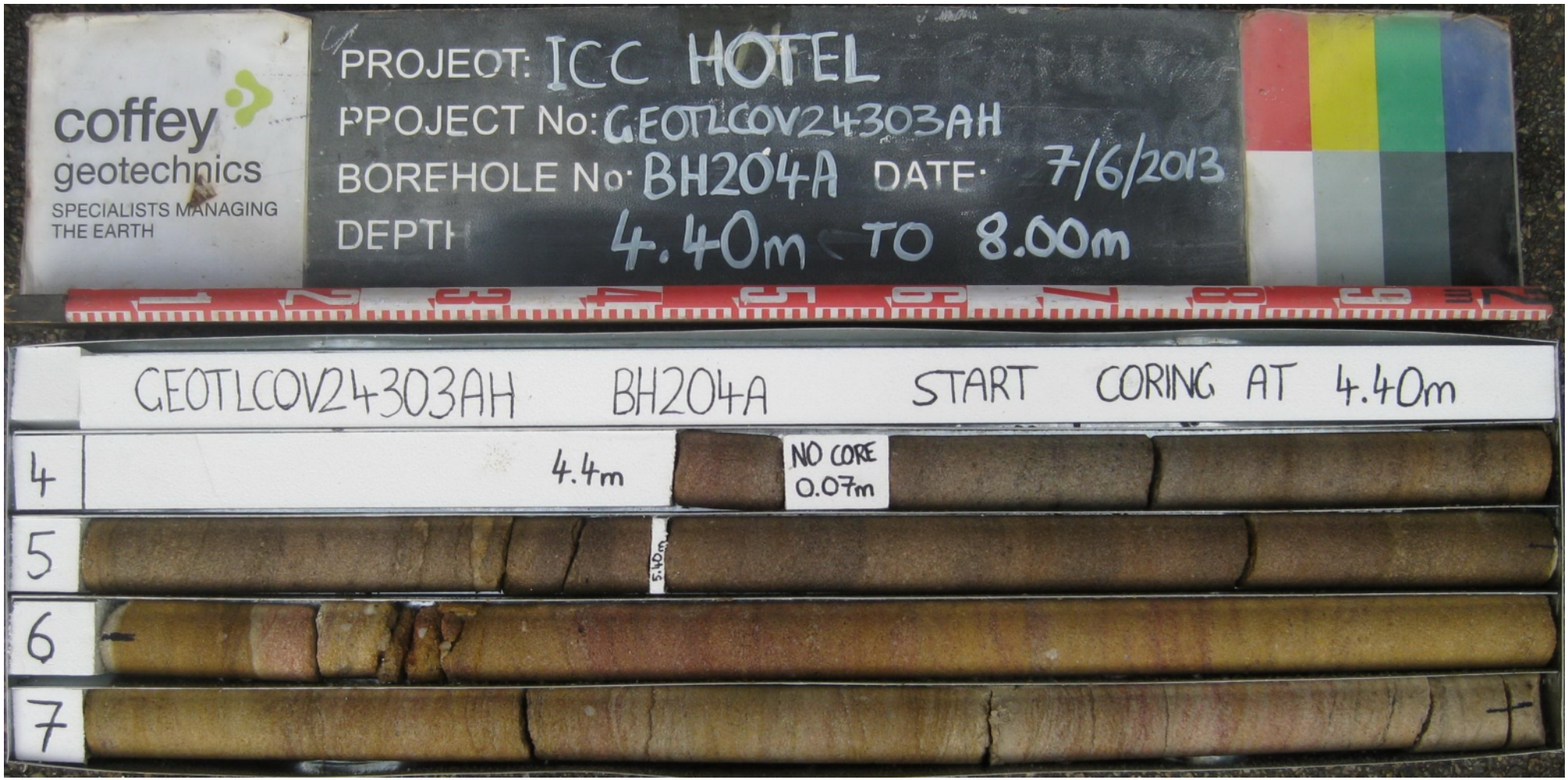

PointID : BH204a Depth Range: 4.40 - 8.00 m

drawn	RC
approved	
date	11/06/2013
scale	N.T.S.
original size	A4

coffey geotechnics
SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel
Darling Harbour, Sydney

title: **CORE PHOTOGRAPH**
BH204A

project no: GEOTLCOV24303AH | fig no: **FIGURE 11** | rev:

