.50	
					S	27.50	N50/0.17	3, 11 / 18, 21, 11	12.50	
					S	29.00	N50/0.125	11, 14 / 24, 26	12.50	
					S	30.40	N50/0.04	25 / 50	12.50	
					S	31.40	N48	10, 9 / 7, 11, 11, 19	12.50	
					S	32.90	N50/0.06	25 / 50	12.50	
					S	34.40	N50/0.18	6, 6 / 10, 26, 14	12.50	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 11.70m to 15.90m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.
- Pressuremeter tests carried out at 14.80m, 17.60m, 21.90m and 26.60m.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Issue No: 01

Checked By: AN

Approved By: OS

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Sheet 1 of 4

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:48	
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Sheet 2 of 4

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 22/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
21/11/16 22/11/16	12.50 12.50	3.10 2.10	100				x . x							

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16	Ground Level (mOD) 5.24	Co-Ordinates E 542780.8 N 180342.4	Final Depth 35.90m
Date Completed 22/11/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary		Sheet 4 of 4	

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No		
22/11/16	12.50	3.80	86			-25.16		30.40	Black angular to subangular fine to coarse rindled flint GRAVEL with rare flint cobbles. (THANET SAND FORMATION: BULLHEAD BED) White CHALK recovered as: weak, medium density silty chalk cobbles. (SEAFORD CHALK FORMATION) 30.80 ... [NI] recovered as: angular to subangular medium to coarse silty GRAVEL. Gravel comprises weak, medium density white chalk fragments with occasional grey marling and rare black rindled flint 30.85 ... fractures very closely spaced horizontal occasionally vertical 30.90 ... [NI] recovered as: silty angular to subangular COBBLES 31.10 - 31.30 ... with occasional subvertical to subhorizontal fractures 31.40 - 31.60 ... [NI] recovered as: white slightly gravelly SILT. Gravel comprises angular to subangular fine to coarse extremely weak, low density chalk fragments and medium to coarse black rindled flint Strong, high density white CHALK with occasional dark grey marling. (SEAFORD CHALK FORMATION) 32.40 - 32.65 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density chalk cobbles. Gravel comprises weak, medium density white chalk fragments and medium to coarse black rindled flint 32.80 - 32.85 ... with wide open fractures infilled with gravel size angular to subangular fine to coarse weak, medium density chalk fragments 32.85 ... with rare gravel size black rindled flint 32.90 - 33.00 ... with a band of gravel size and rare cobble size angular to subangular medium to coarse black rindled flint 33.10 - 33.30 ... with occasional subvertical and subhorizontal fractures 33.75 ... with occasional fractures very closely spaced and horizontal 34.05 ... with horizontal fractures infilled with coarse gravel size angular to subangular black rindled flint 34.10 - 34.25 ... with subvertical fractures 34.35 - 34.40 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments 34.55 ... with 1No open fracture infilled with gravel size angular to subangular fine to coarse extremely weak, low density chalk fragments 34.80 ... with 1No horizontal fracture 34.90 - 35.10 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare black rindled flint cobbles. Gravel comprises weak to moderately weak, medium density white chalk fragments and black rindled flint 35.15 - 35.38 ... with 1No vertical fracture 35.40 ... with 1No horizontal fracture 35.55 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with occasional weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments End of Borehole	30.40		N50/ 40 mm	25 / 50
						-25.46		30.70		30.40	D17		
			100	60	15			(0.90)		31.20	B18		
										31.40	D19	N48	10, 9 / 7, 11, 11, 19
						-26.36		31.60		31.80-32.10	C20		
			100	60	46								

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.50	CP	07/12/2016	08/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
24.00	200	15.10	200				
33.50	150	24.40	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.50	33.50	Cement / Bentonite Grout	22/11/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
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Client

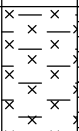
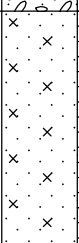
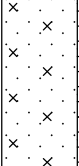
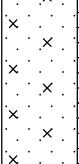
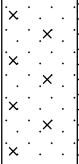
London City Airport Limited

PROGRESS					SPT DETAILS						
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)	
07/12/16	0.00			... see Remark 3	C	12.50	N43	4, 6 / 7, 8, 10, 18	12.50	1.10	
07/12/16	12.50	12.50	1.10		C	13.50	N50/0.153	5, 9 / 17, 27, 6	13.50	1.00	
07/12/16	13.50	13.50	1.00		S	14.50	N50/0.08	14, 11 / 38, 12	14.50	1.30	
07/12/16	14.50	14.50	1.30		S	15.50	N50/0.07	18, 7 / 50	15.10	1.50	
07/12/16	15.50	15.10	1.50		S	16.50	N50/0.08	13, 12 / 40, 10	15.10	1.20	
07/12/16	16.50	15.10	1.20		S	18.00	N50/0.155	7, 17 / 17, 28, 5	15.10	1.10	
07/12/16	18.00	15.10	1.10		S	19.50	N50/0.15	7, 15 / 22, 28	15.10	1.40	
07/12/16	19.50	15.10	1.40		S	21.00	N50/0.085	15, 10 / 39, 11	15.10	1.60	
07/12/16	21.00	15.10	1.60		S	22.50	N50/0.153	8, 15 / 21, 26, 3	15.10	1.40	
07/12/16	22.50	15.10	1.40		S	24.00	N50/0.145	8, 16 / 21, 29	15.10	1.60	
07/12/16	24.00	15.10	1.60		S	25.50	N50/0.228	7, 14 / 15, 17, 15, 3	24.40	1.20	
07/12/16	25.00	15.10	1.25		S	27.00	N50/0.24	6, 12 / 13, 15, 12, 10	24.40	0.50	
08/12/16	25.00	15.10	1.00		S	28.60	N30	5, 6 / 7, 7, 6, 10	24.40	0.70	
08/12/16	25.50	24.40	1.20		S	30.00	N50/0.22	6, 6 / 9, 14, 27	24.40	1.00	
08/12/16	27.00	24.40	0.50		S	31.50	N40	5, 7 / 8, 10, 10, 12	24.40	1.30	
08/12/16	28.60	24.40	0.70		S	33.00	N49	5, 8 / 11, 13, 11, 14	24.40	1.70	
08/12/16	30.00	24.40	1.00								
08/12/16	31.50	24.40	1.30								
08/12/16	33.50	24.40	1.70								
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 15.10m depth. Bentonite seal inserted between 22.00m and 24.00m and borehole re-drilled with Ø150mm casing to 24.40m depth.											
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPG/GW - Gas / Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds					HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary DC - Diamond Coring, CP/R-Cable Percussion Rotary follow on						
Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key											

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
07/12/16	12.50	1.10	-7.32		11.50		11.50-12.30	B01		... VOC 0.3ppm		
					(1.00)	Soft, dark grey very clayey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	11.80 11.80	ES02				
			-8.32		12.50		12.50 12.50 12.50-13.00	ES03 B04	N43			4, 6 / 7, 8, 10, 18 ... VOC 0.2ppm
07/12/16	13.50	1.00			(1.20)	Yellowish brown very sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.25 13.50	D05	N50/ 153 mm	5, 9 / 17, 27, 6		
			-9.52		13.70							
07/12/16	14.50	1.30				Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	13.50-13.70 13.70-14.00 14.25 14.50	B06 B07 D08	N50/ 80 mm	14, 11 / 38, 12		
						14.50 ... becoming slightly clayey	14.50 15.00-15.50	D09 B10				
07/12/16	15.10	1.50					15.50 15.50 16.00-16.50	B11 B12	N50/ 70 mm	18, 7 / 50		
							16.50 16.50 17.00-17.50	D13 B14	N50/ 80 mm	13, 12 / 40, 10		
07/12/16	15.10	1.20					18.00 18.00 18.50-19.00	D15 B16	N50/ 155 mm	7, 17 / 17, 28, 5		
							19.50 19.50 20.00-20.50	D17 B18	N50/ 150 mm	7, 15 / 22, 28		
07/12/16	15.10	1.40				19.50 ... becoming clayey						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill			
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result					
07/12/16	15.10	1.60			(14.60)		21.00		N50/ 85 mm	15, 10 / 39, 11				
							21.00 21.50-22.00	D19 B20						
07/12/16	15.10	1.40					22.50		N50/ 153 mm			8, 15 / 21, 26, 3		
							22.50 23.00-23.50	D21 B22						
07/12/16	15.10	1.60					24.00		N50/ 145 mm				8, 16 / 21, 29	
							24.00 24.50-25.00	D23 B24						
07/12/16 08/12/16	15.10 15.10	1.25 1.00												7, 14 / 15, 17, 15, 3
08/12/16	24.40	1.20					25.50		N50/ 228 mm					
							25.50 26.00-26.50	D25 B26						
08/12/16	24.40	0.50					27.00		N50/ 240 mm					
						27.00 27.50-28.00	D27 B28							
									28.30-28.60					
														
														
														
														
														
														
														
														
08/12/16	24.40	0.70	-24.12		28.30		28.30-28.60	B29			5, 6 / 7, 7, 6, 10			
			-24.42		28.60	Dark grey angular to subangular fine to coarse rinded flint GRAVEL with occasional flint cobbles.	28.60	D30	N30					
						(THANET SAND FORMATION: BULLHEAD BED)	28.60	D30						
						White CHALK recovered as: firm gravelly SILT. Gravel comprises angular to subangular fine to coarse rinded flint and chalk fragments.	29.00-29.50	B31						
						(SEAFORD CHALK FORMATION)								
						29.00 - 29.50 ... becoming very gravelly								
														
														
														
														
08/12/16	24.40	1.00					30.00		N50/ 220 mm	6, 6 / 9, 14, 27				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 07/12/16 Date Completed 08/12/16	Ground Level (mOD) 4.18	Co-Ordinates E 542783.2 N 180300.6	Final Depth 33.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
08/12/16	24.40	1.30			(4.90)	30.00 ... becoming slightly gravelly 30.50 ... [NI] recovered as: silty white chalk GRAVEL 31.50 ... [NI] recovered as: white slightly gravelly SILT 32.00 ... gravel becoming angular to subangular fine to coarse dark grey rinded flint and angular to subangular fine to medium weak, medium density chalk fragments	30.00 30.50-31.00 31.50 31.50 32.00-32.50 33.00 33.00	D32 B33 D34 B35 D36	N40 N49	5, 7 / 8, 10, 10, 12 5, 8 / 11, 13, 11, 14	
08/12/16	24.40	1.70	-29.32		33.50	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	36.60	CP	05/12/2016	06/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					26.00	33.00	33.05	33.30	0:45	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
25.00	200	15.85	200				
36.60	150	25.30	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	36.60	Cement / Bentonite Grout	06/12/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:43

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
05/12/16	0.00			... see Remark 3	C	13.50	N23	4, 6 / 5, 5, 6, 7	13.50	1.00
05/12/16	12.50	12.50	1.20		C	14.50	N50/0.28	3, 8 / 11, 13, 15, 11	14.50	1.10
05/12/16	13.50	13.50	1.00		S	15.50	N50/0.055	14, 11 / 50	15.50	1.30
05/12/16	14.50	14.50	1.10		S	16.50	N50/0.078	16, 9 / 46, 4	15.85	1.10
05/12/16	15.50	15.50	1.30		S	18.00	N50/0.07	19, 6 / 50	15.85	1.20
05/12/16	16.50	15.85	1.10		S	19.50	N50/0.08	13, 12 / 41, 9	15.85	1.40
05/12/16	18.00	15.85	1.20		S	21.00	N50/0.125	9, 16 / 22, 28	15.85	1.40
05/12/16	19.50	15.85	1.40		S	22.50	N50/0.153	7, 14 / 19, 27, 4	15.85	1.10
05/12/16	21.00	15.85	1.40		S	24.00	N50/0.12	10, 15 / 23, 27	15.85	1.30
05/12/16	22.50	15.85	1.10		S	25.50	N50/0.205	7, 13 / 16, 20, 14	25.30	1.50
05/12/16	24.00	15.85	1.30		S	27.00	N50/0.2	7, 15 / 15, 17, 18	25.30	
05/12/16	25.50	25.30	1.50		S	28.50	N50/0.23	6, 10 / 13, 16, 16, 5	25.30	
05/12/16	26.00	25.30	1.25		S	30.00	N36	3, 5 / 6, 10, 9, 11	25.30	
06/12/16	26.00	25.30	1.05		S	31.50	N31	4, 4 / 5, 6, 7, 13	25.30	
06/12/16	27.00	25.30		... Water added	S	33.00	N46	5, 19 / 20, 12, 7, 7	25.30	
06/12/16	28.50	25.30			S	34.50	N34	6, 8 / 7, 6, 6, 15	25.30	
06/12/16	30.00	25.30			S	36.00	N50/0.245	6, 7 / 11, 17, 15, 7	25.30	
06/12/16	31.50	25.30								
06/12/16	33.00	25.30								
06/12/16	34.50	25.30								
06/12/16	36.00	25.30								
06/12/16	36.60	25.30								

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 15.85m depth. Bentonite seal inserted between 23.00m and 25.00m and borehole re-drilled with Ø150mm casing to 25.30m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator
- HOLE TYPES
- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Sheet 1 of 4

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:46	 AGS AGENCIJA ZA GRAFIČKO POSREDOVANJE I POSREDOVANJE U PROMETU
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/12/16	12.50	1.20	-7.66		12.00		12.00			... VOC 1.2ppm	
					(1.25)	Dark grey slightly gravelly clayey SILT with strong hydrocarbon odour. Gravel is angular to subangular fine to coarse flint. (DOCK SEDIMENT)	12.00	ES01			
							12.00	B02			
							12.50-12.95	UT03	8 blows	100% Recovery	
05/12/16	13.50	1.00	-8.91		13.25		13.00	D04			
					(2.00)	Yellowish brown to dark grey slightly clayey angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	13.25	D05			
							13.50		N23	4, 6 / 5, 5, 6, 7	
							13.50	ES06		... VOC 0.4ppm	
05/12/16	14.50	1.10					13.50-14.00	B07			
							14.25	D08			
						14.50 ... becoming very sandy with rare flint cobbles. Sand is fine to coarse	14.50		N50/ 280 mm	3, 8 / 11, 13, 15, 11	
							14.50			... VOC 0.1ppm	
05/12/16	15.50	1.30	-10.91		15.25		14.50-15.00	ES09			
						Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	15.25	B10			
						15.50 ... becoming slightly clayey	15.50	D12	N50/ 55 mm	14, 11 / 50	
							15.50			... VOC 0.1ppm	
05/12/16	15.85	1.10					16.00	ES13			
							16.00-16.50	B14			
						16.50 ... becoming clayey	16.50		N50/ 78 mm	16, 9 / 46, 4	
							16.50	D15			
05/12/16	15.85	1.20					17.00-17.50	B16			
						17.00 ... becoming locally clayey					
							18.00		N50/ 70 mm	19, 6 / 50	
						18.00 ... with no clay	18.00	D17			
05/12/16	15.85	1.40					18.50-19.00	B18			
							19.50		N50/ 80 mm	13, 12 / 41, 9	
							19.50	D19			
							20.00-20.50	B20			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8		Final Depth 36.60m
	Date Completed 06/12/16				Sheet 3 of 4
Client London City Airport Limited			Method/ Plant Used Cable Percussion		

