

政府總部
運輸及房屋局

運輸科
香港添馬添美道 2 號
政府總部東翼



Transport and
Housing Bureau
Government Secretariat
Transport Branch

East Wing, Central Government Offices,
2 Tim Mei Avenue,
Tamar, Hong Kong

本局檔號 Our Ref. THB(T) CR 10/1016/99
來函檔號 Your Ref.

電話號碼 : 3509 8186
傳真號碼 : 2868 5261

香港
中區立法會道一號
立法會綜合大樓
立法會秘書處議會事務部
(經辦人: 鍾蕙玲女士)
(傳真 : 2978 7569)

鍾女士 :

工務小組委員會
2017 年 3 月 16 日會議

沙田至中環線前期鐵路工程

補充資料

在 2017 年 3 月 16 日工務小組委員會會議上，有委員要求政府/港鐵公司就編號 63TR 沙田至中環線前期鐵路工程的撥款申請，提供補充資料。現附上有關補充資料於附件，供委員參閱。

運輸及房屋局局長

(梁世豪  代行)

副本抄送：

路政署

(經辦人：陳派明先生)(傳真：2714 5297)

香港鐵路有限公司

(經辦人：陳芳婷女士)(傳真：2795 9991)

2017 年 3 月 21 日

工務小組委員會
2017 年 3 月 16 日會議

總目 706—公路
運輸—鐵路
63TR—沙田至中環線—鐵路建造工程—前期工程

補充資料

- (a) 就 63TR 號工程計劃(沙田至中環線—鐵路建造工程—前期工程)，
承建商的申索金額及有關詳情為何

香港鐵路有限公司(下稱「港鐵公司」)提供的資料見附錄一。

- (b) 當局就監察沙田至中環線工程計劃而設立的「項目監管委員會」
的成員名單，以及說明何時知悉施工期間發現不利的地質情況

沙田至中環線（下稱「沙中線」）項目的「項目監管委員會」成員名單如下：

主席：路政署署長

成員：運輸及房屋局

運輸及房屋局首席助理秘書長(運輸)7

路政署鐵路拓展處

路政署鐵路拓展處處長

路政署鐵路拓展處副處長 1

總工程師/鐵路拓展 1-2

總工程師/鐵路拓展 1-3

沙中線團隊的高級工程師

機電工程團隊的高級工程師

港鐵公司

工程總監

沙中線及觀塘線延線項目總經理

沙中線項目總經理

沙中線項目編程經理

非常設成員：

政府部門或港鐵公司之代表可按需要出席，例如：

港鐵公司沙中線項目合約行政經理

港鐵公司沙中線項目設計總經理

港鐵公司估算、成本控制及物流經理

秘書： 路政署鐵路拓展處高級工程師/沙中線 4

為了更有效監察沙中線的項目進度，路政署聘請的監察和核證顧問亦會列席「項目監管委員會」會議。

沙中線的前期鐵路工程包括擴建金鐘站以及建造何文田站的沙中線部分。金鐘站的擴建部分與現有金鐘站連接，成為一個綜合車站。沙中線金鐘站的部分工程須與南港島線(東段)的設施同時興建，以縮減車站的整體規模、減低建築成本和縮短施工時間，並在施工期間盡量減少對市民的滋擾。因此，金鐘站的沙中線部分的建造工程必須先在沙中線其他主要工程前進行，以配合較早施工的南港島線(東段)於 2011 年 5 月動工的時間表，一併建造。另外，何文田站是一個新建的綜合車站，連接沙中線及觀塘線延線，方便這兩條鐵路線的乘客轉乘。將何文田站設計為綜合車站，可以縮減車站的整體規模、減低建築成本和縮短施工時間，並在施工期間盡量減少對市民的滋擾。跟擴建的金鐘站一樣，何文田站的建造工程必須先在沙中線其他主要工程前進行，以配合較早施工的觀塘線延線於 2011 年 5 月動工的時間表，一併建造。

沙中線項目的「項目監管委員會」主要負責監督沙中線主要工程

的項目進度，但如上文提及金鐘站的沙中線部分與南港島線(東段)一併建造，何文田站的沙中線部分則與觀塘線延線一併建造。港鐵公司每月向路政署提交進度報告，匯報南港島線(東段)及觀塘線延線項目的最新進展和財務狀況，路政署並透過南港島線(東段)及觀塘線延線的「每月聯絡會議」檢討項目進度。

金鐘站擴建工程的挖掘工作在 2013 年初展開。港鐵公司南港島線(東段)的工程團隊在挖掘過程中遇到了不利的地質情況，實際的岩石特質與土質勘探所得的地質資料不同。岩石的實際平均天然節理間距為 1 米，比預期的半米增加約一倍，因而令挖掘的效率大幅下降。港鐵公司透過「每月進度報告」，首先在 2013 年 3 月向路政署匯報有關金鐘站擴建工程的不利地質情況。

何文田站建造工程的挖掘工作在 2011 年 11 月展開。港鐵公司觀塘線延線的工程團隊於 2014 年第二季在挖掘工程進行至何文田站的底部時，發現該處的石層強度不如預期，並通報路政署有關情況。因此需要加深挖掘至堅固的石層，並須加厚混凝土基座以支撐車站結構。港鐵公司透過「每月進度報告」，在 2014 年 9 月向路政署匯報有關何文田站擴建工程的不利地質情況對工程的具體影響。

- (c) 為金鐘站擴建車站進行土質的勘探提供以下補充資料：(1)就兩個出現地質困難的地點，即金鐘站擴建車站工地及金鐘站擴建車站的通風大樓豎井，提供勘探鑽孔的數量、深度及分佈圖；(2)上述兩個地點的完整地盤勘測報告；和(3)負責勘探的各份會約的合約編號、工程範圍、承建商、批出合約總值

港鐵公司提供的資料見附錄二。

運輸及房屋局

2017 年 3 月

63TR—沙田至中環線—鐵路建造工程—前期工程

承建商的申索金額及有關詳情

(截至 2017 年 2 月)

	已獲解決的申索			尚未解決的申索		
	宗數	申索金額 (百萬元) (沙中線部分*)	核實金額 (百萬元) (沙中線部分*)	宗數	申索金額 (百萬元) (沙中線部分*)	中期核實金額 (百萬元) (沙中線部分*)
金鐘站	16	953.5	614.1	0	0	0
香港公園 通風大樓	15	136.88	51.3	0	0	0
何文田站	0	0	0	11	286	136

* 備註: 根據委託協議, 金鐘站的擴建費用由沙中線和南港島線(東段)項目根據繁忙時段在該車站的預計乘客量以 70:30 的比例分攤; 而何文田站的建造費用由沙中線和觀塘線延線項目根據繁忙時段在該車站的預計乘客量以 74:26 的比例分攤。

香港鐵路有限公司

2017 年 3 月

63TR—沙田至中環線—鐵路建造工程—前期工程

金鐘站擴建工程進行土質勘探的補充資料

港鐵公司在進行金鐘站擴建工程前，除了參考部分過往土質勘測工程所獲取的地質資料，也批出三份相關的土質勘測工程合約(有關詳情請參閱下表)，以收集更多的地質資料。

合約編號	NEX/1024
合約名稱	西港島線土地勘測
批出合約總值 (港幣)	\$8,783,362
承建商	金門建築有限公司
合約批出日期	2005 年 9 月
工程範圍	西港島線項目的鑽挖/明挖回填隧道、車站及輔助設施大樓相關的土地勘測鑽孔，以及現場和實驗室測試工程； 將軍澳南站鑽孔樁工程相關的土地勘測鑽孔及實驗室測試工程； 南港島線(東段)前期設計相關的土地勘測工程。

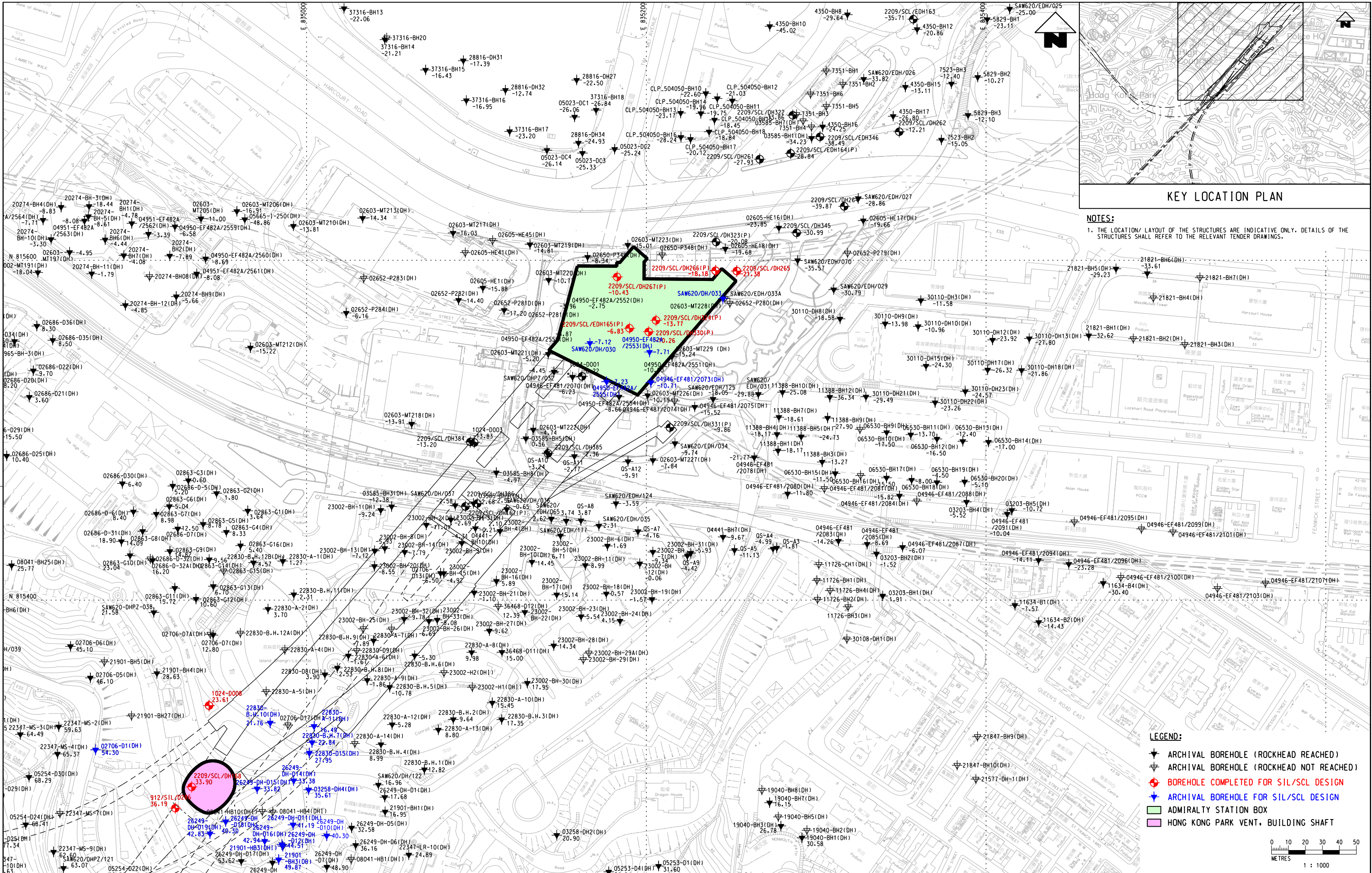
合約編號	NEX/2209
合約名稱	沙田至中環線土地勘測
批出合約總值 (港幣)	\$27,332,888
承建商	金門建築有限公司
合約批出日期	2008 年 12 月
工程範圍	沙田至中環線項目的鑽挖隧道及車站相關的土地勘測鑽孔和探井，以及現場和實驗室測試工程； 金鐘站工程的額外地震勘測及探井工程。

合約編號	912
合約名稱	南港島線(東段) 土地勘測
批出合約總值 (港幣)	\$16,600,188
承建商	輝固土力工程有限公司
合約批出日期	2009 年 5 月
工程範圍	南港島線(東段) 項目的鑽爆隧道、緊急出入口及輔助設施大樓相關的土地、海洋及環境勘測鑽孔和探井，以及現場和實驗室測試工程。

與金鐘站擴建車站及通風大樓豎井挖掘工程的不利地質情況相關的鑽孔有三十個。鑽孔之位置、深度及勘測結果，請參閱附件一和附件二。

香港鐵路有限公司
2017 年 3 月

附件一



NOTES:
1. THE LOCATION/ LAYOUT OF THE STRUCTURES ARE INDICATIVE ONLY. DETAILS OF THE STRUCTURES SHALL REFER TO THE RELEVANT TENDER DRAWINGS.

- LEGEND:**
- ARCHIVAL BOREHOLE (ROCKHEAD REACHED)
 - ARCHIVAL BOREHOLE (ROCKHEAD NOT REACHED)
 - BOREHOLE COMPLETED FOR SIL/SCL DESIGN
 - ARCHIVAL BOREHOLE FOR SIL/SCL DESIGN
 - ADMIRALTY STATION BOX
 - HONG KONG PARK VENT. BUILDING SHAFT

0 10 20 30 40 50
METRES
1 : 1000

																				DRAWN DESIGNED CHECKED APPROVED DATE DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE. © MTR CORPORATION LIMITED 2008. COPYRIGHT IN RESPECT OF THIS DRAWING / DOCUMENT IS OWNED BY THE MTR CORPORATION LIMITED OF HONG KONG. NO REPRODUCTION OF THE DRAWING / DOCUMENT OR ANY PART BY WHATEVER MEANS IS PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT OF THE MTR CORPORATION LIMITED.		MTR SOUTH ISLAND LINE (EAST) ORIGINATOR PROJECTS DIVISION DESIGN MANAGEMENT DEPARTMENT		TITLE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
REV										DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE		APPROVED		REV		DESCRIPTION		BY		DATE	

附件二



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH267P

SHEET 1 of 6

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. MSK-2

E 835182.95
N 815590.57

DATE from 30/04/2009 to 14/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.67 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
30/04/2009	PX	08:00							A	•	0.45 0.50	6.17	0.50			Light brown, silty fine to medium SAND with some subangular coarse gravel sized rock fragments. (FILL)
									B	•	0.95 1.00					Brown, silty fine to medium SAND with some subangular coarse gravel sized rock and concrete fragments and broken PVC pipe. (FILL)
									C	•	1.45 1.50					
									D	•	1.95 2.00	4.67	2.00			Light brown and grey, sandy subangular fine to coarse GRAVEL sized rock fragments. (FILL)
30/04/2009 04/05/2009		0.95m at 18:00 Dry at 08:00		100 0					E	•	2.35 2.40 2.50	4.27 4.17	2.40 2.50			Light grey, CONCRETE. (FILL)
									1	•	3.40 3.50 3.60	3.27 3.17	3.40 3.50			Stiff, brown, sandy SILT with some subangular fine to coarse gravel sized rock and brick fragments. (FILL)
				100					2	•						3.40 - 3.50m: Dark brown, decayed wood pieces. (FILL)
									3	•	4.60	1.97	4.70			Medium dense, brown, slightly silty fine to coarse SAND with some subangular coarse gravel sized rock fragments. (FILL)
				98				2,2 3,4,3,2 N=12	4	•	4.70					
									5	•	5.10 5.15	1.52	5.15			Stiff, brown, sandy SILT with some subangular fine gravel sized rock fragments. (FILL)
									6	•						
				88				1,1 0,1,0,2 N=3	7	•	6.15 6.25					
									8	•						
									9	•	6.65 6.70					
									10	•						
									11	•	7.70 7.80	-1.13	7.80			Firm, brown, mottled orangish brown, sandy CLAY/SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
				100				1,2 3,3,2,4 N=12	12	•	8.20 8.25	-1.58	8.25			Firm, light pink, CLAY/SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
									13	•						
									14	•						
		0.95m at 18:00 1.20m at 08:00						1,1 2,3,4,4 N=13	15	•	9.25 9.35	-2.68	9.35			Firm to stiff, brown, mottled light pink, CLAY/SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
14/05/2009 15/05/2009	PX 9.80 HX								16	•						
				100					17	•	9.75 9.80	-3.13	9.80			
									18	•			10.00			

- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▨ U76 undisturbed sample
- ▨ U100 undisturbed sample
- ▨ Mazier sample
- ▨ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED **W K SIU**
DATE **15/05/2009**
CHECKED **P O POON**
DATE **16/05/2009**

REMARKS

1. Inspection pit was dug to 2.40m depth.
 2. Eastman tests were carried out at 5.00m, 10.00m, 15.00m, 20.00m and 25.00m depths.
 3. Constant head permeability tests were carried out at 7.50m-9.00m and 15.50m-17.00m depths.
 4. Standpipe was installed at 16.10m depth.
- (to be continued...)



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH267P

SHEET **2** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. MSK-2

E 835182.95
N 815590.57

DATE from 30/04/2009 to 14/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.67 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description	
									No.	Type	Depth						
05/05/2009 06/05/2009		3.92m at 18:00 4.45m at 08:00		100						19			-3.33	10.00		Firm, reddish brown, slightly sandy SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)	
								2.2 3.2,4,5 N=14	20			-4.23	10.90		V	Extremely weak, orangish brown, completely decomposed GRANITE. (Stiff, sandy SILT with some subangular fine gravel sized quartz fragments)	
									21			-4.68	11.35		V	Extremely weak, white, mottled pink, completely decomposed GRANITE. (Firm, slightly sandy SILT with some angular to subangular fine gravel sized quartz fragments)	
								2.2 3.4,7,8 N=22	22								
									23								
									24								
									25			-6.23	12.90		V	Extremely weak, pink, mottled white and light brown, completely decomposed GRANITE. (Firm to stiff, sandy SILT with some to much angular fine to medium gravel sized quartz fragments)	
									26								
								1.2 2.4,7,10 N=23	27								
									28								
06/05/2009 07/05/2009 07/05/2009 08/05/2009	HX 17.71	4.73m at 18:00 5.03m at 08:00 4.96m at 18:00 5.21m at 08:00		100						29							
								2.4 7.7,9,13 N=36	30								
									31			-8.88	15.55		V	Extremely weak, reddish brown, completely decomposed GRANITE. (Stiff, sandy SILT)	
									32								
									33			-9.33	16.00		V/IV	Very weak, pink, completely to highly decomposed fine grained GRANITE. (Sandy subangular fine to coarse GRAVEL sized quartz and feldspar fragments)	
									34								
									35			-10.43	17.10		III	Moderately strong, pink, mottled light grey and light green, moderately decomposed slightly chloritized medium grained GRANITE. Joints are medium, locally closely spaced, rough planar, tight to extremely narrow, iron stained, chlorite coated, dipping 30°-40° and 60°-70°.	
									T2101			-10.64	17.31			17.10 - 17.31m: Pink, fine grained GRANITE.	
									T2101			-10.89	17.56			17.56 - 18.36m: Pink, fine grained GRANITE.	
									T2101								
				100	100	100				18.16			-11.69	18.36			
				100	100	100				18.94			-12.25	18.92		18.92 - 19.76m: Pink, fine grained GRANITE and with subvertical joint.	

t:\gintw\library\1july2009 glib\drillhole (1 feb 09) (ADM)

\\gintw\library\1july2009.glb\drillhole (1 feb 09) (ADM)

\\gintw\library\1july2009.glb\drillhole (1 feb 09) (ADM)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH267P

SHEET **5** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. MSK-2

E 835182.95
N 815590.57

DATE from 30/04/2009 **to** 14/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.67 mPD

Drilling Progress	Casing depth/size (m)	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples No. Type Depth	Reduced Level -33.33	Depth (m) 40.00	Legend	Grade	Description
				100	100	100			T2101			+	III	As sheet 4 of 6.
				100	100	100			41.20			+		
				100	100	100			T2101			+		
				100	100	100			42.20	-35.53	42.20	+		42.20 - 42.25m: PEGMATITE.
				100	100	100			42.25	-35.58	42.25	+		
				100	89	72	7.4		42.67	-35.96	42.63	+		42.63 - 42.97m: With dark green, mafic mineral and rough slickensided joints.
				100	100	100			42.97	-36.30	42.97	+		
				100	100	100			T2101			+		
				100	100	100			44.01			+		
				100	100	100			T2101			+		
				100	100	100			45.56			+		
				100	100	100			45.74	-39.07	45.74	+		45.74 - 45.92m: PEGMATITE.
				100	100	100			45.92	-39.25	45.92	+		
				100	100	100			T2101			+		
				100	90	90			47.02			+		
				100	100	100			47.30	-40.63	47.30	+		47.30 - 48.20m: PEGMATITE with chlorite coated joints, dipping 60°-70°.
				100	100	100			48.20			+		
				100	100	100			48.36	-41.53	48.20	+		
				100	100	87			49.86			+		
				100	100	100			50.00	-43.33	50.00	+		

● Small disturbed sample

○ Large disturbed sample

▨ SPT liner sample

▩ U76 undisturbed sample

■ U100 undisturbed sample

▨ Mazier sample

▩ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

↓ Standard penetration test

├ Water absorption (Packer) test

├ Permeability test

├ Impression packer test

√ In-situ vane shear test

LOGGED W K SIU

DATE 15/05/2009

CHECKED P O POON

DATE 16/05/2009

REMARKS

t:\gintwlibrary\1july2009 glibdrillhole (1 feb 09) (ADM)

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH324P

SHEET 1 of 6

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-0114

E 835205.68
N 815564.67

DATE from 14/04/2009 to 27/04/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.08 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth	6.08	0.00			
14/04/2009	PX	08:00							A	•	0.45 0.50					Stiff, brown and light grey, sandy SILT with some subangular fine to coarse gravel sized rock and concrete fragments. (FILL)
									B	•	0.95 1.00					
									C	•	1.45 1.50	4.58	1.50			Stiff, brown and yellow, sandy clayey SILT with occasional subangular fine to coarse gravel sized rock fragments. (FILL)
									D	•	1.95 2.00					
									E	•	2.45 2.50					
				100					F	•	2.95 3.00	3.08	3.00			Stiff, brown and pink, sandy SILT with some subangular fine to coarse gravel sized rock fragments. (FILL)
									1							
									2		4.00 4.10	1.98	4.10			Firm, brown, mottled red, sandy SILT with some subangular fine gravel sized rock fragments. (ALLUVIUM)
				100					3							
									4		4.50 4.55	1.53	4.55			Firm, reddish brown, mottled brown, sandy CLAY/SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
									5							
		2.50m at 18:00							6		5.55 5.65	0.43	5.65			Soft to firm, brown, mottled white, CLAY/SILT with much angular fine to medium gravel sized quartz fragments. (ALLUVIUM)
14/04/2009 15/04/2009	PX 6.00 HX	4.70m at 08:00							7							Firm to stiff, light brown, mottled white and reddish brown, slightly sandy SILT with much angular fine gravel sized quartz fragments. (ALLUVIUM)
				100					8		6.05 6.10	-0.02	6.10			
									9							
									10		7.10 7.20	-1.12	7.20			Stiff, brown, mottled reddish brown, slightly sandy SILT with some angular fine gravel sized quartz fragments. (ALLUVIUM)
									11							
				82					12		7.60 7.65	-1.57	7.65			Dense, purplish red, clayey silty fine to coarse SAND with some angular to subangular fine to medium gravel sized quartz fragments. (ALLUVIUM)
									13							
									14		8.65 8.75	-2.67	8.75			Firm to stiff, reddish brown, mottled white and brown, slightly sandy SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
									15		9.15 9.20					
				100					16							
									17			-3.92	10.00			

• Small disturbed sample

Large disturbed sample

SPT liner sample

U76 undisturbed sample

U100 undisturbed sample

Mazier sample

Piston sample

▲ Water sample

□ Piezometer / standpipe tip

Standard penetration test

Water absorption (Packer) test

Permeability test

Impression packer test

∇ In-situ vane shear test

LOGGED **W K SIU**
DATE **28/04/2009**
CHECKED **P O POON**
DATE **29/04/2009**

REMARKS
1. Inspection pit was dug to 3.00m depth.
2. Eastman tests were carried out at 5.00m, 10.00m, 15.00m, 20.00m, 25.00m depths.
3. Constant head permeability tests were carried out at 5.00m-7.00m and 17.00m-18.50m depths.
4. Standpipe was installed at 18.85m depth.
(to be continued...)