PointID : BH204a Depth Range: 8.00 - 13.00 m

drawn	RC
approved	
date	11/06/2013
scale	N.T.S.
original size	A4

coffey geotechnics
SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel Darling Harbour, Sydney

title: **CORE PHOTOGRAPH BH204A**

project no: GEOTLCOV24303AH | fig no: **FIGURE 12** | rev:

PointID : BH204a Depth Range: 13.00 - 18.00 m

drawn	RC
approved	
date	11/06/2013
scale	N.T.S.
original size	A4

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SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel
Darling Harbour, Sydney

title: **CORE PHOTOGRAPH**
BH204A

project no: GEOTLCOV24303AH | fig no: **FIGURE 13** | rev:

PointID : BH204a Depth Range: 18.00 - 20.40 m

drawn	RC
approved	
date	11/06/2013
scale	N.T.S.
original size	A4

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SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel
Darling Harbour, Sydney

title: **CORE PHOTOGRAPH**
BH204A

project no: GEOTLCOV24303AH | fig no: **FIGURE 14** | rev:

coffey geotechnics

Engineering Log - Borehole

Borehole ID.	***BH205***
sheet:	1 of 4
project no.	***GEOTLCOV24303AH***
client: ***Lend Lease Development Pty Ltd***	date started: ***16 May 2013***
principal:	date completed: ***16 May 2013***
project: ***SICEEP - International Convention Centre (ICC) Hotel***	logged by: ***CL***
location: ***Darling Harbour, Sydney***	checked by: ***DS***

position: E: 333,392.80; N: 6,250,492.80 (Datum Not Specified) surface elevation : 2.90m (Datum Not Specified) angle from horizontal: 90°

drill model: DP520 mounting: Track hole diameter : 300 mm

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
HA V			E					**ASPHALT**: 0.08m.				**PAVEMENT**
								FILL: Gravelly SAND: fine coarse, angular, Dark grey, Fine to medium gravel.	D			PID = 0ppm at 0.1m, no odour or staining **FILL** PID = 0ppm at 0.5m, no odour or staining
			E									
			E SPT 3, 7, 5 N*=12	2	1.0			**FILL: Silty CLAY**: high plasticity, mottled orange brown- red brown, with atrace of fine grained ironestone gravel and sand.	<Wp			PID = 0ppm at 1.0m, no odour or staining
AD/T CASING							SM	**Silty SAND**: fine medium, mottled orange brown-grey, with a trace of ironstone gravel.	M	L / MD		**RESIDUAL SOIL**
			E	1	2.0					D		PID = 0ppm at 2.0m, no odour or staining
			SPT 14, 10, 9/80mm N*=R	0	3.0			**SANDSTONE**: orange brown mottled, pale grey, HW/MW, estimated low strength. Borehole BH205 continued as cored hole				**BEDROCK**
				-1	4.0							
				-2	5.0							
				-3	6.0							
				-4	7.0							
				-5								

CDF_0_9_04AL.GLB Log COF BOREHOLE: NON CORED GEOTLCOV24303AH BH20X SERIES.GPJ <<DrawingFile>> 11/07/2013 15:12

method
AD auger drilling*
AS auger screwing*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
DT diatube
B blank bit
V V bit
T TC bit
* bit shown by suffix
e.g. AD/T

support
M mud
C casing
N nil

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
U## undisturbed sample ##mm diameter
D disturbed sample
B bulk disturbed sample
E environmental sample
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear peak/remouded (uncorrected kPa)
R refusal

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Cored Borehole

Borehole ID.	***BH205***
sheet:	2 of 4
project no.	***GEOTLCOV24303AH***
client: ***Lend Lease Development Pty Ltd***	date started: ***16 May 2013***
principal:	date completed: ***16 May 2013***
project: ***SICEEP - International Convention Centre (ICC) Hotel***	logged by: ***CL***
location: ***Darling Harbour, Sydney***	checked by: ***DS***

position: E: 333,392.80; N: 6,250,492.80 (Datum Not Specified) surface elevation : 2.90m (Datum Not Specified) angle from horizontal: 90°