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.34	Co-Ordinates E 542846.4 N 180360.8	Final Depth 36.60m
Date Completed 06/12/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
06/12/16	25.30		-27.16		31.50	White CHALK recovered as: firm, white SILT. (SEAFORD CHALK FORMATION)	30.00 30.50-31.00 31.50 31.50	D33 B34 D35	N31	4, 4 / 5, 6, 7, 13	
						32.00-32.50	32.00-32.50	B36			
06/12/16	25.30				(5.10)	32.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with occasional weak, medium density white chalk cobbles. Gravel is weak to moderately weak, medium density white chalk fragments	33.00 33.00-33.50 33.50-34.00	B37 B38	N46	5, 19 / 20, 12, 7, 7	
						33.00 - 33.50 ... with a band of angular to subangular fine to coarse black rinded flint with frequent flint cobbles	33.00-33.50	B37			
						33.50 - 34.00 ... with rare fine gravel size very weak, low density chalk fragments	33.50-34.00	B38			
06/12/16	25.30					34.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	34.50 34.50	D39	N34	6, 8 / 7, 6, 6, 15	
						35.00 ... [NI] recovered as: soft to firm, white slightly gravelly SILT. Gravel comprises weak, low density angular to subangular fine to medium chalk fragments and black rinded flint	35.00-35.50	B40			
06/12/16	25.30					36.00 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel comprises weak, medium density angular to subangular fine to medium chalk fragments and fine black rinded flint	36.00		N50/ 245 mm	6, 7 / 11, 17, 15, 7	
06/12/16	25.30		-32.26		36.60	End of Borehole	36.00	D41			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17 Date Completed 13/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	35.50	CP	11/01/2017	13/01/2017	ST	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
18.00	200	17.50	200				
35.50	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	35.50	Cement / Bentonite Grout	13/01/2017

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:43

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
Date Completed 13/01/17				

Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
11/01/17	0.00				C	13.00	N9	2, 3 / 2, 2, 2, 3	12.90	1.05
11/01/17	12.50		1.05	... see Remark 3	C	14.00	N50/0.145	10, 15 / 25, 25	13.50	1.40
11/01/17	13.00	12.90	1.05		S	15.00	N45/0.005	4, 21 / 45	14.50	1.00
11/01/17	14.00	13.50	1.40		S	16.00	N50/0.075	12, 13 / 50	15.50	1.50
11/01/17	15.00	14.50	1.00		S	17.00	N50/0.075	12, 13 / 50	16.50	1.30
11/01/17	16.00	15.50	1.50		S	18.00	N50/0.09	11, 14 / 30, 20	17.50	1.00
11/01/17	17.00	16.50	1.30		S	19.50	N50/0.22	7, 13 / 13, 20, 17	17.50	1.20
11/01/17	18.00	17.50	1.00		S	21.00	N50/0.21	9, 13 / 17, 20, 13	17.50	1.70
12/01/17	18.00	17.50	2.00		S	22.50	N50/0.185	6, 12 / 16, 20, 14	17.50	1.70
12/01/17	19.50	17.50	1.20		S	24.00	N38/0.19	9, 11 / 13, 20, 5	17.50	2.00
12/01/17	21.00	17.50	1.70		S	25.50	N50/0.115	8, 14 / 27, 23	25.00	2.30
12/01/17	22.50	17.50	1.70		S	27.00	N50/0.155	10, 13 / 20, 25, 5	26.00	2.60
12/01/17	24.00	17.50	2.00		S	28.50	N34	4, 5 / 8, 9, 7, 10	25.50	1.30
12/01/17	25.50	25.00	2.30		S	30.00	N23	5, 5 / 6, 3, 4, 10	25.50	2.10
12/01/17	27.00	26.00	2.60		S	31.50	N39	4, 6 / 6, 8, 10, 15	25.50	2.50
13/01/17	27.00	25.50	1.00		S	33.00	N50/0.225	8, 8 / 10, 10, 30	25.50	4.00
13/01/17	28.50	25.50	1.30		S	34.50	N39	6, 9 / 11, 7, 9, 12	25.50	4.10
13/01/17	30.00	25.50	2.10							
13/01/17	31.50	25.50	2.50							
13/01/17	33.00	25.50	4.00							
13/01/17	34.50	25.50	4.10							
13/01/17	35.50	25.50	4.10							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- As the casing was being retracted one of the joints sheared off leaving 13.50m of 150mm casing at the bottom of the borehole between the depths of 12.00m and 25.50m below ground level. Attempts to recover the casing involved the use of a fishing tool and hydraulic jacks with maximum pull capacity of 100 ton. Attempts to recover this casing were unsuccessful and were eventually abandoned. The casing was left in-situ and the borehole was backfilled with cement/bentonite grout between 35.50m and 12.50m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
DC - Diamond Coring, C/P-R-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17	Ground Level (mOD) 4.92	Co-Ordinates	Final Depth 35.50m
	Date Completed 13/01/17		E 542853.1 N 180316.1	
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result					
11/01/17					(12.50)	Water								

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17 Date Completed 13/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
11/01/17		1.05	-7.58		12.50		12.50-13.00	B01			
11/01/17	12.90	1.05	-8.08		(0.50) 13.00	Dark grey, very clayey silty angular to well rounded flint GRAVEL. (DOCK SEDIMENT / RIVER TERRACE DEPOSIT)	13.00 13.00-13.50	B02	N9	2, 3 / 2, 2, 2, 3	
					(1.00)	Dark brown, angular to subangular fine to coarse flint GRAVEL. (RIVER TERRACE DEPOSITS)					
11/01/17	13.50	1.40	-9.08		14.00		14.00		N50/ 145 mm	10, 15 / 25, 25	
						Light grey fine silty SAND. (THANET SAND FORMATION: THANET SAND)	14.00-14.50	B03			
11/01/17	14.50	1.00					15.00		N45/ 5 mm	4, 21 / 45	
							15.00 15.50-16.00	D04 B05			
11/01/17	15.50	1.50					16.00		N50/ 75 mm	12, 13 / 50	
							16.00 16.50-17.00	D06 B07			
11/01/17	16.50	1.30					17.00		N50/ 75 mm	12, 13 / 50	
							17.00 17.50-18.00	D08 B09			
						17.50 ... becoming slightly clayey					
11/01/17 12/01/17	17.50 17.50	1.00 2.00					18.00		N50/ 90 mm	11, 14 / 30, 20	
							18.00	D10			
						19.00 ... becoming clayey	19.00-19.50	B11			
12/01/17	17.50	1.20					19.50		N50/ 220 mm	7, 13 / 13, 20, 17	
							19.50	D12			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17 Date Completed 13/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
12/01/17	17.50	1.70					20.50-21.00	B13			
							21.00		N50/ 210 mm	9, 13 / 17, 20, 13	
							21.00	D14			
					(16.00)		22.00-22.50	B15			
12/01/17	17.50	1.70					22.50		N50/ 185 mm	6, 12 / 16, 20, 14	
							22.50	D16			
						23.50 ... becoming very clayey	23.50-24.00	B17			
12/01/17	17.50	2.00					24.00		N38/ 190 mm	9, 11 / 13, 20, 5	
							24.00	D18			
							25.00-25.50	B19			
12/01/17	25.00	2.30					25.50		N50/ 115 mm	8, 14 / 27, 23	
							25.50	D20			
							26.50-27.00	B21			
12/01/17	26.00	2.60					27.00		N50/ 155 mm	10, 13 / 20, 25, 5	
13/01/17	25.50	1.00					27.00	D22			
							28.00-28.50	B23			
13/01/17	25.50	1.30					28.50		N34	4, 5 / 8, 9, 7, 10	
							28.50	D24			
							29.50-30.00	B25			
13/01/17	25.50	2.10	-25.08		30.00		30.00		N23	5, 5 / 6, 3, 4, 10	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 11/01/17 Date Completed 13/01/17	Ground Level (mOD) 4.92	Co-Ordinates E 542853.1 N 180316.1	Final Depth 35.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
13/01/17	25.50	2.50	-26.08		(1.00)	Black, angular to subangular fine to coarse rinded flint GRAVEL with rare cobble size of angular to subangular black rinded flint. (THANET SAND FORMATION: BULLHEAD BEDS)	30.00 30.00-30.50	D26 B27		4, 6 / 6, 8, 10, 15	
					31.00		31.00-31.50	B28			
13/01/17	25.50	4.00			(4.50)	White CHALK [NI] recovered as: firm, white SILT. (SEAFORD CHALK FORMATION) 31.00 ... [NI] recovered as: silty, angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint with rare angular to subangular cobble size black rinded flint 32.00 ... with rare cobble size weak, medium density angular to subangular chalk fragments	31.50 31.50	D29	N39	8, 8 / 10, 10, 30	
							32.50-33.00	B30			
13/01/17	25.50	4.10			(4.50)	33.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel comprises weak to extremely weak, medium density angular to subangular fine to coarse chalk fragments and angular to subangular fine to coarse black rinded flint 34.00 ... becoming very silty	33.00 33.00	D31	N50/ 225 mm	6, 9 / 11, 7, 9, 12	
							34.00-34.50	B32			
13/01/17	25.50	4.10			(4.50)	34.50 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	34.50 34.50	D33	N39		
							35.00-35.50	B34			
13/01/17	25.50	4.10	-30.58		35.50	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	CP	25/11/2016	28/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					21.00	23.00				

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
19.00	200	19.00	200				
33.00	150	24.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.80	33.00	Cement / Bentonite Grout	28/11/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS						
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)	
25/11/16	0.00			... see Remark 3	C	13.50	N50/0.18	4, 7 / 11, 26, 13	13.50	0.90	
25/11/16	12.50	12.50	1.00		S	14.50	N50/0.08	12, 13 / 38, 12	14.50	1.10	
25/11/16	13.50	13.50	0.90		S	15.50	N50/0.07	16, 9 / 50	15.10	1.00	
25/11/16	14.50	14.50	1.10		S	16.50	N50/0.228	8, 16 / 17, 14, 16, 3	15.10	1.20	
25/11/16	15.50	15.10	1.00		S	18.00	N50/0.155	10, 15 / 21, 23, 6	15.10	1.10	
25/11/16	16.50	15.10	1.20		S	19.50	N50/0.225	6, 9 / 12, 17, 21	19.50	1.30	
25/11/16	18.00	15.10	1.10		S	21.00	N50/0.22	5, 14 / 14, 16, 20	21.00	1.80	
25/11/16	19.50	19.50	1.30		S	22.50	N50/0.21	6, 12 / 13, 19, 18	21.00	0.40	
25/11/16	21.00	21.00	1.80		S	24.00	N50/0.23	7, 13 / 12, 15, 15, 8	24.00	0.60	
25/11/16	22.50	21.00	0.40		S	25.50	N50/0.29	6, 7 / 9, 12, 14, 15	24.00	0.50	
25/11/16	24.00	24.00	0.60		S	27.00	N43	4, 8 / 8, 10, 12, 13	24.00	0.70	
25/11/16	25.50	24.00	0.50		S	28.50	N27	4, 5 / 6, 5, 8, 8	24.00	0.50	
25/11/16	26.00	24.00	0.50		S	30.00	N31	5, 7 / 9, 7, 7, 8	24.00	1.20	
28/11/16	26.00	24.00	0.90		S	31.50	N50/0.23	4, 8 / 10, 19, 15, 6	24.00	1.70	
28/11/16	27.00	24.00	0.70		S	32.50	N44	6, 8 / 9, 11, 11, 13	24.00	1.90	
28/11/16	28.50	24.00	0.50								
28/11/16	30.00	24.00	1.20								
28/11/16	31.50	24.00	1.70								
28/11/16	32.50	24.00	1.90								
28/11/16	33.00	24.00	1.90								
GENERAL REMARKS											
1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 19.00m depth. Bentonite seal inserted between 17.50m and 19.00m and borehole re-drilled with Ø150mm casing to 24.00m depth.											
KEY											
SAMPLES											
ES - Environmental Sample (Tub, Vial, Jar)											
U - 100mm Diameter Undisturbed Sample											
UT - 100mm Diameter Thin Wall Undisturbed Sample											
U38 - 38mm Diameter Undisturbed Sample											
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample											
C - Core Sample, W-Water Sample, R-Root Sample											
INSTALLATION DETAILS											
SPIE - Standpipe Piezometer											
SPGW - Groundwater Monitor Standpipe											
SPG/GW - Gas / Groundwater Monitor Standpipe											
VWP - Vibrating Wire Piezometer											
ICM - Inclinator											
HOLE TYPES											
IP - Inspection Pit, TP-Trial Pit TT - Trial Trench											
CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic											
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary											
DC -Diamond Coring, CP/R-Cable Percussion Rotary follow on											
TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds											
Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key											

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

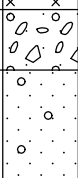
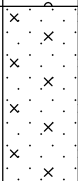
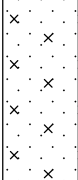
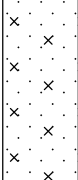
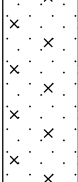
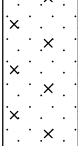
Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
25/11/16					(11.80)	Water					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