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH324P

SHEET **2** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-0114

E 835205.68
N 815564.67

DATE from 14/04/2009 to 27/04/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.08 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
15/04/2009 16/04/2009		3.20m at 18:00 4.75m at 08:00	100	100				1.1 1.2, 2.4 N=9	18	●	-4.22	10.30	○		As sheet 1 of 6.
									19	○		10.30	○		Firm to stiff, light green, mottled light grey, streaked brown, SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
			100						20	●	-4.67	10.75	○	V	Extremely weak, orangish brown, mottled white, completely decomposed GRANITE. (Firm, slightly sandy SILT with some subangular fine gravel sized quartz fragments)
								2.2 2.3, 3.5 N=13	22	●	-5.77	11.85	○	V	Extremely weak, reddish brown, completely decomposed GRANITE. (Silty fine to medium SAND with some subangular fine gravel sized quartz fragments)
			100						24	●		12.30	○		
									25	●		12.30	○		
									26	●	-7.32	13.40	○	V	Extremely weak, pink, mottled black and light green, completely decomposed GRANITE. (Very stiff, slightly sandy SILT with some subangular fine gravel sized quartz fragments)
			80					2.4 7.6, 5.8 N=26	28	●	-7.77	13.85	○	V	Extremely weak, reddish brown, completely decomposed GRANITE. (Silty fine to medium SAND with much subangular fine gravel sized quartz fragments)
									29	●		13.85	○		
16/04/2009 17/04/2009		3.05m at 18:00 4.70m at 08:00						2.3 4.9, 9.10 N=31	30	●	-8.87	14.95	○	V	Extremely weak, light brownish green, mottled light grey, completely decomposed GRANITE. (Very stiff, sandy SILT with some subangular fine gravel sized quartz fragments)
			0						32	●	-9.32	15.40	○	V	Extremely weak, purplish red, completely decomposed GRANITE. (Silty fine to medium SAND with some subangular fine gravel sized rock fragments)
									33	●		16.40	○		
			83						34	●		16.50	○		
									35	●	-11.52	17.60	○	V	Extremely weak, pink, completely decomposed GRANITE. (Firm, sandy SILT with some angular fine gravel sized quartz fragments)
17/04/2009 18/04/2009		3.10m at 18:00 10.32m at 08:00						3.4 6.8, 10.12 N=36	36	●	-11.97	18.05	○	V	Very weak, pink, mottled white, completely decomposed GRANITE. (Silty fine to coarse SAND)
18/04/2009 20/04/2009		4.70m at 18:00 4.20m at 08:00	0						37	●		18.05	○		
									38	●		19.05	○		
			100						39	●		19.15	○		
20/04/2009 21/04/2009	HX 19.85	3.90m at 18:00 4.40m	89	71	31	N.L.			40	●	-13.77	19.85	○	III	Moderately strong, greyish pink, moderately

● Small disturbed sample

○ Large disturbed sample

▨ SPT liner sample

▩ U76 undisturbed sample

▩ U100 undisturbed sample

▨ Mazier sample

▩ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

↓ Standard penetration test

└ Water absorption (Packer) test

└ Permeability test

└ Impression packer test

∨ In-situ vane shear test

LOGGED **W K SIU**
DATE **28/04/2009**
CHECKED **P O POON**
DATE **29/04/2009**

REMARKS
5. Acoustic televiwer survey was carried out at 20.00m-30.00m and 32.00-42.00m depths.
6. Packer (Water Absorption) tests were carried out at 23.08m-28.08m and 36.09m-41.08m depths.

	Gammon Construction Limited <i>Ground Engineering & Substructure Department</i>		HOLE No. 2209/SCL/DH324P	
			SHEET 3 of 6	
	DRILLHOLE RECORD			CONTRACT NO. NEX/2209
Project Title Ground Investigation (Land) for Shatin to Central Link				
METHOD Rotary		CO-ORDINATES		PROJECT No. J3251
MACHINE & No. 20-0114		E 835205.68 N 815564.67		DATE from 14/04/2009 to 27/04/2009
FLUSHING MEDIUM WATER		ORIENTATION Vertical		GROUND LEVEL + 6.08 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
		at 08:00		88	71	31	4.9		No. Type Depth	-13.92	20.00			
				97	83	83			T2101	-14.09	20.17	+	III	decomposed fine grained GRANITE. Joints are medium spaced, rough planar, tight to extremely narrow, chlorite coated, dipping 60°-70°. 20.17 - 20.29m: Medium grained GRANITE.
				100	100	100	1.4		T2101	-14.21	20.29	+		
									T2101	-14.69	20.77	+	III	Moderately strong, pink, mottled light grey, spotted black and greyish green, moderately decomposed medium grained altered GRANITE. Joints are medium spaced, rough undulating, tight to extremely narrow, chlorite coated, dipping 50°-60°.
							4.5		T2101			+		
				100	93	87			T2101		21.81	+		
									T2101			+		
							1.3		T2101	-16.75	22.83	+	III/II	Moderately strong to strong, light pink, mottled light grey, spotted black, moderately to slightly decomposed medium grained GRANITE. Joints are widely spaced, rough planar, tight, chlorite coated, dipping 50°-60°.
		3.70m at 18:00		100	100	100			T2101		23.25	+		
21/04/2009		5.63m at 08:00							T2101			+		
22/04/2009				99	96	96			T2101		24.62	+		
							3.6		T2101	-19.08	25.16	+	III	Moderately strong, greyish pink and grey, spotted black, moderately decomposed fine grained GRANITE. Joints are widely to medium spaced, rough undulating, tight to extremely narrow, iron stained, chlorite coated, dipping 20°-30°, 50°-60° and 60°-70°.
				100	96	96			T2101		26.06	+		
							0.6		T2101		27.42	+		
				98	96	96			T2101			+		
		3.90m at 18:00		100	100	80	5.0		T2101		28.92	+		
22/04/2009		3.90m at 08:00		100	100	97	3.8		T2101		29.32	+		
23/04/2009									T2101			+		
									T2101	-23.92	30.00	+		

t:\gintw\library\1july2009.glb\drillhole (1 feb 09) (ADM)

- Small disturbed sample
- ⊥ Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- ▩ U100 undisturbed sample
- ▧ Mazier sample
- ▦ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ⊥ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED **W K SIU**

DATE **28/04/2009**

CHECKED **P O POON**

DATE **29/04/2009**

REMARKS

c:\gintw\library\1julv2009.qlb\drillhole (1 feb 09) (ADM)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH324P

SHEET **5** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-0114

E 835205.68

DATE from 14/04/2009 **to** 27/04/2009

N 815564.67

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.08 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
				100	100	100	1.9		No. Type Depth	-33.92	40.00			As sheet 4 of 6.
				100	100	97			T2101		41.03			
							7.3		T2101	-35.57	41.65			41.65 - 42.59m: Orangish pink, mottled light grey.
24/04/2009 at 18:00		3.90m								-36.26	42.34			
25/04/2009 at 08:00		4.20m		100	100	100	1.3		T2101	-36.33	42.41		III	42.34 - 42.41m: Moderately weak, moderately decomposed.
										-36.51	42.59		III/II	
				99	99	97			T2101		43.87			
									T2101		45.35			
				100	100	100			T2101		46.77			
									T2101		48.28			
				99	99	99			T2101		49.30		III	Moderately strong, orangish pink, mottled light grey and black, moderately decomposed medium grained GRANITE. Joints are medium spaced, rough planar and undulating, extremely
25/04/2009 at 18:00		3.80m					5.3			-43.22	50.00			
27/04/2009 at 08:00				100	100	74			T2101		49.73			

● Small disturbed sample

⋮ Large disturbed sample

□ SPT liner sample

▨ U76 undisturbed sample

■ U100 undisturbed sample

▤ Mazier sample

▩ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

⬇ Standard penetration test

⬇ Water absorption (Packer) test

⬇ Permeability test

⬇ Impression packer test

∇ In-situ vane shear test

LOGGED **W K SIU**
DATE **28/04/2009**
CHECKED **P O POON**
DATE **29/04/2009**

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH330P

SHEET **2** of **6**

CONTRACT NO. NEX/2209

DRILLHOLE RECORD

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 17

E 835201.40
N 815557.93

DATE from 27/03/2009 to 16/04/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 5.96 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
								1.1 1.2,2.4 N=9	No. 14 Type ● Depth 10.00 10.10	-4.04 -4.14	10.00 10.10		V	As sheet 1 of 6. Extremely weak, orangish brown, completely decomposed GRANITE. (SILT with some subangular fine gravel sized quartz fragments)
				88					15 ● 10.50 10.55					
								2.4 5.7,7.7 N=26	16 ● 11.00 11.00	-5.04	11.00		V	Extremely weak, reddish brown, mottled pink, brown and white, completely decomposed GRANITE. (Stiff, sandy SILT with some angular to subangular fine gravel sized quartz fragments)
									17 ▨ 12.00 12.10					
				90					18 ● 12.50 12.55					
	PX 13.00 HX								19 ▨ 13.00 13.00	-7.04	13.00		V	Extremely weak, purplish red, mottled white and dark brown, completely decomposed GRANITE. (Silty fine to coarse SAND with some angular fine gravel sized quartz fragments)
								6.8 11.12,13.13 N=49	20 ● 14.00 14.10	-8.14	14.10		V	Extremely weak, orangish brown, mottled grey, completely decomposed GRANITE. (Stiff, sandy SILT with some subangular fine gravel sized quartz fragments)
		4.20m at 18:00 4.70m at 08:00		90					21 ▨ 14.50 14.55	-9.04	15.00		V	Extremely weak, pink, completely decomposed fine grained GRANITE. (Silty fine to medium SAND)
28/03/2009 31/03/2009									22 ● 16.00 16.10 16.17 16.22	-10.14 -10.26	16.10 16.22		V/IV III/II	Very weak, pink, completely to highly decomposed fine grained GRANITE. (Silty fine to coarse SAND with some angular fine gravel sized rock fragments) Moderately strong to strong, pink, mottled light grey, spotted black and dark green, moderately to slightly decomposed medium grained GRANITE. Joints are medium spaced, rough undulating, extremely narrow, iron stained, dipping 50°-60°. 17.39 - 17.44m: PEGMATITE.
31/03/2009 01/04/2009	HX 16.22	4.70m at 18:00 4.70m at 08:00		100	99	99	4.7	6.44/35mm 100/10mm 100bls/10mm	23 T2101 17.24	-11.43 -11.48	17.39 17.44			
				100	99	91			24 T2101 18.67	-12.61	18.57		III/II	Moderately strong to strong, pink, spotted dark green, locally mottled dark brown, moderately to slightly decomposed fine grained GRANITE. Joints are widely to medium, locally closely spaced, rough undulating, extremely narrow, iron stained, chlorite coated, dipping 50°-60° and 60°-70°.
01/04/2009 02/04/2009		4.70m at 18:00 4.70m at 08:00		100	98	83	1.3		25 T2101 19.92	-14.04	20.00			
							11.1							

● Small disturbed sample

▨ Large disturbed sample

▨ SPT liner sample

▨ U76 undisturbed sample

▨ U100 undisturbed sample

▨ Mazier sample

▨ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

↓ Standard penetration test

⊥ Water absorption (Packer) test

⊥ Permeability test

⊥ Impression packer test

∇ In-situ vane shear test

LOGGED **W K SIU**
DATE **17/04/2009**
CHECKED **P O POON**
DATE **18/04/2009**

REMARKS
6. Packer (Water Absorption) tests were carried out at 23.00m-28.00m and 36.00m-41.00m depths.

	Gammon Construction Limited <i>Ground Engineering & Substructure Department</i>	HOLE No. 2209/SCL/DH330P
		SHEET 3 of 6
	DRILLHOLE RECORD	

Project Title Ground Investigation (Land) for Shatin to Central Link		
METHOD Rotary	CO-ORDINATES	PROJECT No. J3251
MACHINE & No. 17	E 835201.40 N 815557.93	DATE from 27/03/2009 to 16/04/2009
FLUSHING MEDIUM WATER	ORIENTATION Vertical	GROUND LEVEL + 5.96 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
				100	100	87	2.2				-14.04	20.00		III/II	As sheet 2 of 6.
				100	100	100			T2101		21.15				
				100	100	98			T2101		21.70				
											-16.21	22.17			
											-16.32	22.28			22.17 - 22.28m: PEGMATITE.
											-16.73	22.69			
		4.70m at 18:00		100	100	100			T2101		22.94			II	Strong, pink, mottled light grey, spotted black, slightly decomposed medium grained GRANITE. Joints are medium spaced, rough undulating, tight to extremely narrow, iron stained, chlorite coated, dipping 50°-60°.
		4.70m at 08:00		100	100	100			T2101		23.87				
				100	100	100			T2101		-18.42	24.38			24.38 - 24.60m: Pink, mottled light grey and light green.
				100	100	100			T2101		-18.64	24.60			
				100	100	100			T2101		24.88				
				100	100	100			T2101		-19.44	25.40			25.40 - 25.58m: Pink, mottled light grey.
				100	100	100			T2101		-19.62	25.58			
		4.70m at 18:00		100	100	100			T2101		26.08				
		4.70m at 08:00		100	100	84			T2101		26.60	26.65		III/II	Moderately strong to strong, pink, spotted black, moderately to slightly decomposed fine grained GRANITE. Joints are medium spaced, smooth undulating, tight to extremely narrow, chlorite coated, dipping 50°-60°.
				100	100	100			T2101		27.41				
		4.70m at 18:00		100	100	100			T2101		27.94				
		4.70m at 08:00		98	94	94			T2101		-22.66	28.62		III/II	Moderately strong to strong, pink, mottled light grey, spotted black, moderately to slightly decomposed medium grained GRANITE. Joints are medium spaced, smooth undulating, extremely narrow, chlorite coated, dipping 60°-70°.
				100	100	100			T2101		29.20				
							0.3		T2101		-23.54	29.50		II	Strong, light pink, mottled light grey, spotted black, slightly decomposed medium grained
												30.00			

● Small disturbed sample
 + Large disturbed sample
 □ SPT liner sample
 ▨ U76 undisturbed sample
 ▩ U100 undisturbed sample
 ▨ Mazier sample
 ▩ Piston sample

▲ Water sample
 □ Piezometer / standpipe tip
 ↓ Standard penetration test
 ⊥ Water absorption (Packer) test
 ⊥ Permeability test
 ⊥ Impression packer test
 ∇ In-situ vane shear test

LOGGED W K SIU

DATE 17/04/2009

CHECKED P O POON

DATE 18/04/2009

REMARKS

t:\gintwlibrary\july2009.glb\drillhole (1 feb 09) (ADM)

\\gintw\library\1july2009.alb\drillhole (1 feb 09) (ADM)

\\gintw\librarv\1julv2009.alb\drillhole (1 feb 09) (ADM)

Gammon Construction Limited
Ground Engineering & Substructure Department



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/EDH165P

SHEET **1** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 17

E 835190.10
N 815560.00

DATE from 13/03/2009 to 23/03/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 5.95 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
13/03/2009	SX	08:00							A	•	0.45 0.50	5.45	0.50			Light brown, silty fine to medium SAND with much subangular fine to coarse gravel sized rock fragments. (FILL)
									B	•	0.95 1.00	4.95	1.00			Light grey, subangular coarse GRAVEL sized rock fragments. (FILL)
									C	•	1.45 1.50	4.45	1.50			Brown and light grey, sandy subangular coarse GRAVEL sized concrete fragments. (FILL)
									D	•	1.95 2.00					Firm, orangish brown and brown, sandy SILT with some subangular fine gravel sized quartz fragments. (FILL)
									E	•	2.45 2.50					
13/03/2009	SX	18:00							F	•	2.95 3.00	2.95	3.00			Brown and reddish brown, silty sandy subangular fine to coarse GRAVEL sized rock fragments. (FILL)
14/03/2009	PX	08:00		80					1							
									2		4.00 4.10	1.85	4.10			Firm, brown, sandy SILT with some subangular fine to coarse gravel sized rock fragments. (FILL)
									3							
									4	•	4.50 4.55					
				88					5		5.00	0.95	5.00			Firm, orangish brown and white, sandy clayey SILT with much angular fine to medium gravel sized quartz fragments. (FILL)
									6		6.00 6.10					
									7							
									8	•	6.50 6.55					
				0					9		7.00	-1.05	7.00			Brown, subangular coarse GRAVEL sized rock fragments with silty matrix. (FILL)
									10		8.00 8.10	-2.15	8.10		V	Extremely weak, pink, mottled light grey and white, completely decomposed GRANITE. (Firm, slightly sandy clayey SILT with some angular fine to medium gravel sized quartz fragments)
				90					11		9.10 9.20	-3.25	9.20		V	Extremely weak, brown, spotted red and white, completely decomposed GRANITE. (Firm, slightly sandy SILT)
14/03/2009		18:00							12		9.80 9.85	-3.70	9.65		V	Extremely weak, reddish brown, mottled white,
17/03/2009		08:00							13	•			10.00			

• Small disturbed sample
+ Large disturbed sample
□ SPT liner sample
▨ U76 undisturbed sample
■ U100 undisturbed sample
▨ Mazier sample
▨ Piston sample

▲ Water sample
□ Piezometer / standpipe tip
↓ Standard penetration test
┌ Water absorption (Packer) test
└ Permeability test
┌ Impression packer test
└ In-situ vane shear test

LOGGED **W K SIU**
DATE **24/03/2009**
CHECKED **P O POON**
DATE **25/03/2009**

REMARKS
1. Inspection pit was dug to 3.00m depth.
2. Constant head permeability test was carried out at 8.00m-9.50m depth.
3. Standpipe was installed at 7.50m depth.
4. Piezometer was installed at 11.80m depth.
5. Packer (Water Absorption) tests were carried out at 23.00m-28.00m and 36.00m-41.00m depths.
(to be continued...)

·\qintw\library\1july2009.glb\drillhole (1 feb 09) (ADM)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/EDH165P

SHEET **3** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 17

E 835190.10
N 815560.00

DATE from 13/03/2009 to 23/03/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 5.95 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
				98	91	88			No. Type Depth	-14.05	20.00			
				100	100	100			T2101	-14.40	20.35	+	II	planar, smooth undulating, tight to extremely narrow, iron and manganese stained, chlorite coated, dipping 20°-30° and 60°-70°. 20.35 - 22.60m: Slightly chloritized granite.
				98	99	88	3.3		T2101	-16.65	22.60	+		
				100	100	100	1.0		T2101	-20.85	26.80	+	III/II	Moderately strong to strong, pink, spotted dark green, moderately to slightly decomposed fine grained GRANITE. Joints are closely spaced, rough undulating, tight, chlorite coated, dipping 60°-70°.
				98	98	98			T2101	-21.75	27.70	+	III	Moderately strong, pink, mottled light grey and dark green, moderately decomposed slightly chloritized medium grained GRANITE. Joints are widely spaced, rough and slickensided planar, extremely narrow, chlorite coated, dipping 70°-80°. 27.88 - 29.40m: Subvertical joint.
				100	99	99	5.6		T2101	-21.93	27.88	+		
				98	94	84	0.9		T2101	-23.45	29.40	+		
				100	100	100			T2101	-24.05	30.00	+		

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED **W K SIU**
DATE **24/03/2009**
CHECKED **P O POON**
DATE **25/03/2009**

REMARKS

Gammon Construction Limited
Ground Engineering & Substructure Department



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/EDH165P

SHEET **5** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 17

E 835190.10
N 815560.00

DATE from 13/03/2009 to 23/03/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 5.95 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
				100	95	95			No. Type Depth	-34.05	40.00			As sheet 4 of 6.
				100	100	100			T2101 40.63					
				100	100	100			T2101 -35.55 41.50					41.50 - 41.70m: Calcite vein (2cm), dipping 70°-80°.
				100	94	94			42.10	-35.75 41.70			II	Strong, greyish pink and pink, spotted black, moderately decomposed slightly chloritized fine grained GRANITE. Joints are medium spaced, rough planar, extremely narrow, kaolin and chlorite coated, dipping 40°-50° and 50°-60°.
				100	100	100	1.4		T2101 -36.90 42.85				III	Moderately strong, pink, mottled light grey and light green, spotted black, moderately decomposed slightly chloritized medium grained GRANITE. Joints are medium, locally closely spaced, rough planar, tight, kaolin and chlorite coated, dipping 30°-40°.
				100	100	100			43.65					
				100	100	100			T2101 45.17					
				100	100	100			T2101 46.44					
				100	100	100	3.9		T2101 -41.09 47.04					47.04 - 47.20m: MAFIC DYKE, dipping 70°-80°.
				100	100	100			-41.25 47.20					
				98	98	92			47.96					
				100	100	99	1.9		T2101 48.84					
									T2101 -44.05 50.00					

● Small disturbed sample

○ Large disturbed sample

□ SPT liner sample

■ U76 undisturbed sample

■ U100 undisturbed sample

■ Mazier sample

■ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

↓ Standard penetration test

⊥ Water absorption (Packer) test

⊥ Permeability test

⊥ Impression packer test

∇ In-situ vane shear test

LOGGED **W K SIU**
DATE **24/03/2009**
CHECKED **P O POON**
DATE **25/03/2009**

REMARKS



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/EDH165P

SHEET **6** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 17

E 835190.10
N 815560.00

DATE from 13/03/2009 **to** 23/03/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 5.95 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	100	99						-44.05	50.00			As sheet 5 of 6.
				100	100	82			T2101		50.29			+	+	
							9.7		T2101					+	+	
23/03/2009		18:00									51.59	-45.64	51.59			End of hole at 51.59m depth.
													60.00			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▨ Mazier sample
- ▨ Piston sample

- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ┄ Water absorption (Packer) test
- ┄ Permeability test
- ┄ Impression packer test
- ∨ In-situ vane shear test