drill model: DP520 mounting: Track hole diameter : 300 mm

drilling information | **material substance** | **rock mass defects**

method & support	water	RL (m)	depth (m)	graphic log	material description **ROCK TYPE**: grain characterisics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 (X = axial; O = diametral) VL L M H VH EH	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm) 30 100 300 1000 3000	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other) particular / general
		2	1.0								
		1	2.0								
		0			start coring at 2.90m						
NMLC			3.0		**SANDSTONE**: fine to medium grained, orange brown mottled, pale grey, distinctly cross bedded 0-10°	MW		a=0.81 d=0.74			SM, 10 mm PT, 0°, PL, RO, CO
		-1			**NO CORE:** 0.25 m						PT, 0°, PL, RO, CO PT, 0°, PL, RO, CN nota defect
			4.0		**SANDSTONE**: fine to medium grained, orange brown-brown mottled pale grey, distinctly cross bedded 0-10°	MW		a=0.93 d=0.94			PT, 0°, PL, RO, CO
		-2	5.0					a=1.62 d=1.57	97%		PT, 0°, PL, RO, CN
		-3	6.0		6.02m to 6.32m: pale grey mottled pale red, orange brown and red brown			a=1.77 d=2.00 a=1.44 d=1.22			50 mm, Highly fractured zone
		-4	7.0		**INTERLAMINATED SHALE (75%) & SANDSTONE (25%)**: medium grained, shale is grey to dark grey, sandstone is fine grained, disturbed laminations	FR			98%		PT, 0°, PL, RO, CN SM, 30 mm PT, 0°, PL, RO, CN
		-5			**SANDSTONE**: fine grained, grey, with dark grey laminae, distinctly cross bedded at 0-5°			a=1.56 d=0.14			PT, 0°, PL, RO, CN SM, 10 mm
									95%		JT, 15°, PL, RO, CO JT, 50°, PL, RO, CN JT, 15°, PL, RO, CN

CDF_0_9_04AL.GLB Log COF BOREHOLE: CORED GEOTLCOV24303AH BH20X SERIES.GPJ <<DrawingFile>> 11/07/2013 15:10

method & support

DT	diatube
AS	auger screwing
AD	auger drilling
RR	roller/tricone
CB	claw or blade bit
W	washbore
NMLC	NMLC core (51.9 mm)
NQ	wireline core (47.6mm)
HQ	wireline core (63.5mm)
PQ	wireline core (85.0mm)
SPT	standard penetration test

water

10/10/12, water level on date shown
water inflow
complete drilling fluid loss
partial drilling fluid loss
25uL water pressure test result (lugeons) for depth interval shown

graphic log / core recovery

core recovered (graphic symbols indicate material)
no core recovered

core run & RQD

barrel withdrawn

RQD = Rock Quality Designation (%)

weathering & alteration*

RS	residual soil
XW	extremely weathered
HW	highly weathered
DW	distinctly weathered
MW	moderately weathered
SW	slightly weathered
FR	fresh

*W replaced with A for alteration

strength

VL	very low
L	low
M	medium
H	high
VH	very high
EH	extremely high

defect type

PT	parting
JT	joint
SZ	shear zone
SS	shear surface
CS	crushed seam
SM	seam
DB	drilling break

roughness

SL	slickensided
POL	polished
SO	smooth
RO	rough
VR	very rough

planarity

PL	planar
CU	curved
UN	undulating
ST	stepped
IR	Irregular

coating

CN	clean
SN	stain
VN	veneer
CO	coating

coffey geotechnics

Engineering Log - Cored Borehole

Borehole ID.	***BH205***
sheet:	3 of 4
project no.	***GEOTLCOV24303AH***
client: ***Lend Lease Development Pty Ltd***	date started: ***16 May 2013***
principal:	date completed: ***16 May 2013***
project: ***SICEEP - International Convention Centre (ICC) Hotel***	logged by: ***CL***
location: ***Darling Harbour, Sydney***	checked by: ***DS***

position: E: 333,392.80; N: 6,250,492.80 (Datum Not Specified) surface elevation : 2.90m (Datum Not Specified) angle from horizontal: 90°

drill model: DP520 mounting: Track hole diameter : 300 mm

drilling information | **material substance** | **rock mass defects**

method & support	water	RL (m)	depth (m)	graphic log	material description **ROCK TYPE**: grain characterisics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 (X = axial; O = diametral) VL L M H VH EH	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm) 30 100 300 1000 3000	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other) particular / general
NMLC		-6	9.0		**SANDSTONE**: continued **NO CORE:** 0.06 m **SANDSTONE**: fine to medium grained, pale grey, with dark grey laminae, distinctly bedded at 0-5°	FR		a=0.34 d=0.47	95%		Highly fractured zone PT, 0°, PL, RO, CN
											PT, 0°, PL, RO, CN
					SANDSTONE: fine to medium grained, pale grey, massive, with carbonaceous flecks				100%		
		-7	10.0					a=1.41 d=1.66			
		-8	11.0					a=1.70 d=1.92	100%		
		-9	12.0					a=2.09 d=1.80	100%		
		-10	13.0					a=2.04 d=1.90			
		-11	14.0		13.90m to 14.01m: with some dark grey carbonacous laminae at 0°			a=1.13 d=0.86	98%		SM
								a=1.29 d=1.07			JT, 5°, PL, RO, CO
		-12	15.0		**SANDSTONE**: medium grained, pale grey, with dark grey laminae, distinctly cross bedded at 0-20°, some shale clasts				100%		
		-13						a=1.23 d=1.34			JT, 10°, PL, RO JT, 10°, PL, RO, CO