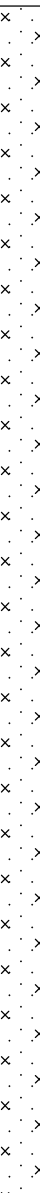
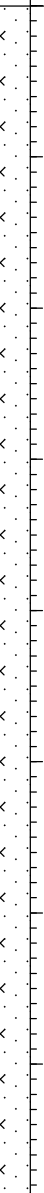
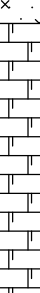
Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
25/11/16	12.50	1.00	-7.55		11.80		11.80			... VOC 0.2ppm	
					(1.30)	Soft, dark grey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	11.80-12.30	ES01 B02			
							12.50-12.95	UT03	6 blows	100% Recovery	
25/11/16	13.50	0.90	-8.85		13.10		13.00	D04		... VOC 0.7ppm	
					(0.40)	Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with occasional angular to rounded flint cobbles and strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.10-13.50	ES05 B06	N50/ 180 mm	4, 7 / 11, 26, 13	
25/11/16	14.50	1.10	-9.25		13.50		13.50			... VOC 0.1ppm	
					(0.75)	Dark grey very gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse flint with stong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	13.50-13.80	B07			
25/11/16	14.50	1.10	-10.00		14.25		13.80				
						13.80 ... becoming slightly gravelly to gravelly fine to medium sand	13.80-14.00	ES08 B09 D10	N50/ 80 mm	12, 13 / 38, 12	
25/11/16	15.10	1.00					14.50	D11 B12			
						Light grey fine silty SAND. (THANET SAND FORMATION: THANET SAND)	15.00-15.50				
25/11/16	15.10	1.00					15.50		N50/ 70 mm	16, 9 / 50	
							15.50	D13 B14			
25/11/16	15.10	1.20					16.00-16.50				
						16.50 ... becoming slightly clayey	16.50		N50/ 228 mm	8, 16 / 17, 14, 16, 3	
25/11/16	15.10	1.20					16.50				
						18.00 ... becoming locally clayey	16.50	D15 B16			
25/11/16	15.10	1.10					17.00-17.50				
							18.00		N50/ 155 mm	10, 15 / 21, 23, 6	
25/11/16	15.10	1.10					18.00				
							18.00	D17 B18			
25/11/16	15.10	1.10					18.50-19.00				
							19.50		N50/ 225 mm	6, 9 / 12, 17, 21	
25/11/16	15.10	1.10					19.50				
							19.50	D19 B20			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill		
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result				
25/11/16	21.00	1.80			(13.75)	21.00 ... becoming clayey	21.00	D21 B22	N50/ 220 mm	5, 14 / 14, 16, 20			
											21.00 21.50-22.00		
25/11/16	21.00	0.40							22.50	D23 B24	N50/ 210 mm	6, 12 / 13, 19, 18	
									22.50 23.00-23.50				
25/11/16	24.00	0.60							24.00	D25 B26	N50/ 230 mm	7, 13 / 12, 15, 15, 8	
									24.00 24.50-25.00				
25/11/16	24.00	0.50							25.50	D27 B28	N50/ 290 mm	6, 7 / 9, 12, 14, 15	
25/11/16	24.00	0.50							25.50 26.00-26.50				
28/11/16	24.00	0.90											
28/11/16	24.00	0.70							27.00 - 27.90 ... with occasional angular to subangular fine to coarse black rinded flint gravel with occasional black rinded flint cobbles	27.00 27.00	D29 B30 B31	N43	4, 8 / 8, 10, 12, 13
									27.50-28.00				
									28.00-28.50				
28/11/16	24.00	0.50	-23.75		28.00	White CHALK recovered as: angular to subangular fine to coarse silty GRAVEL with rare black rinded flint cobbles. Gravel comprises weak, medium density chalk fragments and occasional black rinded flint. (SEAFORD CHALK FORMATION) 28.50 ... [NI] recovered as: firm, white SILT. 29.00 - 29.50 ... becoming very silty with no cobbles	28.50 28.50	D32 B33	N27	4, 5 / 6, 5, 8, 8			
						29.00-29.50							
28/11/16	24.00	1.20					30.00		N31	5, 7 / 9, 7, 7, 8			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.25	Co-Ordinates E 542847.1 N 180282.3	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
28/11/16	24.00	1.70			(5.00)	30.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular medium, weak, medium density chalk fragments	30.00 30.50-31.00	D34 B35		4, 8 / 10, 19, 15, 6	
						31.50 ... [NI] recovered as: white gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments with fine to medium black rinded flint	31.50 31.50 32.00	D36 D37	N50/ 230 mm		
28/11/16	24.00	1.90				32.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments	32.50 32.50	D38	N44	6, 8 / 9, 11, 11, 13	
28/11/16	24.00	1.90	-28.75		33.00	32.50 ... [NI] recovered as: white slightly gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments					
						End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.50	RC	05/12/2016	06/12/2016	TC	CB	112	PCD	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	146	0.00	150	11.50	12.50		100
33.50	146	14.50	150	12.50	13.50		100
				13.50	14.50		100
				14.50	16.00		0
				16.00	17.00		100
				17.00	18.50		100
				18.50	20.00		100
				20.00	21.40		100
				21.40	23.00		100
				23.00	24.50		100
				24.50	26.00		100
				26.00	27.50		0
				27.50	29.00		100
				29.00	30.50		100
				30.50	32.00		100
				32.00	33.50		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
24.50	27.50	Water	80	
27.50	33.50	Water	50	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.50	33.50	Cement / Bentonite Grout	05/12/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
05/12/16	0.00									
05/12/16	11.50		1.50	... see Remark 3						
05/12/16	24.50		1.10							
06/12/16	24.50		1.20							
06/12/16	33.50									
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Poor flush return throughout. 5. Pressuremeter tests carried out at 15.00m and 26.60m.										
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPG/GW - Gas / Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key										
HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary DC -Diamond Coring, CPR-Cable Percussion Rotary follow on										

Sheet 1 of 4

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:48	
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Date Completed 06/12/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 4		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result	
05/12/16		1.50	100			-6.96		11.50	Very soft, dark grey slightly gravelly very clayey SILT. Gravel is angular to well rounded fine to coarse flint. (DOCK SEDIMENT) 11.80 ... with no gravel 12.50 ... becoming soft and slightly gravelly 13.00 ... becoming very gravelly 13.40 ... with strong hydrocarbon odour and pieces of geotextile membrane Dark grey and yellowish brown slightly clayey very gravelly fine to coarse SAND with strong hydrocarbon odour. Gravel is angular to well rounded fine to coarse flint. (RIVER TERRACE DEPOSITS)	11.90	D01	... VOC 1.0ppm ... VOC 0.3ppm ... VOC 0.1ppm ... Pressuremeter test at 15.00m ... VOC 0.1ppm	
								(2.00)		12.00	ES02		
										12.70	D03		
										13.00	ES04		
										13.50-13.70	B05		
										14.00	ES06		
								(2.50)		15.00			
										16.10	ES07		
										16.80-17.00	B08		
										17.50	B09		
										18.50 ... becoming clayey			
										19.00	B10		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
05/12/16 06/12/16		1.10 1.20	100								21.00	B11		
									(11.50)		22.00	B12		
			100											
			100							24.00	B13			
									24.50 ... becoming very clayey					
										25.00	B14			
			100											
										26.60				
			0											
						-22.96		27.50	Strong to very strong medium density white CHALK. (SEAFORD CHALK FORMATION) 27.85 - 27.90 ... [NI] recovered as : GRAVEL comprising moderately weak to weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 28.00 ... [NI] recovered as GRAVEL comprising weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 28.10 - 28.90 ... with 1No vertical open fracture ... with occasional vertical fractures between 28.10m and 28.40m 28.90 ... with a band of angular to subangular fine to coarse gravel sized black rinded flint and 1No black rinded flint cobble 28.95 ... with 1No wide open horizontal fracture infilled with medium density angular to subangular fine to coarse gravel sized chalk fragments	28.70-28.90	B15			
100	80	57												
			100							29.90-30.20	C16			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 05/12/16 Date Completed 06/12/16	Ground Level (mOD) 4.54	Co-Ordinates E 542843.0 N 180278.2	Final Depth 33.50m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 4 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
06/12/16			100						29.10 ... with 1No wide open horizontal fracture 29.20 ... with rare weak medium density angular to subangular coarse gravel sized chalk fragments 29.30 ... with 2No wide open fractures infilled infilled with weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 29.55 - 29.70 ... with a band of weak medium density fine to coarse gravel sized chalk fragments and black rinded flint cobbles 29.70 - 29.90 ... with 1No vertical and 1No open horizontal fracture infilled with weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 30.20 ... with 1No horizontal fracture and at 30.25m 30.60 ... with 1No wide open fracture 30.70 - 30.80 ... [NI] recovered as : moderately weak medium density angular to subangular fine to coarse chalk fragments and black rinded flint 30.80 ... with rare black rinded flint cobbles 30.90 ... with 1No wide open horizontal fracture 31.50 - 31.70 ... with 1No vertical and occasional horizontal fractures 31.80 ... with occasional wide open horizontal and vertical fractures 32.00 ... with rare weak medium density angular to subangular medium to coarse chalk fragments and black rinded flint 32.10 ... with 1No horizontal fracture 32.15 ... with 1No wide open horizontal fracture infilled with moderately weak medium density angular to subangular medium to coarse chalk fragments and black rinded flint 32.50 ... with 1No horizontal fracture at 32.50m, 32.60m, 32.70m and 32.90m End of Borehole	31.30-31.55	C17			
			100	83	63									
			100	90	57					33.10-33.50	B18			
						-28.96		33.50						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 16.70	16.70 37.50	DS RC	16/12/2016 19/12/2016	16/12/2016 21/12/2016	TC BF	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	12.70	13.70		100
16.70	150	14.00	150	13.70	14.70		100
32.00	146			14.70	15.70		100
				15.70	16.70		100
				16.70	18.00		85
				18.00	19.50		40
				19.50	21.00		100
				21.00	22.50		90
				22.50	24.00		100
				24.00	25.50		73
				25.50	27.00		100
				27.00	28.50		47
				28.50	30.00		100
				30.00	31.50		93
				31.50	33.00		73
				33.00	34.50		93
				34.50	36.00		100
				36.00	37.50		87

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
16.70	22.50	Water	95	
22.50	31.50	Water	90	
31.50	37.50	Water	95	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.70	37.50	Cement / Bentonite Grout	21/12/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
16/12/16	0.00			... see Remark 4	S	18.00	N50/0.11	17, 8 / 25, 25	14.00	
16/12/16	16.70	14.00	1.90		S	19.50	N50/0.075	16, 9 / 50	14.00	
19/12/16	16.70	14.00	3.50		S	21.00	N50/0.12	11, 14 / 23, 27	14.00	
19/12/16	22.50	14.00	5.00		S	22.50	N50/0.185	7, 12 / 16, 20, 14	14.00	
20/12/16	22.50	14.00	3.50		S	24.00	N50/0.225	8, 13 / 13, 17, 20	14.00	
20/12/16	31.50	14.00	5.00		S	25.50	N50/0.205	6, 13 / 22, 23, 5	14.00	
21/12/16	31.50	14.00	3.00		S	27.00	N50/0.22	3, 8 / 14, 18, 18	14.00	
21/12/16	37.50	14.00	5.00		S	28.50	N50/0.215	5, 10 / 16, 23, 11	14.00	
					S	30.00	N50/0.23	4, 8 / 12, 16, 18, 4	14.00	
					S	31.50	N50/0.265	5, 6 / 12, 13, 16, 9	14.00	
					S	33.00	N50/0.205	6, 17 / 15, 18, 17	14.00	
					S	34.50	N50/0.175	9, 17 / 24, 19, 7	14.00	
					S	36.00	N50/0.175	5, 7 / 11, 11, 28	14.00	
					S	37.50	N50/0.15	6, 8 / 11, 12, 27	14.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 12.70m to 16.70m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

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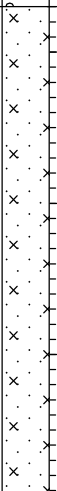
Sheet 1 of 4

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 4

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill				
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result			
16/12/16 19/12/16	14.00 14.00	1.90 3.50	100			-8.26 -9.06		12.70		Soft, light brown silty CLAY with occasional dark grey staining and strong hydrocarbon odour. (DOCK SEDIMENT) 12.90 ... becoming very soft and dark grey	12.90	D01					
			100												Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) 13.90 ... with no clay 14.00 ... with no hydrocarbon odour and no sand	14.00	B02
			100													15.00	B03
			100													16.00	B04
															16.50 ... with rare flint cobbles		
			85					16.70		Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	17.00	B05					
			40											18.00	D06		
			100											18.00		N50/ 110 mm	17, 8 / 25, 25
														19.00	B07		
										19.50		N50/ 75 mm	16, 9 / 50				
									19.50 20.00		D08 B09						

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16	Ground Level (mOD) 4.44	Co-Ordinates	Final Depth 37.50m
	Date Completed 21/12/16		E 542914.0 N 180377.1	
Client London City Airport Limited			Method/ Dynamic Sampling / Plant Used Rotary	Sheet 3 of 4

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 16/12/16 Date Completed 21/12/16	Ground Level (mOD) 4.44	Co-Ordinates E 542914.0 N 180377.1	Final Depth 37.50m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 4 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill				
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result						
20/12/16 21/12/16	14.00 14.00	5.00 3.00	93							30.00	D22	N50/ 265 mm	5, 6 / 12, 13, 16, 9					
										31.00	B23							
										31.50								
										31.50 32.00	D24 B25							

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	CP	01/12/2016	02/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					25.00	31.50	31.10	31.40	1:00	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
25.00	200	15.10	200				
36.50	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	36.50	Cement / Bentonite Grout	02/12/2016

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Approved By: OS

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS						
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)	
01/12/16	0.00			... see Remark 3	C	13.50	N27	5, 7 / 6, 6, 7, 8	13.50	1.30	
01/12/16	12.50	12.50	1.10		S	14.50	N50/0.07	5, 18 / 50	14.50	1.00	
01/12/16	13.50	13.50	1.30		S	15.50	N50/0.08	13, 12 / 41, 9	15.10	1.10	
01/12/16	14.50	14.50	1.00		S	16.50	N50/0.1	14, 11 / 33, 17	15.10	1.30	
01/12/16	15.50	15.10	1.10		S	18.00	N50/0.125	8, 16 / 29, 21	15.10	1.50	
01/12/16	16.50	15.10	1.30		S	19.50	N50/0.14	10, 15 / 26, 24	15.10	1.20	
01/12/16	18.00	15.10	1.50		S	21.00	N50/0.135	7, 15 / 25, 25	15.10	1.10	
01/12/16	19.50	15.10	1.20		S	22.50	N50/0.165	9, 12 / 17, 22, 11	15.10	1.10	
01/12/16	21.00	15.10	1.10		S	24.00	N50/0.155	7, 15 / 19, 24, 7	15.10	1.30	
01/12/16	22.00	15.10	1.05		S	25.50	N50/0.19	4, 11 / 16, 20, 14	25.50	1.00	
02/12/16	22.00	15.10	0.95		S	27.00	N50/0.285	5, 9 / 12, 14, 13, 11	25.50	0.50	
02/12/16	22.50	15.10	1.10		S	28.50	N46	5, 7 / 8, 11, 12, 15	25.50	0.80	
02/12/16	24.00	15.10	1.30		S	30.00	N43	4, 8 / 10, 9, 11, 13	25.50	1.10	
02/12/16	25.50	25.50	1.00		S	31.50	N50	4, 9 / 13, 12, 13, 12	25.50	0.50	
02/12/16	27.00	25.50	0.50		S	33.00	N50/0.295	5, 7 / 10, 14, 14, 12	25.50	1.20	
02/12/16	28.50	25.50	0.80		S	34.50	N49	4, 6 / 9, 12, 15, 13	25.50	1.60	
02/12/16	30.00	25.50	1.10		S	36.00	N50/0.27	6, 10 / 10, 13, 15, 12	25.50	1.90	
02/12/16	31.50	25.50	0.50								
02/12/16	33.00	25.50	1.20								
02/12/16	34.50	25.50	1.60								
02/12/16	36.00	25.50	1.90								
02/12/16	36.50	25.50	1.90								
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 15.10m depth. Bentonite seal inserted between 23.00m and 25.00m and borehole re-drilled with Ø150mm casing to 25.50m depth.											
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPG/GW - Gas / Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds											
HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary DC -Diamond Coring, CP/R-Cable Percussion Rotary follow on											
Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key											

Sheet 1 of 4

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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 2 of 4		

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/12/16	12.50	1.10	-7.45		12.00		12.00			... VOC 0.3ppm	
						Very soft, dark grey clayey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	12.00-12.50	ES01 B02			
01/12/16	13.50	1.30	-8.95		(1.50)	13.00 ... becoming gravelly. Gravel is angular to rounded fine to coarse flint	12.50-12.95	UT03			
							13.00	D04			
01/12/16	14.50	1.00	-9.55		13.50	Dark grey angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	13.25	D05			
					(0.60)		13.50	ES06 B07	N27	5, 7 / 6, 6, 7, 8 ... VOC 1.3ppm	
01/12/16	15.10	1.10			14.10	Light grey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	13.50-14.00			... VOC 0.1ppm	
							14.10	ES08 B09			
01/12/16	15.10	1.30				15.50 ... becoming clayey	14.10-14.50			5, 18 / 50	
							14.50	D10 B11	N50/ 70 mm		
01/12/16	15.10	1.50					15.00-15.50			13, 12 / 41, 9	
							15.50	D12 B13	N50/ 80 mm		
01/12/16	15.10	1.20					16.00-16.50			14, 11 / 33, 17	
							16.50	D14 B15	N50/ 100 mm		
01/12/16	15.10	1.20					17.00-17.50			8, 16 / 29, 21	
							18.00	D16 B17	N50/ 125 mm		
01/12/16	15.10	1.20					18.50-19.00			10, 15 / 26, 24	
							19.50	D18 B19	N50/ 140 mm		
01/12/16	15.10	1.20					20.00-20.50				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/12/16	15.10	1.10		x			21.00		N50/ 135 mm	7, 15 / 25, 25	
				x			21.00	D20			
				x			21.50-22.00	B21			
01/12/16	15.10	1.05		x							
02/12/16	15.10	0.95		x							
02/12/16	15.10	1.10		x			22.50		N50/ 165 mm	9, 12 / 17, 22, 11	
				x			22.50	D22			
				x			23.00-23.50	B23			
02/12/16	15.10	1.30		x			24.00		N50/ 155 mm	7, 15 / 19, 24, 7	
				x			24.00	D24			
				x			24.50-25.00	B25			
02/12/16	25.50	1.00		x		25.50 ... becoming slightly clayey	25.50		N50/ 190 mm	4, 11 / 16, 20, 14	
				x			25.50	D26			
				x			26.00-26.50	B27			
02/12/16	25.50	0.50		x			27.00		N50/ 285 mm	5, 9 / 12, 14, 13, 11	
				x			27.00	D28			
				x			27.50-28.00	B29			
02/12/16	25.50	0.80		x		28.50 ... becoming very clayey	28.50		N46	5, 7 / 8, 11, 12, 15	
				x			28.50	D30			
				x			29.00-29.50	B31			
02/12/16	25.50	1.10		x			30.00		N43	4, 8 / 10, 9, 11, 13	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 01/12/16 Date Completed 02/12/16	Ground Level (mOD) 4.55	Co-Ordinates E 542909.7 N 180338.9	Final Depth 36.50m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
02/12/16	25.50	0.50	-26.55		31.10	Black angular to subangular fine to coarse rinded flint GRAVEL with occasional rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED) White CHALK recovered as: white slightly gravelly SILT. Gravel is angular to subangular medium to coarse, weak, medium density chalk fragments. (SEAFORD CHALK FORMATION) 32.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare flint cobbles. Gravel is weak, medium density white chalk fragments 33.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint 33.50 ... with occasional cobble size moderately strong, medium density chalk fragments and black rinded flint	30.00	D32		4, 9 / 13, 12, 13, 12	
							30.50-31.00	B33			
							31.10-31.50	B34			
			-26.95		(0.40) 31.50		31.50 31.50	D35	N50		
02/12/16	25.50	1.20			(5.00)	34.50 ... [NI] recovered as: firm, white SILT 35.00 - 35.50 ... with angular to subangular fine to coarse black rinded flint gravel	32.00-32.50	B36		5, 7 / 10, 14, 14, 12	
							33.00		N50/ 295 mm		
							33.00 33.50-34.00	D37 B38			
02/12/16	25.50	1.60					34.50 34.50	D39	N49		
02/12/16	25.50	1.90				36.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is weak, medium density angular to subangular fine to coarse chalk fragments	35.00-35.50	B40		6, 10 / 10, 13, 15, 12	
02/12/16	25.50	1.90	-31.95		36.50		36.00 36.00	D41	N50/ 270 mm		
						End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16 Date Completed 29/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	CP	28/11/2016	29/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
					23.50	28.00	31.30	31.60	0:45	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
23.50	200	16.60	200				
33.00	150	25.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.50	32.50	Cement / Bentonite Grout	29/11/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time:

03/03/2017 17:43

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16 Date Completed 29/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS						
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)	
28/11/16	0.00			... see Remark 3	S	12.00	N1	0, 0 / 0, 1, 0, 0	12.00	1.00	
28/11/16	12.00	12.00	1.00		C	13.00	N26	5, 7 / 7, 7, 7, 5	13.00	1.20	
28/11/16	13.00	13.00	1.20		C	14.00	N21	3, 4 / 4, 6, 5, 6	14.00	1.00	
28/11/16	14.00	14.00	1.00		C	15.00	N32	3, 5 / 7, 7, 8, 10	15.00	1.40	
28/11/16	15.00	15.00	1.40		C	16.00	N50/0.21	5, 7 / 12, 19, 19	16.00	1.60	
28/11/16	16.00	16.00	1.60		S	17.50	N50/0.09	11, 14 / 36, 14	16.60	1.10	
28/11/16	17.50	16.60	1.10		S	19.00	N50/0.21	5, 10 / 14, 17, 19	16.60	1.10	
28/11/16	18.00	16.60	0.95		S	20.50	N50/0.23	5, 11 / 14, 13, 16, 7	16.60	1.00	
29/11/16	18.00	16.60	0.95		S	22.00	N50/0.265	6, 8 / 11, 13, 15, 11	16.60	1.30	
29/11/16	19.00	16.60	1.10		S	23.50	N50/0.23	5, 9 / 12, 15, 18, 5	16.60	0.60	
29/11/16	20.50	16.60	1.00		S	25.00	N47	6, 8 / 9, 11, 14, 13	25.00	0.30	
29/11/16	22.00	16.60	1.30		S	26.50	N45	4, 7 / 8, 11, 12, 14	25.00	0.90	
29/11/16	23.50	16.60	0.60		S	28.00	N34	4, 5 / 7, 8, 9, 10	25.00	0.50	
29/11/16	25.00	25.00	0.30		S	29.50	N37	3, 5 / 7, 9, 9, 12	25.00	1.10	
29/11/16	26.50	25.00	0.90		S	31.00	N50/0.295	4, 9 / 11, 13, 11, 15	25.00	1.30	
29/11/16	28.00	25.00	0.50		S	32.50	N48	5, 8 / 10, 12, 13, 13	25.00	1.10	
29/11/16	29.50	25.00	1.10								
29/11/16	31.00	25.00	1.30								
29/11/16	32.50	25.00	1.10								
29/11/16	33.00	25.00	1.10								
GENERAL REMARKS											
1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 16.60m depth. Bentonite seal inserted between 22.00m and 23.50m and borehole re-drilled with Ø150mm casing to 25.00m depth.											
KEY											
SAMPLES											
ES - Environmental Sample (Tub, Vial, Jar)											
U - 100mm Diameter Undisturbed Sample											
UT - 100mm Diameter Thin Wall Undisturbed Sample											
U38 - 38mm Diameter Undisturbed Sample											
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample											
C - Core Sample, W-Water Sample, R-Root Sample											
INSTALLATION DETAILS											
SPIE - Standpipe Piezometer											
SPGW - Groundwater Monitor Standpipe											
SPG/GW - Gas / Groundwater Monitor Standpipe											
VWP - Vibrating Wire Piezometer											
ICM - Inclinator											
HOLE TYPES											
IP - Inspection Pit, TP-Trial Pit TT - Trial Trench											
CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic											
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary											
DC -Diamond Coring, CP/R-Cable Percussion Rotary follow on											
TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds											
Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key											

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
Date Completed 29/11/16				
Client London City Airport Limited	Method/ Plant Used Cable Percussion			Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
28/11/16	12.00	1.00	-7.96		11.50		11.50			... VOC 0.7ppm	
				x x x x		Very soft, dark grey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	11.50-12.00	ES01 B02			
				x x x x	(1.30)	12.00 ... becoming soft and slight gravelly. Gravel is angular to subangular fine to medium flint	12.00		N1	0, 0 / 0, 1, 0, 0	
				x x x x			12.00	ES03 B04		... VOC 0.8ppm	
28/11/16	13.00	1.20	-9.26	x x x x	12.80		12.00-12.50				
				x x x x			12.80	D05			
				x x x x		Dark grey angular to well rounded fine to coarse silty flint GRAVEL with strong hydrocarbon odour and rare wood fragments (<25mm). (RIVER TERRACE DEPOSITS)	13.00		N26	5, 7 / 7, 7, 7, 5	
				x x x x	(0.95)	13.00 ... becoming sandy with rare angular to well rounded flint cobbles. Sand is fine to coarse	13.00-13.50	ES06 B07		... VOC 0.3ppm	
28/11/16	14.00	1.00	-10.21	x x x x	13.75		13.75	D08			
				x x x x		Dark brown angular to well rounded fine to coarse very sandy flint GRAVEL with rare angular to subangular flint cobbles. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	14.00		N21	3, 4 / 4, 6, 5, 6	
				x x x x			14.00-14.50	ES09 B10		... VOC 0.4ppm	
				x x x x			14.75	D11			
28/11/16	15.00	1.40		x x x x	(2.45)		15.00		N32	3, 5 / 7, 7, 8, 10	
				x x x x			15.00-15.50	B12			
				x x x x		15.75 ... becoming sandy	15.75	D13			
				x x x x			16.00		N50/ 210 mm	5, 7 / 12, 19, 19	
28/11/16	16.00	1.60	-12.66	x x x x	16.20		16.00-16.20	B14			
				x x x x		Light grey fine slightly clayey SAND. (THANET SAND FORMATION: THANET SAND)	16.20-16.50	B15			
				x x x x			17.00	D16			
				x x x x			17.50		N50/ 90 mm	11, 14 / 36, 14	
28/11/16	16.60	1.10		x x x x			17.50				
				x x x x			18.00-18.50	D17 B18			
				x x x x		18.00 ... becoming clayey					
				x x x x							
29/11/16	16.60	1.10		x x x x			19.00		N50/ 210 mm	5, 10 / 14, 17, 19	
				x x x x			19.00				
				x x x x			19.50-20.00	D19 B20			
				x x x x							

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16 Date Completed 29/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 3 of 4		

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
29/11/16	16.60	1.00					20.50		N50/ 230 mm	5, 11 / 14, 13, 16, 7	
							20.50 21.00-21.50	D21 B22			
29/11/16	16.60	1.30			(11.40)		22.00		N50/ 265 mm	6, 8 / 11, 13, 15, 11	
							22.00 22.50-23.00	D23 B24			
29/11/16	16.60	0.60					23.50		N50/ 230 mm	5, 9 / 12, 15, 18, 5	
						24.00 ... becoming very clayey	23.50 24.00-24.50	D25 B26			
29/11/16	25.00	0.30					25.00 25.00	D27	N47	6, 8 / 9, 11, 14, 13	
							25.50-26.00	B28			
29/11/16	25.00	0.90					26.50 26.50	D29	N45	4, 7 / 8, 11, 12, 14	
							27.00-27.50	B30			
			-24.06		27.60		27.60-28.00	B31			
29/11/16	25.00	0.50	-24.46		(0.40) 28.00	Black angular to subangular fine to coarse rinded flint GRAVEL with rare black rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	28.00 28.00	D32	N34	4, 5 / 7, 8, 9, 10	
						White CHALK recovered as: firm, slightly gravelly SILT. Gravel comprises angular to subangular fine to medium, extremely weak, low density chalk fragments. (SEAFORD CHALK FORMATION)	28.50-29.00	B33			
29/11/16	25.00	1.10				28.50 ... [NI] recovered as: angular to subangular fine to coarse very silty GRAVEL with occasional angular to subangular black rinded flint cobbles. Gravel is extremely weak, low density white chalk fragments 29.50 ... [NI] recovered as: firm, white SILT	29.50 29.50	D34	N37	3, 5 / 7, 9, 9, 12	
							30.00-30.50	B35			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 28/11/16 Date Completed 29/11/16	Ground Level (mOD) 3.54	Co-Ordinates E 542909.9 N 180291.6	Final Depth 33.00m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 4 of 4		

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
29/11/16	25.00	1.30			(5.00)	30.00 ... recovered as: GRAVEL comprising weak, medium density chalk fragments with rare cobble size moderately weak, medium density chalk fragments	31.00		N50/ 295 mm	4, 9 / 11, 13, 11, 15	
						31.00 ... [NI] recovered as: firm, white SILT	31.00 31.50-32.00	D36 B37			
29/11/16	25.00	1.10				32.00 ... with no chalk cobbles	32.50		N48	5, 8 / 10, 12, 13, 13	
						32.50 ... [NI] recovered as: firm, white SILT	32.50	D38			
29/11/16	25.00	1.10	-29.46		33.00	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 22/11/16 Date Completed 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542968.5 N 180348.4	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	CP	22/11/2016	23/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							22.10 28.55	22.40 28.90	0:30 0:45	Gravel Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
16.50	200	15.10	200				
32.00	150	18.00	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
11.90	32.00	Cement / Bentonite Grout	23/11/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:43

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 22/11/16 Date Completed 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542968.5 N 180348.4	Final Depth 32.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
22/11/16	0.00			... see Remark 3	C	12.50	N12	2, 2 / 3, 3, 3, 3	12.50	1.00
22/11/16	12.50	12.50	1.00		C	13.50	N14	3, 4 / 4, 3, 4, 3	13.50	1.10
22/11/16	13.50	13.50	1.10		C	14.50	N19	5, 6 / 5, 5, 4, 5	14.50	1.30
22/11/16	14.50	14.50	1.30		S	15.50	N34	4, 5 / 6, 8, 10, 10	15.10	1.00
22/11/16	15.50	15.10	1.00		S	16.50	N50/0.295	4, 5 / 9, 10, 14, 17	15.10	1.20
22/11/16	16.50	15.10	1.20		S	18.00	N44	4, 6 / 8, 10, 12, 14	18.00	0.90
22/11/16	18.00	18.00	0.90		S	19.50	N45	3, 5 / 9, 9, 13, 14	18.00	1.10
22/11/16	19.50	18.00	1.10		S	21.00	N33	4, 5 / 7, 8, 8, 10	18.00	1.00
22/11/16	21.00	18.00	1.00		S	22.50	N23	3, 4 / 5, 7, 6, 5	18.00	1.40
22/11/16	22.50	18.00	1.40		S	24.00	N25	2, 3 / 5, 6, 6, 8	18.00	1.00
22/11/16	24.00	18.00	1.00		S	25.50	N36	3, 4 / 4, 11, 10, 11	18.00	1.10
22/11/16	25.50	18.00	1.10		S	27.00	N36	5, 7 / 9, 10, 8, 9	18.00	0.90
22/11/16	27.00	18.00	0.90		S	28.50	N50/0.18	9, 14 / 20, 19, 11	18.00	1.00
22/11/16	27.50	18.00	0.90		S	30.00	N39	4, 6 / 8, 9, 11, 11	18.00	1.10
23/11/16	27.50	18.00	0.95		S	31.50	N37	4, 6 / 7, 9, 10, 11	18.00	1.40
23/11/16	28.50	18.00	1.00							
23/11/16	30.00	18.00	1.10							
23/11/16	31.50	18.00	1.40							
23/11/16	32.00	18.00	1.40							

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.
- Ø200mm casing used from pontoon level to 15.10m depth. Bentonite seal inserted between 15.00m and 16.50m and borehole re-drilled with Ø150mm casing to 18.00m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 22/11/16 Date Completed 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542968.5 N 180348.4	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth <i>(Thickness)</i>	Strata Description	Depth (m)	Type No	Test Result		
22/11/16						Water.					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 22/11/16 Date Completed 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542968.5 N 180348.4	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
22/11/16	12.50	1.00	-7.59		11.90		11.90			... VOC 0.0ppm	
				x x x	(0.40)	Soft, dark grey very gravelly SILT with strong hydrocarbon odour and viscous texture. Gravel is angular to well rounded fine to coarse flint. (DOCK SEDIMENT)	11.90	ES01			
			-7.99	x x x	12.30		11.90-12.40	B02			
				o o o			12.50		N12	2, 2 / 3, 3, 3, 3 ... VOC 0.3ppm	
22/11/16	13.50	1.10		o o o		Brown, very sandy angular to well rounded fine to coarse flint GRAVEL with occasional flint cobbles. Sand is fine to coarse. (RIVER TERRACE DEPOSIT)	12.50	ES03			
				o o o			12.50	B04			
				o o o		13.25 ... becoming sandy with no cobbles	12.50-13.00				
				o o o	(2.40)		13.25	D05		N14	3, 4 / 4, 3, 4, 3 ... VOC 0.9ppm
22/11/16	14.50	1.30		o o o			13.50				
				o o o			13.50				
				o o o		14.25 ... with rare flint cobbles	13.70	ES06			
				o o o			13.70-14.00	B07			
22/11/16	15.10	1.00	-10.39	o o o	14.70		14.25	D08		N19	5, 6 / 5, 5, 4, 5
				o o o		Light grey clayey silty fine SAND. (THANET SAND FORMATION: THANET SAND)	14.50				
				o o o			14.50-14.70	B09			
				o o o			14.70-15.00	B10			
22/11/16	15.10	1.20		o o o			15.25	D11		N34	4, 5 / 6, 8, 10, 10
				o o o			15.50				
				o o o			15.50	D12			
				o o o			16.00-16.50	B13			
22/11/16	18.00	0.90		o o o			16.50		N50/ 295 mm	4, 5 / 9, 10, 14, 17	
				o o o			16.50				
				o o o		17.00 - 17.50 ... becoming very clayey	17.00-17.50	D14 B15			
				o o o			18.00				
22/11/16	18.00	1.10		o o o			18.00	D16		N44	4, 6 / 8, 10, 12, 14
				o o o			18.50-19.00	B17			
				o o o	(7.40)		19.50				
				o o o		19.50 ... becoming very clayey	19.50	D18		N45	3, 5 / 9, 9, 13, 14
				o o o			20.00-20.50	B19			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 22/11/16 Date Completed 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542968.5 N 180348.4	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 3 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
22/11/16	18.00	1.00					21.00 21.00	D20	N33	4, 5 / 7, 8, 8, 10	
							21.50-22.00	B21			
						21.50 - 22.00 ... becoming slightly gravelly. Gravel is angular to subangular fine to coarse flint (possible from above)					
			-17.79		22.10		22.10-22.50	B22			
22/11/16	18.00	1.40	-18.09		22.40	Black angular to subangular fine to coarse rinded flint GRAVEL with occasional rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	22.50 22.50	D23	N23	3, 4 / 5, 7, 6, 5	
						White CHALK recovered as: firm, white slightly gravelly SILT. Gravel is extremely weak, low density angular to subangular fine to coarse chalk fragments. (SEAFORD CHALK FORMATION)	23.00-23.50	B24			
						23.00 - 23.50 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with occasional flint black rinded flint cobbles.					
22/11/16	18.00	1.00				Gravel comprises extremely weak, medium density white chalk fragments and angular to rounded black rinded flint	24.00 24.00	D25	N25	2, 3 / 5, 6, 6, 8	
							24.50-25.00	B26			
22/11/16	18.00	1.10				25.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare cobble size moderately weak, medium density white chalk fragments. Gravel comprises extremely weak, medium density white chalk fragments and black rinded flint	25.50 25.50	D27	N36	3, 4 / 4, 11, 10, 11	
							26.50	D28			
22/11/16	18.00	0.90				26.50 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare cobble size moderately weak, medium density white chalk fragments. Gravel comprises extremely weak to weak, medium density white chalk fragments and black rinded flint	27.00 27.00	D29	N36	5, 7 / 9, 10, 8, 9	
22/11/16	18.00	0.90				27.00 ... gravel becoming angular to subangular fine to medium extremely weak, medium density chalk fragments and rare black rinded flint	27.50-28.00	B30			
23/11/16	18.00	0.95				27.50 ... [NI] recovered as: moderately weak, medium density angular to subangular silty white chalk COBBLES with occasional cobble size weak, medium density chalk fragments and angular to rounded black rinded flint	28.50		N50/ 180 mm	9, 14 / 20, 19, 11	
23/11/16	18.00	1.00				28.50 ... with angular to subangular black rinded flint cobbles	28.50-29.00	B31			
							29.50	D32			
23/11/16	18.00	1.10				29.50 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare cobble size moderately weak, medium	30.00		N39	4, 6 / 8, 9, 11, 11	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 22/11/16 Date Completed 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542968.5 N 180348.4	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
23/11/16	18.00	1.40				density white chalk fragments and black rinded flint. Gravel comprises extremely weak, medium density white chalk fragments and black rinded flint	30.00	D33			
						30.00 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	30.50-31.00	B34			
						31.50 ... [NI] recovered as: white slightly gravelly SILT. Gravel is angular to subrounded fine to coarse black rinded flint	31.50 31.50	D35	N37	4, 6 / 7, 9, 10, 11	
23/11/16	18.00	1.40	-27.69		32.00	End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542970.6 N 180356.4	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 14.50	14.50 32.00	DS RC	23/11/2016 24/11/2016	23/11/2016 28/11/2016	TC TC	CB CB	112	PDC	Geotec 350 Geotec 350	AR779 AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	12.20	12.70		100
14.50	150	14.50	150	12.70	13.50		100
32.00	146			13.50	14.50		100
				14.50	16.50		0
				16.50	17.00		100
				17.00	18.50		87
				18.50	20.00		0
				20.00	21.50		100
				21.50	23.00		100
				23.00	24.50		100
				24.50	26.00		100
				26.00	27.50		100
				27.50	28.80		100
				28.80	30.40		69
				30.40	32.00		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
14.50	16.50	Water	90	
16.50	17.00	Water	80	
17.00	18.50	Water	0	
18.50	20.00	Water	90	
20.00	32.00	Water	30	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.20	32.00	Cement / Bentonite Grout	28/11/2016

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542970.6 N 180356.4	Final Depth 32.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
23/11/16	0.00				C	12.70	N19	1, 2 / 4, 4, 7, 4	12.00	
23/11/16	14.50	12.50			C	13.50	N20	2, 2 / 5, 6, 5, 4	12.00	
24/11/16	14.50	12.50	2.80	... Rotary flush	S	17.00	N35	2, 4 / 6, 7, 11, 11	14.00	
24/11/16	20.00	14.00	0.90		S	20.00	N46	3, 7 / 7, 11, 13, 15	14.00	
28/11/16	20.00	14.50	6.10		S	21.50	N45	3, 6 / 8, 9, 12, 16	14.50	
28/11/16	32.00	14.50	1.70		S	23.00	N50/0.17	4, 6 / 12, 24, 14	14.50	
					S	24.50	N50/0.015	25 / 50	14.50	
					S	26.00	N50/0.08	18, 7 / 42, 8	14.50	
					S	27.50	N50/0.155	8, 17 / 29, 17, 4	14.50	
					S	28.80	N50/0.245	6, 6 / 8, 9, 20, 13	14.50	
					S	30.40	N50/0.16	16, 7 / 20, 26, 4	14.50	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Dynamic sampling techniques used from 12.20m to 14.50m. Rotary boring carried out thereafter.
- Water present in the borehole from casing installation through the dock.
- Pressuremeter tests carried out at 16.20m and 19.10m.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Sheet 1 of 4

AGS ASSOCIATION OF GASTROENTEROLOGICAL SURGEONS

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542970.6 N 180356.4	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Dynamic Sampling / Rotary	Sheet 2 of 4

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill																																																																																																																																																																																																																																																																																																																																																																																																																																												
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result																																																																																																																																																																																																																																																																																																																																																																																																																																											
23/11/16 24/11/16	12.50 12.50	2.80	100			-7.89		12.20	Soft, brown silty CLAY with frequent dark grey staining. (DOCK SEDIMENT) Very soft, dark grey very clayey SILT with strong hydrocarbon odour. (DOCK SEDIMENT) Dark grey clayey very sandy angular to well rounded fine to coarse flint GRAVEL with hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSIT) 12.90 ... becoming slightly sandy with no clay 13.10 ... becoming sandy 13.40 ... with rare angular to rounded flint cobbles 13.50 ... with no hydrocarbon odour 14.00 ... becoming very sandy 14.25 ... with rare angular to rounded flint cobbles Light grey fine clayey SAND. (THANET SAND FORMATION: THANET SAND)	12.30	ES01 B02	N19	... VOC 0.3ppm																																																																																																																																																																																																																																																																																																																																																																																																																																												
						-7.99		12.30		12.30			12.50		12.70	13.00	ES03	... VOC 0.7ppm																																																																																																																																																																																																																																																																																																																																																																																																																																							
						-8.14		12.45		13.00			13.40		13.40	13.50		ES04	... VOC 0.0ppm																																																																																																																																																																																																																																																																																																																																																																																																																																						
						100		100		100	100	100	100		100	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16 Date Completed 28/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542970.6 N 180356.4	Final Depth 32.00m
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary	Sheet 3 of 4		

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result
28/11/16	14.50	6.10							20.00 ... becoming very clayey	20.00	D10		3, 6 / 8, 9, 12, 16	
			100						20.70 ... becoming clayey	20.70	B11			
									21.50 ... becoming very clayey	21.50 21.50	D12	N45		
			100	23	20	-17.79 -17.84		22.10 22.15	Black angular to subangular medium to coarse rinded flint GRAVEL with rare angular to subangular black rinded flint cobbles. (THANET SAND FORMATION: BULLHEAD BED)	22.65-23.00	C13		4, 6 / 12, 24, 14	
						-18.29		(0.45) 22.60	White CHALK recovered as: silty angular to subangular fine to coarse GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel comprises weak to moderately weak, medium density white chalk fragments and rare black rinded flint. (SEAFORD CHALK FORMATION)	23.00	N50/ 170 mm			
			100	87	40				22.25 ... with occasional subangular black rinded flint cobbles 22.30 ... with occasional black rinded flint gravel and occasional chalk cobbles	23.00	D14			
									Strong, medium density white CHALK. (SEAFORD CHALK FORMATION)	24.30-24.45	D15		25 / 50	
									22.60 ... becoming strong and medium density 23.00 - 23.10 ... [NI] recovered as: angular to subangular coarse GRAVEL. Gravel is extremely weak, low density white chalk fragments	24.50	N50/ 15 mm			
			100	77	57				23.25 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel is weak, medium density white chalk fragments 23.30 - 23.60 ... with vertical fractures 24.20 - 24.30 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint	25.00-25.30	C16			
									24.40 ... [NI] recovered as: angular to subangular COBBLES. Cobbles comprise moderately weak, medium density white chalk fragments and occasional black rinded flint	26.00		N50/ 80 mm	18, 7 / 42, 8	
			100	80	57				24.50 ... with rare cobble size black rinded flint and rare coarse gravel size extremely weak, low density chalk fragments 24.65 ... with open horizontal fracture and purple staining	26.00	D17			
								(9.40)	24.95 - 25.10 ... with purple staining 25.30 - 25.40 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL with rare black rinded flint cobbles. Gravel comprises weak, medium density white chalk fragments and medium to coarse black rinded flint	26.80-27.10	C18			
			100	65	58				25.60 - 25.70 ... [NI] recovered as: angular to subangular COBBLES with angular to subangular fine to coarse weak, medium density white chalk gravel. Cobbles are angular to subangular fine to coarse gravel size weak, medium density white chalk fragments	27.50		N50/ 155 mm	8, 17 / 29, 17, 4	
									25.90 - 26.00 ... with 1No horizontal fracture with purple staining 26.00 - 26.20 ... with a band of angular to subangular medium to coarse gravel and cobble size black rinded flint	27.50	D19			
									26.45 ... with wide fractures 26.57 ... with fractures infilled with fine to medium gravel size extremely weak, medium density chalk fragments	28.10-28.30	C20			
			69	38	31				25.90 - 26.00 ... with 1No horizontal fracture with purple staining 26.00 - 26.20 ... with a band of angular to subangular medium to coarse gravel and cobble size black rinded flint	28.80		N50/ 245 mm	6, 6 / 8, 9, 20, 13	
									26.45 ... with wide fractures 26.57 ... with fractures infilled with fine to medium gravel size extremely weak, medium density chalk fragments	28.80	D21			
										29.80-30.15	C22			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 23/11/16	Ground Level (mOD) 4.31	Co-Ordinates E 542970.6 N 180356.4	Final Depth 32.00m
Date Completed 28/11/16				
Client London City Airport Limited	Method/ Plant Used Dynamic Sampling / Rotary		Sheet 4 of 4	

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No		
28/11/16	14.50	1.70	69	38	31				26.65 ... with occasional subvertical fractures 26.80 ... with 1No wide vertical fracture 27.10 - 27.20 ... with subhorizontal and subvertical fractures and light grey staining 27.30 - 27.40 ... with occasional subvertical fractures 27.40 - 27.50 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel is weak, medium density white chalk fragments 27.50 - 27.80 ... [NI] recovered as: angular to subangular fine to coarse very silty GRAVEL with rare moderately weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments 27.95 ... with rare open, horizontal fractures 28.40 ... with occasional subhorizontal fractures infilled with fine to coarse gravel size weak, chalk fragments 28.50 ... with 1No horizontal fracture infilled with angular to subangular medium to coarse black rinded flint gravel and occasional light grey staining 28.60 ... with rare angular to subangular medium to coarse black rinded flint gravel 29.20 - 29.50 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL with rare locally frequent moderately weak, medium density white chalk cobbles. Gravel is weak, medium density white chalk fragments and black rinded flint 29.55 - 29.65 ... with rare vertical fractures with dark grey staining 29.70 ... with 1No horizontal fracture 30.40 - 30.50 ... [NI] recovered as: angular to subangular COBBLES with angular to subangular coarse black rinded flint gravel. Cobbles are weak, medium density white chalk fragments 30.50 - 30.60 ... with vertical fracture with light grey staining 30.60 - 30.70 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel is weak, medium density white chalk fragments 31.00 - 31.10 ... with 1No horizontal fracture 31.15 - 31.30 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel is weak, medium density white chalk fragments 31.15 - 31.60 ... with 1No wide open, vertical fracture and angular to subangular medium to coarse black rinded flint gravel 31.80 - 31.90 ... with 1No horizontal fracture End of Borehole	30.40	D23	N50/ 160 mm	16, 7 / 20, 26, 4
			100	81	69			-27.69	32.00				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 30/11/16 Date Completed 01/12/16	Ground Level (mOD) 4.41	Co-Ordinates E 542966.0 N 180322.2	Final Depth 32.00m
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Client	
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London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	CP	30/11/2016	01/12/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							21.90 27.80 30.80	22.30 28.10 31.35	0:45 0:30 1:00	Gravel Gravel Gravel

HOLE

CASING

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)
0.00	200	0.00	200
19.00	200	18.10	200
32.00	150	22.10	150

ROTARY RECOVERY

From (m)	To (m)	Blows	Recovery (%)

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

[illegible]

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 30/11/16 Date Completed 01/12/16	Ground Level (mOD) 4.41	Co-Ordinates E 542966.0 N 180322.2	Final Depth 32.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
30/11/16	0.00			... see Remark 3	C	12.50	N21	4, 6 / 6, 5, 4, 6	12.50	1.00
30/11/16	12.50	12.50	1.00		C	13.50	N18	3, 4 / 5, 4, 4, 5	13.50	1.20
30/11/16	13.50	13.50	1.20		C	14.50	N32	4, 7 / 6, 9, 9, 8	14.50	1.50
30/11/16	14.50	14.50	1.50		C	15.50	N24	3, 4 / 6, 7, 6, 5	15.50	1.20
30/11/16	15.50	15.50	1.20		C	16.50	N26	4, 5 / 6, 6, 6, 8	16.50	1.80
30/11/16	16.50	16.50	1.80		S	17.50	N39	4, 7 / 8, 9, 11, 11	17.50	1.50
30/11/16	17.50	17.50	1.50		S	18.50	N20	4, 5 / 6, 5, 5, 4	18.10	1.10
30/11/16	17.50	17.50	1.50		S	20.00	N32	2, 4 / 5, 7, 9, 11	20.00	1.20
30/11/16	18.50	18.10	1.10		S	21.50	N38	3, 4 / 6, 8, 12, 12	21.50	1.40
30/11/16	20.00	20.00	1.20		S	23.00	N21	4, 6 / 5, 5, 6, 5	22.10	1.00
30/11/16	21.50	21.50	1.40		S	24.50	N27	5, 6 / 6, 7, 7, 7	22.10	1.40
30/11/16	23.00	22.10	1.00		S	26.00	N41	6, 8 / 10, 9, 9, 13	22.10	1.00
30/11/16	24.50	22.10	1.40		S	27.50	N50/0.23	7, 9 / 12, 14, 16, 8	22.10	1.20
30/11/16	26.00	22.10	1.00		S	29.00	N48	7, 6 / 8, 10, 13, 17	22.10	1.40
30/11/16	27.50	22.10	1.20		S	30.50	N31	4, 6 / 6, 7, 8, 10	22.10	1.60
30/11/16	28.50	22.10	1.15		S	31.50	N50/0.285	6, 9 / 10, 13, 15, 12	22.10	1.90
01/12/16	28.50	22.10	1.05							
01/12/16	29.00	22.10	1.40							
01/12/16	30.50	22.10	1.60							
01/12/16	31.50	22.10	1.90							
01/12/16	32.00	22.10	1.90							
GENERAL REMARKS 1. Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level. 2. Clearance by UXO Magnetometer probe. 3. Water present in the borehole from casing installation through the dock. 4. Ø200mm casing used from pontoon level to 18.10m depth. Bentonite seal inserted between 17.50m and 19.00m and borehole re-drilled with Ø150mm casing to 22.10m depth.										
KEY SAMPLES ES - Environmental Sample (Tub, Vial, Jar) U - 100mm Diameter Undisturbed Sample UT - 100mm Diameter Thin Wall Undisturbed Sample U38 - 38mm Diameter Undisturbed Sample D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample C - Core Sample, W-Water Sample, R-Root Sample INSTALLATION DETAILS SPIE - Standpipe Piezometer SPGW - Groundwater Monitor Standpipe SPG/GW - Gas / Groundwater Monitor Standpipe VWP - Vibrating Wire Piezometer ICM - Inclinator HOLE TYPES IP - Inspection Pit, TP-Trial Pit TT - Trial Trench CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary DC - Diamond Coring, CPR-Cable Percussion Rotary follow on										
TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key										

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 30/11/16 Date Completed 01/12/16	Ground Level (mOD) 4.41	Co-Ordinates E 542966.0 N 180322.2	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 1 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
30/11/16					(12.00)	Water.					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 30/11/16 Date Completed 01/12/16	Ground Level (mOD) 4.41	Co-Ordinates E 542966.0 N 180322.2	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
30/11/16	12.50	1.00	-7.59		12.00		12.00			... VOC 0.1ppm	
			-8.09	x x x x	(0.50) 12.50	Soft, dark brown to dark grey clayey SILT with strong hydrocarbon odour. (DOCK SEDIMENT)	12.00-12.40	ES01 B02	N21	4, 6 / 6, 5, 4, 6 ... VOC 0.1ppm	
			-8.84	o o o o	(0.75) 13.25	Dark grey sandy angular to well rounded fine to coarse flint GRAVEL with occasional flint cobbles, rare pockets of soft, dark grey clay and strong hydrocarbon odour. (RIVER TERRACE DEPOSITS)	12.50-13.00	ES03 B04			
30/11/16	13.50	1.20		o o o o		Brown sandy angular to well rounded fine to coarse flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) 13.50 - 14.00 ... becoming very sandy	13.25	D05	N18	3, 4 / 5, 4, 4, 5 ... VOC 0.0ppm	
30/11/16	14.50	1.50		o o o o	(3.65)		13.50 13.50 13.50 13.50-14.00	ES06 B07			
				o o o o			14.25	D08			
				o o o o			14.50 14.50-15.00	B09	N32	4, 7 / 6, 9, 9, 8	
30/11/16	15.50	1.20		o o o o			15.25	D10			
				o o o o			15.50 15.50-16.00	B11	N24	3, 4 / 6, 7, 6, 5	
				o o o o			16.25	D12			
30/11/16	16.50	1.80		o o o o			16.50 16.50-17.00	B13	N26	4, 5 / 6, 6, 6, 8	
			-12.49	o o o o	16.90		17.00-17.50	B14			
				o o o o	(1.30)	Light grey very clayey fine SAND. (THANET SAND FORMATION: THANET SAND)	17.50 17.50	D15	N39	4, 7 / 8, 9, 11, 11	
30/11/16	18.10	1.10		o o o o			18.20-18.50	B16			
			-13.79	o o o o	18.20		18.50 18.50	D17	N20	4, 5 / 6, 5, 5, 4	
				o o o o		White CHALK recovered as: silty angular to subangular fine to coarse GRAVEL with rare cobble size moderately weak, medium density chalk fragments. Gravel comprises weak, medium density chalk fragments and black rinded flint. (SEAFORD CHALK FORMATION) 18.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint 19.00 ... with occasional moderately weak, medium density chalk fragments and rare angular to subangular black rinded flint	19.00-19.50	B18			
30/11/16	20.00	1.20		o o o o			20.00		N32	2, 4 / 5, 7, 9, 11	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 30/11/16 Date Completed 01/12/16	Ground Level (mOD) 4.41	Co-Ordinates E 542966.0 N 180322.2	Final Depth 32.00m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 3 of 4		

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
30/11/16	21.50	1.40				cobbles 20.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse moderately weak, medium density chalk fragments	20.00	D19		3, 4 / 6, 8, 12, 12	
							20.50-21.00	B20			
						21.50 ... [NI] recovered as: firm, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	21.50	D21	N38		
						22.00 ... with occasional angular to subangular black rinded flint cobbles	22.00-22.50	B22			
30/11/16	22.10	1.00				23.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse moderately weak to weak, medium density chalk fragments	23.00	D23	N21	4, 6 / 5, 5, 6, 5	
						23.50 - 24.00 ... becoming very silty	23.50-24.00	B24			
						24.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse moderately weak to weak, medium density chalk fragments	24.50	D25	N27		
							25.00-25.50	B26			
30/11/16	22.10	1.40			(13.80)	26.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	26.00	D27	N41	6, 8 / 10, 9, 9, 13	
						26.50 ... with rare angular to subangular black rinded flint cobbles	26.50-27.00	B28			
						27.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint	27.50		N50/ 230 mm		
						28.00 ... with no chalk cobbles	27.50 28.00-28.50	D29 B30			
30/11/16 01/12/16	22.10	1.15 1.05				29.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	29.00	D31	N48	7, 6 / 8, 10, 13, 17	
							29.50-30.00	B32			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 30/11/16 Date Completed 01/12/16	Ground Level (mOD) 4.41	Co-Ordinates E 542966.0 N 180322.2	Final Depth 32.00m
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 4 of 4

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
01/12/16	22.10	1.60				30.00 ... [NI] recovered as: firm, white SILT.	30.50 30.50	D33	N31	4, 6 / 6, 7, 8, 10	
01/12/16	22.10	1.90				31.00 ... with rare cobble size weak, medium density chalk fragments	31.00-31.50	B34			
01/12/16	22.10	1.90	-27.59		32.00	31.50 ... [NI] recovered as: firm, white gravelly SILT. Gravel comprises angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint	31.50	D35	N50/ 285 mm	6, 9 / 10, 13, 15, 12	
						End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/01/17 Date Completed 27/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542971.4 N 180248.9	Final Depth 33.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	33.00	RC	25/01/2017	27/01/2017	FD	CB	112	PDC	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	13.50	15.00		0
33.00	150	15.00	150	15.00	16.50		0
				16.50	18.00		0
				18.00	19.50		80
				21.00	22.50		20
				22.50	24.00		73
				24.00	25.50		93
				25.50	27.00		100
				27.00	28.50		100
				28.50	30.00		33
				30.00	31.50		53
				31.50	33.00		80

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
13.50	33.00	Water	100	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
13.50	33.00	Cement / Bentonite Grout	27/01/2017

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:43

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/01/17 Date Completed 27/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542971.4 N 180248.9	Final Depth 33.00m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
25/01/17	0.00			... Rotary flush	S	16.50	N32	3, 8 / 8, 7, 8, 9	15.00	
25/01/17	13.50	15.00			S	18.00	N26	2, 12 / 10, 7, 5, 4	15.00	
25/01/17	18.00	15.00			S	19.50	N17	2, 3 / 3, 5, 4, 5	15.00	
26/01/17	18.00	15.00			S	21.00	N22	5, 5 / 4, 5, 6, 7	15.00	
26/01/17	27.00	15.00			S	22.50	N18	3, 5 / 5, 5, 3, 5	15.00	
27/01/17	27.00	15.00			S	24.00	N14	3, 3 / 3, 4, 4, 3	15.00	
27/01/17	33.00	15.00			S	25.50	N40	7, 9 / 8, 9, 11, 12	15.00	
					S	27.00	N45	6, 12 / 13, 8, 11, 13	15.00	
					S	28.50	N50/0.235	5, 9 / 11, 15, 20, 4	15.00	
					S	30.00	N44	8, 14 / 13, 11, 10, 10	15.00	
					S	31.50	N44	5, 7 / 11, 11, 10, 12	15.00	
					S	33.00	N31	2, 4 / 6, 7, 8, 10	15.00	

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Water present in the borehole from casing installation through the dock.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
U - 100mm Diameter Undisturbed Sample
UT - 100mm Diameter Thin Wall Undisturbed Sample
U38 - 38mm Diameter Undisturbed Sample
D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
SPGW - Groundwater Monitor Standpipe
SPG/GW - Gas / Groundwater Monitor Standpipe
VWP - Vibrating Wire Piezometer
ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
CP - Cable Percussion, RC-Rotary Coring, R/S-Rotary/Sonic
DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Sheet 1 of 4

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:48	
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/01/17 Date Completed 27/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542971.4 N 180248.9	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 2 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
25/01/17	15.00														
			0			-8.62		13.50	No Recovery.						
			0					(4.50)		16.50 16.50	D01	N32	3, 8 / 8, 7, 8, 9		
			0												
25/01/17	15.00					-13.12		18.00		18.00 18.00	D02	N26	2, 12 / 10, 7, 5, 4		
26/01/17	15.00							(0.90)	Black, angular to well rounded rinded flint GRAVEL, with rare cobble size angular to well rounded black rinded flint. (THANET SAND FORMATION: BULLHEAD BED)						
			80			-14.02		18.90		19.00	B03				
									White CHALK [NI] recovered as: angular to subangular fine to coarse silty GRAVEL with rare moderately weak angular to subangular chalk cobbles. Gravel is weak to moderately weak, medium density white chalk fragments. (SEAFORD CHALK FORMATION)	19.50 19.50	D04	N17	2, 3 / 3, 5, 4, 5		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

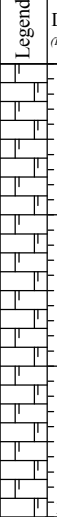
Job No 16/2900	Date Started 25/01/17 Date Completed 27/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542971.4 N 180248.9	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 3 of 4

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill		
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result				
26/01/17 27/01/17	15.00 15.00		20			-19.32		(5.30)	21.00 ... becoming very silty well-rounded angular to subangular fine to coarse black rinded flint GRAVEL, with rare angular to subangular black rinded flint cobbles	21.00 21.00	D05	N22	5, 5 / 4, 5, 6, 7			
			73	13	10				23.30 - 23.40 ... becoming strong medium density	22.50 22.50	D06	N18	3, 5 / 5, 5, 3, 5			
			93	13	7			24.20	24.00 ... [NI] recovered as: silty, angular to subangular fine to coarse GRAVEL. Gravel is weak to moderately weak, medium density chalk fragments	24.00 24.00	D07	N14	3, 3 / 3, 4, 4, 3			
									Strong, medium density white CHALK. (SEAFORD CHALK FORMATION)							
			100	27	20				24.20 ... becoming strong, white medium density chalk							
									24.25 ... with 1No wide open fracture, infilled with angular to subangular fine to coarse weak, medium density chalk fragments	25.50 25.50	D08	N40	7, 9 / 8, 9, 11, 12			
									24.80 ... with occasional angular to subangular fine to coarse black rinded flint gravel							
									25.50 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL with rare moderately weak, medium density chalk cobbles and rare angular to subangular black rinded flint cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint.	26.10	B09					
100				26.10 - 26.50 ... with horizontal fractures at 26.15m, 26.30m and at 26.40m												
				26.40 ... with angular to subangular medium to coarse black rinded flint gravel	27.00 27.00	D10	N45	6, 12 / 13, 8, 11, 13								
				26.50 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density white chalk fragments and black rinded flint												
				26.90 ... becoming strong, medium density CHALK with occasional purple staining	28.00	B11										
33				26.95 ... with 1No horizontal fracture												
				27.00 ... becoming very silty												
									27.50 ... becoming silty with occasional moderately weak to strong, medium density chalk cobbles	28.50		N50/ 235 mm	5, 9 / 11, 15, 20, 4			
								(8.80)	28.50 ... [NI] recovered as: gravelly SILT. Gravel is weak to moderately weak medium density angular to subangular fine to coarse chalk fragments	28.50 28.50	D12 B13					
									28.90 ... with rare coarse angular to subangular rinded flint gravel and cobbles							
										30.00		N44	8, 14 / 13, 11, 10, 10			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 25/01/17 Date Completed 27/01/17	Ground Level (mOD) 4.88	Co-Ordinates E 542971.4 N 180248.9	Final Depth 33.00m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 4 of 4

PROGRESS			STRATA						SAMPLES & TESTS			Field Records	Instrument/ Backfill						
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No			Test Result					
27/01/17	15.00		53						30.00 ... with occasional angular to subangular fine to coarse black rinded flint gravel and rare angular to subangular black rinded flint cobbles	30.50	B14		5, 7 / 11, 11, 10, 12						
										31.50 31.50	D15	N44							
			80																2, 4 / 6, 7, 8, 10
						-28.12		33.00	32.60 ... [NI] recovered as: silty, angular to subangular fine to coarse GRAVEL. Gravel is weak, medium density chalk fragments with rare strong, medium density angular to subangular chalk cobbles 32.90 ... with rare angular to subangular black rinded flint cobbles End of Borehole	33.00 33.00	D16	N31							

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 21/11/16	Ground Level (mOD) 4.79	Co-Ordinates E 543034.6 N 180352.2	Final Depth 32.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	32.00	CP	18/11/2016	21/11/2016	SW	CB			Dando 175	AR909

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks
							27.10	27.50	0:45	Gravel

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	200	0.00	200				
18.50	200	18.10	200				
32.00	150	25.50	150				

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.00	32.00	Cement / Bentonite Grout	21/11/2016

Issue No: 01

Checked By: AN

Approved By: OS

Log Print Date & Time: 03/03/2017 17:43

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 21/11/16	Ground Level (mOD) 4.79	Co-Ordinates E 543034.6 N 180352.2	Final Depth 32.00m
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Client

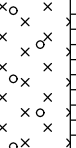
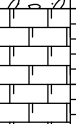
London City Airport Limited

PROGRESS					SPT DETAILS						
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)	
18/11/16	0.00			... see Remark 3	C	13.50	N10	4, 8 / 3, 2, 3, 2	13.50	1.70	
18/11/16	12.50	12.50	1.00		C	14.50	N12	3, 3 / 2, 3, 4, 3	14.50	1.30	
18/11/16	13.50	13.50	1.70		C	15.50	N12	2, 3 / 4, 3, 2, 3	15.50	2.00	
18/11/16	14.50	14.50	1.30		C	16.50	N11	2, 2 / 3, 2, 3, 3	16.50	1.80	
18/11/16	15.50	15.50	2.00		S	18.00	N20	3, 5 / 4, 6, 5, 5	18.00	2.10	
18/11/16	16.50	16.50	1.80		S	19.50	N15	2, 3 / 3, 3, 4, 5	19.50	0.90	
18/11/16	18.00	18.00	2.10		S	21.00	N17	2, 3 / 3, 4, 5, 5	21.00	1.00	
18/11/16	18.50	18.10	1.70		S	22.50	N20	2, 3 / 4, 5, 5, 6	22.50	0.60	
21/11/16	18.50	18.10	1.95		S	24.00	N19	3, 5 / 4, 4, 6, 5	24.00	0.40	
21/11/16	19.50	19.50	0.90		S	25.50	N50/0.23	6, 12 / 14, 17, 13, 6	25.50	1.00	
21/11/16	21.00	21.00	1.00		S	27.00	N50/0.04	8, 17 / 50	25.50	1.10	
21/11/16	22.50	22.50	0.60		S	28.50	N30	5, 8 / 8, 7, 8, 7	25.50	0.90	
21/11/16	24.00	24.00	0.40		S	30.00	N38	6, 8 / 9, 10, 9, 10	25.50	0.70	
21/11/16	25.50	25.50	1.00		S	31.50	N50/0.29	5, 8 / 9, 9, 13, 19	25.50	1.00	
21/11/16	27.00	25.50	1.10								
21/11/16	28.50	25.50	0.90								
21/11/16	30.00	25.50	0.70								
21/11/16	31.50	25.50	1.00								
21/11/16	32.00	25.50	1.00								

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16	Ground Level (mOD) 4.79	Co-Ordinates	Final Depth 32.00m
	Date Completed 21/11/16		E 543034.6 N 180352.2	
Client London City Airport Limited			Method/ Plant Used Cable Percussion	Sheet 2 of 4

PROGRESS			STRATA			SAMPLES & TESTS				Field Records	Instrument/ Backfill	
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
18/11/16	12.50	1.00	-7.21		12.00					... VOC 0.3ppm		
					(1.10)	Dark grey gravelly SILT with strong hydrocarbon odour. Gravel is angular to well rounded fine to coarse flint. (DOCK SEDIMENT)	12.00 12.00 12.00-12.50 12.50-12.95	ES01 B02 UT03	8 blows	100% Recovery		
			-8.31		13.10		13.00 13.10-13.50	D04 B05				
					(0.40)	Dark grey sandy very silty angular to well rounded fine to coarse flint GRAVEL with strong hydrocarbon odour. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	13.20 13.20 13.50 13.50 13.50	ES06 ES07 B08	N10	... VOC 0.3ppm 4, 8 / 3, 2, 3, 2 ... VOC 0.0ppm		
18/11/16	14.50	1.30	-8.71		13.50	Dark brown slightly sandy angular to well rounded flint GRAVEL. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) 14.25 ... becoming sandy	14.25 14.50 14.50-15.00	D09 B10	N12	3, 3 / 2, 3, 4, 3		
					(4.00)		15.25 15.50 15.50-16.00	D11 B12	N12	2, 3 / 4, 3, 2, 3		
						16.25 ... becoming slightly sandy	16.25 16.50 16.50-17.00	D13 B14	N11	2, 2 / 3, 2, 3, 3		
			-12.71		17.50		17.50-18.00	B15				
18/11/16	18.00	2.10				Extremely weak, medium density off-white CHALK recovered as: silty angular to subangular chalk COBBLES and occasional angular to subangular medium to coarse black rinded flint GRAVEL. (SEAFORD CHALK FORMATION) 18.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint	18.00 18.00	D16	N20	3, 5 / 4, 6, 5, 5		
18/11/16	18.10	1.70					18.50-19.00	B17				
21/11/16	18.10	1.95										
21/11/16	19.50	0.90					19.50 19.50	D18	N15	2, 3 / 3, 3, 4, 5		
						19.50 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to coarse extremely weak,	20.00-20.50	B19				

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 21/11/16	Ground Level (mOD) 4.79	Co-Ordinates E 543034.6 N 180352.2	Final Depth 32.00m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 3 of 4		

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
21/11/16	21.00	1.00				medium density chalk fragments 20.00 - 20.50 ... with rare cobble size angular to subangular black rinded flint	21.00 21.00	D20	N17	2, 3 / 3, 4, 5, 5	
						21.00 ... [NI] recovered as: firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium extremely weak, medium density chalk fragments 21.50 ... with occasional angular to subangular black rinded flint cobbles	21.50-22.00	B21			
21/11/16	22.50	0.60				22.50 ... [NI] recovered as: soft, white gravelly SILT. Gravel comprises angular to subangular fine to medium black rinded flint and extremely weak, medium density chalk fragments 23.00 ... with rare angular to subangular black rinded flint cobbles	22.50 22.50	D22	N20	2, 3 / 4, 5, 5, 6	
							23.00-23.50	B23			
21/11/16	24.00	0.40				24.00 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint	24.00 24.00	D24	N19	3, 5 / 4, 4, 6, 5	
							24.50-25.00	B25			
21/11/16	25.50	1.00				25.50 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel comprises angular to subangular fine to medium black rinded flint and extremely weak, low density chalk fragments	25.50 25.50	D26	N50/ 230 mm	6, 12 / 14, 17, 13, 6	
							26.50	D27			
21/11/16	25.50	1.10				26.50 ... [NI] recovered as: very soft, white very gravelly SILT. Gravel comprises angular to subangular fine to medium black rinded flint and fine to coarse extremely weak, medium density chalk fragments 27.00 ... [NI] recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint 27.10 ... with occasional angular to subangular black rinded flint cobbles	27.00 27.10-27.50	D28 B29	N50/ 40 mm	8, 17 / 50	
							28.10	D30			
21/11/16	25.50	0.90				28.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel comprises moderately weak, medium density white chalk fragments and black rinded flint 28.50 ... [NI] recovered as: soft, white slightly gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint	28.50 28.50	D31	N30	5, 8 / 8, 7, 8, 7	
							29.00-29.50	B32			
21/11/16	25.50	0.70					30.00		N38	6, 8 / 9, 10, 9, 10	

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 18/11/16 Date Completed 21/11/16	Ground Level (mOD) 4.79	Co-Ordinates E 543034.6 N 180352.2	Final Depth 32.00m
Client London City Airport Limited	Method/ Plant Used Cable Percussion	Sheet 4 of 4		

PROGRESS			STRATA				SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
21/11/16	25.50	1.00				30.00 ... [NI] recovered as: soft to firm, white slightly gravelly SILT. Gravel is angular to subangular fine to medium black rinded flint	30.00	D33		5, 8 / 9, 9, 13, 19	
						30.50 ... with occasional angular to subangular fine to coarse black rinded flint gravel and rare angular to subangular black rinded flint cobbles	30.50-31.00	B34			
						31.50 ... [NI] recovered as: firm, white SILT.	31.50		N50/ 290 mm		
21/11/16	25.50	1.00	-27.21		32.00	End of Borehole	31.50	D35			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 10/01/17 Date Completed 16/01/17	Ground Level (mOD) 4.93	Co-Ordinates E 543114.1 N 180368.0	Final Depth 45.50m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00 17.00	17.00 45.50	OH RC	10/01/2017 10/01/2017	10/01/2017 16/01/2017	FD FD	CB CB	112 112	PDC PDC	Geotec 350 Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	12.50	17.00		0
17.00	150	17.00	150	17.00	18.50		47
45.50	146			18.50	20.00		93
				20.00	21.50		100
				21.50	23.00		93
				23.00	24.50		80
				24.50	26.00		86
				26.00	27.50		60
				27.50	29.00		73
				29.00	30.50		87
				30.50	32.00		67
				32.00	33.50		80
				33.50	35.00		87
				35.00	36.50		60
				36.50	38.00		87
				38.00	39.50		80
				39.50	41.00		87
				41.00	42.50		67
				42.50	44.00		100
				44.00	45.50		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
17.00	39.50	Water	100	
39.50	45.50	Water	50	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
17.00	46.00	Cement / Bentonite Grout	16/01/2017

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 10/01/17 Date Completed 16/01/17	Ground Level (mOD) 4.93	Co-Ordinates E 543114.1 N 180368.0	Final Depth 45.50m
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Client

London City Airport Limited

PROGRESS					SPT DETAILS					
Date	Hole Depth (m)	Casing Depth (m)	Water Depth (m)	Remarks	Type	Depth (m)	N Value	Blow Count / 75mm	Casing Depth (m)	Water Depth (m)
10/01/17	0.00				S	17.00	N37	4, 6 / 7, 8, 10, 12		
10/01/17	17.00	15.00	2.00	... Rotary flush	S	18.50	N34	4, 7 / 9, 8, 9, 8		
10/01/17	24.50	15.00	2.00		S	20.00	N22	3, 5 / 5, 5, 4, 8		
11/01/17	24.50	15.00	2.00		S	21.50	N30	5, 6 / 5, 8, 8, 9		
11/01/17	30.50	15.00	5.00		S	23.00	N36	5, 10 / 9, 9, 8, 10		
12/01/17	30.50	17.00	4.00		S	24.50	N35	4, 7 / 9, 9, 8, 9		
12/01/17	39.50	17.00	4.00		S	26.00	N30	6, 4 / 6, 7, 8, 9		
13/01/17	39.50	17.00			S	27.50	N37	5, 7 / 8, 10, 9, 10		
13/01/17	42.50	17.00			S	29.00	N34	6, 7 / 4, 8, 10, 12		
16/01/17	42.50	17.00			S	30.50	N37	3, 7 / 8, 9, 9, 11		
16/01/17	45.50	17.00			S	32.00	N47	5, 6 / 9, 10, 11, 17		
					S	33.50	N50/0.265	5, 8 / 7, 13, 16, 14		
					S	35.00	N29	3, 6 / 5, 8, 8, 8		
					S	36.50	N50/0.15	4, 10 / 11, 9, 30		
					S	38.00	N39	5, 7 / 7, 9, 11, 12		
					S	39.50	N36	4, 5 / 7, 9, 10, 10		
					S	41.00	N39	4, 6 / 9, 9, 10, 11		
					S	42.50	N41	4, 7 / 6, 8, 12, 15		
					S	44.00	N39	4, 8 / 9, 8, 10, 12		
					S	45.50	N36	5, 6 / 8, 10, 9, 9		

GENERAL REMARKS

- Borehole carried out from a pontoon. All levels are recorded relative to the pontoon level.
- Clearance by UXO Magnetometer probe.
- Borehole drilled open hole between 12.50m and 17.00m depth.