LOGGED **W K SIU**

DATE **24/03/2009**

CHECKED **P O POON**

DATE **25/03/2009**

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH265P

SHEET **2** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. GS-10

E 835253.29
N 815593.71

DATE from 22/04/2009 to 05/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 7.70 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
									No. Type Depth					
								1,2 2,2,3,3 N=10	14 10.00 10.10	-2.40	10.00			As sheet 1 of 6.
				0					15 10.50 10.55	-2.85	10.55			Firm, brown and yellowish brown, slightly sandy SILT with much subangular fine gravel sized quartz fragments. (ALLUVIUM)
									16 11.55 11.65	-3.95	11.65			Firm, brown, sandy SILT with much subangular fine gravel sized quartz fragments. (ALLUVIUM)
		5.10m at 18:00		100					17 12.65 12.75	-5.05	12.75			Firm, brown, SILT with much angular to subangular fine gravel sized quartz fragments. (ALLUVIUM)
		3.20m at 08:00						1,2 2,2,3,4 N=11	18 12.65 12.75					Firm, brown, mottled white, slightly sandy SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
				100					20 13.15 13.20					
								2,2 2,3,3,4 N=12	22 14.20 14.30	-6.60	14.30		V	Extremely weak, brown, mottled white, completely decomposed GRANITE. (Firm, slightly sandy SILT with some subangular fine to coarse gravel sized rock fragments)
				98					24 14.70 14.75	-7.05	14.75		V	Extremely weak, orangish brown, mottled brown and white, completely decomposed GRANITE. (Firm to stiff, sandy SILT with some subangular fine gravel sized quartz fragments)
								2,2 3,3,3,4 N=13	26 15.75 15.85					
				98					28 16.25 16.30	-8.60	16.30		V	Extremely weak, pinkish brown, mottled orange, completely decomposed GRANITE. (Silty fine to coarse SAND with some angular fine gravel sized quartz fragments)
								2,3 3,4,4,6 N=17	30 17.30 17.40	-9.70	17.40		V	Extremely weak, light pink, completely decomposed GRANITE. (Firm, SILT with some subangular fine gravel sized quartz fragments)
				88					32 17.80 17.85	-10.15	17.85		V	Extremely weak, light pink, completely decomposed GRANITE. (Firm, slightly sandy SILT with some subangular fine gravel sized quartz fragments)
								2,3 4,5,5,6 N=20	34 18.85 18.95	-11.25	18.95		V	Extremely weak, brown, mottled pink, completely decomposed GRANITE. (Firm, sandy SILT with some subangular fine gravel sized quartz fragments)
				98					36 19.35 19.40					
									37 19.40					
										-12.30	20.00			
● Small disturbed sample ○ Large disturbed sample ▨ SPT liner sample ▨ U76 undisturbed sample ▨ U100 undisturbed sample ▨ Mazier sample ▨ Piston sample ▲ Water sample □ Piezometer / standpipe tip ↓ Standard penetration test ┌ Water absorption (Packer) test └ Permeability test ┌ Impression packer test └ In-situ vane shear test LOGGED W K SIU DATE 06/05/2009 CHECKED P O POON DATE 07/05/2009										REMARKS 5. Acoustic televiewer survey was carried out at 29.50m-52.80m depth. 6. Packer (Water Absorption) test was carried out at 37.76m-42.76m depth.				

t:\gintw\library\1july2009.glb\drillhole (1 feb 09) (ADM)



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH265P

SHEET **3** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. GS-10

E 835253.29
N 815593.71

DATE from 22/04/2009 to 05/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 7.70 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
No.	Type	Depth	-12.30	20.00										
25/04/2009 27/04/2009		3.30m at 18:00 5.80m at 08:00	98					3.4 6.8, 9.9 N=32	38 39	20.40 20.50	-13.25	20.95	V	As sheet 2 of 6.
			80					4.6 6.7, 9.12 N=34	40 41	20.90 20.95	-14.35	22.05	V	Extremely weak, pink, mottled dark brown, completely decomposed GRANITE. (Silty fine to medium SAND with some subangular fine to coarse gravel sized rock fragments)
			100					4.6 6.7, 9.12 N=34	42 43	21.95 22.05	-16.35	24.05	V	Extremely weak, pink, mottled light grey, completely decomposed GRANITE. (Very stiff, sandy SILT with some angular fine gravel sized quartz fragments)
			95					4.6 7.9, 10.17 N=43	44 45	22.45 22.50	-17.45	25.15	V	Extremely weak, pink, mottled light grey, completely decomposed GRANITE. (Silty fine to coarse SAND with some angular fine to medium gravel sized quartz fragments)
27/04/2009 28/04/2009		2.25m at 18:00 5.95m at 08:00	88					4.6 7.9, 12.16 N=44	46 47	23.50 23.60	-17.90	25.60	V	Extremely weak, pink, mottled light grey, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine to medium gravel sized quartz fragments)
			100					8.10 18.19, 23.31 N=51	48 49	24.00 24.05	-19.45	27.15	V	Extremely weak, brown, mottled light grey, completely decomposed GRANITE. (Stiff, slightly sandy SILT with some angular fine gravel sized quartz fragments)
			50					20.30/65mm 37.34, 29/40mm 100bls/190mm	50 51	25.05 25.15	-20.55	28.25	V	Very weak, brown, mottled white, completely decomposed GRANITE. (Silty fine to coarse SAND with some angular fine to medium gravel sized rock fragments)
28/04/2009 29/04/2009	HX 29.08	5.15m at 18:00 5.55m at 08:00	98	65	37	N.I.	10.5		52 53	25.55 25.60	-20.88	28.58	IV	Extremely weak, pinkish brown, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine to medium gravel sized quartz fragments)
			100	59	13	N.I.			54 55	26.60 26.70	-21.38	29.08	III	Weak, brown, mottled white, highly decomposed medium grained GRANITE. (Sandy angular to subangular fine to coarse GRAVEL sized rock fragments)
									56 57	27.10 27.15				Moderately strong, pink, mottled light grey, spotted brown, moderately decomposed medium
									58 59	28.15 28.25				
									60 61	28.53 28.58				
									62	28.98 29.08				
									T2101	29.60				
									T2101	30.00				

Small disturbed sample
Large disturbed sample
SPT liner sample
U76 undisturbed sample
U100 undisturbed sample
Mazier sample
Piston sample

Water sample
Piezometer / standpipe tip
Standard penetration test
Water absorption (Packer) test
Permeability test
Impression packer test
In-situ vane shear test

LOGGED **W K SIU**

DATE **06/05/2009**

CHECKED **P O POON**

DATE **07/05/2009**

REMARKS



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH265P

SHEET **4** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. GS-10

E 835253.29
N 815593.71

DATE from 22/04/2009 **to** 05/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 7.70 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
22/04/2009 30/04/2009	3.90m at 18:00 5.80m at 08:00			100	59	13	13.3					-22.30	30.00	+	III	grained GRANITE. Joints are closely spaced, rough planar and undulating, extremely narrow, iron stained, chlorite coated, dipping 30°-40° and 60°-70°.
				97	85	74	N.I.		T2101		30.68	-23.16	30.86	+	III	Moderately strong, pink, mottled light grey, spotted light green and black, moderately decomposed chloritized medium grained GRANITE. Joints are closely, locally medium spaced, rough planar and undulating, extremely narrow, iron stained, chlorite coated, dipping 20°-30°, 50°-60° and 60°-70°.
							7.8		T2101					+		
				100	99	63			T2101		31.89			+		
							2.6		T2101					+		
							7.3		T2101					+		
				100	100	58			T2101		33.27			+		
									T2101					+		
				94	87	62			T2101		34.80			+		
									T2101					+		
				100	93	74			T2101		36.32			+		
							4.8		T2101			-29.42	37.12	+	III	Moderately strong, greyish pink, moderately decomposed fine grained GRANITE. Joints are medium, locally closely spaced, rough undulating, tight to extremely narrow, chlorite coated, dipping 20°-30°, 50°-60° and 60°-70°.
				98	92	79			T2101		37.77			+		
									T2101					+		
				100	97	88	11.8		T2101		38.96			+		
							3.0		T2101			-32.30	40.00	+		
									T2101					+		

● Small disturbed sample

○ Large disturbed sample

▨ SPT liner sample

▩ U76 undisturbed sample

■ U100 undisturbed sample

▨ Mazer sample

▩ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

↓ Standard penetration test

├ Water absorption (Packer) test

├ Permeability test

├ Impression packer test

√ In-situ vane shear test

LOGGED **W K SIU**
DATE **06/05/2009**
CHECKED **P O POON**
DATE **07/05/2009**

REMARKS



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH265P

SHEET **5** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. GS-10

E 835253.29
N 815593.71

DATE from 22/04/2009 **to** 05/05/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 7.70 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
30/04/2009 04/05/2009	3.60m at 18:00 6.30m at 08:00			100	97	88				T2101				+	III	As sheet 4 of 6.
				100	99	99				T2101	40.50			+		
										T2101				+		
				100	100	91				T2101	41.88			+		
										T2101				+		
				100	100	100				T2101	43.41			+		
										T2101		-36.05	43.75	+	III	
				100	100	100				T2101	44.92			+		
										T2101				+		
				98	88	88		5.5		T2101	46.47			+		
04/05/2009 05/05/2009	2.90m at 18:00 6.52m at 08:00							5.1		T2101				+		Moderately strong, pink and pinkish brown, streaked black, moderately decomposed slightly sheared fine grained GRANITE. Joints are medium spaced, rough planar and undulating, extremely narrow, iron and manganese stained, chlorite coated, dipping 20°-30°, 50°-60° and 60°-70°.
				100	97	84				T2101	48.00			+		
										T2101				+		
				100	98	85		N.I. 2.0		T2101	49.54			+		
										T2101		-42.30	50.00	+		

t:\gintw\library\1july2009.gib\drillhole (1 feb 09) (ADM)

- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▨ U76 undisturbed sample
- ▨ U100 undisturbed sample
- ▨ Mazier sample
- ▨ Piston sample

- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ├ Water absorption (Packer) test
- ├ Permeability test
- ├ Impression packer test
- √ In-situ vane shear test

LOGGED W K SIU
DATE 06/05/2009
CHECKED P O POON
DATE 07/05/2009

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH266P

SHEET **2** of **6**

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. MSK-2

E 835240.76
N 815593.86

DATE from 14/04/2009 to 27/04/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.14 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
								1.2 1.1, 1.2 N=5	4	●	-3.86	10.00			As sheet 1 of 6.
									5	□	-4.06	10.20			Firm, light brown, mottled brown, SILT with some subangular fine gravel sized quartz fragments. (ALLUVIUM)
17/04/2009 18/04/2009	PX 11.00 HX	3.90m at 18:00 4.40m at 08:00		100					6	□	-4.51	10.65			Extremely weak, orangish red, mottled white and brown, completely decomposed GRANITE. (Firm, SILT with some subangular fine to medium gravel sized quartz fragments)
								1.1 2.2, 2.3 N=9	7	□					
				85					8	□					Extremely weak, brown, mottled white and black, completely decomposed GRANITE. (Firm, sandy SILT with some subangular fine gravel sized quartz fragments)
								2.2 2.3, 3.3 N=11	9	□					
18/04/2009 20/04/2009		4.00m at 18:00 4.45m at 08:00			0				10	□	-6.06	12.20			Extremely weak, pink, mottled brown and white, completely decomposed GRANITE. (Firm to stiff, SILT with some subangular fine gravel sized quartz fragments)
									11	□					
				0					12	□					Extremely weak, pink, mottled brown and white, completely decomposed GRANITE. (Firm to stiff, SILT with some subangular fine gravel sized quartz fragments)
									13	□					
				0					14	□					Extremely weak, pink, mottled brown and white, completely decomposed GRANITE. (Firm to stiff, slightly sandy SILT with some subangular fine gravel sized quartz fragments)
									15	□	-8.71	14.85			
									16	□					Extremely weak, pink, mottled brown and white, completely decomposed GRANITE. (Firm to stiff, slightly sandy SILT with some subangular fine gravel sized quartz fragments)
									17	□					
				100					18	□	-10.26	16.40			Extremely weak, pink, mottled white, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)
									19	□					
20/04/2009 21/04/2009		3.50m at 18:00 4.65m at 08:00		90					20	□	-11.81	17.95			Extremely weak, dark reddish brown, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)
									21	□					
									22	□					Extremely weak, pink, mottled white, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)
									23	□					
				100					24	□	-12.91	19.05			Extremely weak, pink, mottled white, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)
									25	□					
									26	□	-13.36	19.50			Extremely weak, pink, mottled white, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)
									27	□					
												20.00			Extremely weak, pink, mottled white, completely decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)

● Small disturbed sample

□ Large disturbed sample

□ SPT liner sample

□ U76 undisturbed sample

□ U100 undisturbed sample

□ Mazier sample

□ Piston sample

▲ Water sample

□ Piezometer / standpipe tip

□ Standard penetration test

□ Water absorption (Packer) test

□ Permeability test

□ Impression packer test

□ In-situ vane shear test

LOGGED **W K SIU**
DATE **28/04/2009**
CHECKED **P O POON**
DATE **29/04/2009**

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH266P

SHEET 3 of 6

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. MSK-2

E 835240.76
N 815593.86

DATE from 14/04/2009 to 27/04/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 6.14 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
21/04/2009 22/04/2009	3.00m at 18:00 4.95m at 08:00			100					28		20.50	-13.86	20.00	V	decomposed GRANITE. (Stiff, sandy SILT with some angular fine gravel sized feldspar fragments)
				80				19.31/10mm 100/40mm 100bls/40mm	29		20.60	-14.46	20.60	V	Extremely weak, pink, completely decomposed GRANITE. (Silty fine to medium SAND)
									30		20.75				
									31		21.74	-15.70	21.84	V	Extremely weak, pink, mottled grey, completely decomposed GRANITE. (Stiff, sandy SILT)
				90				7.19 25.40, 35/40mm 100bls/190mm	32		21.84	-16.04	22.18	V	Very weak, greyish brown, completely decomposed GRANITE. (Slightly silty fine to coarse SAND with some subangular fine gravel sized rock fragments)
									33		22.13				
									34		22.18				
				100				3.4 6, 11, 25, 50 N=92	35		23.18	-17.14	23.28	V	Extremely weak, orangish brown, mottled greyish brown, completely decomposed GRANITE. (Stiff, sandy SILT with occasional subangular fine gravel sized quartz fragments)
									36		23.28	-17.59	23.73	IV	Weak, pink, mottled brown, highly decomposed GRANITE. (Sandy angular fine to coarse GRAVEL sized rock fragments)
				100	83	52	18.8		37		23.73	-18.18	24.32	III	Moderately strong, pink, mottled light grey, spotted black, moderately decomposed medium grained GRANITE. Joints are medium to closely, locally very closely spaced, rough planar and undulating, tight to extremely narrow, chlorite coated, dipping 30°-40°, 60°-70° and subvertical.
22/04/2009 23/04/2009	HX 26.97 4.80m at 18:00 5.05m at 08:00			100			6.9		38		24.22				
									39		24.32				
				100	100	100	1.4			T2101	25.50				
										T2101	26.97	-21.18	27.32		
				98	95	79	11.4			T2101	28.45	-22.41	28.55		
							2.6			T2101	29.40				
				100	98	98				T2101					
				100	95	89				T2101					
											-23.86		30.00		
REMARKS															
LOGGED W K SIU DATE 28/04/2009 CHECKED P O POON DATE 29/04/2009															

- Small disturbed sample
- Large disturbed sample
- ▨ SPT liner sample
- ▨ U76 undisturbed sample
- ▨ U100 undisturbed sample
- ▨ Mazier sample
- ▨ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ├ Water absorption (Packer) test
- ├ Permeability test
- ├ Impression packer test
- ∨ In-situ vane shear test

LOGGED W K SIU
DATE 28/04/2009
CHECKED P O POON
DATE 29/04/2009

	Gammon Construction Limited <i>Ground Engineering & Substructure Department</i>	HOLE No. 2209/SCL/DH266P
	DRILLHOLE RECORD	
	SHEET 5 of 6	
Project Title Ground Investigation (Land) for Shatin to Central Link		
METHOD Rotary	CO-ORDINATES E 835240.76 N 815593.86	PROJECT No. J3251
MACHINE & No. MSK-2		DATE from 14/04/2009 to 27/04/2009
FLUSHING MEDIUM WATER	ORIENTATION Vertical	GROUND LEVEL + 6.14 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	94	73						-33.86	40.00		III	As sheet 4 of 6.
							5.4					-34.16	40.30			40.30 - 42.54m: Streaked dark brown.
				97	86	48			T2101							
										41.33						
									T2101							
		4.30m at 18:00										-36.40	42.54			
24/04/2009 25/04/2009		4.72m at 08:00		99	92	80	>20			42.68		-36.64	42.78			42.78 - 43.80m: Streaked greyish green.
							9.8									
												-37.21	43.35		IV/III	
									T2101			-37.44	43.58		III	43.35 - 43.58m: Weak to moderately weak, highly to moderately decomposed.
							1.7					-37.66	43.80			
				98	99	99				44.21						
									T2101							
												-39.06	45.20		III	
				100	100	100										Moderately strong, pink, mottled light grey, spotted black, moderately decomposed medium grained GRANITE. Joints are medium spaced, rough planar and undulating, tight, kaolin and chlorite coated, dipping 30°-40° and 50°-60°.
		4.28m at 18:00							T2101							
25/04/2009 27/04/2009		4.87m at 08:00		100	100	100				46.63						
									T2101							
				100	93	88	5.3			47.96						
									T2101							
				100	94	83				48.55						
									T2101							
												-43.86	50.00			

● Small disturbed sample ↑ Large disturbed sample □ SPT liner sample ▨ U76 undisturbed sample ■ U100 undisturbed sample ▤ Mazier sample ▩ Piston sample ▲ Water sample □ Piezometer / standpipe tip ↓ Standard penetration test ┌ Water absorption (Packer) test └ Permeability test ┌ Impression packer test √ In-situ vane shear test	LOGGED W K SIU DATE 28/04/2009 CHECKED P O POON DATE 29/04/2009	REMARKS
--	---	----------------

t:\gintwlibrary\1july2009.gib\drillhole (1 feb 09) (ADM)

4946

(FAR EAST) LIMITED
CAUSEWAY BAY COMMERCIAL BLDG., 15TH FLOOR
SUGAR STREET, HONG KONG,

DRILL / BORE HOLE LOG

DATE STARTED: <u>Nov.18, 78</u> COMPLETED: <u>Nov.21,78</u> RIG: <u>JOY 22A</u>	COORDINATES NORTH: <u>15528.160</u> EAST: <u>35202.660</u> LEVEL: <u>+5.91m P.D.</u> INCL: <u>Vertical</u>	WORKING AREA: (Central) Island Corridor Light Rail Transit System	HOLE NO. EF481/2073
		TYPE OF HOLE Combined hole	FLUSHING MEDIUM Water
		SHEET NO. 2 of 3	

LEVEL	DEPTH	RUNS	LEGEND	CORE RECOV	SOLID CORE RECOV	R. Q. D	DESCRIPTION	STRATA	IN SITU TESTS	SAMPLES	WATER OR MUD RETURN	CASING DIA DEPTH	TOTAL DIA TYPE	W. L. READING
-4.09	10.00													
							Dense, brownish pink & whitish grey, soft silty medium to coarse SAND, COMPLETELY WEATHERED GRANITE		10.15 N=8 10.45	5				
		6.62						C.W.G.	12.15 N=27 12.45	L-6B L-6C			PW	
									14.15 N=23 14.45	L-7A L-7B L-7C				
									16.15 N=54 16.45	L-8B L-8C				
-10.71	16.62													
		0.82					Strong, light pinkish green fine grained SLIGHTLY WEATHERED GRANITE with widely spaced 40° joints	S.W.G.					T2-104	
-11.53	17.44													
-12.39	17.77	0.33												
		0.76					Strong pinkish SLIGHTLY WEATHERED GRANITE with closely spaced 10° & near hor. joints							
-12.39	18.30													
		1.13												
-12.99	18.90													
		1.10					Very strong, pinkish yellow & pinkish grey, coarse grained GRANITE with closely spaced joints	GRANITE						
-14.09	20.00													

SCALE: 1:50	■ Undisturbed Samples ● Disturbed Samples	M Mazier J Jar	W water L liner	∇ S.P.T. ① Vane Test	—○— Permeability Test HE Hand Excavation
-----------------------	--	-------------------	--------------------	-------------------------	---

ENGINEER	CONTRACT NO. <u>MTR 481</u>	LOGGED BY <u>S.W. Hui</u>
JOB NAME: <u>Island Corridor Light Rail Transit System</u>		INTRUSION-PREPAKT (FAR EAST) LIMITED CAUSEWAY BAY COMMERCIAL BLDG., 18TH FLOOR SUGAR STREET, HONG KONG.

DRILL / BORE HOLE LOG

DATE			COORDINATES			WORKING AREA: (Central)			HOLE NO.					
STARTED: Nov.18, 78			NORTH: 15528.160			Island Corridor			EF481/2073					
COMPLETED: Nov.21, 78			EAST: 35202.660			Light Rail Transit System								
RIG: JOY 22A			LEVEL: +5.91m P.D.			TYPE OF HOLE			FLUSHING MEDIUM					
			INCL: Vertical			Combined hole			water					
SHEET NO.			3 of 3											
LEVEL	DEPTH	RUNS	LEGEND	CORE RECOV	Solid CORE RECOV	R. Q. D	DESCRIPTION	STRATA	IN SITU TESTS	SAMPLES	WATER OR MUD RETURN	CASING DIA DEPTH	TOTAL DIA TYPE	W. L. READING
-14.09	20.00													
-14.87	20.78	0.78					Very strong pinkish yellow & pinkish grey coarse- grained GRANITE	GRANITE						
-15.37	21.28	0.50												
-16.13	22.04	0.76												
											Bottom of hole			
SCALE: 1:50														
ENGINEER														
CONTRACT NO. MTR 481														
Island Corridor														
JOB NAME: Light Rail Transit System														
LOGGED BY S.W. Hui														
INTRUSION-PREPAKT														
(FAR EAST) LIMITED														
CAUSEWAY BAY COMMERCIAL BLDG., 19TH FLOOR														
SUGAR STREET, HONG KONG,														

4950

ENGINEER

LOGGED BY _____

INTRUSION-PREPAKT
(FAR EAST) LIMITED
CAUSEWAY BAY COMMERCIAL BLDG., 19TH FLOOR
SUGAR STREET, HONG KONG.