CDF_0_9_04AL.GLB Log COF BOREHOLE: CORED GEOTLCOV24303AH BH20X SERIES.GPJ <<DrawingFile>> 11/07/2013 15:10

method & support

DT	diatube
AS	auger screwing
AD	auger drilling
RR	roller/tricone
CB	claw or blade bit
W	washbore
NMLC	NMLC core (51.9 mm)
NQ	wireline core (47.6mm)
HQ	wireline core (63.5mm)
PQ	wireline core (85.0mm)
SPT	standard penetration test

water

- 10/10/12, water level on date shown
- water inflow
- complete drilling fluid loss
- partial drilling fluid loss
- 25uL: water pressure test result (lugeons) for depth interval shown

graphic log / core recovery

- core recovered (graphic symbols indicate material)
- no core recovered

core run & RQD

- barrel withdrawn

RQD = Rock Quality Designation (%)

weathering & alteration*

RS	residual soil
XW	extremely weathered
HW	highly weathered
DW	distinctly weathered
MW	moderately weathered
SW	slightly weathered
FR	fresh

*W replaced with A for alteration

strength

VL	very low
L	low
M	medium
H	high
VH	very high
EH	extremely high

defect type

PT	parting
JT	joint
SZ	shear zone
SS	shear surface
CS	crushed seam
SM	seam
DB	drilling break

roughness

SL	slickensided
POL	polished
SO	smooth
RO	rough
VR	very rough

planarity

PL	planar
CU	curved
UN	undulating
ST	stepped
IR	Irregular

coating

CN	clean
SN	stain
VN	veneer
CO	coating

coffey geotechnics

Engineering Log - Cored Borehole

Borehole ID.	***BH205***
sheet:	4 of 4
project no.	***GEOTLCOV24303AH***
client: ***Lend Lease Development Pty Ltd***	date started: ***16 May 2013***
principal:	date completed: ***16 May 2013***
project: ***SICEEP - International Convention Centre (ICC) Hotel***	logged by: ***CL***
location: ***Darling Harbour, Sydney***	checked by: ***DS***

position: E: 333,392.80; N: 6,250,492.80 (Datum Not Specified) surface elevation : 2.90m (Datum Not Specified) angle from horizontal: 90°

drill model: DP520 mounting: Track hole diameter : 300 mm

drilling information				material substance					rock mass defects		
method & support	water	RL (m)	depth (m)	graphic log	material description **ROCK TYPE**: grain characterisics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 (X = axial; O = diametral) VL L M H VH EH	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm) 30 100 300 1000 3000	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other) particular / general
NMLC		-14	17.0		**SANDSTONE**: medium grained, pale grey, with dark grey laminae, distinctly cross bedded at 0-20°, some shale clasts *(continued)*	FR		a=2.53 d=2.42	96%		SM XW, 40 mm SM XW, 10 mm PT, PL, RO, CN PT, 0°, PL, RO, CN
		-15	18.0		17.76m to 17.87m: shale band			a=3.23 d=2.35			PT, 0°, PL, RO, CN
		-16	19.0					a=2.70 d=2.30 a=3.30 d=3.23	99%		PT, 0°, PL, RO, CN PT, 0°, PL, RO, CO, siderite JT, 25°, PL, RO, CN
		-17	20.0					a=2.59 d=2.86			PT, 0°, PL, RO, CO PT, 0°, PL, RO, CO
		-18	21.0		Borehole BH205 terminated at 20.60 m						
		-19	22.0								
		-20	23.0								
		-21									