KEY

SAMPLES

- ES - Environmental Sample (Tub, Vial, Jar)
- U - 100mm Diameter Undisturbed Sample
- UT - 100mm Diameter Thin Wall Undisturbed Sample
- U38 - 38mm Diameter Undisturbed Sample
- D - Disturbed Sample, B-Bulk Sample, LB- Large Bulk Sample, BLK-Block Sample
- C - Core Sample, W-Water Sample, R-Root Sample

INSTALLATION DETAILS

- SPIE - Standpipe Piezometer
- SPGW - Groundwater Monitor Standpipe
- SPG/GW - Gas / Groundwater Monitor Standpipe
- VWP - Vibrating Wire Piezometer
- ICM - Inclinator

HOLE TYPES

- IP - Inspection Pit, TP-Trial Pit TT - Trial Trench
- CP - Cable Percussion, RC-Rotary Coring, RS-Rotary/Sonic
- DS - Dynamic Sampling, DS/R-Dynamic Sampling /Rotary
- DC - Diamond Coring, CPR-Cable Percussion Rotary follow on

TESTS S/C-SPT / CPT, V-Shear Vane, PP-Pocket Penetrometer, MP-Mackintosh Probe, VOC-Volatile Organic Compounds

Note: All depths are in metres, all diameters in millimetres, water strike rise time in minutes. For details of abbreviations see Key

Sheet 1 of 5

Issue No: 01	Checked By: AN	Approved By: OS	Log Print Date & Time: 03/03/2017 17:48	
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Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 10/01/17 Date Completed 16/01/17	Ground Level (mOD) 4.93	Co-Ordinates E 543114.1 N 180368.0	Final Depth 45.50m
Client London City Airport Limited			Method/ Plant Used Rotary	Sheet 2 of 5

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill	
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
10/01/17	15.00	2.00	0			-7.57		12.50			D01	N37	4, 6 / 7, 8, 10, 12		
			47			-12.07		17.00	Light grey, very clayey fine SAND. (THANET SAND FORMATION: THANET SAND)	17.00				B02	
								(1.50)		17.50					
			93	36	32	-13.57		18.50	White CHALK [NI] recovered as: soft to firm, white very gravelly SILT. Gravel is weak, low to medium density chalk fragments with rare gravel to cobble size angular to subangular coarse black rinded flint. (SEAFORD CHALK FORMATION) 19.00 ... chalk fragments becoming fine to coarse	18.50	N34	4, 7 / 9, 8, 9, 8			
									19.60 - 19.80 ... becoming strong, white CHALK	19.10	B03				
										20.00		N22	3, 5 / 5, 5, 4, 8		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 10/01/17	Ground Level (mOD) 4.93	Co-Ordinates E 543114.1 N 180368.0	Final Depth 45.50m
Date Completed 16/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary			Sheet 3 of 5

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result			
10/01/17 11/01/17	15.00 15.00	2.00 2.00	100				(4.10)	20.40 ... becoming weak, medium density with occasional subvertical and subhorizontal fractures	20.00	D04	N30	5, 6 / 5, 8, 8, 9		
								20.75 ... with 1No wide open fracture infilled with angular to subangular fine to coarse gravel size moderately weak to weak, chalk fragments	21.50 21.50	D05				
								21.50 - 22.00 ... becoming very silty						
								22.30 ... with rare angular to subangular black rinded flint cobbles	22.50-22.80	B06				
			93	21	18		-17.67		22.60	Strong, medium density white CHALK. (SEAFORD CHALK FORMATION)	23.00 23.00	D07	N36	5, 10 / 9, 9, 8, 10
										22.60 ... becoming strong and medium density				
										22.80 ... with 1No horizontal fracture				
										23.00 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel is weak to moderately weak, medium density chalk fragments with occasional angular to subangular moderately weak chalk cobbles	23.50	B08		
			80	16	15					24.00 ... with 1No subhorizontal fracture			N35	4, 7 / 9, 9, 8, 9
										24.20 ... with occasional cobble size and fine to coarse gravel size black rinded flint	24.50 24.50	D09		
										24.90 ... [NI] recovered as: soft, gravelly SILT. Gravel is angular to subangular fine to coarse weak, medium density chalk fragments	25.00	B10		
										25.40 ... with 1No horizontal fracture				
			86	29	21					25.70 ... with 1No horizontal fracture with purple staining	26.00 26.00	D11	N30	6, 4 / 6, 7, 8, 9
										25.80 - 26.00 ... with 1No open wide horizontal fracture				
										26.80 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel is angular to subangular fine to coarse, weak medium density chalk fragments	27.00	B12		
										26.90 - 27.30 ... becoming intact CHALK	27.50 27.50	D13		
			60	44	28					27.00 ... with 1No horizontal fracture			N37	5, 7 / 8, 10, 9, 10
										28.10 ... [NI] recovered as: angular to subangular fine to coarse silty GRAVEL. Gravel is weak, medium density chalk fragments				
										28.40 ... with 1No horizontal fracture				
										28.45 - 28.55 ... becoming very silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint	28.90 29.00 29.00	B14 D15		
			73	50	23					28.60 - 28.70 ... with occasional subvertical and subhorizontal fractures			N34	6, 7 / 4, 8, 10, 12
										28.80 ... with 1No vertical fracture				
										28.85 ... with 1No subhorizontal fracture	29.70	B16		
										29.00 - 29.60 ... [NI] recovered as: soft to firm, slightly gravelly SILT. Gravel comprises angular to	30.00-30.20	C17		

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 10/01/17	Ground Level (mOD) 4.93	Co-Ordinates E 543114.1 N 180368.0	Final Depth 45.50m
Date Completed 16/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary			Sheet 4 of 5

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
11/01/17	15.00	5.00	87	46	35				subangular fine to coarse, weak, medium density chalk fragments and angular to subangular black rinded flint	30.50		N37	3, 7 / 8, 9, 9, 11	
12/01/17	17.00	4.00							29.60 ... with rare angular to subangular black rinded flint cobbles	30.50	D18			
									29.80 ... with 1No horizontal fracture					
									30.00 ... with 1No wide open fracture infilled with angular to subangular fine to coarse extremely weak to moderately weak, medium to low density chalk fragments					
			67						30.00 - 30.15 ... becoming strong and medium density					
									30.00 - 30.20 ... with 1No subhorizontal fracture					
									30.15 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL and occasional angular to subangular moderately weak chalk cobbles. Gravel is weak, medium density white chalk fragments	32.00		N47	5, 6 / 9, 10, 11, 17	
									30.20 - 30.50 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL with occasional weak to moderately weak, medium density chalk cobbles and rare black rinded flint cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint	32.00	D19			
			80	71	63				31.00 ... [NI] recovered as: silty, angular to subangular fine to coarse GRAVEL with rare moderately weak medium density chalk cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint.	32.70	B20			
									32.00 ... becoming very silty with rare black rinded flint cobbles	33.50		N50/ 265 mm	5, 8 / 7, 13, 16, 14	
									32.70 ... with 1No wide open subhorizontal fracture	33.50	D21			
									32.80 ... with 1No open horizontal fracture	34.10	B22			
			87	62	35			(22.90)	33.00 ... with 1No wide open fracture infilled with angular to subangular fine to coarse weak, medium density chalk fragments and rare flint cobbles					
									33.20 ... with 1No subhorizontal fracture					
									33.40 ... with 1No horizontal fracture					
									33.50 - 34.00 ... [NI] recovered as: silty, angular to subangular fine to coarse chalk GRAVEL.	35.00		N29	3, 6 / 5, 8, 8, 8	
									34.20 ... with subhorizontal fractures	35.00	D23			
									34.50 ... with 1No horizontal fracture and at 34.70m					
									34.50 - 34.90 ... with 1No vertical wide open fracture with purple staining					
			60	28	17				34.90 - 35.00 ... with angular to subangular coarse black rinded flint gravel and cobbles					
									35.50 - 36.10 ... [NI] recovered as: angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint	36.00-36.50	B24			
									36.10 - 36.20 ... with 1No subvertical fracture	36.50		N50/ 150 mm	4, 10 / 11, 9, 30	
									36.30 ... with 1No horizontal fracture infilled rare angular to subangular fine to coarse black rinded flint					
									36.35 ... with 1No horizontal fracture infilled with angular to subangular fine to coarse black rinded flint	36.50	D25			
			87						36.45 ... with 1No wide open horizontal fracture					
									36.50 ... [NI] recovered as: soft, white gravelly SILT. Gravel is angular to subangular fine to coarse black rinded flint	37.50	B26			
									37.10 ... [NI] recovered as: very silty angular to subangular fine to coarse GRAVEL with rare angular to subangular weak, medium density chalk cobbles. Gravel comprises weak, medium density chalk fragments	38.00		N39	5, 7 / 7, 9, 11, 12	
										38.00	D27			
									38.45 ... with 1No wide open subvertical fracture					
			80	71	54				38.50 ... with 1No horizontal fracture and at 38.70m, 38.80m					
									38.90 ... with 1No subhorizontal fracture and at 38.95m					
									39.10 ... with 1No wide open horizontal fracture	39.20-39.50	C28			
12/01/17	17.00	4.00								39.50		N36	4, 5 / 7, 9, 10, 10	
13/01/17	17.00		87	54	39				39.50 - 39.80 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL with occasional angular to subangular moderately weak, medium	39.50	D29			

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 10/01/17	Ground Level (mOD) 4.93	Co-Ordinates E 543114.1 N 180368.0	Final Depth 45.50m
Date Completed 16/01/17				
Client London City Airport Limited	Method/ Plant Used Rotary			Sheet 5 of 5

PROGRESS			STRATA							SAMPLES & TESTS			Field Records	Instrument/ Backfill
Date	Casing	Water	TCR %	SCR %	RQD %	Level (mOD)	Legend	Depth (Thickness)	Strata Description	Depth (m)	Type No	Test Result		
13/01/17 16/01/17	17.00 17.00		87	54	39				density chalk cobbles. Gravel is weak, medium density chalk fragments 39.90 - 40.00 ... with 1No subvertical fracture 40.20 - 40.30 ... [NI] recovered as: silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak to moderately weak, medium density chalk fragments and black rinded flint 40.40 ... with 1No subvertical fracture 40.50 - 40.70 ... with 1No wide open subvertical fracture 40.80 ... with 1No horizontal fracture 41.40 - 41.80 ... [NI] recovered as: very silty angular to subangular fine to coarse GRAVEL. Gravel comprises weak, medium density chalk fragments and black rinded flint 41.90 ... with 1No horizontal fracture	40.50	B30		4, 6 / 9, 9, 10, 11	
									41.00 41.00	D31	N39			
			67	55	50					41.90-42.30	C32			
										42.50 42.50	D33	N41		4, 7 / 6, 8, 12, 15
16/01/17	17.00		100	87	80				42.30 ... with 1No wide open horizontal fracture and weak, medium density angular to subangular fine to coarse chalk fragments 42.50 - 42.60 ... [NI] recovered as: very silty angular to subangular fine to coarse GRAVEL with rare black rinded flint cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint 42.70 ... with 1No wide open fracture infilled with angular to subangular fine to coarse weak, medium density chalk fragments and black rinded flint 42.70 ... with 1No horizontal fracture and at 43.10m, 43.20m 42.80 ... with 1No horizontal fracture 44.00 - 44.40 ... [NI] recovered as: very silty, angular to subangular fine to coarse GRAVEL with rare weak, medium density chalk cobbles. Gravel comprises weak, medium density chalk fragments and black rinded flint	43.20-43.60	C34		4, 8 / 9, 8, 10, 12	
									44.00 44.00	D35	N39			
			100	60	57					45.00-45.30	C36			
										45.50 45.50	D37	N36		5, 6 / 8, 10, 9, 9
						-40.57		45.50	45.40 ... with 1No wide open fracture End of Borehole					

Project

CADP Surveys Ground Investigation (Dock) - Phase 2

Job No 16/2900	Date Started 14/12/16 Date Completed 16/12/16	Ground Level (mOD) 4.23	Co-Ordinates E 543181.6 N 180343.2	Final Depth 33.00m
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Client

London City Airport Limited

BOREHOLE SUMMARY

Top (m)	Base (m)	Type	Date Started	Date Ended	Crew	Logged By	Core Barrel (mm)	Core Bit	Plant Used/ Method	SPT Hammer Reference
0.00	15.50	OH	14/12/2016	14/12/2016	TC	CB			Geotec 350	
15.50	18.00	DS	14/12/2016	15/12/2016	TC	CB			Geotec 350	AR779
18.00	33.00	RC	15/12/2016	16/12/2016	TC	CB	112	PDC	Geotec 350	AR779

WATER STRIKES

WATER ADDED

CHISELLING / SLOW DRILLING

Strike at (m)	Rise to (m)	Time to Rise (min)	Casing Depth (m)	Sealed (m)	From (m)	To (m)	From (m)	To (m)	Duration (hr)	Remarks

HOLE

CASING

ROTARY RECOVERY

Depth (m)	Diameter (mm)	Depth (m)	Diameter (mm)	From (m)	To (m)	Blows	Recovery (%)
0.00	150	0.00	150	15.50	17.00		67
18.00	150	14.00	150	17.00	18.00		100
33.00	146			18.00	18.50		100
				18.50	23.00		100
				23.00	24.50		87
				24.50	26.00		100
				26.00	27.50		80
				27.50	29.00		80
				29.00	30.20		100
				30.20	31.50		100
				31.50	33.00		100

ROTARY FLUSH DETAIL

From (m)	To (m)	Flush Type	Flush Return (%)	Flush Colour
18.00	33.00	Water	70	

INSTALLATION DETAILS

Type	Diameter (mm)	Depth of Installation (m)	Top of Response Zone (m)	Bottom of Response Zone (m)	Date of Installation

BACKFILL DETAILS

Top (m)	Bottom (m)	Material	Backfill Date
12.50	33.00	Cement / Bentonite Grout	16/12/2016