JOB No.: HK- BU2740

DRILL / BORE HOLE LOG

DATE STARTED: Mar. 28, 1981 COMPLETED: Mar. 30, 1981 RIG: TDH-2		COORDINATES NORTH: 15546.030 EAST: 35201.890 LEVEL: +5.54m P.D. INCL: Vertical		WORKING AREA: (Admiralty Station) Island Line - Western District to Tai Koo Shing		HOLE NO. EF482A/2553	
TYPE OF HOLE Combined hole		FLUSHING MEDIUM Water		SHEET NO. 2 of 2			

LEVEL	DEPTH	RUNS	LEGEND	CORE RECOV	SOLID CORE RECOV	R.Q.D.	DESCRIPTION	STRATA	IN SITU TESTS	SAMPLES	WATER OR MUD RETURN	CASING DIA DEPTH	TOOL DIA TYPE	W. L. READING
-4.46	10.00			78	78	78					78	NW		
		3.25					Compact to dense, pink & pinkish brown & whitish pink, silty coarse SAND, COMPLETELY WEATHERED GRANITE.	C.W.G.	10.15 N=16 10.45	L-5A L-5B L-5C				
-7.71	13.25													
		1.13					Strong, pink & light pinkish grey, coarse - grained, GRANITE, with closely to widely spaced 30°, 45° & near horizontal irregular vertical stained joints.	GRANITE	12.15 N=33 12.45	L-6A L-6B L-6C			NW	
-8.84	14.38													
		0.58												
-4.42	14.96													
		1.24												
-6.66	16.20													
		1.50												
-8.16	17.70													
		1.40					Moderately strong, greenish pink, coarse-grained, MODERATELY to SLIGHTLY WEATHERED GRANITE, with closely to very closely spaced 10° 40° & near horizontal & irregular vertical stained joints.	N. S.W.G.						
-14.56	19.10													
		1.00												
-14.56	20.10													

SCALE: 1:50	☒ Undisturbed Samples ☐ Disturbed Samples	M Mazier J Jar	W water L liner	S.P.T. ① Vane Test	Permeability Test HE Hand Excavation
ENGINEER		CONTRACT NO. M.T.R.482A		LOGGED BY	
		JOB NAME: Island Line		INTRUSION-PREPAKT (FAR EAST) LIMITED CASEWAY BAY COMMERCIAL BLDG., 19TH FLOOR SUGAR STREET, HONG KONG.	
		JOB No.: HK-		BU2740	

DRILL / BORE HOLE LOG

4950

DATE STARTED: Mar. 27, 1981		COORDINATES NORTH: 15528.610 EAST: 35176.630 LEVEL: +7.14m P.D. INCL: Vertical		WORKING AREA: (Rodney Bldg.) Island Line - Western District to Tai Koo Shing		HOLE NO. EF482A/2555	
COMPLETED: Mar. 29, 1981		RIG: L-34		TYPE OF HOLE Combined hole		FLUSHING MEDIUM Water	
						SHEET NO. 1 of 2	

DEPTH	RUNS	LEGEND	CORE RECOV	SOLID CORE RECOV	R.Q.D.	DESCRIPTION	STRATA	IN SITU TESTS	SAMPLES	WATER OR MUD RETURN	CASING DIA DEPTH	TOOL DIA TYPE	W. L. READING
+7.14	0.00	0.10	11	11	11	Ex. Grd. Surf							
	0.10					CONCRETE							
	3.40					Dense, pinkish yellow, silty coarse SAND with gravels.							
	3.50												
	6.50					Compact, yellowish brown, silty coarse SAND, COMPLETELY WEATHERED GRANITE.							
	10.00												

SCALE: 1:50	☐ Undisturbed Samples ☐ Disturbed Samples	M Mazier J Jar	W water L liner	S.P.T. Vane Test	Permeability Test Hand Excavation
-------------	--	-------------------	--------------------	---------------------	--------------------------------------

ENGINEER	CONTRACT NO. M.T.R.482A	LOGGED BY
JOB NAME: Island Line	INTRUSION-PREPAKT (FAR EAST) LIMITED CAUSEWAY BAY COMMERCIAL BLDG., 19TH FLOOR SUGAR STREET, HONG KONG.	
JOB No.: HK-		BU2740

DRILL / BORE HOLE LOG

DATE STARTED: <u>Mar. 27, 1981</u> COMPLETED: <u>Mar. 29, 1981</u> RIG: <u>L-34</u>				COORDINATES NORTH: <u>15528.610</u> EAST: <u>35176.630</u> LEVEL: <u>+7.14m P.D.</u> INCL: <u>Vertical</u>				WORKING AREA: (Rodney Bldg.) Island Line - Western District to Tai Koo Shing				HOLE NO. <u>EF482A/2555</u>			
				TYPE OF HOLE Combined hole				FLUSHING MEDIUM Water				SHEET NO. 2 of 2			

LEVEL	DEPTH	RUNS	LEGEND	CORE RECOV	SOLID CORE RECOV	R.Q.D.	DESCRIPTION	STRATA	IN SITU TESTS	SAMPLES	WATER OR MUD RETURN	CASING DIA DEPTH	TOOL DIA TYPE	W. L. READING
-2.86	10.00													
		2.09					Dense, yellowish brown, silty coarse SAND, COMPLETELY WEATHERED GRANITE	C.W.G.	10.15 N=34 10.45	L-5A L-5B L-5C				
95	12.09								2.00 N=55 0.09	. 6				
61	12.75	0.66					GRANITE BOULDER	G.B.	12.09					
		0.68												
29	13.43													
		0.93					Dense, pinkish brown silty coarse SAND, COMPLETELY WEATHERED GRANITE	C.W.G.	14 00 N=71 14.30	. 7				
-7.22	14.36													
		1.53					Moderately strong, pinkish grey, coarse - grained, MODERATELY to SLIGHTLY WEATHERED GRANITE with closely spaced inclined joints.							
-8.75	15.89													
		1.50												
-10.25	17.39													
		1.52												
-11.77	18.91													
		1.28												
-12.05	20.19													
0.05	20.19													

SCALE: 1 : 50		■ Undisturbed Samples ● Disturbed Samples		M Maxier J Jar		W water L liner		↓ S. P. T. ① Vane Test		—○— Permeability Test HE Hand Excavation	
ENGINEER				CONTRACT NO. <u>M.T.R.482A</u>				LOGGED BY _____			
JOB NAME: <u>Island Line</u>				INTRUSION-PREPAKT (FAR EAST) LIMITED CAUSEWAY BAY COMMERCIAL BLDG., 19TH FLOOR SUGAR STREET, HONG KONG.				JOB No.: HK- BU2740			

FINAL

Lam

DRILLHOLE RECORD

HOLE No. **SAW620/DH/030**SHEET **1** of **6**PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**METHOD **IP+W+RC**

CO-ORDINATES

CONTRACT No.

SAW620MACHINE & No. **Edeco H40, D71****E 835166.83**DATE from **21/03/03** to **09/04/03****N 815551.21**FLUSHING MEDIUM **Water**ORIENTATION **Vertical**GROUND LEVEL **6.34** mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
03/04/2003	Pw	3.00m 08:00											Firm, red, sandy SILT (FILL)
1								INSPECTION PIT	5.84	0.50			
2										1.00			Grey and greyish yellow, silty fine to coarse SAND with some angular fine to coarse gravel and cobble sized concrete fragments (FILL)
3			100				14bbs		3.34	3.00			Firm, brownish yellow spotted red, sandy clayey SILT with some subangular to subrounded coarse gravel and cobble sized moderately strong rock fragments (FILL)
4							(1.2, 3.2, 1.2) N=8			3.50			
5			89				45bbs		1.34	5.00			Extremely weak, pink and brownish red spotted grey and white, completely decomposed medium grained GRANITE (Stiff, sandy SILT)
6	Pw 6.00 Hw						(1.1, 2.2, 3.6) N=13			5.50		V	
7		1.21m 18:00								6.00			
04/04/2003		2.70m 08:00	180	100	97	5.0				6.45			7.00-7.10m with some fine to coarse gravel sized moderately strong rock fragments
8								12.01		7.00		III/II	Moderately strong to strong, pink spotted black and grey, moderately to slightly decomposed medium grained GRANITE with closely to medium spaced, rough undulating, limonite and manganese oxide stained joints, dipping at 0°-10°, 10°-20°, 35°-45° and 50°-60°
9			100	68	53					8.34			8.34-8.90m: with subvertical joints
						NI		12.01				III	8.98-9.53m: moderately weak to moderately strong and moderately decomposed QUARTZ VEIN and FELDSPAR PEGMATITE
		1.46m 18:00				4.7				9.84		IV	9.53-9.68m: weak and highly decomposed, non-intact
10								12.01				III/II	
SMALL DISTURBED SAMPLE PISTON SAMPLE U76 UNDISTURBED SAMPLE U100 UNDISTURBED SAMPLE MAZIER SAMPLE SPT LINER SAMPLE WATER SAMPLE STANDARD PENETRATION TEST IN-SITU VANE SHEAR TEST PERMEABILITY TEST IMPRESSION PACKER TEST PACKER TEST PIEZOMETER TIP OBSERVATION WELL TIP LOGGED <u>W.H.Lau</u> DATE <u>10/04/2003</u> CHECKED <u>I.S.McGlen</u> DATE <u>14/04/2003</u> REMARKS 1. Inspection pit excavated to 3.00m depth. 2. Eastman camera tests carried out at 5.00m, 10.00m, 15.00m, 20.00m and 25.00m depths. 3. Falling head permeability test carried out at 5.50-7.00m depth. 4. Standpipe installed to 38.50m depth. 5. Temperature monitoring carried out at 28.00m, 33.00m and 38.00m depths.													

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

Laboratory: 26/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.

Tel: 2882 - 3939 Fax: 2882 - 3331

DRILLHOLE RECORD

HOLE No. **SAW620/DH/030**

SHEET 2 of 6

PROJECT	Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)
---------	--

METHOD	IP+W+RC
--------	---------

CO-ORDINATES

CONTRACT No. **SAW620**

MACHINE & No. **Edeco H40, D71**

E 835166.83

DATE from **21/03/03** to **09/04/03**

N 815551.21

FLUSHING MEDIUM **Water**

ORIENTATION **Vertical**

GROUND LEVEL **6.34** mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description		
11	07/04/2003	2.74m 08:00	100	98	78							II	9.75-10.34m: strong and slightly decomposed		
						7.1							III/II		
			100	97	93	NI 9.9					10.95		IV III/II	10.90-11.00m: weak and highly decomposed, non-intact 11.00-12.80m: fine grained GRANITE	
						6.4									
			72	72	47						12.19				
						NR									
			0								-6.46 -6.66	12.80 13.00		V/IV V/IV	12.80-13.00m: no recovery inferred to be completely to highly decomposed GRANITE
			100	96	95	3.3					-7.12	13.36 13.46		II	Extremely weak to weak, greenish grey and brown, completely to highly decomposed fine to medium grained GRANITE (Sandy fine to coarse GRAVEL sized moderately strong rock fragments)
															
			99	99	87							14.96			Strong, pink spotted black and grey, locally brown, slightly decomposed medium grained GRANITE with medium to widely, locally closely to very closely spaced, rough and smooth planar and undulating, limonite and manganese oxide stained, chlorite coated joints, dipping at 0°-10°, 10°-20°, 30°-40°, 40°-50° and 60°-70°
															
12	Hw 13.46		100	99	99									16.44-18.04m: striped light greenish grey and slightly silicified GRANITE	
						7.5									
			100	100	77	2.5					17.90				
						17.5									
			100	92	82	3.3					19.01			18.61-21.50m: fine to medium grained GRANITE	
															
															
															
															
															
															

 SMALL DISTURBED SAMPLE
 PISTON SAMPLE
 U76 UNDISTURBED SAMPLE
 U100 UNDISTURBED SAMPLE
 MAZIER SAMPLE
 SPT LINER SAMPLE
 WATER SAMPLE

 STANDARD PENETRATION TEST
 IN-SITU VANE SHEAR TEST
 PERMEABILITY TEST
 IMPRESSION PACKER TEST
 PACKER TEST
 PIEZOMETER TIP
 OBSERVATION WELL TIP

LOGGED W.H.Lau
DATE 10/04/2003
CHECKED I.S.McGlen
DATE 14/04/2003

REMARKS

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

-Laboratory: 26/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.

·Tel: 2882 - 3939 ·Fax: 2882 - 3331

	DRILLHOLE RECORD		HOLE No. SAW620/DH/030	
			SHEET 3 of 6	
PROJECT Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)				
METHOD IP+W+RC		CO-ORDINATES E 835166.83 N 815551.21		CONTRACT No. SAW620
MACHINE & No. Edeco H40, D71				DATE from 21/03/03 to 09/04/03
FLUSHING MEDIUM Water		ORIENTATION Vertical		GROUND LEVEL 6.34 mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
			100	96	95					20.05	+		As sheet 2 of 6
21						10.0		T2.01					
			100	100	100	1.7		T2.01		21.35	+		
22								T2.01					
			100	100	100			T2.01		22.50	+		
23								T2.01					
			100	100	96	5.3		T2.01		23.52	+		
24								T2.01					
			100	100	100	2.6		T2.01		24.50	+		
25								T2.01					
		2.10m 18:00				0.8		T2.01					
26		2.70m 08:00	100	100	100			T2.01		25.98	+		
27	08/04/2003							T2.01					
			100	100	100			T2.01		27.49	+		
28						0.3		T2.01					
			100	100	100			T2.01		28.99	+		
29								T2.01					
30			100	100	100			T2.01					
 SMALL DISTURBED SAMPLE  STANDARD PENETRATION TEST  PISTON SAMPLE  IN-SITU VANE SHEAR TEST  U76 UNDISTURBED SAMPLE  PERMEABILITY TEST  U100 UNDISTURBED SAMPLE  IMPRESSION PACKER TEST  MAZIER SAMPLE  PACKER TEST  SPT LINER SAMPLE  PIEZOMETER TIP  WATER SAMPLE  OBSERVATION WELL TIP LOGGED <u>W.H.Lau</u> DATE <u>10/04/2003</u> CHECKED <u>I.S.McGlen</u> DATE <u>14/04/2003</u> REMARKS													

	DRILLHOLE RECORD		HOLE No. SAW620/DH/030
			SHEET 4 of 6
PROJECT Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)			
METHOD IP+W+RC		CO-ORDINATES E 835166.83 N 815551.21	CONTRACT No. SAW620
MACHINE & No. Edeco H40, D71			DATE from 21/03/03 to 09/04/03
FLUSHING MEDIUM Water		ORIENTATION Vertical	GROUND LEVEL 6.34 mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
31			100	100	100			T2.01		30.45	+		As sheet 3 of 6
32			100	100	100			T2.01		31.69	+		
33			100	100	100			T2.01		32.90	+		
34			100	100	100			T2.01		33.78	+		
35			100	100	100	8.7		T2.01		34.83	+		34.60-34.99m: fine to medium grained GRANITE
36			100	100	91	3.5		T2.01		35.56	+		
37			100	100	100			T2.01		36.72	+		
38		2.03m 18:00	100	100	71	9.5		T2.01		37.85	+		
39		2.85m 08:00	100	100	78	2.0		T2.01		38.58	+		
40						6.2		T2.01		39.85	+		39.78-40.78m: fine to medium grained GRANITE

 SMALL DISTURBED SAMPLE
 PISTON SAMPLE
 U76 UNDISTURBED SAMPLE
 U100 UNDISTURBED SAMPLE
 MAZIER SAMPLE
 SPT LINER SAMPLE
 WATER SAMPLE

 STANDARD PENETRATION TEST
 IN-SITU VANE SHEAR TEST
 PERMEABILITY TEST
 IMPRESSION PACKER TEST
 PACKER TEST
 PIEZOMETER TIP
 OBSERVATION WELL TIP

LOGGED W.H.Lau
DATE 10/04/2003
CHECKED I.S.McGlen
DATE 14/04/2003

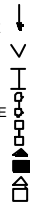
REMARKS

	DRILLHOLE RECORD		HOLE No. SAW620/DH/030	
			SHEET 5 of 6	
PROJECT Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)				
METHOD IP+W+RC		CO-ORDINATES		CONTRACT No. SAW620
MACHINE & No. Edeco H40, D71		E 835166.83 N 815551.21		DATE from 21/03/03 to 09/04/03
FLUSHING MEDIUM Water		ORIENTATION Vertical		GROUND LEVEL 6.34 mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
			100	95	89								As sheet 4 of 6
						9.6							
41			100	100	100	0.6				41.24			
42			100	100	100					42.01			
			100	100	100					42.73			
43													
44			100	100	100					44.17			
45						4.8							44.47-44.62m: with feldspar PEGMATITE
						1.0				45.67			
46			100	100	100							III/II	45.67-49.45m: moderately strong to strong, pink spotted green, moderately to slightly decomposed medium grained altered GRANITE
47										47.17			
48			100	100	100					48.24			
			100	100	100					48.70			
49													
						6.7							49.45-49.82m: moderately strong to strong and moderately to slightly decomposed fine grained
50													
 SMALL DISTURBED SAMPLE  PISTON SAMPLE  U76 UNDISTURBED SAMPLE  U100 UNDISTURBED SAMPLE  MAZIER SAMPLE  SPT LINER SAMPLE  WATER SAMPLE  STANDARD PENETRATION TEST  IN-SITU VANE SHEAR TEST  PERMEABILITY TEST  IMPRESSION PACKER TEST  PACKER TEST  PIEZOMETER TIP  OBSERVATION WELL TIP LOGGED <u>W.H.Lau</u> DATE <u>10/04/2003</u> CHECKED <u>I.S.McGlen</u> DATE <u>14/04/2003</u> REMARKS													

	DRILLHOLE RECORD		HOLE No. SAW620/DH/030	
			SHEET 6 of 6	
PROJECT Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)				
METHOD IP+W+RC		CO-ORDINATES E 835166.83 N 815551.21		CONTRACT No. SAW620
MACHINE & No. Edeco H40, D71				DATE from 21/03/03 to 09/04/03
FLUSHING MEDIUM Water		ORIENTATION Vertical		GROUND LEVEL 6.34 mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
51		2.42m 18:00	100	100	93	3.3				50.12		II	GRANITE 49.82-52.65m: fine grained GRANITE 50.12-50.25m: with feldspar PEGMATITE 50.94-51.16m: with feldspar PEGMATITE
	100		100	94					50.66				
													
52			100	100	100				51.70				
													
									-46.31	52.65			
53													End of investigation hole at 52.65m
54													
55													
56													
57													
58													
59													
60													

	SMALL DISTURBED SAMPLE		STANDARD PENETRATION TEST	LOGGED <u>W.H.Lau</u> DATE <u>10/04/2003</u> CHECKED <u>I.S.McGlen</u> DATE <u>14/04/2003</u>	REMARKS
	PISTON SAMPLE		IN-SITU VANE SHEAR TEST		
	U76 UNDISTURBED SAMPLE		PERMEABILITY TEST		
	U100 UNDISTURBED SAMPLE		IMPRESSION PACKER TEST		
	MAZIER SAMPLE		PACKER TEST		
	SPT LINER SAMPLE		PIEZOMETER TIP		
	WATER SAMPLE		OBSERVATION WELL TIP		

FINAL

Lam

DRILLHOLE RECORD

HOLE No. **SAW620/DH/033**

SHEET **1** of **7**

PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**

METHOD **IP+W+RC**

CO-ORDINATES

E 835245.16

CONTRACT No.

SAW620

MACHINE & No. **Longyear L38, D84**
N 815577.50

DATE from **03/07/03** to **08/07/03**

FLUSHING MEDIUM **Water**

ORIENTATION **Vertical**

GROUND LEVEL **5.50 mPD**

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
03/07/2003	Sw								5.45	0.05			BRICK Loose, brown, silty fine to coarse SAND with some subangular to subrounded fine to coarse gravel sized weak to moderately weak rock and brick fragments and tree root (FILL)
1								INSPECTION PIT		0.50			
								1		1.00			
								2		1.50			
2								3		2.00			
								4		2.50			
								5		3.00			
3			0				34ble	6		3.50			3.00-3.50m: sandy fine to coarse GRAVEL sized quartz and moderately weak to moderately strong rock fragments
			0				58ble	7		4.00			
4							(1,1,0,1,2,3) N=8	8		4.45			
								9		5.00			
5	Sw 5.00 Pw		0				107ble	10		5.50			5.00-5.50m: sandy, fine to coarse subangular GRAVEL with some subrounded cobble sized moderately strong rock fragments
			89				75ble	11	0.00	5.95			Grey, silty fine to coarse SAND with some shell fragments (MARINE DEPOSIT)
6								12	-0.45	6.00			Firm, light grey, silty CLAY with occasional angular to subangular fine to medium gravel sized quartz fragments (ALLUVIUM)
							(4,3,2,2,3,3) N=10	13		6.50			
7								14		6.95			
								15	-2.00	7.50			Brown, slightly clayey silty fine to coarse SAND with some subangular to subrounded fine to medium gravel sized, occasional coarse gravel and cobble sized moderately strong rock and quartz fragments (ALLUVIUM)
8			0				128ble	16		8.00			
			100				9ble	17	-3.00	8.50			
9								18		9.00			Extremely weak, pink, brownish pink spotted white, completely decomposed medium grained GRANITE (Stiff, sandy silty CLAY with occasional fine to medium gravel sized quartz fragments)
							(1,0,1,1,2,2) N=6	19		9.45			
10		1.75m 18:00								10.00			

SMALL DISTURBED SAMPLE
 PISTON SAMPLE
 U76 UNDISTURBED SAMPLE
 U100 UNDISTURBED SAMPLE
 MAZIER SAMPLE
 SPT LINER SAMPLE
 WATER SAMPLE

STANDARD PENETRATION TEST
 IN-SITU VANE SHEAR TEST
 PERMEABILITY TEST
 IMPRESSION PACKER TEST
 PACKER TEST
 PIEZOMETER TIP
 OBSERVATION WELL TIP

LOGGED **W.H.Lau**
 DATE **10/07/2003**
 CHECKED **I.S.McGlen**
 DATE **11/07/2003**

REMARKS

1. Inspection pit excavated to 3.00m depth.
2. Acoustic televiewer carried out at 31.00-59.96m depth.
3. Eastman camera tests carried out at 5.00m, 10.00m, 15.00m and 20.00m depths.

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

Laboratory: 28/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.

Tel: 2652 - 3939 Fax: 2662 - 3331



DRILLHOLE RECORD

HOLE No. **SAW620/DH/033**SHEET **2** of **7**PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**METHOD **IP+W+RC**

CO-ORDINATES

E 835245.16

CONTRACT No.

SAW620MACHINE & No. **Longyear L38, D84****N 815577.50**DATE from **03/07/03** to **08/07/03**FLUSHING MEDIUM **Water**ORIENTATION **Vertical**GROUND LEVEL **5.50** mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
04/07/2003		1.03m 08:00	100										As sheet 1 of 7
11													
12							(1,1, 1,2,3,3) N=8						
13			100										
14							(2,2, 4,10, 12,12) N=38						
15			0										
16			100										
17													
18							(6,8, 9,11, 12,24) N=56						
19			55										
20	Pw 19.70 Hw		85										

SMALL DISTURBED SAMPLE

PISTON SAMPLE

U75 UNDISTURBED SAMPLE

U100 UNDISTURBED SAMPLE

MAZIER SAMPLE

SPT LINER SAMPLE

WATER SAMPLE

STANDARD PENETRATION TEST

IN-SITU VANE SHEAR TEST

PERMEABILITY TEST

IMPRESSION PACKER TEST

PACKER TEST

PIEZOMETER TIP

OBSERVATION WELL TIP

LOGGED **W.H.Lau**

DATE **10/07/2003**

CHECKED **I.S.McGlen**

DATE **11/07/2003**

REMARKS

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.
Laboratory: 28/F., Unit 3, Honour Ind. Centre, No. 6. Sun Yip St., Chaiwan, Hong Kong.
Tel: 2882 - 3939 Fax: 2882 - 3331



DRILLHOLE RECORD

HOLE No. **SAW620/DH/033**SHEET **3** of **7**PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**METHOD **IP+W+RC**

CO-ORDINATES

CONTRACT No. **SAW620**MACHINE & No. **Longyear L38, D84****E 835245.16**DATE from **03/07/03** to **08/07/03****N 815577.50**FLUSHING MEDIUM **Water**ORIENTATION **Vertical**GROUND LEVEL **5.50 mPD**

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
21								36	20.70	20.80			As sheet 2 of 7
22			80				(4,4, 8,8, 12,14) N=42	37	-15.80	21.30		V	Extremely weak, pink, light pink spotted white, completely decomposed medium grained GRANITE (Stiff, sandy SILT with occasional fine to medium gravel sized quartz fragments)
23								39		22.20			
24							(5,9, 10,13, 20,57) N=108	40		23.20			
25			85					41		23.80			
26								42		24.25			
27		0.66m 18:00 1.03m 08:00						43		24.70			
28	Hw 27.90							44		25.70			
29								45	-20.80	26.30		V/IV	Extremely weak to weak, light pink spotted white and streaked brown, completely to highly decomposed medium grained GRANITE (Silty fine to coarse SAND with some fine to medium gravel sized quartz and rock fragments) 27.20-27.90m: with occasional coarse gravel sized moderately weak rock fragments
30			83				13,31, 100/55mm 100ble/55mm	46		27.20			
			100	87	46	NT 9.4		47	-22.40	27.80		III III/II	Moderately strong to strong, pink, light greyish pink and light brownish pink spotted dark green and black, moderately to slightly decomposed fine to medium grained GRANITE with closely to medium spaced, rough planar, limonite stained joints, dipping at 0°-10°, 10°-15° and 30°-40° 27.90-27.95m: moderately strong and moderately decomposed medium grained GRANITE 27.90-27.95m: very closely spaced joints, dipping irregular
			100	94	94	>20 9.3				29.32		II III/II	
SMALL DISTURBED SAMPLE PISTON SAMPLE U76 UNDISTURBED SAMPLE U100 UNDISTURBED SAMPLE MAZIER SAMPLE SPT LINER SAMPLE WATER SAMPLE STANDARD PENETRATION TEST IN-SITU VANE SHEAR TEST PERMEABILITY TEST IMPRESSION PACKER TEST PACKER TEST PIEZOMETER TIP OBSERVATION WELL TIP LOGGED W.H.Lau DATE 10/07/2003 CHECKED I.S.McGlen DATE 11/07/2003 REMARKS													

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

Laboratory: 28/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.

Tel: 2832 - 3939 Fax: 2882 - 3331



DRILLHOLE RECORD

HOLE No. **SAW620/DH/033**SHEET **4** of **7**PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**METHOD **IP+W+RC**

CO-ORDINATES

E 835245.16

CONTRACT No.

SAW620MACHINE & No. **Longyear L38, D84****N 815577.50**DATE from **03/07/03** to **08/07/03**FLUSHING MEDIUM **Water**ORIENTATION **Vertical**GROUND LEVEL **5.50 mPD**

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
31			100	87	75	>20 9.6		2.0m		30.85	++		27.90-27.95m: highly fractured 28.35-29.23m: joints dipping at 65°-75° 29.23-29.32m: closely spaced, rough undulating, kaolin stained joints, dipping at 60°-70° 29.23-29.32m: highly fractured 29.32-29.70m: strong and slightly decomposed PEGMATITE 29.32-30.85m: joints dipping at 30°-40° and 70°-80° 30.85-30.98m: highly fractured 30.85-30.98m: closely spaced, dipping at 0°-10° and 70°-80° 30.98-32.55m: closely spaced, rough and smooth planar joints, dipping at 0°-10° and 30°-40° 32.55-33.30m: medium spaced joints, dipping at 0°-10° and 30°-40°
32			100	93	76	4.0		2.0m		32.35	++		33.30-33.35m: very closely spaced joints, dipping at 0°-10° 33.30-33.35m: highly fractured 33.35-34.20m: very closely to closely spaced, rough and smooth planar joints, dipping at 60°-70° 34.10-34.69m: moderately strong and moderately decomposed 34.20-34.46m: highly fractured 34.20-34.46m: very closely spaced joints, dipping irregular 34.46-34.69m: very closely to closely spaced, rough undulating joints, dipping at 0°-10° 34.46-35.20m: closely spaced joints, dipping at 0°-10° 35.20-35.45m: very closely to closely spaced, rough undulating joints, dipping at 0°-10° 35.45-36.56m: chlorite stained joints, dipping at 0°-10° and 30°-40° 36.56-37.16m: very closely spaced, rough undulating joints, dipping at 0°-10° 37.04-37.16m: moderately strong and moderately decomposed 37.16-42.00m: chlorite coated (1mm) and occasional kaolin stained joints, dipping at 0°-10° and 30°-40°
33						>20 20.0		2.0m		33.78	++		
34			100	62	19	NI		2.0m		34.81	++	III	
35			100	99	63	>20 6.3		2.0m		36.26	++	III/II	
36			100	93	57	>20		2.0m		37.79	++	III	
37		1.93m 18:00				4.8		2.0m		39.24	++	III/II	
38		1.07m 08:00	100	10	68			2.0m			++		
39			99	95	52			2.0m			++		
40						12.3		2.0m			++		

SMALL DISTURBED SAMPLE

PISTON SAMPLE

U76 UNDISTURBED SAMPLE

U100 UNDISTURBED SAMPLE

MAZIER SAMPLE

SPT LINER SAMPLE

WATER SAMPLE

STANDARD PENETRATION TEST

IN-SITU VANE SHEAR TEST

PERMEABILITY TEST

IMPRESSION PACKER TEST

PACKER TEST

PIEZOMETER TIP

OBSERVATION WELL TIP

LOGGED **W.H.Lau**
DATE **10/07/2003**
CHECKED **I.S.McGlen**
DATE **11/07/2003**

REMARKS

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

Laboratory: 28/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.

Tel: 2682 - 3939 Fax: 2682 - 3331



DRILLHOLE RECORD

HOLE No. **SAW620/DH/033**SHEET **5** of **7**PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**METHOD **IP+W+RC**

CO-ORDINATES

E 835245.16

CONTRACT No.

SAW620MACHINE & No. **Longyear L38, D84****N 815577.50**DATE from **03/07/03** to **08/07/03**FLUSHING MEDIUM **Water**ORIENTATION **Vertical**GROUND LEVEL **5.50 mPD**

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
41			99	94	69	9.7		2.0m		40.71	+++	III	40.65-40.71m: moderately strong and moderately decomposed
42						5.0		2.0m	-36.50	42.00	+++	III	41.48-42.00m: moderately strong and moderately decomposed
43			100	97	78			2.0m		42.24	+++	II	Strong, pink, light greyish pink spotted black and dark green, slightly decomposed medium grained GRANITE with medium to widely spaced, rough planar, chlorite coated (1mm) joints, dipping at 0°-10° and 10°-20° 42.00-44.38m: closely to medium spaced, clean joints, dipping at 5°-15°, 60° and 85°
44			100	100	100	2.0		2.0m		43.74	+++		
45								2.0m			+++		
46			100	100	100			2.0m		46.25	+++		
47			100	100	93			2.0m		46.78	+++		46.00-46.90m: medium spaced, rough undulating, dipping at 60°-70°
48			100	100	95			2.0m		48.25	+++		
49			100	100	100	2.3		2.0m		49.73	+++		
50			100	100	100			2.0m			+++		

SMALL DISTURBED SAMPLE	STANDARD PENETRATION TEST
PISTON SAMPLE	IN-SITU VANE SHEAR TEST
U76 UNDISTURBED SAMPLE	PERMEABILITY TEST
U10C UNDISTURBED SAMPLE	IMPRESSION PACKER TEST
MAZIER SAMPLE	PACKER TEST
SPT LINER SAMPLE	PIEZOMETER TIP
WATER SAMPLE	OBSERVATION WELL TIP

LOGGED **W.H.Lau**
DATE **10/07/2003**
CHECKED **J.S.McGlen**
DATE **11/07/2003**

REMARKS

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

Laboratory: 26/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.

Tel: 2682 - 3939 Fax: 2682 - 3331



DRILLHOLE RECORD

HOLE No. **SAW620/DH/033**SHEET **6** of **7**PROJECT **Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)**METHOD **IP+W+RC**

CO-ORDINATES

E 835245.16

CONTRACT No.

SAW620MACHINE & No. **Longyear L38, D84****N 815577.50**DATE from **03/07/03** to **08/07/03**FLUSHING MEDIUM **Water**ORIENTATION **Vertical**GROUND LEVEL **5.50 mPD**

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
51		0.89m 18:00						▲			+		As sheet 5 of 7
52	08/07/2003	1.07m 08:00	100	100	93			▼		51.26	+		50.73-56.30m: medium spaced joint, dipping at 50°-60°
53			100	100	100			▼		52.72	+		
54			100	100	95			▼		53.23	+		
55			100	100	100			▼		54.76	+		
56			100	100	93	1.9		▼		55.28	+		56.30-60.18m: closely to medium spaced joint, dipping at 40°-50°
57			100	100	100			▼		56.78	+		
58			100	100	100			▼		58.25	+		
59								▼			+		58.80-59.00m: rough undulating, chlorite stained and coated (1mm), dipping at 85°
60		0.91m	100	100	100			▼		59.77	+		

SMALL DISTURBED SAMPLE

PISTON SAMPLE

U76 UNDISTURBED SAMPLE

U100 UNDISTURBED SAMPLE

MAZIER SAMPLE

SPT LINER SAMPLE

WATER SAMPLE

STANDARD PENETRATION TEST

IN-SITU VANE SHEAR TEST

PERMEABILITY TEST

IMPRESSION PACKER TEST

PACKER TEST

PIEZOMETER TIP

OBSERVATION WELL TIP

LOGGED **W.H.Lau**
DATE **10/07/2003**
CHECKED **I.S.McGlen**
DATE **11/07/2003**

REMARKS

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.

Laboratory: 26/F., Unit 3, Honour Ind. Centre, No. 8, Sun Yip St., Chaiwan, Hong Kong.

Tel: 2882 - 3939 Fax: 2882 - 3331

	DRILLHOLE RECORD		HOLE No. SAW620/DH/033	
			SHEET 7 of 7	
PROJECT Kowloon - Canton Railway Corporation, Shatin to Central Link, Site Investigation (South)				
METHOD IP+W+RC		CO-ORDINATES		CONTRACT No. SAW620
MACHINE & No. Longyear L38, D84		E 835245.16 N 815577.50		DATE from 03/07/03 to 08/07/03
FLUSHING MEDIUM Water		ORIENTATION Vertical		GROUND LEVEL 5.50 mPD

Drilling Progress	Casing size	Water level at end/start of shift	TCR %	SCR %	RQD %	Fracture Index	Tests	Samples	Reduced Level (mPD)	Depth (m)	Legend	Grade	Description
		18:00							-54.68	60.18	+	+	As sheet 6 of 7 End of investigation hole at 60.18m
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

 SMALL DISTURBED SAMPLE
 PISTON SAMPLE
 U76 UNDISTURBED SAMPLE
 U100 UNDISTURBED SAMPLE
 MAZIER SAMPLE
 SPT LINER SAMPLE
 WATER SAMPLE

 STANDARD PENETRATION TEST
 IN-SITU VANE SHEAR TEST
 PERMEABILITY TEST
 IMPRESSION PACKER TEST
 PACKER TEST
 PIEZOMETER TIP
 OBSERVATION WELL TIP

LOGGED W.H.Lau
DATE 10/07/2003
CHECKED I.S.McGlen
DATE 11/07/2003

REMARKS

Lam Geotechnics Limited

Office: 23/F World Trade Centre, 280 Gloucester Rd., Causeway Bay, Hong Kong.
Laboratory: 28/F., Unit 3, Honour Ind. Centre, No. 6, Sun Yip St., Chaiwan, Hong Kong.
Tel: 2882 - 3838 Fax: 2882 - 3331

 FUGRO GEOTECHNICAL SERVICES LTD		DRILLHOLE RECORD		HOLE No. 912/SIL/D286											
		CONTRACT No.: MTR contract 912		SHEET: 1 of 3											
PROJECT: Ground Investigation for South Island Line (East)															
METHOD: Rotary Drilling		CO-ORDINATES: E 834923.03 N 815277.11		WORKS ORDER No. N/A											
MACHINE & No.: FDR-15				DATE from: 23/01/2010 to 04/02/2010											
FLUSHING MEDIUM: Water		ORIENTATION: Vertical		GROUND LEVEL + 43.09 mPD											
Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
25/01/2010	PW														
1									1	INSPECTION PIT	8.55				Firm, yellowish brown (10YR/5/6), sandy SILT with some angular fine to medium gravel. (FILL)
2									2		7.85				
3									3		1.20	41.89	1.20		Grey (7.5YR/6/1), angular coarse GRAVEL and COBBLES of moderately strong to strong tuff and occasional concrete. (FILL)
4									4		2.50	40.59	2.50		Firm, yellowish brown (10YR/5/6), sandy clayey SILT. (FILL)
5									5		3.20				
6									6		3.30				
7									7		4.30				
8									8		4.40				
9									9		4.90	38.19	4.90	V	Extremely weak, light yellowish brown (2.5Y/6/4), completely decomposed fine ash vitric TUFF. (Soft to firm, sandy clayey SILT)
10									10		5.30				
11									11		5.80				
12									12		6.50				
13									13		6.90	36.19	6.90	III	Moderately strong, yellowish brown, moderately decomposed fine ash vitric TUFF. Joints are very closely to closely spaced, rough planar and stepped, extremely narrow, iron and manganese oxide stained, dipping at 10°-20°, 35°-45° and subvertical.
14									14		7.80				
15									15		8.50	34.59	8.50	II	Strong, light grey, slightly decomposed fine ash vitric TUFF with very closely to closely spaced, incipient joints and rock slightly silicified. Joints are closely to medium spaced, rough planar and stepped, extremely narrow, iron and manganese oxide stained, chlorite and kaolin slightly coated, dipping at 10°-20°, 35°-45°, 50°-60° and 65°-75°.
16									16		9.05				
17									17		9.05				
18									18		10.00	33.09	10.00		
19									19						
20									20						
21									21						
22									22						
23									23						
24									24						
25									25						
26									26						
27									27						
28									28						
29									29						
30									30						
31									31						
32									32						
33									33						
34									34						
35									35						
36									36						
37									37						
38									38						
39									39						
40									40						
41									41						
42									42						
43									43						
44									44						
45									45						
46									46						
47									47						
48									48						
49									49						
50									50						
51									51						
52									52						
53									53						
54									54						
55									55						
56									56						
57									57						
58									58						
59									59						
60									60						
61									61						
62									62						
63									63						
64									64						
65									65						
66									66						
67									67						
68									68						
69									69						
70									70						
71									71						
72									72						
73									73						
74									74						
75									75						
76									76						
77									77						
78									78						
79									79						
80									80						
81									81						
82									82						
83									83						
84									84						
85									85						
86									86						
87									87						
88									88						
89									89						
90									90						
91									91						
92									92						
93									93						
94									94						
95									95						
96									96						
97									97						
98									98						
99									99						
100									100						
101									101						
102									102						
103									103						
104									104						
105									105						
106									106						
107									107						
108									108						
109									109						
110									110						
111									111						
112									112						
113									113						
114									114						
115									115						
116									116						
117									117						
118									118						
119									119						

FUGRO GEOTECHNICAL SERVICES LTD		DRILLHOLE RECORD		HOLE No. 912/SIL/D286	
		CONTRACT No.: MTR contract 912		SHEET: 2 of 3	

PROJECT: Ground Investigation for South Island Line (East)					
METHOD: Rotary Drilling		CO-ORDINATES:		WORKS ORDER No. N/A	
MACHINE & No.: FDR-15		E 834923.03 N 815277.11		DATE from: 23/01/2010 to 04/02/2010	
FLUSHING MEDIUM: Water		ORIENTATION: Vertical		GROUND LEVEL + 43.09 mPD	

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
												33.09	10.00			As sheet 1 of 3.
11				100	100	100										
12				100	100	88										
13				100	100	100										
14				100	100	100										
15				100	100	75										
16				100	100	48										
17				100	100											
18				100	100	55										Strong, grey, slightly decomposed fine ash vitric TUFF. Joints are closely to medium spaced, rough planar, extremely narrow, chlorite and kaolin coated, dipping at 10°-20°, 35°-45°, 60°-70° and subvertical.
19				100	100	17										
20				100	100	43										

Small Disturbed Sample Piston sample U76 Undisturbed Sample U100 Undisturbed Sample Mazier Sample 76mm Vibrocore Sample 100mm Vibrocore Sample Vibrocore Sub-sample SPT Liner Sample	Standard Penetration Test In-situ Vane Shear Test Permeability Test Pressuremeter Test Televue Survey Packer Test Impression Packer Test Water Sample Standpipe Piezometer Tip	LOGGED <u>P. Zhang</u> DATE <u>11/02/2010</u> CHECKED <u>S.M. Pyle</u> DATE <u>19/02/2010</u>
--	---	--

REMARKS



**FUGRO
GEOTECHNICAL
SERVICES LTD**

DRILLHOLE RECORD

HOLE No. **912/SIL/D286**

CONTRACT No.: **MTR contract 912**

SHEET: **3** of **3**

PROJECT: **Ground Investigation for South Island Line (East)**

METHOD: **Rotary Drilling**

CO-ORDINATES:

WORKS ORDER No. **N/A**

MACHINE & No.: **FDR-15**

E **834923.03**
N **815277.11**

DATE from: **23/01/2010** to **04/02/2010**

FLUSHING MEDIUM: **Water**

ORIENTATION: **Vertical**

GROUND LEVEL **+ 43.09** mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
									No. Type Depth	23.09	20.00			
21				100	100	41			T2101 20.06				II	As sheet 2 of 3.
22				100	100	100			T2101 20.86					
23				100	100	37			T2101 22.26	20.59	22.50		II	Strong, light grey, slightly decomposed fine ash vitric TUFF with very closely to closely spaced incipient joints. Joints are closely spaced, rough planar, extremely narrow, chlorite slightly coated, clean, dipping at 10°-20°, 35°-45°, 60°-70° and subvertical.
24				100	71	20			T2101 23.17					
25				100	86	0			T2101 23.87					
26				100	33	0			T2101 24.80					
27				100	100	48			T2101 25.78	17.19	25.90		II	Strong to very strong, grey, slightly decomposed fine ash vitric TUFF. Joints are medium spaced, rough planar, extremely narrow, clean, dipping at 35°-45° and 60°-70°.
28				100	100	100			T2101 27.03					
29									T2101 28.35	14.74	28.35			End of investigation hole at 28.35m.
30														



Small Disturbed Sample
Piston sample
U76 Undisturbed Sample
U100 Undisturbed Sample
Mazier Sample
76mm Vibrocore Sample
100mm Vibrocore Sample
Vibrocore Sub-sample
SPT L'ner Sample

Standard Penetration Test
In-situ Vane Shear Test
Permeability Test
Pressuremeter Test
Televiwer Survey
Packer Test
Impression Packer Test
Water Sample
Standpipe
Piezometer Tip

LOGGED P. Zhang
DATE 11/02/2010
CHECKED S.M. Pyle
DATE 19/02/2010

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET 1 of 8

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title Ground Investigation For South Island Line

METHOD Rotary

CO-ORDINATES

PROJECT No. J3086

MACHINE & No. DR56

E 834942.58
N 815337.98

DATE from 26/05/2008 to 16/06/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 31.34 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
26/05/2008	PX	10:30										31.34	0.00			CONCRETE surface.
									A	•	0.45 0.50					Very stiff, orangish brown, sandy clayey SILT with occasional angular fine gravel of quartz and rock. (FILL)
									B	•	0.95 1.00					
									C	•	1.45 1.50					
									D	•	1.95 2.00					
									E	•	2.45 2.50					
									F	•	2.95 3.00					
				100					1		3.00	28.34	3.00			Very stiff, brown, slightly sandy, very clayey SILT. (FILL) 3.00 - 4.60m: With occasional angular coarse gravel of rock.
									2		4.00 4.10					
									3		4.60	26.74	4.60			
									4		5.00 5.05					
	PX 6.00			37							6.00	25.34	6.00			Brown, subangular COBBLE and coarse GRAVEL of moderately decomposed tuff in clayey sand matrix. (COLLUVIUM)
				70							7.30	23.87	7.47			
				84							7.73					
				98	100	100	3.8				7.73					Moderately strong, pinkish brown and pink, moderately decomposed, slightly altered medium grained GRANITE with closely to medium spaced, rough planar and undulating, extremely narrow to very narrow, iron and manganese stained joints, dipping 0°-10°, 40°-50° and 50°-60°. 7.47 - 8.60m: Altered coarse ash TUFF.
					80	58	>20 10.7									
							6.2					22.74	8.60			
											9.20	22.14	9.20			9.20 - 9.80m: Altered coarse ash TUFF.
				100	87	65	>20 10.0 5.0									
												21.54	9.80			
												21.34	10.00			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED T T FUNG
DATE 17/06/2008
CHECKED KEN MA
DATE 18/06/2008

REMARKS

1. Inspection pit was dug to 3.00m depth.
2. Impression packer tests were carried out at 47.19m-48.69m, 49.76m-51.26m and 51.47m-52.97m depths.
3. Packer (Water Absorption) test was carried out at 49.76m-51.26m depth.
4. Standpipe was installed at 70.40m depth.



Gammon Construction Limited
Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET **2** of **8**

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title Ground Investigation For South Island Line

METHOD Rotary

CO-ORDINATES

PROJECT No. J3086

MACHINE & No. DR56

E 834942.58
N 815337.98

DATE from 26/05/2008 **to** 16/06/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 31.34 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	91	91					10.13	21.34	10.00	+	III	As sheet 1 of 8. 10.13 - 10.63m: Granite fused with tuff.
									T2101		10.13	21.21	10.13	+		
											20.71	10.63		+	II	Strong, dark grey, slightly decomposed coarse ash TUFF with closely to medium, locally very closely spaced, rough planar and undulating, tight to extremely narrow, slightly iron and slightly chlorite stained joints, dipping 20°-30°, 30°-40°, 40°-50°, 60°-70° and subvertical.
				100	100	75					11.12			+		
							10.1		T2101							
				100	100	91					12.15			+		
									T2101							
				100	100	61	8.8				12.69			+		
									T2101							
							17.7									
				100	100	85					13.88			+		
							4.8		T2101							
												16.21	15.13	+		
												16.04	15.30	+		15.13 - 15.30m: Pink, fine to medium grained GRANITE.
				98	98	91					15.38					
									T2101			15.44	15.90			15.90 - 16.31m: Tuff fused with granite.
											16.31	15.03	16.31			
				100	77	23	>20		T2101							
											16.88			+		
				100	74	66	3.1		T2101							
							>20									
							1.7									
				98	99	81					17.99			+		
									T2101							
							16.0									
				100	98	93	7.9				19.30			+		
									T2101							
											11.39	19.95	20.00			

REMARKS

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▤ Mazier sample
- ▥ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ⊥ Water absorption (Packer) test
- ⊥ Permeability test
- ⊥ Impression packer test
- ∇ In-situ vane shear test

LOGGED **T T FUNG**
DATE **17/06/2008**
CHECKED **KEN MA**
DATE **18/06/2008**



Gammon Construction Limited
Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET **3** of **8**

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title Ground Investigation For South Island Line

METHOD Rotary

CO-ORDINATES

PROJECT No. J3086

MACHINE & No. DR56

E 834942.58
N 815337.98

DATE from 26/05/2008 **to** 16/06/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 31.34 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	98	93						11.34	20.00			Strong, greyish pink, slightly decomposed slightly altered medium grained GRANITE with medium to widely, locally closely spaced, rough and smooth, planar and undulating, tight to extremely narrow, chlorite stained joints, dipping 10°-20°, 40°-50°, 60°-70° and 70°-80°. 19.95 - 20.60m: Fine grained GRANITE.
				100	100	96			T2101		20.40	10.74	20.60	+	II	
							2.0		T2101					+		
				100	100	100			T2101		21.70			+		
				100	100	91	8.5		T2101		22.67			+		
				100	100	100	3.5		T2101		23.14			+		
									T2101					+		
				100	100	85			T2101		24.58			+		
				100	100	100	1.0		T2101		25.40			+		
				100	100	80			T2101		26.14	4.94	26.40	+		
							12.0		T2101		26.79			+	II	Strong, dark grey, dappled pink, slightly decomposed slightly foliated coarse ash TUFF with medium to widely, locally closely spaced, rough and smooth, planar and undulating, tight, clean joints, dipping 0°-10°, 30°-40°, 40°-50° and 70°-80°. 27.65 - 28.34m: Dappled pale pink, with fine grained GRANITE intrusion. 28.70 - 29.80m: Dappled pale pink, with fine grained GRANITE intrusion.
				98	98	83	3.5		T2101			3.69	27.65	+		
				100	100	100			T2101		27.86	3.00	28.34	+		
									T2101			2.64	28.70	+		
				100	100	90			T2101		29.00			+		
				100	100	90	7.6		T2101		29.50	1.54	29.80	+		
									T2101			1.34	30.00	+		

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- ▨ U76 undisturbed sample
- U100 undisturbed sample
- ▤ Mazier sample
- ▥ Piston sample
- ▲ Water sample
- Piezometer / standpipe tip
- ↓ Standard penetration test
- ├ Water absorption (Packer) test
- └ Permeability test
- └ Impression packer test
- ∇ In-situ vane shear test

LOGGED **T T FUNG**
DATE **17/06/2008**
CHECKED **KEN MA**
DATE **18/06/2008**

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET 4 of 8

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title Ground Investigation For South Island Line

METHOD Rotary

CO-ORDINATES

PROJECT No. J3086

MACHINE & No. DR56

E 834942.58
N 815337.98

DATE from 26/05/2008 to 16/06/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 31.34 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
				100	100	90					1.34	30.00			
				100	100	97	1.6		T2101		1.12	30.22	+	II	As sheet 3 of 8.
				100	100	97							+		30.22 - 31.57m: Pale pink, fine grained GRANITE.
				100	100	97			T2101				+		
				100	100	97					-0.23	31.57	+		
				100	95	73					-0.61	31.95	+		31.95 - 32.80m: Dappled pale pink, with fine grained GRANITE intrusion.
				100	95	73	11.4		T2101				+		
				100	97	65	8.3				-1.46	32.80	+		
				100	97	65	17.3						+		
				100	97	65	6.0		T2101				+		
				100	100	87					-3.66	35.00	+	II	Strong, reddish pink, locally mottled dark grey, slightly decomposed altered fine grained GRANITE with medium to widely, locally closely spaced, rough planar, undulating and stepped, tight to extremely narrow, chlorite stained and slightly kaolin coated joints, dipping 0°-10°, 30°-40° and 65°-75°.
				100	100	100	1.3				-4.22	35.56	+		35.00 - 35.56m: Fine to medium grained GRANITE.
				100	100	100					-4.31	36.65	+		35.56 - 35.65m: Reddish pink, PEGMATITE.
				100	100	100					-4.36	35.70	+		35.65 - 35.70m: Reddish pink, PEGMATITE.
				100	100	100					-4.46	35.80	+		35.70 - 36.70m: Fine to medium grained GRANITE.
				100	100	100							+		36.70 - 36.82m: Porphyritic.
				100	100	100	2.1				-5.36	36.70	+		36.82 - 37.00m: Porphyritic.
				100	100	100					-5.48	36.82	+		
				100	100	100					-5.66	37.00	+		
				100	100	100							+		
				100	100	100					-6.42	37.76	+		
				100	100	100							+		
				100	100	100					-6.83	38.17	+		38.17 - 38.37m: Reddish pink, PEGMATITE.
				100	100	100					-7.03	38.37	+		
				100	100	100					-7.31	38.65	+		
				100	100	100					-7.56	38.90	+		38.65 - 38.90m: Reddish pink, PEGMATITE.
				100	100	100							+		
				100	100	100					-8.66	40.00	+		

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED T T FUNG
DATE 17/06/2008
CHECKED KEN MA
DATE 18/06/2008

REMARKS



Gammon Construction Limited
Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET **5** of **8**

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title **Ground Investigation For South Island Line**

METHOD **Rotary**

CO-ORDINATES

PROJECT No. **J3086**

MACHINE & No. **DR56**

E **834942.58**

DATE from **26/05/2008** to **16/06/2008**

N **815337.98**

FLUSHING MEDIUM **WATER**

ORIENTATION **Vertical**

GROUND LEVEL **+ 31.34 mPD**

Drilling Progress	Casing depth/size (m)	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	100	96						-8.66	40.00			
				100	84	63	10.6		T2101		40.41	-8.86	40.20	+	II	As sheet 4 of 8.
				100	77	14			T2101		41.60					Moderately strong to strong, dark grey and pink, moderately to slightly decomposed coarse ash crystal TUFF fused with fine grained granite. Joints are closely, locally medium spaced, rough planar, tight to extremely narrow, chlorite stained and clean, dipping 10°-20°, 40°-50°, 60°-70° and subvertical.
				100	82	53			T2101		42.41	-10.66	42.00		II	Strong, dark grey, slightly decomposed coarse ash crystal TUFF with closely, locally medium spaced, rough and smooth, planar and undulating, tight to extremely narrow, chlorite stained, slightly calcite coated and clean joints, dipping 0°-10°, 30°-40°, 50°-60°, 60°-70° and 70°-80°.
				100	96	65			T2101		43.43					
				100	85	49	18.9		T2101		44.23					
				100	98	80	6.6		T2101		45.31	-14.06	45.40		II	Strong, grey to dark grey, slightly decomposed slightly foliated clast bearing coarse ash crystal TUFF with closely to medium spaced, rough planar and undulating, locally stepped, tight to extremely narrow, chlorite stained, locally slightly calcite coated and clean joints, dipping 0°-10°, 20°-30°, 40°-50°, 60°-70° and 70°-80°.
				100	98	76			T2101		45.67					
				100	88	62	1.0		T2101		46.77					
				100	100	82			T2101		47.19					
				100	100	94	3.5		T2101		48.53					
				100	100	94	3.5		T2101		49.96	-18.66	50.00			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED **T T FUNG**

DATE **17/06/2008**

CHECKED **KEN MA**

DATE **18/06/2008**

REMARKS



Gammon Construction Limited

Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET 6 of 8

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title Ground Investigation For South Island Line

METHOD Rotary

CO-ORDINATES

PROJECT No. J3086

MACHINE & No. DR56

E 834942.58
N 815337.98

DATE from 26/05/2008 to 16/06/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 31.34 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
10/05/2008		22.21m at 08:00		100	97	87	11.2					-18.66	50.00		II	As sheet 5 of 8.
				100	92	87	4.4			T2101	51.42					
				100	100	100				T2101	52.88	-21.46	52.80		II	Strong, dark greyish red, slightly decomposed altered coarse ash TUFF fused with fine grained granite. Joints are closely to medium spaced, rough and locally smooth, planar and undulating, tight to extremely narrow, chlorite stained, slightly kaolin coated joints, dipping 0°-10°, 20°-30°, 40°-50°, 50°-60° and subvertical.
				98	98	84	5.3			T2101	53.38					
				98	88	67				T2101	54.19					
				100	93	79				T2101	54.70					
10/05/2008		22.02m at 18:00	70									-23.84	55.18			55.18 - 55.28m: Brownish pink, fine grained GRANITE.
11/06/2008		22.16m at 08:00		100	82	69				T2101	55.27	-23.94	55.28			
							N.I.					-24.49	55.83		III/II	55.83 - 56.55m: Moderately strong to strong, moderately to slightly decomposed, with some microfractures.
							12.2			T2101		-25.21	56.55		III/II	56.55 - 56.90m: Moderately strong to strong, reddish pink, moderately to slightly decomposed, PEGMATITE.
				98	87	61	6.8			T2101	56.80	-25.56	56.90		II	
												-25.96	57.30		III/II	Strong, dark grey, slightly decomposed coarse ash crystal TUFF with closely to medium, locally very closely spaced, rough and smooth planar, tight to extremely narrow, chlorite stained, slightly calcite coated joints, dipping 0°-10°, 30°-40°, 50°-60°, 60°-70° and 70°-80°.
				98	96	66				T2101	58.19	-26.36	57.70		II	57.30 - 57.70m: Moderately strong to strong, moderately to slightly decomposed, slightly altered.
				100	86	55				T2101	58.75					
		21.90m at					12.3			T2101		-28.66	60.00			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED T T FUNG
DATE 17/06/2008
CHECKED KEN MA
DATE 18/06/2008

REMARKS



Gammon Construction Limited
Ground Engineering & Substructure Department

DRILLHOLE No.
1024/SIL/D008

SHEET **7** of **8**

DRILLHOLE RECORD

CONTRACT NO. NEX/1024

Project Title Ground Investigation For South Island Line

METHOD Rotary

CO-ORDINATES

PROJECT No. J3086

MACHINE & No. DR56

E 834942.58

N 815337.98

DATE from 26/05/2008 to 16/06/2008

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 31.34 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
11/06/2008 12/06/2008		18:00 22.08m at 08:00		93	62	25					60.05	-28.66	60.00		III/II	60.00 - 60.60m: Moderately strong to strong, moderately to slightly decomposed.
				100	94	51	>20			T2101	60.60	-29.26	60.60		II	
							7.8									
				100	100	100	4.8			T2101	61.80					
				100	100	94				T2101	63.29					Strong, dark greyish red to dark reddish grey, slightly decomposed slightly altered coarse ash crystal TUFF with very closely to closely spaced, rough and smooth, planar and undulating, tight to extremely narrow, chlorite stained, slightly calcite coated joints, dipping 20°-30°, 40°-50°, 70°-80° and subvertical. 66.00 - 66.30m: Dappled pink, with PEGMATITE.
				98	88	81	9.2			T2101	64.11					
				100	100	65				T2101	65.62	-34.46	65.80		II	
		21.88m at 18:00										-34.66	66.00			
12/06/2008 13/06/2008		21.89m at 08:00		100	49	18				T2101	66.37	-34.96	66.30			
										T2101						
		21.86m at 18:00		98	76	0	10.4			T2101	67.59					
13/06/2008 14/06/2008		22.12m at 08:00		98	75	67				T2101	68.08					
				100	99	80				T2101	69.28					
							4.5			T2101		-38.66	70.00			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Water absorption (Packer) test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED **T T FUNG**
DATE **17/06/2008**
CHECKED **KEN MA**
DATE **18/06/2008**

REMARKS

\\gintw\library\1july2008.glb\drillhole (1 may 06)

volnbyvibrany1julv2009.nlbwdrillhole (1 feb 09) (ADM)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH168P

SHEET 3 of 10

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-114

E 834932.39
N 815290.11

DATE from 23/07/2009 to 04/08/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 39.36 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
				100	84	68			No Type Depth	19.26	20.00			
				100	97	97			T2101	20.50			II	As sheet 1 of 10.
				100	100	100			T2101	22.07	17.33	22.03	II	Strong, plnk, mottled light grey and green, slightly decomposed fine to medium grained GRANITE. Joints are medium spaced, smooth planar, extremely narrow, clean dipping 10°-20°.
				100	93	85			T2101	15.56	22.80			22.80 - 23.28m: 150mm thick pegmatite dipping 60°.
				100	81	77			T2101	16.08	23.28			
				100	69	63	>20		T2101	23.57			II	Strong, dark grey, streaked and spotted white, slightly decomposed fine ash TUFF. Joints are medium to closely spaced, smooth and slickensided, planar and undulating, clean, chlorite and kaolin coated dipping 10°-20°, 40°-50°, 60°-70° and 70°-80°.
				100	95	91	2.8		T2101	14.85	24.50			26.52 - 26.96m: Very closely spaced joints.
				100	49	36	9.4		T2101	25.10				
				100	95	91			T2101	26.52	12.84	26.52		
				100	95	91			T2101	12.40	26.95			
				100	95	91			T2101	27.65				
				100	95	91			T2101	29.13				
				100	95	91			T2101	29.95	8.35	30.00		

Small disturbed sample

Large disturbed sample

SPT liner sample

U76 undisturbed sample

U100 undisturbed sample

Mazier sample

Piston sample

Water sample

Piezometer / standpipe tip

Standard penetration test

Water absorption (Packer) test

Permeability test

Impression packer test

In-situ vane shear test

LOGGED W K SIU
DATE 05/08/2009
CHECKED P O POON
DATE 06/08/2009

REMARKS

\\pinw\library\July2009\gib\drillhole (1 Feb 09) (ADH)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH168P

SHEET 4 of 10

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-114

E 834932.39
N 815290.11

DATE from 23/07/2009 to 04/08/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 39.36 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	84	76						39.36	30.00		II	As sheet 3 of 10.
									T2101			8.76	30.60		III/II	30.60 - 30.82m: 10-20mm calcite veins dipping 70°-80°. 30.60 - 31.05m: Moderately strong to strong, moderately to slightly decomposed and with extremely closely spaced micro-fracture.
												8.76	30.60			
												8.64	30.82			
												8.31	31.05			
				100	100	93	4.7				30.82				II	
									T2101							
				100	98	80					32.12					
									T2101							
				100	99	95					33.65					
									T2101							
				100	85	81					35.07					
									T2101							
				100	60	37	8.8				36.50					
									T2101							
				100	53	53	>20				37.98	1.38	37.98			37.98 - 38.45m: Very closely spaced joints.
									T2101			0.91	38.45			
				100	67	29					38.95					
									T2101							
											39.86	-0.64	40.00			

Small disturbed sample

Large disturbed sample

SPT liner sample

U75 undisturbed sample

U100 undisturbed sample

Mazier sample

Piston sample

Water sample

Piezometer / standpipe tip

Standard penetration test

Water absorption (Packer) test

Permeability test

Impression packer test

In-situ vane shear test

LOGGED W K SIU

DATE 05/08/2009

CHECKED P O POON

DATE 06/08/2009

REMARKS

g:\gintv\library\1\July2009\gib\drillhole (1 Feb 09) (ADK)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH168P

SHEET 5 of 10

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-114

E 834932.39
N 815290.11

DATE from 23/07/2009 to 04/08/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 39.36 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	73	85						-0.64	40.00			As sheet 3 of 10.
				100	75	45										
				100	98	90	3.5									
				100	78	51	11.7									
				100	74	35	5.3									
		7.20m at 18:00		100	89	55										
		6.50m at 08:00		100	91	87										
				100	95	95										

c:\gint\library\1july2009.gib\drillhole (1 feb 09) (ADK)

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-114

E	834932.39
N	815290.11

DATE from 23/07/2009 to 04/08/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 39.36 mPD

[illegible]



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH168P

SHEET 7 of 10

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-114

E 834932.39
N 815290.11

DATE from 23/07/2009 to 04/08/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 39.36 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	86	82					00.00	-20.64	60.00		II	As sheet 3 of 10.
									T2101			-21.34	60.70			60.70 - 61.66m: Extremely closely spaced micro-fracture, dipping 70°-80° and 20mm-50mm sub-vertical granite intrusion.
				100	83	63					61.56	-22.30	61.66			
							9.6		T2101							
				100	59	53					63.11					
				100	81	52			T2101			64.02				64.92 - 65.08m: Very closely spaced joints.
							>20		T2101			-25.55	64.82			
							14.3					-25.72	65.08			
												-26.07	65.43			
				100	73	68					65.56	-26.31	65.67			65.43 - 65.67m: Very closely spaced joints.
							>20		T2101							67.95 - 68.50m: Extremely closely spaced micro-fracture, dipping 70°-80°.
				100	93	68					66.40					
									T2101			67.80	-28.58	67.85		
												-29.14	68.50			
				100	56	26					69.22	-30.21	69.57			69.57 - 70.13m: Very closely spaced joints.
							>20		T2101			-30.64	70.00			

Small disturbed sample

Large disturbed sample

SPT liner sample

U76 undisturbed sample

U100 undisturbed sample

Mazier sample

Piston sample

Water sample

Piezometer / standpipe tip

Standard penetration test

Water absorption (Packer) test

Permeability test

Impression packer test

In-situ vane shear test

LOGGED W K SIU

DATE 05/08/2009

CHECKED P O POON

DATE 06/08/2009

REMARKS

t:\gmw\library\july2009\gib\drillhole (1 feb 09) (ADM)

\\gintw\library\1july2009.glib\drillhole (1 feb 09) (ADM)



Gammon Construction Limited
Ground Engineering & Substructure Department

HOLE No.
2209/SCL/DH168P

SHEET 9 of 10

DRILLHOLE RECORD

CONTRACT NO. NEX/2209

Project Title Ground Investigation (Land) for Shatin to Central Link

METHOD Rotary

CO-ORDINATES

PROJECT No. J3251

MACHINE & No. 20-114

E 834932.39
N 815290.11

DATE from 23/07/2009 to 04/08/2009

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 39.36 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	84	66	18.0					-40.64	80.00		II	As sheet 3 of 10.
							8.3			T2101						
				100	90	65					81.26					
										T2101						
				100	100	77					82.76					
										T2101						
				100	74	66					83.81					
										T2101						
				100	60	34					84.98					
										T2101						
		7.10m at 19:00		100	83	63	N.I.				85.81	-46.46	85.81			85.81 - 85.90m: Non intact.
		6.50m at 08:00					5.3			T2101		-46.64	86.00			
							N.I.					-46.92	86.28			86.28 - 86.40m: Non intact.
				100	85	61	17.5				86.40	-47.04	86.40			
							6.2			T2101						
				100	93	56					87.50					
							15.7			T2101						
				100	96	66					89.00					
		7.20m					7.7			T2101		-50.64	90.00			
● Small disturbed sample ○ Large disturbed sample □ SPT liner sample ■ U76 undisturbed sample ■ U100 undisturbed sample ■ Mazier sample ■ Piston sample ▲ Water sample ○ Piezometer / standpipe tip ↓ Standard penetration test ⊥ Water absorption (Packer) test ⊥ Permeability test ⊥ Impression packer test ∇ In-situ vane shear test LOGGED <u>W K SIL</u> DATE <u>05/08/2009</u> CHECKED <u>P O POON</u> DATE <u>06/08/2009</u> REMARKS																

t:\gint\library\11July2009 gish\drillhole (1 Feb 09) (ADM)



Q:\intnl\library\1july2009.qib\drillhole (1 feb 09) (ADM)

- REMARKS

GROUND INVESTIGATION LOG

JOB NO: HK-BU-479

PROJECT:

Site Investigation

HOLE NO: A-11

COORDINATES
NORTH: 15325.80 G.S.B. LEVEL: +30.80
EAST: 35004.40 INCL: Vertical

LOCATION: IL 8582, Queensway II, Hong Kong

TYPE OF HOLE: Drill
FLUSHING MEDIUM: Water
SHEET NO: 1 OF 3

WATER OR MUD RETURN	CASING DIA DEPTH	TOOL DIA TYPE	IN-SITU TEST & SAMPLES	IN-SITU TEST RESULTS	W.L. Reading	DEPTH m	LEVEL mPD	RUNS m	CORE RECOV. %	R.Q.D. %	LEG. END	DESCRIPTION	STRATA
						0.00	+30.80					Ex. ground surface	
		T2101				0.30	+30.50	0.30	100	0	///	CONCRETE	
						1.00					x	Loose, yellowish brown, silty coarse SAND	COLLUVIUM
60%		Liner	L-1 SJ-1	N=6		2.50					x		
						4.00					+	Medium dense to dense, yellowish pink, silty medium SAND, COMPLETELY DECOMPOSED GRANITE	
		Liner	L-2 SJ-2	N=16		7.00					+		C.D.G.
						10.00					+		
		Liner	L-3 SJ-3	N=23		13.00					+		
50%						14.31					+		
		Liner	L-4 SJ-4	N=31		16.49					+		
						15.01		0.70	100	100	+	Strong to very strong, mottle pink & white coarse grained, moderately spaced joints of dip angles 30°-45° & 90° Slightly Decomposed GRANITE	S.D.G.
						15.46		0.45	100	100	+		
						16.70		1.24	100	100	+		
						17.51		0.81	100	31	+		
						18.22		0.71	99	79	+		
						18.83		0.61	100	98	+		
						19.73	11.07	0.90	100	78	+		
												Bottom of hole 19.73m	

SCALE: 1:100
Undisturbed Samples
Disturbed Samples

M Mazier
J Jar

↓ S.P.T.
⊗ Vane Test

—O—
HE

Permeability Test
Hand Excavation

CHECKED BY:
H. C. Yeung

CONTRACT NO:

DATE STARTED: 20.6.86

ARCHITECT/ENGINEER:

compact

CONSTRUCTION ENGINEERING CO. LTD

DATE COMPLETED: 25.6.86

福榮工程公司
FORTUNE ENGINEERING CO.

Location: <u>Site 2, Queensway, Hong Kong.</u>	Drill/Bore Hole No. <u>B.H. 7</u>
Rig No. <u>Toho 3</u> Surface elevation <u>30.94</u>	Sheet <u>1</u> of <u>1</u>
Orientation <u>Vertical</u> Core Barrel <u>TNW</u>	Method <u>Rotary drilling</u>
Total depth of hole <u>13.25m</u> Co-ordinates N <u>316.275</u> E <u>3.2418</u>	Date <u>25-3-86</u> to <u>26-3-86</u>

Progress	Casing	Ground Water	Water Received %	Reduced Level	Depth (m)	Legend	Core Recov %	R. Q. D. %	Description	N Blows	Sample No.
5m <											

D: Disturbed Sample I: N Value
U: Undisturbed Sample ∇ : G. W. L.
M: Master Sample L: Liner Sample

Remarks:

福 榮 工 程 公 司
FORTUNE ENGINEERING CO.

Location: <u>Site 2, Queensway, Hong Kong.</u>		Drill/Core Hole No. <u>B.H.10</u>
Fig No. <u>Toho 3</u>	Surface elevation <u>30.96</u>	Sheet <u>1</u> of <u>1</u>
Orientation <u>Vertical</u>	Core Barrel <u>TNW</u>	Method <u>Rotary drilling</u>
Total depth of hole <u>16.00m</u>	Co-ordinates <u>327.8002 4978.6101</u>	Date <u>22-3-86</u> to <u>25-3-86</u>

Progress	Casing	Ground Water	Water Received %	Reduced Level	Depth (m)	Legend	Core Recov %	R. Q. D. %	Description	N Blows	Sample No.
5m	89mm at 9.20m	90				X + + X + + <					

GROUND INVESTIGATION LOG

22830

PROJECT:

Victoria Barracks Geotechnical Study

COORDINATES

NORTH: 15310.1

EAST: 55001.6

G./S.B. LEVEL: +3.4 m

INCL: Vertical

HOLE NO.:

D 15

LOCATION:

Victoria Barracks

TYPE OF HOLE:

Rotary

FLUSHING MEDIUM

Water

SHEET

1 OF

PROGESS	CASING DIA DEPTH	TOOL DIA TYPE	IN-SITU TEST SAMPLES	IN-SITU TEST RESULTS	W.L. Reading	DEPTH m	LEVEL mPD	RUNS m	CORE RECOV. %	R. Q. D. %	LEG- END	DESCRIPTION
		140 mm				0		0.14				Concrete Pavement
						0.14		0.10				Crushed rock base material
								1.26			xx	Soft/firm, light yellowish brown, sandy (coarse) clayey SILT.
				N=8		1.50					xx	
						2.20		0.70			xx	
						3.00		0.80			xx	2.0m Top: Ditto. bottom: Firm, yellowish brown, red and white, very sandy (medium/fine) SILT.
				N=16		4.00		1.00			xx	Firm, yellowish brown, red & white very sandy (medium/fine) fissured SILT.
						5.00		1.00			xx	Firm/stiff, red, light yellow & white sandy (medium/fine) very clayey SILT.
				N=21		6.00		1.00			xx	Top: Very dense, moist, red, light yellow, white & black silty medium & fine SAND.
						6.45		0.45			+++	Bottom: Soft, dark-brown, yellow & white, medium grained, highly weathered GRANITE.
						7.80		1.35	41	0	+++	Moderately hard, highly shattered mottled dark-brown, orange and light grey speckled green, coarse/medium grained, moderately weathered GRANITE.
						8.90		1.10	91	28	+++	Hard, highly fractured, brown, light grey and white speckled dark-green, coarse/medium grained, slightly/moderately weathered GRANITE with mod. dense spacing 45°-50° angle & low angle stained joints.
						9.65		0.47	100	0	+++	Compact, moist, dark-brown yellow and white, silty, very clayey coarse fine SAND.

SCALE: 1:50 Undisturbed Samples M Mazier S. P. T. Permeability Test CHECKED BY: T. P. C. H. J. Jar Vane Test HE Hand Excavation

CONTRACT NO.: P. W. D. 410/79

DATE STARTED: 9-1-80

SCOTT WILSON KIRKPATRICK & PART

GROUND INVESTIGATION LOG

PROJECT:

Victoria Barracks Geotechnical Study

COORDINATES

NORTH: _____
EAST: _____
G.S.B. LEVEL: _____
INCL: Vertical

HOLE NO.:

D 15

LOCATION:

Victoria Barracks

TYPE OF HOLE:

Rotary

FLUSHING MEDIUM:

Water

SHEET NO.:

2 OF 2

PROG	CASING DIA DEPTH	TOOL DIA TYPE	IN-SITU TEST SAMPLES	IN-SITU TEST RESULTS	W.L. Reading	DEPTH m	LEVEL mPD	RUNS m	CORE RECOV. %	R. Q. D. %	LEG. END	DESCRIPTION	STRA
						10.00							
9/1								1.22	100	45	V _u	Hard, highly fractured, light pink, white and light brown coarse/medium grained, moderately weathered GRANITE	
10/1						10.87					V _u		
						11.22		0.35	100	0	V _u		
					8.9 m AM.						V _u	Hard, fractured, mottled grey light purple and white cracked black, coarse/medium grained, slightly weathered META-VOLCANIC XENOLITH with mod. wide spacing low angle joints.	
						12.22		1.00	99	12	V _u		
								0.69	100	38	V _u		
						12.91					V _u		
								0.80	100	71	++	Hard, highly fractured, mottled light pinkish purple, grey, green and white, coarse/medium grained, slightly weathered META-VOLCANIC XENOLITH with mod. narrow spacing low angle & 45°-50° angle joints	
						13.71					++		
												Hard, fractured, dark-grey mottled light pink & white, coarse/medium grained, slightly weathered META-VOLCANIC XENOLITH with MIGMATITE/GRANITE. with 3, 45° angle joints	
												Drill-hole completed at 13.71 m.	

S.D.V.X.

SCALE: Undisturbed Samples
Disturbed Samples

M Mazier
J Jar

S. P. T.
Vane Test

HE

Permeability Test
Hand Excavation

CHECKED BY: T.P. Chow/STN

CONTRACT NO.:

P. W. D. 410/79

DATE

STARTED: 9-1-80

CONTRACTOR:

SCOTT WILSON
KIRKPATRICK & PARTNERS

Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS
Gammon House, 2nd Floor, 12 Harcourt Road, HONG KONG.
Tel: 5-26522; Cables: GAMMONCO Telex: HX73826

P.W.D. Contract 410/79
Client Office G.C.O.

2706
Borehole/Drillhole No.
D 1

Sheet 1 of 2

No & Location: Ref No. 465 Victoria Road Geotechnical
Studies Phase I

Ground Level: +63.3m P.D. Coords E. 34875.8
N. 15311.9

Mod: Rotary
Machine: D 34 (acker) Orientation: Vertical
dia.: 0.0m - 14.0mm - 3.5m - 100mm - 9.0m - 15.8mm - 14.2m Date: from 20-12 to 21-12-79

Casing depth size	Water Level	Water recovery %	Core recovery %	R.O.D. %	Fracture Index	Tests	Samples	Depth metres	Reduced Level	Legend	Description	Grade	Zone
								0.0	+63.3		Asphalt	0.0	
								0.1	+63.2		Yellowish brown, loose SANDY CLAYEY SILT. (FILL)		
								1.0					
							1	1.5	+61.8				
								2.0			Brownish yellow and light grey, loose SILTY fine SAND with quartz gravel. (Colluvium)		
							2	3.0					
							3	3.5	+59.8				
								4.0					
							4	5.0			Yellowish red, pink and light yellow, medium dense, SILTY fine SAND with quartz gravels. (C.W.G)		
							5	5.5	+57.8				
								6.0					
							6	7.0	+56.3		Pink, reddish brown, and light yellow, very dense SILTY SAND with quartz gravel. (H.W.G)		
							7	7.5					
								8.0					
							8	9.0	+54.3		Light grey and brownish yellow, very dense SILTY SAND with quartz gravel. (H.W.G)		

nd
amples:

small disturbed
large disturbed
40 undisturbed
100 undisturbed

Blazier

inner sample

Water sample

Standard penetration test
Permeability test

Remarks An inspection pit 1 m x 1 m x 1.5 m deep was excavated.

C.W.G: COMPLETELY WEATHERED GRANITE

H.W.G: HIGHLY WEATHERED GRANITE

A piezometer was installed at 13.2 m.



Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS
Gammon House, 2nd Floor, 12 Harcourt Road, HONG KONG.
Tel: 5-265221 Cables: GAMMONCO Telex: HX73826

P.W.D. Contract 410/79
Client Office G.C.O

Borehole/Drillhole No.
D1

Job No & Location: Ref No 4.65 Victoria Damacks Geotechnical
Method: Rotary Ground Level: Studies Phase I +63.3m P.D. Coords E. 34875.8
Machine: D34 (acker) Orientation: Vertical N. 15311.9
Hole dia.: 0.0m 140mm 3.5m 106mm 9.0m 75.8mm 14.2m Date: from 20-12 to 21-12-79

Sheet 2 of 2

Drilling progress	Casing depth size	Water Level	Water recovery %	Core recovery %	R.Q.D. %	Fracture index	Tests	Samples	Depth metres	Reduced Level	Legend	Description	Grade	Zone
									9.0	+54.3			9.0	
			10	100	60	13.6			9.6		YW			
									10.0		YW			
				100	58	7.1			11.0		YW			
									12.0		YW			
				100	83	9.2			12.2		YW			
									13.0		YW			
				100	91	7.0			13.2		YW			
		10.2 AT 19:00							14.0		YW			
		12.2m AT 8:00							14.2	+49.1	YW		14.2	
		11.9m AT 10:00		100	90	4.0								
									15.0					
									16.0					
									17.0					
									18.0					
									19.0					

Light grey and grey, coarse to medium grained closely to moderately widely spaced joint VOLCANIC, strong, moderately permeable.

Operation Stopped at 14.2m as instructed.

Legend

Samples:

- Small disturbed
- ▲ Large disturbed
- U40 undisturbed
- U100 undisturbed
- ▨ Mazier
- Liner sample
- ▲ Water sample
- ▽ Water table

- ▼ Standard penetration test
- ⊕ Permeability test

Remarks

3258

CONTRACTOR'S NAME ENPACK (H.K.) LTD.		DRILLHOLE RECORD (LAND INVESTIGATION)		W.O. NO. Q7/2/6.71 HOLE NO. DFH4 DATE from 3-2-82 to 5-2-82	
PROJECT VICTORIA BARRACKS DEVELOPMENT GRADE SEPARATED INTERCHANGE AND ASSOCIATED ROAD WORKS STAGE II					
METHOD ROTARY DRILL		CO-ORDINATES E 35001.2 N 15288.4		ROCK COREBIT TNMI	
MACHINE & NO. AC-D750 <DR 15>		ORIENTATION VERTICAL		HOLE DIA. Φx, Φy, Φz	
FLUSHING MEDIUM WATER				GROUND LEVEL +45.41 mfm	

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R.Q.D.	Fracture Index/m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
3 1/2	Φx										0	x			MEDIUM DENSE REDDISH BROWN FINE TO MEDIUM SAND AND SILT WITH SOME ROCK FRAGMENTS. <C.D.V.>
											1	x			
											2	x			
		3.20m @ 12:00		80				N=39	1		3	x			
											4	x			
											5	x			FIRM YELLOWISH BROWN SANDY SILT. <C.D.V.>
											6	x			
											7	x			
		3.25m @ 13:00	90	94				N=17	3		8	x			
											9	x			
											10	x			FIRM REDDISH BROWN SANDY SILT. <C.D.V.>
											11	x			
4 1/2	Φx										12	x			
		4.16m @ 16:00		94							13	x			
											14	x			
											15	x			
											16	x			
											17	x			
											18	x			
											19	x			
											20	x			
											21	x			
											22	x			
											23	x			
											24	x			
											25	x			
											26	x			
											27	x			
											28	x			
											29	x			
											30	x			
											31	x			
											32	x			
											33	x			
											34	x			
											35	x			
											36	x			
											37	x			
											38	x			
											39	x			
											40	x			
											41	x			
											42	x			
											43	x			
											44	x			
											45	x			
											46	x			
											47	x			
											48	x			
											49	x			
											50	x			
											51	x			
											52	x			
											53	x			
											54	x			
											55	x			
											56	x			
											57	x			
											58	x			
											59	x			
											60	x			
											61	x			
											62	x			
											63	x			
											64	x			
											65	x			
											66	x			
											67	x			
											68	x			
											69	x			
											70	x			
											71	x			
											72	x			
											73	x			
											74	x			
											75	x			
											76	x			
											77	x			
											78	x			
											79	x			
											80	x			
											81	x			
											82	x			
											83	x			
											84	x			
											85	x			
											86	x			
											87	x			
											88	x			
											89	x			
											90	x			
											91	x			
											92	x			
											93	x			
											94	x			
											95	x			
											96	x			
											97	x			
											98	x			
											99	x			
											100	x			

● Small Disturbed Sample ◆ Bulk Disturbed Sample ■ S.P.T. Liner Sample ▨ U 100 Undisturbed Sample ▩ Mazier Sample (76 mm) ▲ Water Sample ▼ Water Level ▼ Standard Penetration Test ⊥ Permeability Test	LOGGED M K F. DATE 11 2 82 CHECKED _____ DATE _____
--	---

REMARKS

3258

CONTRACTOR'S NAME ENPACK (H.K.) LTD.		DRILLHOLE RECORD (LAND INVESTIGATION)		W.O. NO. 07/2/671	
		CONTRACT 402 OF 1981		HOLE NO. DH4	
				DATE from 3-2-82 to 5-2-82	
PROJECT VICTORIA BARRACKS DEVELOPMENT GRADE SEPARATED INTERCHANGE AND ASSOCIATED ROAD WORKS STAGE II					
METHOD ROTARY DRILL		CO-ORDINATES E 35001.2 N 15288.4		ROCK COREBIT TNW	
MACHINE & NO. AC-0750 (DR 15)		ORIENTATION VERTICAL		HOLE DIA. P.x.H.x.Nx	
FLUSHING MEDIUM WATER				GROUND LEVEL +45.41 mPD	

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total Core Recovery %	Solid Core Recovery %	R.Q.D.	Fracture Index/m	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
4/2	5.16m @ 12:00			92	83	75	6.7				10	+	II		STRONG PINK WITH GREY MEDIUM GRAINED CLOSELY JOINTED SLIGHTLY DECOMPOSED RHYOLITE, BEDDING 60°.
	6.82m @ 13:00			100	100	30	>10				11				
	5.16m @ 18:00	80	91	82	73	3.0		TNW			12				
5/2	12.00m @ 8:00			100	30	30	4.2				13	+	II		STRONG PINKISH GREY FINE GRAINED MEDIUM TO CLOSELY JOINTED SLIGHTLY DECOMPOSED RHYOLITE.
	7.30m @ 12:00										14				
	8.15m @ 13:00			100	84	84	3.2				15				
	9.26m @ 18:00									+30.41					END OF DRILLHOLE.
											16				
											17				
											18				
											19				
											20				

● Small Disturbed Sample ◆ Bulk Disturbed Sample ■ S.P.T. Liner Sample ▨ U 100 Undisturbed Sample ☒ Mazier Sample (76 mm) ▲ Water Sample ▼ Water Level ⬇ Standard Penetration Test ⊥ Permeability Test	LOGGED M.K.F. DATE 11-3-82 CHECKED _____ DATE _____ REMARKS INSTALLED PERMANENT AT 9 PM
--	--

21901-BH3

BACHY SOLETANCHEBACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS**DRILLHOLE RECORD**
(LAND INVESTIGATION)

W. O. PW7/2/13.118

HOLE No. BH 3

CONTRACT GC/85/02 OF E.D.D. DATE from 17/7/86 to 18/7/86

PROJECT:

VICTORIA BARRACKS AREA

SHEET 1 OF 2

METHOD

ROTARY

CO-ORDINATES

E 834983.59

ROCK COREBIT

DIAMOND BIT T2-101

MACHINE & No.

LY 11

HOLE DIAG. L. - 2.3m PX
2.3m - 6.9m HX**FLUSHING MEDIUM**

WATER

ORIENTATION

VERTICAL

GROUND-LEVEL

+56.77mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index, /m.	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
1	PX									+55.47	1.30	X		FILL	Yellowish brown sandy <u>SILT</u> with gravel. (FILL)
2				100					1	+54.27	2.30	0.0		COLLUVIUM	Yellowish brown cobbles & gravel of moderately decomposed tuff in a sandy silt matrix. (COLLUVIUM)
3	17/7/86			100	27	0			T2-101	+52.77	4.00	V V V	III		Moderately weak to weak highly to moderately decomposed tuff. (H./M. D. TUFF)
4				100					2		5.00	X		B	
5									3		5.45	X	V		
6		2.85m 19:30		100					4		6.00	X			Yellowish brown mottled white <u>SANDY SILT</u> with gravel occasional limonite & manganese stained relict joints. (C. D. T.)
7										+49.87	6.90	X			
8	18/7/86			100	92	55	N	PZ AT 7.00m	T2-101		8.35	V V V	III	D	Moderately weak to moderately strong, yellowish brown mottled pink & grey moderately decomposed <u>TUFF</u> with closely spaced limonite & manganese stained joints. Dipping 0°-30° & 60°-70°.
9				100	100	72	11				8.71	V V V			(M. D. T.)
10				100	100	60	10				9.70	V V V			

SMALL DISTURBED SAMPLE

WATER SAMPLE

BULK DISTURBED SAMPLE

WATER LEVEL

S. P. T. LINER SAMPLE

STANDARD PENETRATION TEST

U 100 UNDISTURBED SAMPLE

MAZIER SAMPLE (76mm)

PERMEABILITY TEST

LOGGED LI DATE 29/7/86

CHECKED C. LUN DATE 12/8/86

REMARKS

BACHY SOLETANCHEBACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS**DRILLHOLE RECORD**
(LAND INVESTIGATION)

W. O. PW7/2/13.118

HOLE No. BH 3

CONTRACT

GC/85/02 OF

E.D.D.

DATE from 17/7/86 to 18/7/86

PROJECT:

VICTORIA BARRACKS AREA

SHEET 2 OF 2

METHOD

ROTARY

MACHINE & No.

LY 11

FLUSHING MEDIUM

WATER

CO-ORDINATES

E 834983.59

N 815247.31

ORIENTATION

VERTICAL

ROCK COREBIT

DIAMOND BIT T2-101

HOLE DIAG. L. - 2.3m PX
2.3m - 6.9m HX**GROUND-LEVEL**

+56.77mPD

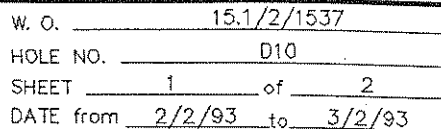
Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R Q D	Fracture Index. /m.	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
11	18/7/86			100	100	60	10			+46.57	10.20	v v	III		See previous sheet.
				100	100	100	4		T2-101		10.70	v v			Strong dark grey speckled white & black medium to fine grained slightly decomposed TUFF with medium spaced joint. Joints are rough, limonite & manganese stained dipping 0°-45°, 50°-70°. (S. D. T.)
				100	91	78	9				11.40	v v	II	D	
12				100	100	80	9				11.73	v v			
										+44.64	12.13	v v			
															End of drillhole at 12.13m.

- SMALL DISTURBED SAMPLE
- ▲ WATER SAMPLE
- ⬇ BULK DISTURBED SAMPLE
- ▼ WATER LEVEL
- S.P.T. LINER SAMPLE
- STANDARD PENETRATION TEST
- ▨ 100 UNDISTURBED SAMPLE
- MAZIER SAMPLE (76mm)
- I PERMEABILITY TEST

LOGGED LI DATE 29/7/86

CHECKED C. LUN DATE 12/8/86

REMARKSINSTALLED PIEZOMETER
AT 7.0m.



GROUND-LEVEL +46.70 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description	
2/2	H		85						Inspection pit 1 2 3 4 5 (7.18 28,33,47,45) N=153 (4.7 8,10,15,18) N=51 T2-101	+46.10	0.60	△ △ △ △			Asphalt concrete (ROAD PAVING) Concrete block	
											1.00					Medium dense, gravelly, clayey SILT with some cobbles (FILL)
				95							+45.20	1.50				
												2.00				
												3.00				
				90								4.00				
												5.00				
				95								5.30				
	5.30 H										+41.40					
				66	55	22	7					6.00		IV/III		Moderately weak to moderately strong, brownish yellow and reddish yellow, highly to moderately decomposed fine ash vitric TUFF, with closely spaced 20°, 50° joints very stained brown, or 5-10mm of silty clay infill, smooth planar
2/2		4.35m at 18:00								+40.30	6.40					
3/2		DRY at 8:00									7.00		II		Strong, grey, slightly decomposed fine ash vitric TUFF, with closely to medium spaced 20°, 50° and vertical 80°-85° joints, partially stained brown, smooth planar	
				100	100	77	4			+38.94	7.75					
										+38.62	8.08		II		Strong, pinkish grey, slightly decomposed medium to coarse grained GRANITE, with contact angle at 30°	
				100	100	100	1				8.75					
											9.00					
				100	100	100	3				9.51		II		Strong, grey, slightly decomposed fine ash TUFF with closely to medium spaced 30°, 40°-45°, 50°, 60° joints, slightly stained brown, or clean smooth planar	
3/2			80							+36.70	10.00					

▲ Small disturbed sample

▲ Large disturbed sample

▨ SPT liner sample

▨ U78 undisturbed sample

▨ U100 undisturbed sample

▨ Mazier sample

P/S Piston sample

▲ Water sample

x Water level

↓ Standard penetration test

T Permeability test

▲ Piezometer tip

✓ In-situ vane shear test

LOGGED F.S.WOO

DATE 3/2/93

CHECKED C.N.LEUNG

DATE 8/2/93

REMARKS

DATE 8/2/93



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D11
SHEET 1 of 3
DATE from 29/1/93 to 1/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-62

E 834992.06
N 815267.84

HOLE DIA. H

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +46.94 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
29/1	P		80							+46.54	0.40	△ △			Surface concrete (GROUND FLOOR)
	1.50 P H								Inspection pit	+45.44	1.50	△ △			Medium dense, yellow and reddish yellow, gravelly silty CLAY with some cobbles (FILL)
	2.95 H			95				(6.7 13.20, 32.83) N=154	1 2	+43.89	3.05	△ △	V		Extremely weak, red, completely decomposed fine ash vitric TUFF (Clayey SILT with some rock fragments)
				100	100	55	1		T2-101		4.00	△ △	III		Moderately strong, yellow gray and yellow, moderately decomposed fine ash vitric TUFF, with closely to medium spaced 30°, 70° joints, stained brown and smooth planar, at depth 4.97-5.09m to see highly decomposed rock (weak rock fragments with some finer material-clayey SILT)
				90	90	55	6			+41.44	5.50	△ △	IV		Moderately weak, brownish yellow, highly decomposed fine ash vitric TUFF (Rock fragments with some finer material clayey SILT)
				100	100	86	6	200 bls 0.25 m	3	+41.19	5.75	△ △	IV		Moderately strong to strong, grey and yellowish grey, moderately to slightly decomposed fine ash vitric TUFF, with closely to medium spaced 20°, 40°, 50°, 70° joints, stained brown and smooth planar highly decomposed rock encountered at 7.73-7.95m
				85	85	45	10				7.00	△ △	III/II		
				85	80	60	7		T2-101		7.35	△ △	III/II		
										+38.64	8.30	△ △	II		
				100	100	100	1				9.00	△ △	II		Detail on sheet 2 of 3
											9.75	△ △	II		
29/1			80	100	100	100	2			+36.94	10.00	△ △			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U78 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- P/S Piston sample
- Water sample
- Water level
- Standard penetration test
- Permeability test
- Piezometer tip
- In-situ vane shear test

LOGGED F.S.WOO
DATE 1/2/93
CHECKED C.N.LEUNG
DATE 6/2/93

REMARKS
A piezometer installed at 7.80m
A standpipe installed at 20.90m



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D11
SHEET 2 of 3
DATE from 29/1/93 to 1/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-62

E 834992.06
N 815267.84

HOLE DIA. H

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +46.94 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
29/1				100	100	100	2				10.95				
				95	95	85	3				12.00				
29/1											12.65				
30/1		10.75m at 8:00		100	100	73	5				13.00				
				100	100	100	0				13.60				
				100	100	100	1				14.00				
											14.15				
				100	100	100	1				14.65				
				100	100	70	1		T2-101		15.00				
											15.85				
				100	100	90	3				16.00				
											17.00				
30/1				100	100	100	3				17.18				
1/2											18.00				
				100	100	77	3				18.16				
											18.85				
				100	100	86	3				19.00				
1/2										+26.94	20.00				

Strong, grey, slightly decomposed fine ash vitric TUFF, with medium to widely spaced 20°, 40°, 60°, 70° joints, partially stained brown, or coated with calcite material, smooth planar, at 13.35m see 10° seam and 15.10m see vertical fissure, highly fractured rock recovered at 13.35-13.40m

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U78 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- P/S Piston sample
- Water sample
- Water level
- Standard penetration test
- Permeability test
- Piezometer tip
- In-situ vane shear test

LOGGED F.S.WOO
DATE 1/2/93
CHECKED C.N.LEUNG
DATE 6/2/93

REMARKS

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-62

```
E 834992.06
N 815267.84
```

HOLE DIA. H

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +46.94 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
1/2			80	100	100	86	3		T2-101		20.30	<<<<<<<<	#		Detail on sheet 2 of 3
1/2			80	100	100	100	2		+26.04		20.90	<<<<<<<<			
											22.00				End of investigation hole at 20.90 m.
											23.00				
											24.00				
											25.00				
											26.00				
											27.00				
											28.00				
											29.00				
											30.00				

▲ Small disturbed sample
 ▼ Large disturbed sample
 SPT liner sample
 ■ U78 undisturbed sample
 ■ U100 undisturbed sample
 Mazier sample
 P/S Piston sample

▲ Water sample
 x Water level
 ↓ Standard penetration test
 Permeability test
 ▲ Piezometer tip
 ✓ In-situ vane shear test

LOGGED F.S.WOO

DATE 1/2/93

CHECKED C.N.LEUNG

DATE 6/2/93

REMARKS



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537

HOLE NO. D12

SHEET 1 of 2

DATE from 5/2/93 to 8/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-20

E 834985.52

HOLE DIA. H

N 815256.12

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +50.51 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
5/2	H		80						Inspection pit	+50.36	0.15				Surface concrete (GROUND FLOOR)
											1.00				Medium dense, brownish yellow, gravelly, sandy SILT with some cobbles (FILL)
				97				(22 3,3,4) N=14	1	+49.01	1.50				
									2		2.00				
				95					3		3.00				
								(34 5,6,5,8) N=24	4		4.00				Extremely weak, red and reddish yellow, completely decomposed fine ash vitric TUFF (clayey SILT with some weak rock fragments)
				90					5		5.00				
5/2	5.95 H							(46 8,8,8,9) N=33	6	+44.51	6.00				
6/2		5.52m at 8:00									7.00				
				100	100	93	7				7.53				
									T2-101		8.00				Moderately strong to strong, grey and grey with mottled red, moderately to slightly decomposed fine ash vitric TUFF, with closely to medium spaced 30°, 40°, 50°, 60°, and 70° joints, stained brown and smooth planar, slickensided surface encountered at 8.54-9.75m along 30° or 70° joints
				94	94	90	5				8.54				
											9.00				
				98	98	72	4				9.26				
				100	100	95	4				9.75				
6/2			80	100	100	84	5			+40.51	10.00				

Small disturbed sample
Large disturbed sample
SPT liner sample
U78 undisturbed sample
U100 undisturbed sample
Mazier sample
P/S Piston sample

Water sample
Water level
Standard penetration test
Permeability test
Piezometer tip
In-situ vane shear test

LOGGED F.S.WOO
DATE 8/2/93
CHECKED C.N.LEUNG
DATE 15/2/93

REMARKS
A piezometer installed at 8.50m
A standpipe installed at 18.65m



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D12
SHEET 2 of 2
DATE from 5/2/93 to 8/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-20

E 834985.52
N 815256.12

HOLE DIA. H

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +50.51 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
6/2			80	100	100	84	5			+39.99	10.52		III/II		Detail on sheet 1 of 2
				92	92	75	5				11.00				
											11.39				
				100	100	87	5				12.00				
											12.66				
				95	95	95	4				13.00				
											13.24				
				100	100	70	6				14.00				
									T2-101		14.30				
6/2				100	33	20	5				15.05				
8/2		5.95m at 8:00		100	72	0	8				15.60				
				100	100	0	2				16.00				
											16.10				
				100	100	42	3				17.00				
											17.27				
				94	94	94	1				18.00				
8/2			80							+31.86	18.65				
											19.00				End of investigation hole at 18.65 m.
											20.00				

Small disturbed sample

Large disturbed sample

SPT liner sample

U78 undisturbed sample

U100 undisturbed sample

Mazier sample

P/S Piston sample

Water sample

Water level

Standard penetration test

Permeability test

Piezometer tip

In-situ vane shear test

LOGGED F.S.WOO
DATE 8/2/93
CHECKED C.N.LEUNG
DATE 15/2/93

REMARKS



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537

HOLE NO. D14

SHEET 1 of 2

DATE from 8/2/93 to 9/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-62

E 834992.42
N 815293.83

HOLE DIA. P, H

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +42.93 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
8/2	P		80						Inspection pit		1.00				Medium to coarse GRAVEL of slightly decomposed granite, volcanic rock or moderately decomposed volcanic rock and in a silty sand matrix (FILL)
				95				(1,1) (2,2,2) N=7	1		2.00				Loose, brown silty SAND with some medium gravel (FILL)
	3.00 P H							(1,1) (2,1,1) N=5	2		3.00				
								(1,1) (2,1,1) N=5	3		4.00				Loose, brown medium COBBLES (FILL)
								(1,1) (2,1,2) N=6	4		5.00				
								(1,1) (2,1,2) N=6	5		6.00				Loose, brown medium SAND with some medium gravel (FILL)
								(1,1) (2,1,2) N=6	6		7.00				Medium to coarse GRAVEL of slightly decomposed granite and in a medium sand matrix (FILL)
								(1,1) (2,1,2) N=6	7		8.00				
								(1,1) (2,1,2) N=6	8		8.50				Very weak, brown and red, completely decomposed fine ash vitric TUFF (Firm, slightly sandy SILT)
								(1,1) (2,1,2) N=6	9	+34.43	9.00		V		Moderately weak, grey, highly decomposed fine ash vitric TUFF with closely spaced brown-stained planar rough joints dipping 20° 50°
	9.30 H							(1,1) (2,1,2) N=6	10	+33.63	9.30		IV		
								(1,1) (2,1,2) N=6	11	+33.38	9.55		III/II		
8/2			80	100	100	88	4	T2-101		+32.93	10.00				Detail on sheet 2 of 2

Small disturbed sample

Large disturbed sample

SPT liner sample

U78 undisturbed sample

U100 undisturbed sample

Mazier sample

P/S Piston sample

Water sample

Water level

Standard penetration test

Permeability test

Piezometer tip

In-situ vane shear test

LOGGED F.S.WOO

DATE 9/2/93

CHECKED C.N.LEUNG

DATE 15/2/93

REMARKS
Kno. fa.
Comment: granite vein at 16.18 - 16.98 m



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D14
SHEET 2 of 2
DATE from 8/2/93 to 9/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2-101
MACHINE & No. DR-62	E 834992.42 N 815293.83	HOLE DIA. P, H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +42.93 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
8/2			80	100	100	88	4				10.23				Moderately strong to strong, yellowish brown and grey, moderately to slightly decomposed fine ash vitric TUFF with medium spaced brown-stained, planar and rough joints dipping 20°, 50°
				97	97	97	7			+31.98	10.95		III/II		
		DRY at 18:00		100	100	100	2				11.95		II		Strong, gery slightly decomposed fine ash vitric TUFF with medium spaced brown-stained planar and rough joints dipping 20°
8/2		10.87m at 8:00		100	100	100	1				12.93				
9/2				100	100	90	4				13.70				
				100	100	100	2				14.00				
				100	100	100	1				14.72		II		Strong, gery, slightly decomposed fine ash vitric TUFF with medium to widely spaced brown-stained planar and rough joints dipping 20°-30°, 70° at depth 12.93-13.23m concrete at depth 16.68-16.98 fine grained granite (Vein)
				100	100	100	0				15.00				
				100	100	100	1				15.52				
				100	100	100	0				16.00				
				100	100	100	1				16.80				
9/2			80	100	100	100	1				17.00				
										+25.50	17.43				End of investigation hole at 17.43 m.
											18.00				
											19.00				
											20.00				

Small disturbed sample

Large disturbed sample

SPT liner sample

U78 undisturbed sample

U100 undisturbed sample

Mazier sample

P/S Piston sample

Water sample

Water level

Standard penetration test

Permeability test

Piezometer tip

In-situ vane shear test

LOGGED F.S.WOO

DATE 9/2/93

CHECKED C.N.LEUNG

DATE 15/2/93

REMARKS



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D15
SHEET 1 of 2
DATE from 4/2/93 to 6/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-62

E 834970.87

HOLE DIA. P, H

N 815289.06

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +39.12 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
4/2	P		70						Inspection pit						Soft, reddish brown sandy SILT with some fine gravel (FILL)
	1.50 P									+37.62	1.50				
	H			90						+36.62	2.50				Soft, yellowish brown, slightly sandy SILT with some subrounded coarse gravel (COLLUVIUM)
								(7,13,15,18,20,23) N=76			3.00				Very weak, grey dappled with yellowish brown and dark red, completely decomposed fine ash vitric TUFF (Firm, slightly sandy SILT)
4/2		1.50m at 18:00									4.00				
5/2		DRY at 8:00						(3,8,10,11,12) N=44			4.50				Moderately weak, reddish brown, highly decomposed fine ash vitric TUFF rock recovered as coarse gravel
	5.30 H			95							5.00			IV	
										+33.82	5.30				
				100	100	100	4				6.00				
											6.65				
				100	100	100	1				7.00				Strong grey, slightly decomposed fine ash vitric TUFF with widely spaced occasional closely spaced tight clean or brown-stained or chlorite infill planar and smooth joints dipping 10°-30°, 70°-80° at depth 9.94-10.26m strong pinkish grey slightly decomposed fine grained GRANITE (vein) contact angle 30°
											7.79			II	
				100	87	74	6				8.00				
											8.63				
											9.00				
5/2			70	100	100	100	1			+29.26	9.86				
										+29.12	10.00				

Small disturbed sample
Large disturbed sample
SPT liner sample
U78 undisturbed sample
U100 undisturbed sample
Mazier sample
P/S Piston sample

Water sample
Water level
Standard penetration test
Permeability test
Piezometer tip
In-situ vane shear test

LOGGED F.S.WOO
DATE 6/2/93
CHECKED C.N.LEUNG
DATE 15/2/93

REMARKS
Installed a standpipe tip at depth 13.20m
Installed a piezometer tip at depth 4.80m



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537

HOLE NO. D15

SHEET 2 of 2

DATE from 4/2/93 to 6/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-62

E 834970.87

HOLE DIA. P, H

N 815289.06

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +39.12 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
5/2			80	100	100	100	1			+28.82	10.30	+			
				100	100	100	0				10.98	<			
				100	100	100	2				11.60	<			
				100	100	100	2				12.00	<			
				100	100	100	2				12.25	<			
5/2		1.83m at 18:00		100	69	69	6				12.87	<			
6/2		5.45m at	80	100	100	100	0			+25.25	12.87	<			Strong, grey slightly decomposed fine ash vitric TUFF
		8:00								+25.92	13.20	<			End of investigation hole at 13.20 m.
											14.00				
											15.00				
											16.00				
											17.00				
											18.00				
											19.00				
											20.00				

Small disturbed sample

Large disturbed sample

SPT liner sample

U78 undisturbed sample

U100 undisturbed sample

Mazier sample

P/S Piston sample

Water sample

Water level

Standard penetration test

Permeability test

Piezometer tip

In-situ vane shear test

LOGGED F.S.WOO

DATE 6/2/93

CHECKED C.N.LEUNG

DATE 15/2/93

REMARKS



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D16
SHEET 1 of 3
DATE from 1/2/93 to 4/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2-101
MACHINE & No. DR-20	E 834975.36 N 815258.19	HOLE DIA. H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +50.29 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
1/2	H		70						Inspection pit	+50.14	0.15				Surface concrete (GROUND FLOOR)
											1.00				Medium dense, brownish yellow, gravelly clayey SILT with some cobbles (FILL)
				97				(22 3.4, 5.5) N=17		+48.76	1.50				
											2.00				
											3.00				Extremely weak, reddish yellow, completely decomposed fine ash vitric TUFF (Clayey SILT with some rock fragments, soft to firm.)
				95				(34 5.5, 5.6) N=21			4.00				Kora. 1/2
										+45.49	4.80				
											5.00				
				84	84	32	6				6.05				Moderately weak to moderately strong, reddish brownish yellow, highly to moderately decomposed fine ash vitric TUFF, with closely spaced 10°, 40°, 50° joints, very stained brown and smooth planar
											7.00				
	7.35 H			92	69	69	6. N.I			+42.94	7.35				
											8.00				
				100	95	80	6				8.35				Moderately strong, light reddish grey, moderately decomposed fine ash vitric TUFF, with closely to medium spaced 10°, 30° (2 set), 40° and 70° joints, stained brown and discolouration to red with wide 40-70mm along joints, smooth planar
1/2											8.77				
2/2		2.97m at 8:00		100	100	83	2				9.00				
										+40.67	9.62				
2/2			70	100	100	76	8			+40.29	10.00				Detail on sheet 2 of 3
Small disturbed sample Water sample Large disturbed sample Water level SPT liner sample Standard penetration test U78 undisturbed sample Permeability test U100 undisturbed sample Piezometer tip Mazier sample In-situ vane shear test P/S Piston sample										LOGGED F.S.WOO DATE 4/2/93 CHECKED C.N.LEUNG DATE 10/2/93		REMARKS A piezometer installed at depth 7.50m A standpipe installed at 22.92m			

Comment: granite vein
at 22.00 - 22.82 m



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D16
SHEET 2 of 3
DATE from 1/2/93 to 4/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2-101
MACHINE & No. DR-20	E 834975.36 N 815258.19	HOLE DIA. H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +50.29 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
2/2			70	100	100	76	8				11.00 11.13				
				100	100	42	7				11.83 12.00				
				100	100	60	6				12.82 13.00		III/II		Moderately strong to strong, grey, moderately to slightly decomposed fine ash vitric TUFF, with closely to medium spaced 10°, 20°, 30°, 40°, 50°, 60° joints, stained brown and smooth planar, fault clay and fault striate encountered at 13.90m, 14.47m and 14.77m along 60° and 50° joint
				100	100	100	2				13.80 14.00				
2/2				100	100	45	6				14.47				
3/2		9.93m at 8:00		100	100	72	3		T2-101	+34.72	15.00 15.57				
				100	100	82	7				16.00 16.54				
				100	100	77	8				17.00 17.55				Strong, grey, slightly decomposed fine ash vitric TUFF, with closely to medium spaced 20°, 30°, 40°, 45-50°, 70° joints, partially stained brown, or clean or coated with iron-manganese along 70° joints smooth planar
				98	98	56	10				18.00 18.17		II		
				100	100	97	5				19.00 19.10				
3/2			70	100	100	100	2			+30.29	20.00				
• Small disturbed sample Large disturbed sample SPT liner sample U78 undisturbed sample U100 undisturbed sample Mazier sample P/S Piston sample ▲ Water sample ✕ Water level Standard penetration test Permeability test Piezometer tip ✓ In-situ vane shear test										LOGGED F.S.WOO	REMARKS				
										DATE 4/2/93					
										CHECKED C.N.LEUNG					
										DATE 10/2/93					

W. O. 15.1/2/1537
HOLE NO. D16
SHEET 3 of 3
DATE from 1/2/93 to 4/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2-101
MACHINE & No. DR-20	E 834975.36 N 815258.19	HOLE DIA. H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +50.29 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
3/2			70	100	100	100	2					<<<<<<<<<<<<<<<<			
3/2				98	98	98	1				20.47	<<<<<<<<<<<<<<<<			
4/2		11.70m at 8:00		100	100	77	3		T2-101	+28.29	20.90	<<<<<<<<<<<<<<<<	II		Detail on sheet 2 of 3
				100	100	93	2			+21.90 +22.00	21.90 22.00	<<<<<<<<<<<<<<<<	II		Strong, pinkish grey, slightly decomposed fine-medium grained GRANITE, with contact angle at 70°
4/2			70							+27.47 +27.57	22.82 22.92	<<<<<<<<<<<<<<<<	II		Strong, grey, slightly decomposed fine ash vitric TUFF
												<<<<<<<<<<<<<<<<			End of investigation hole at 22.92 m.
											24.00	<<<<<<<<<<<<<<<<			
											25.00	<<<<<<<<<<<<<<<<			
											26.00	<<<<<<<<<<<<<<<<			
											27.00	<<<<<<<<<<<<<<<<			
											28.00	<<<<<<<<<<<<<<<<			
											29.00	<<<<<<<<<<<<<<<<			
											30.00	<<<<<<<<<<<<<<<<			

P/S

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U78 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Water level
- Standard penetration test
- Permeability test
- Piezometer tip
- In-situ vane shear test

LOGGED F.S.WOO

DATE 4/2/93

CHECKED C.N.LEUNG

DATE 10/2/93

REMARKS



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D18
SHEET 1 of 2
DATE from 5/2/93 to 6/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2-101
MACHINE & No. DR-37	E 834952.39 N 815269.73	HOLE DIA. P, H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +45.60 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
5/2	P		70												Soft, brown and grey slightly sandy SILT (FILL)
	1.50 P H			100				(2,3) 3,3,4,5 N=15	1 2	+44.10	1.00 1.50				Soft, yellowish brown slightly sandy, clayey SILT with some flat and subrounded medium to coarse gravel (COLLUVIUM)
				75				(2,3) 4,6,7,12 N=29	3 4	+41.60 +41.10	2.00 3.00 4.00				Extremely weak, pinkish white, completely decomposed fine ash vitric TUFF (Soft slightly sandy SILT)
	5.25 H			75					5	+40.30	4.00 5.00		IV		Moderately weak, yellowish brown, highly decomposed fine ash vitric TUFF rock recovered as coarse gravel
										+39.97	5.63		III		Moderately strong pink, moderately decomposed fine ash vitric TUFF rock recovered as coarse gravel and cobbles
				100	80	77					6.00				Very strong, pinkish grey, slightly decomposed fine vitric TUFF with closely to medium spaced brown-stained or chlorite infill planar and smooth occasional unlating and rough joints dipping 10°-20°, 70°
				98	72	92					6.80 7.00				
				100	100	100					7.80 8.00				
				100	100	90					8.76 9.00				
5/2		1.92m at 18:00									9.86				
6/2		5.45m	70	100	91	91	4			+35.60	10.00		II		Detail on sheet 2 of 2
Small disturbed sample Large disturbed sample SPT liner sample U78 undisturbed sample U100 undisturbed sample Mazier sample P/S Piston sample Water sample Water level Standard penetration test Permeability test Piezometer tip In-situ vane shear test										LOGGED F.S.WOO DATE 6/2/93 CHECKED C.N.LEUNG DATE 15/2/93	REMARKS				



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D18
SHEET 2 of 2
DATE from 5/2/93 to 6/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES E 834952.39 N 815269.73	ROCK COREBIT T2-101
MACHINE & No. DR-37		HOLE DIA. P, H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +45.60 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
6/2			70	100	91	91	4				11.00	Very strong, grey, slightly decomposed fine ash vitric TUFF with closely to medium spaced occasional very closely spaced tight or pyrite infilled planar smooth and rough joints dipping 40°-60° with vein or fine grained granite at depth 10.26-10.35m, 11.11-11.76m contact angle 40°-60°	II		
				100	100	88	6				11.36				
											12.00				
											12.16				
				100	95	80	6				13.00				
6/2			70							+31.40	14.00				End of investigation hole at 14.20 m.
											14.20				
											15.00				
											16.00				
											17.00				
											18.00				
											19.00				
											20.00				
■ Small disturbed sample ▲ Water sample ▬ Large disturbed sample ✕ Water level ▨ SPT liner sample ↓ Standard penetration test ■ U78 undisturbed sample ⊥ Permeability test ■ U100 undisturbed sample ▲ Piezometer tip ▨ Mazier sample ✓ In-situ vane shear test P/S Piston sample LOGGED <u>F.S.WOO</u> DATE <u>6/2/93</u> CHECKED <u>C.N.LEUNG</u> DATE <u>15/2/93</u> REMARKS															



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537
HOLE NO. D19
SHEET 1 of 2
DATE from 8/2/93 to 9/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2-101
MACHINE & No. DR-37	E 834943.16 N 815262.63	HOLE DIA. H
FLUSHING MEDIUM Water	ORIENTATION VERTICAL	GROUND-LEVEL +44.13 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
8/2	H		80						Inspection pit	+43.03	1.00				Coarse GRAVEL of concrete and moderately decomposed volcanic rock and in a sandy silt matrix (FILL)
				100	61	41	11			+42.83	1.30		V		Very weak, yellowish brown, completely decomposed fine ash vitric TUFF (Firm slightly sandy SILT)
										+42.24	1.89		III		Moderately strong, yellowish brown, moderately decomposed fine ash vitric TUFF with closely spaced brown-stained or up to 20mm sandy silt infill planar and rough joints dipping 40°-50°
				100	100	100	4				2.30				
											3.00				
											3.69				
				100	86	86	3				4.00		II		Strong, yellowish grey to grey, slightly decomposed fine ash vitric TUFF, with closely to medium spaced brown-stained planar and rough joints dipping 40°-50°, 85°-90°
8/2	4.89 H	1.47m at 15:00									4.89				
9/2		2.77m at 8:00		100	100	100	4		T2-101		6.00				
											6.21				
				100	100	100	3				7.00				
											7.79				
				100	100	100	4				8.00				
											9.00				
				100	100	100	3				9.20				
9/2			80							+34.13	10.00				Strong, grey slightly decomposed fine ash vitric TUFF with medium spaced brown-stained planar rough joints dipping 15°, 70°
Small disturbed sample Large disturbed sample SPT liner sample U78 undisturbed sample U100 undisturbed sample Mazier sample Piston sample Water sample Water level Standard penetration test Permeability test Piezometer tip In-situ vane shear test										LOGGED F.S.WOO	REMARKS				
										DATE 9/2/93	Installed a standpipe tip at depth 10.20m				
										CHECKED C.N.LEUNG					
										DATE 15/2/93					



ENPACK GEOTECHNICAL
ENGINEERING CO. LTD.

DRILLHOLE RECORD

W. O. 15.1/2/1537

HOLE NO. D19

SHEET 2 of 2

DATE from 8/2/93 to 9/2/93

PROJECT SITE INVESTIGATION FOR BRITISH CONSULATE

METHOD Rotary

CO-ORDINATES

ROCK COREBIT T2-101

MACHINE & No. DR-37

E 834943.16

HOLE DIA. H

N 815262.63

FLUSHING MEDIUM Water

ORIENTATION VERTICAL

GROUND-LEVEL +44.13 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
9/2			80	100	100	100	3		T2-101	+33.93	10.20	✓ ✓ ✓	II		Detail on sheet 1 of 2 End of investigation hole at 10.20 m.
											11.00				
											12.00				
											13.00				
											14.00				
											15.00				
											16.00				
											17.00				
											18.00				
											19.00				
											20.00				

Small disturbed sample

Large disturbed sample

SPT liner sample

U78 undisturbed sample

U100 undisturbed sample

Mazier sample

P/S Piston sample

Water sample

Water level

Standard penetration test

Permeability test

Piezometer tip

In-situ vane shear test

LOGGED F.S.WOO
DATE 9/2/93
CHECKED C.N.LEUNG
DATE 15/2/93

REMARKS

**BACHY
SOLETANCHE**BACHY SOLETANCHE GROUP
SOIL & FOUNDATIONS SPECIALISTS**DRILLHOLE RECORD**
(LAND INVESTIGATION)W. O. PW7/2/13.118
HOLE No. HB 3
DATE from 11/8/86 to 11/8/86

CONTRACT GC/85/02. OF E.D.D.

PROJECT:

VICTORIA BARRACKS AREA

SHEET 1 OF 1

METHOD

ROTARY

CO-ORDINATES

E 834986.01

ROCK COREBIT

76mm THIN WALL

MACHINE & No.

BLACK & DECKER

N

815255.17

HOLE DIA.

/

FLUSHING MEDIUM

WATER

ORIENTATION

HORIZONTAL

HOLE

-LEVEL

+50.33mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R. Q. D.	Fracture Index. /m.	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Zone	Description
1	11/8/86			91							0.66	☆			CONCRETE
				50					76mm THIN WALL		0.86	☆			
2											2.25	▽			Light yellow boulder of grade III TUFF and silty sand.
															End of corehole at 2.25m.

- SMALL DISTURBED SAMPLE
- † BULK DISTURBED SAMPLE
- S. P. T. LINER SAMPLE
- ▣ U 100 UNDISTURBED SAMPLE
- ▨ MAZIER SAMPLE (76mm)

- ▲ WATER SAMPLE
- ▼ WATER LEVEL
- ↓ STANDARD PENETRATION TEST
- ⊥ PERMEABILITY TEST

LOGGED LI DATE 4/9/86

CHECKED C. LUN DATE 3/10/86

REMARKS