CDF_0_9_04AL.GLB Log COF BOREHOLE: CORED GEOTLCOV24303AH BH20X SERIES.GPJ <<DrawingFile>> 11/07/2013 15:10

method & support

DT	diatube
AS	auger screwing
AD	auger drilling
RR	roller/tricone
CB	claw or blade bit
W	washbore
NMLC	NMLC core (51.9 mm)
NQ	wireline core (47.6mm)
HQ	wireline core (63.5mm)
PQ	wireline core (85.0mm)
SPT	standard penetration test

water

10/10/12, water level on date shown
water inflow
complete drilling fluid loss
partial drilling fluid loss
25uL water pressure test result (lugeons) for depth interval shown

graphic log / core recovery

core recovered (graphic symbols indicate material)
no core recovered

core run & RQD

barrel withdrawn

RQD = Rock Quality Designation (%)

weathering & alteration*

RS	residual soil
XW	extremely weathered
HW	highly weathered
DW	distinctly weathered
MW	moderately weathered
SW	slightly weathered
FR	fresh

*W replaced with A for alteration

strength

VL	very low
L	low
M	medium
H	high
VH	very high
EH	extremely high

defect type

PT	parting
JT	joint
SZ	shear zone
SS	shear surface
CS	crushed seam
SM	seam
DB	drilling break

roughness

SL	slickensided
POL	polished
SO	smooth
RO	rough
VR	very rough

planarity

PL	planar
CU	curved
UN	undulating
ST	stepped
IR	Irregular

coating

CN	clean
SN	stain
VN	veneer
CO	coating

coffey geotechnics

Piezometer Installation Log

Hole ID.	***BH205***
sheet:	1 of 2
project no.	***GEOTLCOV24303AH***
client: ***Lend Lease Development Pty Ltd***	date started: ***16 May 2013***
principal:	date completed: ***16 May 2013***
project: ***SICEEP - International Convention Centre (ICC) Hotel***	logged by: ***CL***
location: ***Darling Harbour, Sydney***	checked by: ***MG***

position: E: 333,392.80; N: 6,250,492.80 (Datum Not Specified) surface elevation : 2.90m (Datum Not Specified) angle from horizontal: 90°

equipment type: DP520 mounting: Track hole diameter : 300 mm

drilling information | **material substance** | **piezometer construction details**

method & support: NMLC

water

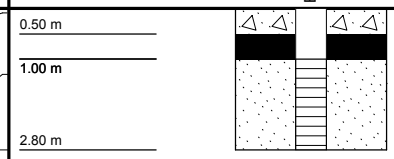
RL (m): 0, -4, -8, -12, -16, -20

depth (m): 4, 8, 12, 16, 20

graphic log

material name

- ASPHALT
- FILL: Gravelly SAND
- FILL: Silty CLAY
- Silty SAND
- SANDSTONE
- **NO CORE**
- SANDSTONE
- INTERLAMINATED SHALE (75%) & SANDSTONE (25%)
- SANDSTONE
- **NO CORE**
- SANDSTONE
- Borehole BH205 terminated at 20.60 m



bore construction license:
drilling company:
driller: NUMAC
driller's permit no.:

method & support
see engineering log for details

water
- 10-Oct-12, water level on date shown
- water inflow
- complete drilling fluid loss
- partial drilling fluid loss
- 25 water pressure test result (lugeons) for depth interval shown

graphic log / core recovery
- core recovered (graphic symbols indicate material)
- no core recovered

ID	type	stick up & RL	tip depth & RL	installation date	static water level
BH205	standpipe piezo.	0.00 m 2.90 m	2.80 m 0.10 m		

PointID : BH205 Depth Range: 2.90 - 7.00 m

drawn	
approved	
date	07/06/2013
scale	N.T.S.
original size	A4

coffey geotechnics
SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel
Darling Harbour, Sydney

title: **CORE PHOTOGRAPH**
BH205

project no: GEOTLCOV24303AH | fig no: **FIGURE 15** | rev:

PointID : BH205 Depth Range: 7.00 - 12.00 m

drawn	
approved	
date	07/06/2013
scale	N.T.S.
original size	A4

coffey geotechnics
SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel Darling Harbour, Sydney

title: **CORE PHOTOGRAPH BH205**

project no: GEOTLCOV24303AH | fig no: **FIGURE 16** | rev:

PointID : BH205 Depth Range: 12.00 - 16.00 m

drawn	
approved	
date	07/06/2013
scale	N.T.S.
original size	A4

coffey geotechnics
SPECIALISTS MANAGING THE EARTH

client: Lend Lease Development Pty Ltd

project: SICEEP - International Convention Centre (ICC) Hotel Darling Harbour, Sydney

title: **CORE PHOTOGRAPH BH205**

project no: GEOTLCOV24303AH | fig no: **FIGURE 17** | rev: