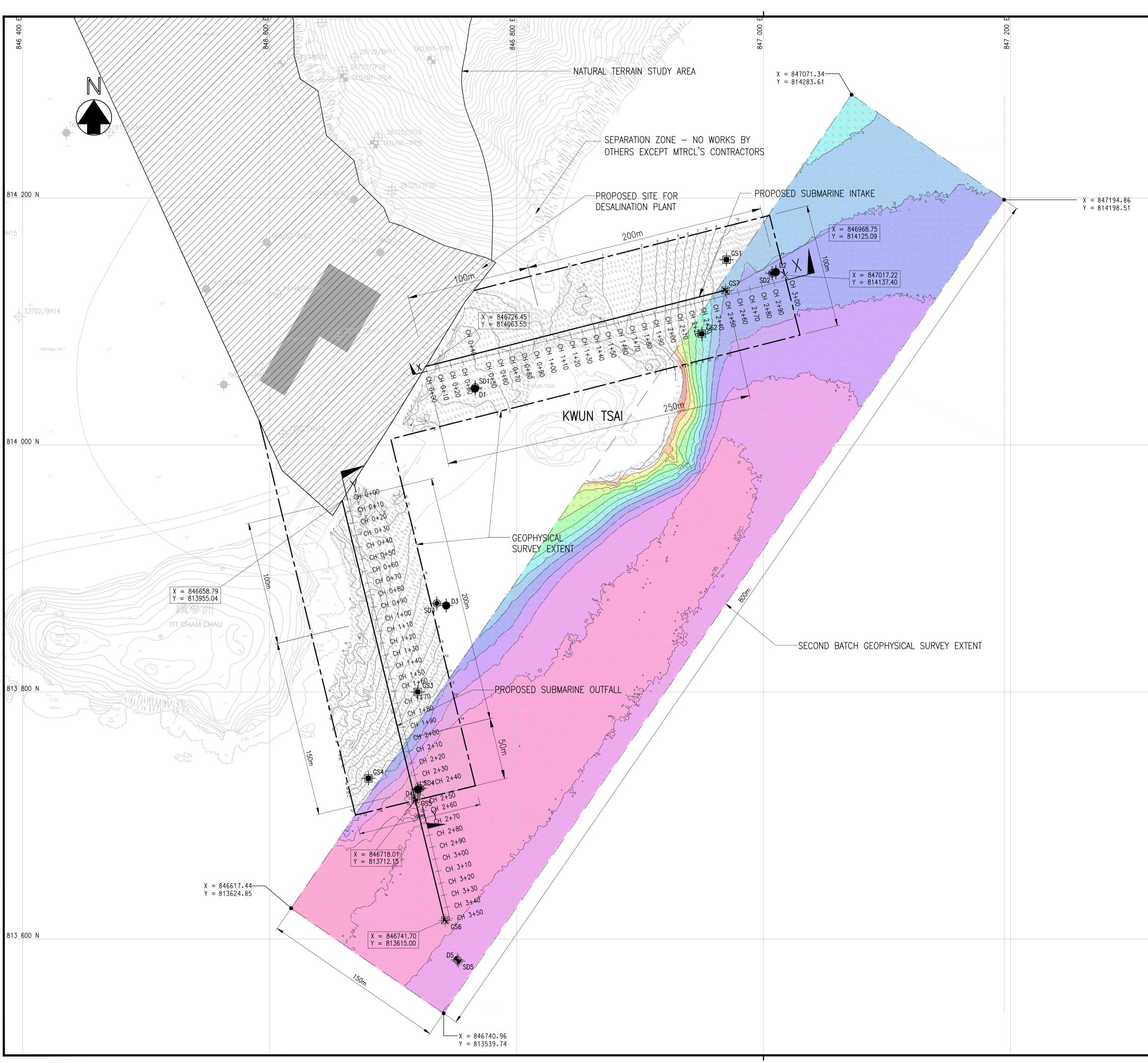


	© Copyright by Black & Veatch Hong Kong Limited
847.0	MAP NOS. 12SW11D, 12SW12C, 12SW16B & 12SW17A
	LEGEND:   EXISTING DRILLHOLE   SITE SPECIFIC DRILLHOLE (IN PROGRESS)   SITE SPECIFIC DRILLHOLE (IN PROGRESS)   PROPOSED TRIAL PIT (IN PROGRESS)   A A
	GI STATIONEASTINGNORTHINGTKO/SZ-DH01846548.53814126.32TKO/SZ-DH02846597.48814164.13TKO/SZ-DH03846668.22814198.72TKO/SZ-DH04846562.83814048.84TKO/SZ-DH05846689.54814155.99TKO/FB-DH01846362.04814513.80TKO/FB-DH02846581.83814575.61TKO/FB-DH03846471.51814476.53TKO/FB-DH04846429.78814377.90TKO/FB-DH05846597.62814482.20TKO/FB-DH06846435.34814252.83TKO/FB-DH07846609.49814308.92TKO/NT-DH01846742.78814485.34TKO/NT-DH02846754.22814360.66TKO/NT-DH03846608.74814471.87TKO/NT-DH03846608.74814498.51TKO/NT-TP04846641.7814531.98TKO/NT-TP05846684.45814243.52TKO/NT-TP04846640.0781429.67TKO/NT-TP04846641.781431.71TKO/NT-TP05846684.45814243.52TKO/NT-TP06846581.49814575.74TKO/FB-DH02846581.49814575.74TKO/FB-DH03846614.36814305.95
N ZONE – NO WORKS BY XCEPT MTRCL'S CONTRACTORS	RevisionDateDescriptionInitialDesignedCheckedDrawnCheckedInitialYLCCKHSZWLSDate07/1407/1407/1407/14Approved
€S7	Agreement No. CE 21/2012 (WS) Contract Title DESALINATION PLANT AT TSEUNG KWAN 0 - FEASIBILITY STUDY
	Drawing Title SITE SPECIFIC GROUND INVESTIGATION LAYOUT PLAN (SHEET 17 OF 17) Drawing No. Revision
	178901/B/SIR/00-10036     -       Scale     A1 1 : 1500 A3 1 : 3000
	水務署 Water Supplies Department
0 10 20 30 40 50 m 1 : 1 500 SCALE BAR	<b>EEZ</b> 。 BLACK & VEATCH HONG KONG LIMITED 博威工程顧問有限公司



Y:\Daily Work\20150703E\178901-B-SIR-00-10037.dwg, 7/7/2015 2:45:16 PM, DWG To PDF.pc3

ш		
17 400	C Copyright by Black & Veatch Hong Kong	
847	MAP NOS. 12SW17A, 12SW17B, 12SW16B & 12SW16D	
	LEDENG:	
	185 SOUNDING DATA IN ME	
	SOUNDING DATA IN ME CONTOUR AT 1 METRE	
	SITE SPECIFIC DRILLHO	LE D1
		RE SD1
	SITE SPECIFIC GRAB SA	AMPLE GS1
		LE D5
	(SECOND BATCH)	
	SITE SPECIFIC VIBROCO (SECOND BATCH)	RE SD5
	SITE SPECIFIC GRAB SA	AMPLE GS5
	(SECOND BATCH)	
	PROPOSED GEOPHYSICA	IL SURVEY EXTENT
		NODTUNG
		NORTHING 814045.60
	D2 847010.00	814140.00
		813870.00 813721.00
		813583.00
		814046.70
		814139.00 813871.70
		813722.00
	SD5 846753.00	813582.00
		814150.00
		814090.00 813800.00
	GS4 846680.00	813730.00
		813713.30
		813615.10 814125.10
	Revision Date Description	Initial
	Designed Checked Dra	
	Initial YLC CKH S Date 07/14 07/14 07/	
	Approved	07711
	Agreement No. CE 21/2012 (W	(S)
	Contract Title	
	DESALINATION PLAN TSEUNG KWAN O FEASIBILITY STUD	-
	Drawing Title	
	SITE SPECIFIC GR	
	INVESTIGATION LAYOU (SHEET 2)	JI FLAN
		-
	Drawing No.	Revision
	178901/B/SIR/00-1003	57 –
	Scale A1 1 : 1500	
	A3 1 : 3000	
	水務 Water Su Depart:	著 ıpplies ment
0 10 20 30 40 50 m	R	
1 : 1 500 SCALE BAR	BLACK & VEATCH HONG KON 博威工程顧問有限	



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

SHEET 1 OF 10

PROJECT

MACH				R	otary		C	O-ORDIN	IATES					W. O. NO. GE/2013/21.45
	IINE	& NO.		V	3M40		E	846362.	04	N 81	4513.	.80		DATE : 03/03/2014 to 25/03/2014
FLUS	HING		Л	V	/ater		0	RIENTAT		Verti	cal			GROUND LEVEL + 26.50 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	ш	Tests	Samples	th +26.50	( <b>m</b> ) ( <b>m</b> ) 0.00	Legend	Grade	Description
01/03/201	14 SW								A 1.0 B 1.0 C 1.2	0				Brown (7.5YR 5/4), dappled greyish brown, silty fine to coarse SAND with some angular to subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments. (FILL)
03/03/201	14	Dry at 08:00	0	80					T6-131	0	- - - -			Grey (N 5), dappled light brown and greyish brown, angular to subangular COBBLE sized concrete, moderately decomposed and slightly decomposed Granite with some silty sandy angular to subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock
-		0.50m	0	90					T6-131		- - - -			fragments, occasional wood pieces and steel bars dia. 15mm. (FILL) From 2.45m to 2.65m : Grey, angular BOULDER sized
03/03/201 04/03/201	1 <u>4</u> 14	at <u>18:00</u> Dry at 08:00	0	92					2.8 T6-131	0	- - - - -			concrete. From 3.15m to 3.48m : Dark grey, angular BOULDER sized
									3.5	0	- - - - -			slightly decomposed Tuff.
	SW 4.70		0	85					T6-131	0	- - - - -			
04/03/201 05/03/201	PW	0.70m at <u>18:00</u> Dry	0	12					T6-131		- - - - <u>5.30</u>			Grey (N 5), dappled light brown and greyish brown, angular
		at 08:00	0	54					T2101					COBLE sized slightly decomposed Granite and concrete with some sandy angular to subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments and steel bars dia. 15mm. (FILL)
			0	67					T2101		- - - - -			
			0	53					T2101	0				
			0	36					T2101	0				
									9.2	0	- - - - - - -			
) ● Disti	urbed s	ample	0	↓1 ↓		ard pene			T2101			REMA	RKS	
Pisto Split	n samp spoon undistu	ole sample rbed sample			Perme Pressu Packer	vane sł ability te iremete Test ic or opł	est r test	st	LOGGED	T. C. Y 26/03/2	<u> </u>	2. A cor 3. A wa 4. A pie	nstant ter sa zome	tion pit was excavated to 1.20m. t head permeability test was carried out from 69.00m to 70.50m. Imple was taken at 45.00m. Iter was installed at 35.00m. or buckets were installed in piezometer from 20.50m to 25.50m
Mazi	) undis er sam liner sa er sam	imple	ble		Piezon Standp Ground	ic or opt wer surv neter tip bipe dwater \$ ng wire	Samplir	-	CHECKED	Y. M. Le				50m intervals.



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH01

SHEET 2 OF 10

PROJECT

METHO	OD			R	otary			O-ORDIN	AIES					W. O. NO. GE/2013/21.45
масні	INE a	& NO.		V	BM40		E	846362.	04	N 81	4513.	.80		DATE : 03/03/2014 to 25/03/2014
FLUSH	IING	MEDIL	М	V	Vater		C	DRIENTAT	ION	Verti	cal			GROUND LEVEL + 26.50 mPE
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	h +16.50	(m) (m) 10.00	Legend	Grade	Description
<u>05/03/2014</u> 06/03/2014	PW	1.30m at 18:00	0	41					T2101 10.3	10.00				See sheet 1 of 10
06/03/2014		8.20m at 08:00		$\langle \rangle$							-			
			0	53					T2101		-			
									11.4	0	-			
									1 1.4		-			From 11.58m to 11.78m : Light brown, angular BOULDEF
			0	76					T2101		-			sized moderately decomposed Tuff.
		2.10m at									-			
<u>06/03/2014</u> 07/03/2014		<u>18:00</u> 10.50m at 08:00		//					12.5	0 +14.00	12.50 			Brown (7.5YR 5/4), slightly silty fine to coarse SAND with some angular to subangular fine to coarse gravel of
		00.00	0	0							- - -			moderately decomposed rock fragments and occasional angular cobble sized concrete. (FILL)
									13.5	0	-			
				$\square$					1 13.5	0 <u>+12.90</u>				Grey (N 5), dappled light grey and dark grey, locally greyis brown, angular to subangular COBBLE sized slightly
			0	12					T2 IOI	0	-			decomposed Granite, concrete and wood pieces with son sandy angular to subangular fine to coarse gravel of
				•							-			moderately to slightly decomposed rock fragments. (FILL
	PW 15.00		0	0					14.9	0	-			
	15.00 HW								2 14.9 15.0	Ō	-			
			0						T2101		-			
			Ū	33							-			
					-				16.2	0	-			
											-			
			0	60					T2101		-			
											-			
				$\mathcal{A}$	-				17.5	0	-			
			0	53					T2101		-			
											-			
									18.5	0 +8.00	_ <u>18.50</u> _			Light brown (7.5YR 6/4), dappled greyish brown, silty fine coarse SAND with some angular to subangular fine to
			0	0							-			coarse gravel of moderately decomposed rock fragments and occasional angular cobble sized concrete. (FILL)
			$\square$						3 19.2	0 +7.20	19.30			Grey (N 5), dappled dark grey and greyish brown, angular
			0	72					T2101		-			to subangular COBBLE sized moderately to slightly decomposed Granite and Tuff with some sandy angular to subangular fine to coarse gravel of moderately to slightly
Disturi Piston	bed sa	mple				rd pene				T. C. Y		REMA	RKS	sasangular line to coarse graver or mouerately to slightly
Piston Split s	i sampl	e		Ĭ	Perme	vane sh ability te remetei	est		-		-			
U76 ur	ndistur	bed sampl			Packer Acoust		ical		DATE _	26/03/2	014			
Mazier SPT lir	r samp	le			Piezon Standp	neter tip ipe				Y. M. Le	ung			
Water	r sampl	•		₫		dwater S ng wire		ng Well neter	DATE	27/03/2	014			



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH01

SHEET 3 OF 10

PROJECT

	A Depth/Size	<b>IEDIU</b> Water	<ul> <li>Flush</li> <li>Returns %</li> </ul>	V	BM40 Vater	D %	-	846362.0 DRIENTAT		N 81	14513	.80		DATE : 03/03/2014 to 25/03/2014
Drilling Progress And HM	A Depth/Size	Water Level (m) Shift art / end 2.80m at 18:00 18.50m at	Flush Returns %		с к %			RIENTAT						
HV 7/03/2014	w	Level (m) Shift art / end 2.80m at 18:50m at	Flush Returns	TCR%	C R				ION	Verti	cal			GROUND LEVEL + 26.50 mPE
7/03/2014		at <u>18:00</u> 18.50m at	0			RQ	Ē	Tests	Samples	pended Level	<b>Depth</b> 20.00	Legend	Grade	Description
			I I	12					T2101		-			decomposed rock fragments and occasional plastic fragments. (FILL) From 20.30m to 20.50m : Grey, angular BOULDER sized slightly decomposed Granite.
			0	58					T2101	þ				
			0	52					T2101					
									22.30	0	-			From 22.06m to 22.30m : Grey, angular BOULDER sized slightly decomposed Granite.
			0	62					T2101	5				
			0	60					T2 IOI					
<u>8/03/2014</u> 0/03/2014		2.20m at 18:00	0	60					T2101					From 24.78m to 25.00m : Grey, angular BOULDER sized slightly decomposed Granite.
0/03/2014	:	24.10m at 08:00	0	51					T2101					
									26.40	0 +0.10	26.40			From 26.15m to 26.40m : Grey, angular BOULDER sized concrete. Dark grey (N 3), dappled greyish brown and grey, sandy
			0	0					4	0 -0.80	    			angular to subangular fine to coarse GRAVEL of moderately decomposed and slightly decomposed rock fragments with some angular cobble sized moderately decomposed Granite. (FILL)
			0	59					T2101					Grey (N 5), dappled dark grey and light grey, angular COBBLE sized slightly decomposed Granite and Tuff with some angular to subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments and steel bars dia. 20mm. (FILL)
		·							28.50	)				From 28.18m to 28.50m : Grey, angular BOULDER sized concrete.
			0	0					5 29.50	3				
			0	37				· · · · ·	T2101					
Disturbed Piston sar Split spoo U76 undis	mple on sar	nple	•	<b>→&gt;</b> →→→	In-situ Perme Pressu Packer	ard pene vane sh ability te iremete Test	near te est r test	est	LOGGED _	T. C. Y 26/03/2		REMAI	RKS	
U100 und Mazier sa SPT liner Water sa	disturt ample samp	ed sampl			Piezon Standp Ground		Sampli	ing Well	CHECKED	Y. M. Le	eung			



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

SHEET 4 OF 10

PROJECT

METH	OD			R	otary		<sup>(</sup>	CO-ORDIN	IATES					W. O. NO. GE/2013/21.45
МАСН	INE	& NO.		V	BM40		E	E 846362.	04	N 8	14513	.80		DATE : 03/03/2014 to 25/03/2014
FLUSH	HING	MEDIU	М	V	Vater		0	ORIENTA	ΓΙΟΝ	Vert	ical			GROUND LEVEL + 26.50 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	Lee .	Depth (m)	Legend	Grade	Description
	нw		0	37					T2101	ptn _3.50	30.00			See sheet 3 of 10
				Γ.	-				30	0.50 -4.00	30.50			Grevish brown (2.5Y 5/2), slightly sandy angular to
			0	0					31	.40				subangular fine to coarse GRAVEL of moderately decomposed and slightly decomposed rock fragments, occasional angular cobble sized slightly decomposed Granite and wood pieces. (FILL)
									6 6 31	.40 .50 -5.00	31.50			Grey (N 5), dappled dark grey, angular COBBLE sized slightly decomposed Tuff and concrete. (FILL)
			0	51					T2101					Signity decomposed full and concrete. (FILE)
40/02/2044		10.50m at 18:00								2.90 -6.40	32.90			From 32.66m to 32.90m : Dark grey, angular BOULDER
<u>10/03/2014</u> 11/03/2014	4	23.80m at 08:00			1					.90 -0.40				<ul> <li><u>sized slightly decomposed Tuff.</u></li> <li>Grey (N 5), dappled dark grey, angular medium to coarse</li> <li>GRAVEL of moderately decomposed and slightly</li> </ul>
			0	0							-			decomposed rock fragments with occasional subangular cobble sized moderately decomposed Granite, wood piece
									33	8.90 4.00				and refuse. (FILL)
										1.00	-			
			0	0							-			
								í	▲ 8 <sup>34</sup>	1.90 5.00 -8.50	- 35.00			
			0	46					T2101	5.00				Grey (N 5), dappled greyish brown and light grey, subangular COBBLE sized concrete, moderately decomposed and slightly decomposed Granite with some angular to subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments. (FILL)
					1						-			
			0	0							-			
11/03/2014	4	6.70m at 18:00		,					9	90 .00	-			
12/03/2014	4	24.50m at 08:00									-			
			0	31					T2101					
		9.10m									-			
<u>12/03/2014</u> 13/03/2014	4	at 18:00 23.90m			-				38	3.30 -11.80	- <u>38.30</u>			Light brown (7.5YR 6/4), spotted light grey, fine to coarse
		at 08:00		•							-			SAND with some angular to subangular fine gravel of high decomposed rock fragments and shell fragments. (FILL)
			0	0							-			
					-				10	9.30 9.40				
			0								Ē			
Distur	rbed sa	ample		o ↓ V		ard pene				 т. с.	Ľ	REMA	RKS	
Piston	n samp			Ŧ	Perme	vane sł ability te uremete	est	501		1. 0.	, ih			
U76 u	Indistu	rbed sample urbed samp			Packer Acoust		tical		DATE	26/03/	2014			
Mazie	er samp	le			Piezon Standp	neter tip pipe			CHECKED	Y. M. L	eung			
	r samp	•		₫		dwater S ng wire	•	ing Well meter	DATE	27/03/	204.4			



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

SHEET 5 OF 10

PROJECT

METH	OD			R	otary			CO-ORDIN	IATE	S						W. O. NO. GE/2013/21.45
МАСН	INE	& NO.		V	3M40		1	E 846362.	04			N 81	4513	.80		DATE : 03/03/2014 to 25/03/2014
FLUSH	HING		ЛМ	V	/ater							Verti	cal			GROUND LEVEL + 26.50 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Elush Returns %	TCR%	SCR%	RQD%	E	Tests		<b>ample</b> : Type D		Pevel Level	<b>Depth</b> (m) 40.00	Legend	Grade	Description
	HW		0									-13.50	 			See sheet 4 of 10
								3,3,	11	-	40.40 40.50	-14.00	40.50			Firm, dark grey (N 3), slightly sandy SILT / CLAY with
<u>13/03/2014</u> 14/03/2014	4	1.50m at 18:00 24.80m at 08:00	-					3,4,3,5 N=15	12 13		40.60 40.90 40.95		- - -			occasional shell fragments. (FILL)
		08:00		80				60 bls	14		41.40	-14.90	_ <u>41.40</u> _			Greyish brown (2.5Y 5/2), dappled dark grey, slightly silty fine to coarse SAND with some angular to subangular fine
									15		41.85 41.90		- - 			gravel of highly decomposed rock fragments. (FILL)
												-16.00	42.50			
								5,6,  4,3,3,4  N=14	16 17		42.60 42.90 42.95		- - - - -			Firm, dark grey (N 3), dappled greyish brown, slightly sand SILT / CLAY with occasional subangular to subrounded fir to medium gravel of moderately decomposed rock fragments and shell fragments. (FILL)
				///				32 bls	18		43.40	-16.90	43.40			Firm, dark grey (N 3), spotted light grey, silty CLAY with
				89					10		43.85 43.90					occasional shell fragments. (MARINE DEPOSIT)
									19	- <b>-</b> 4	43.90		-			
								4,4, 5,3,4,6 N=18	20		44.60		-			
								ľ	21 96	₩	44.90 44.95		-			
				///					22		45.40					
													-			
			50	95									- 			
									23		46.40 46.50		-			
								3,4, 4,6,4,5 N=19	24		46.60		_			
								Y	25		46.90 46.95		-	누군		
									26		47.40		-			
													_			
			50	95									-			
									27		48.40 48.50		-			
								3,3, 4,3,4,6 N=17	28	-	48.60		-			
								<b>I</b> '''''	29	•	48.90 48.95					
									30 [	777 -	49.40		_ _ _	r		
			50										-			
Distur				<b>95</b> ∕	Standa	ard pene	etratio	n test							RKS	
Piston		le		¥	In-situ Perme	vane sl ability te	hear t est		LOGO	GED		T. C. Y	ſip			
U76 u	Indistu	sample rbed sampl			Packer	uremete r Test tic or op wer surv			DATE		:	26/03/2	014			
Mazie		urbed sam ple	ple		televie Piezon Standp	neter tip	vey D		CHEC	CKED	Y	′. M. Le	ung			
SPT li Water				∎ ≜	Groun		•	ling Well		-						
		tal Sample		İ		ssion pa			DATE	-	_	27/03/2	014			



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

SHEET 6 OF 10

PROJECT

METHO	OD			R	otary		С	O-ORDIN	IATES						W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M40		E	846362.	04		N 81	4513.	80		DATE : 03/03/2014 to 25/03/2014
FLUSH			М	N	/ater	1	C	RIENTAT			Verti	cal			GROUND LEVEL + 26.50 mPE
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	œ	Tests	Sample No. Type		Pevel Fevel	(m) 50.00	Legend	Grade	Description
	HW		50					3,3, 5,6,7,6 N=24	31 <b>3</b> 2 <b>3</b> 3 <b>•</b>	50.40 50.50 50.60 50.90 50.95	-23.50				See sheet 5 of 10
		1.70m at	50	95				3.4. 5.6.7.5 N=23	34 35 36 37	51.40 52.40 52.50 52.60 52.90 52.95	-24.90		<u>  </u>   -  -  -  -  -  -  -  -  -  -  -  -		Firm to stiff, grey (N 5), dappled light grey, silty CLAY. (ALLUVIUM)
<u>14/03/2014</u> 15/03/2014	1	18:00 0.50m at 08:00	70	95				2.2. 3.4.6.5 N=18	38 39 40 41	53.40 54.40 54.50 54.60 54.90 54.95	-26.90	<u>53.40</u>			Firm, grey (N 5), locally dappled light grey, silty CLAY. (ALLUVIUM)
			70	95				3.2. 4.3.5.5 N=17	42 43 44 45	55.40 56.40 56.50 56.60 56.90 56.95					
			70	95				3.3. 3.4.6.5 N=18	46 47 48 49	57.40 58.40 58.50 58.60 58.90 58.95					
Distur			70	95 1	Standa	ard pene	etration	test	50	59.40			- - - - -   - - - - - - - - - - - - -	RKS	
Piston				¥ I	In-situ Perme	vane sł ability te	near te est		LOGGED	_	T. C. Y	/ip			
U76 u	undistu undisti r samp	rbed sampl urbed samp ble		<u>→</u> <u>→</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u>	Packer Acoust televier Piezon Standp	r Test ic or opt wer surv neter tip pipe	ical /ey		DATE CHECKEI		26/03/2 ′. M. Le				
Water	r samp			≞ ≜	Vibrati	dwater \$ ng wire ssion pa	piezon	ng Well neter	DATE		27/03/2	014			



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

SHEET 7 OF 10

PROJECT

METHO	OD			R	otary		C	O-ORDIN	ATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M40		E	846362.	.04	N 81	4513.	80		DATE : 03/03/2014 to 25/03/2014
LUSF	IING		М	N	/ater		C	RIENTA	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 26.50 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	23.5 Level	(m) 00.00	Legend	Grade	Description
	HW		70					3.2, 3.4.5.7 N=19	51 60.4( 52 60.6( 53 60.9( 53 61.4(					See sheet 6 of 10
			70	95				3,4, 5,4,7,7 N=23	55 6 62.40 56 62.50 57 62.60 57 62.90		- - - - - - - - - - - - - - - - - - -			
<u>15/03/2014</u> 17/03/2014	<u>1</u>	0.70m at 18:00	70	95					58 63.40 59 64 40 64.50		- - - - - - - -			Light grey (N 6), silty fine SAND. (ALLUVIUM)
17/03/2014	1	1.30m at 08:00						3,4, 6,5,6,7 N=24	60 64.60 61 64.95		- - - - - - 65.30	-   -     -   - -   -     -   -   -   -		Firm, light grey (N 6), clayey SILT. (ALLUVIUM)
			70	180					T2101 T2101 T2101 T2101 65.37 F2101 F210 F210 F210 F210 F210 F210 F210 F210 F210 F210 F210		<u>65.30</u> - - - - - - - - - - - - - - - - - - -			Dark grey (N 3), subangular BOULDER sized slightly decomposed Tuff up to 350mm with some subangular to subrounded cobble sized moderately decomposed and slightly decomposed Tuff and occasional silty clay. (ALLUVIUM)
			70	100					62 67.80 63 67.80 67.80 67.90					Firm to stiff, light grey (N 6), slightly sandy clayey SILT with occasional subangular fine gravel of highly decomposed rock fragments. (ALLUVIUM)
			70	10					T2101 64 68.50	-42.00	  		V	Dark grey (N 3), angular to subangular BOULDER sized slightly decomposed Tuff up to 280mm with some angular to subangular cobble sized moderately decomposed and slightly decomposed Tuff. (ALLUVIUM) Extremely weak, light brown, completely decomposed fine
<u>17/03/2014</u> 18/03/2014	1	0.50m at 18:00 1.10m at 08:00	70	<b>6</b>				1.07 x 10 <sup>-6</sup> m/sec	65 66 66		-			ash crystal TUFF. (SILT with occasional angular to subangular fine gravel)
Distur Piston Split s	n samp	ample	Ļ,	V I I	In-situ Perme	ard pene vane sh ability te remeter	ear te st			Т. С. Y	′ip	REMAI	RKS	<u> </u>
U76 u	undistu undisti r samp	rbed sampl urbed samp ble			Packer Acoust teleview Piezon Standp	Test ic or opt wer surv neter tip bipe	ical ey	ng Well	DATE _ CHECKED _	26/03/2 Y. M. Le				
Water		le tal Sample			Vibratii	ng wire   sion pa	, piezon	neter	DATE	27/03/2	014			



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

SHEET 8 OF 10

PROJECT

METHO	OD			R	otary		6	CO-ORD	INA	ATES						W. O. NO. GE/2013/21.45
MACH	INE	& NO.		V	3M40		6	E 84636	2.0	4		N 81	4513.	80		DATE : 03/03/2014 to 25/03/2014
FLUSH	IING		Л	V	/ater		0		ATI	ON		Verti	cal			GROUND LEVEL + 26.50 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests		Samp		peonpea -43.50	<b>Depth</b> (m) 70.00	Legend	Grade	Description
18/03/2014 19/03/2014 19/03/2014 20/03/2014	HW	1.10m at 18:00 23.18m at 08:00 1.80m at 18:00 9.50m at	70	95				3,15, 4,6,6,8 N=24		67 <b>•</b> 68 <b>•</b> 69 •	70.60 70.70 70.80 71.10 71.15	-44.20	-		V	See sheet 7 of 10 Extremely weak, brown, completely decomposed fine ash crystal TUFF. (Sandy SILT with occasional angular to subangular fine gravel)
2		08:00	60	0				46 bls		70	71.60 72.60 72.70 73.15 73.20				V	Extremely weak to very weak, brown, dappled dark brown, completely decomposed fine ash crystal TUFF. (Slightly silt fine to coarse SAND with some angular fine to coarse gravel and occasional angular cobbles)
20/03/2014		1.30m at 18:00						2,2, 3,4,3,3 N=13		72 73	73.90 74.20 74.25	-47.30	<u>73.80</u>	0 0 0	V	Extremely weak, brown, completely decomposed fine ash crystal TUFF. (Silty fine to coarse SAND with occasional angular fine gravel)
20/03/2014 21/03/2014	H	19.80m at 08:00	60	95				4,5, 5,6,10,13 N=34		74 75 76 77	74.70 75.70 75.80 75.90 76.20 76.25					Extremely weak, light brown, dappled brown, completely decomposed fine ash crystal TUFF. (Slightly sandy SILT with occasional angular to subangular fine gravel)
2			60	95				4,6, 5,6,10,12 N=33		78 79 80 81	76.70 77.70 77.80 77.90 78.20 78.25					
9			60	95			4	↓ ↓		82 83 84	78.70 79.70 79.80 79.90	-53.30			V	Extremely weak, brown, completely decomposed fine ash
Distur     Diston	i samp	le		¥ I	In-situ Perme	ard pene vane sh ability te	near te est		L	OGGED	) _	T. C. Y	/ip	REMA	RKS	
U76 u	ndistu undisti r samp				Packer Acoust televier Piezon Standp	ic or opt wer surv neter tip pipe	ical ey	ing Well		DATE CHECKE		26/03/2 Y. M. Le				
Water		ole tal Sample		1 1	Vibrati	ng wire sion pa	piezo	meter		DATE		27/03/2	014			



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH01

SHEET 9 OF 10

PROJECT

METHOD	R	otary		CO-ORDI	NATES					W. O. NO. GE/2013/21.45
MACHINE & NO.	VE	3M40		E 846362	2.04	N 8 <sup>,</sup>	14513	.80		DATE : 03/03/2014 to 25/03/2014
FLUSHING MEDIU	M V	/ater		ORIENTA	TION	Verti	ical			GROUND LEVEL + 26.50 mPD
Progress Progress Casing (m) Casing Progress Casing (m) Casing Statt / end	Flush Returns % T C R %	SCR%	RQD%	፲ Tests	Samples	Level	00 00 Depth (m)	Legend	Grade	Description
LOS C C C C C C C C C C C C C C C C C C C	To         95           70         95           70         95           70         95           70         95           70         95           70         95           70         95           70         95	43	2	4.4, 6.7,9,13 N=35	90 82 90 91 82 92 93 84 93 84 94 84 95 85 T2101	m         -53.50           20         -54.20           70         -54.20           70         -54.20           70         -58.20           70         -58.20           45         -59.05	80.00		<b>O V</b>	Crystal TUFF. (Silty fine to coarse SAND with occasional angular fine gravel) Extremely weak to very weak, brown, dappled dark brown, spotted light grey, completely decomposed fine ash crystal TUFF. (Slightly silty fine to coarse SAND with some angula fine to coarse gravel) Extremely weak to very weak, brown, dappled dark brown, completely decomposed fine ash crystal TUFF. (Fine to coarse SAND with much angular fine to medium gravel) Moderately strong, greyish brown, dappled light brown, moderately decomposed fine ash crystal TUFF. Joints are very closely to closely spaced, rough planar and
Disturbed sample Piston sample Split spoon sample U76 undisturbed sample U100 undisturbed sample SPT liner sample	70 <b>108</b> 70 <b>108</b> 70 <b>108</b> 70 <b>108</b>	70 93 100 Standa In-situ Permea Pressu Packer Acousti teleview Piezom Standp	54 84 100 rd penet remeter remeter Test c or optimilation references	it test	12101       86         T2101       87         T2101       87         T2101       88         T2101       88         T2101       98         DATE       CHECKED	-59.97	2014		= RKS	Joints are very closely to closely spaced, rough planar and rough stepped, extremely narrow, iron and manganese stained, dipping 10° to 20°, 40° to 50°, 50° to 60° and occasional 60° to 70°. Strong to very strong, dark grey, spotted light grey, slightly decomposed fine ash crystal TUFF. Joints are medium to widely spaced, locally closely spaced rough planar, tight to extremely narrow, clean, occasional iron stained and calcite coated, dipping 10° to 20°, 40° to 50° and 50° to 60°. From 87.10m to 87.65m : Subvertical joint. From 87.65m to 88.16m : With closely spaced microfractures, dipping subvertically. From 88.16m to 88.40m : Subvertical joint.



HOLE NO. TKO/FB-DH01

CONTRACT NO. : GE/2013/21

PROJECT

METHO	OD			R	otary			CO-ORDIN	IATES					W. O. NO.	GI	E/2013/2	1.45
MACH	INE	& NO.		VE	3M40		] [	E 846362.	04	N 8′	14513.	80		DATE :	03/03/201	4 to	25/03/2014
				N	/ater		(	ORIENTA	ΓΙΟΝ	Verti	cal			GROUND	LEVEL	+ 26.50	) mF
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end 3.10m at 18:00	Flush Returns %	TCR%	SCR%	RQD%	E	Tests	Samples	penced Fevel	(m) 00.00	Legend	Grade		Descript	tion	
24/03/2014 25/03/2014	4	3.10m at 18:00	70	100	100	100			T2101 90	00.00	-		Ш	See sheet 9 of	10		
25/03/2014		21.10m at 08:00 5.20m	70	100	100	100	0.8		T2101		- - - - - -						
25/03/2014	4	at 18:00							91.	50 -65.00	91.50	[,∀ <u>`</u> ,∨		End of Investig	ation Hole at 91	50m	
0 ■ Distur	rbed sa			••••••••••••••••••••••••••••••••••••••	In-situ	ard pene si	hear t		LOGGED	T. C. Y		REMA	RKS				
Piston	n samp	le			In-situ Perme	vane sl ability te	hear t est		LOGGED	T. C. `	ſip		KN9				
U76 u	indistui undisti er samp			╧┝╌╔╸╝┋┙	Packer Acoust televier Piezon Standp	tic or opt wer surv neter tip pipe	tical vey	ling Well	DATE CHECKED	26/03/2 Y. M. Le							
-	r samp			≙		dwater : ng wire		ling Well meter	DATE	27/03/2	014						



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH03

SHEET 1 OF 6

PROJECT

METHO	DD			R	otary		cc	-ORDIN	IATES					W. O. NO. GE/2013/21.45
МАСНІ	INE a	& NO.		VE	3M40		E	846471.	51	N 81	14476.	.53		DATE : 04/04/2014 to 25/04/2014
FLUSH				N	/ater		OF	RIENTAT	ION	Verti	cal			GROUND LEVEL + 26.77 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	E	Tests	Samples	penpex penpex penpex penpex penpex penpex penperpenpenperpenperpenpenperpenperpenperpenperpenperpenperpenper	(m) 0.00	Legend	Grade	Description
04/04/2014	SW								A III O.	50	- - - - - - - - -			Soft, brown (7.5YR 5/4), sandy clayey SILT with some angular to subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments. (FILL)
		0.90m	0	75					C1 T6-131 2. T6-131	40	- 1.20 			Grey (N 5), angular COBBLE sized slightly decomposed Granite and concrete with some angular to subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments, occasional brick fragments and pockets of silty fine to coarse sand. (FILL)
<u>04/04/2014</u> 07/04/2014	_	at 18:00 Dry at 08:00	0	70					T6-131 T6-131 T6-131 T6-131 T6-131 T6-131 T6-131		- <u>3.50</u> 			Grey (N 5), dappled light grey and brown, sandy angular fine to coarse GRAVEL of moderately decomposed and slightly decomposed rock fragments with some angular to subangular cobble sized moderately decomposed Granite and brick, occasional angular boulder sized concrete up to 220mm and wood fragments. (FILL)
<u>07/04/2014</u> 08/04/2014	-	2.10m at 18:00 Dry at 08:00	0	81					T6-131 T6-131 					Grey (N 5), dappled brown, angular COBBLE sized slightly decomposed Granite and concrete with some angular to subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments, occasional angular boulder sized slightly decomposed Granite up to 550mm, occasional asphalt, plastic and pockets of silty fine to coarse sand. (FILL)
<u>08/04/2014</u> 09/04/2014	-	3.10m at 18:00 Dry at 08:00	0	83										
	sampl poon s ndistur	e			In-situ Perme Pressu Packer Acoust	vane sh ability te remeter	test		LOGGED DATE	T. C. N 26/04/2	· · ·	2. A wa 3. A pie 4. Piezo	spect ter sa zomet ometer	ion pit was excavated to 1.20m. mple was taken at 50.00m. ter was installed at 30.00m. buckets were installed in piezometer from 21.00m to 26.00m 50m intervals.
Mazier SPT lir SPT lir Water En Enviro	r samp ner sar sampl	le nple le	-		Piezon Standp Ground Vibratii	neter tip bipe dwater S ng wire	Sampling piezomet	Well ter	CHECKED DATE	Y. M. Le				



HOLE NO. TKO/FB-DH03

CONTRACT NO. : GE/2013/21

SHEET 2 OF 6

PROJECT

METHO	OD			R	otary		c	O-ORDIN	IATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M40		E	846471.	51	N 81	4476.	.53		DATE : 04/04/2014 to 25/04/2014
FLUSH	IING	MEDIL	M	N	later		0	RIENTAT	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 26.77 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	S C R %	RQD%	FI	Tests	Samples	F Reduced Level	Depth (m)	Legend	Grade	Description
	SW 12.00 PW		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	B B B B B B B B B B B B B B B B B B B					No. Type Dep T6-131 T6-131 T6-131 T6-131 T6-131 T210 T210 T2	<ul> <li>+16.77</li> <li>50</li> <li>50<td></td><td>Lei</td><td>G</td><td>See sheet 1 of 6</td></li></ul>		Lei	G	See sheet 1 of 6
	rbed samp spoon s indistui undistui r samp iner sa	le sample rbed sample urbed samp ble mple			In-situ Perme Pressu Packer Acoust televiev Piezom Standp Ground	ic or opti wer surv neter tip	tration near test st r test ical rey Sampliri	st ng Well	LOGGED DATE DATE	00 +9.77 15 +9.27 10 10 10 10 10 10 10 10 10 10	2014 eung	REMA	RKS	Grey (N 5), spotted brown and dark brown, fine to coarse SAND with some subangular fine to medium gravel of moderately decomposed rock fragments. (FILL) Dense, dark brown (7.5YR 3/4), clayey / silty fine to coarse SAND with some subangular fine to medium gravel of highly decomposed and moderately decomposed rock fragments. (FILL) Grey (N 5), dappled brownish grey, locally dark grey, angular COBBLE sized slightly decomposed Tuff and concrete with some angular to subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments, asphalt fragments and occasional angular boulder sized concrete up to 320mm. (FILL)



HOLE NO. TKO/FB-DH03

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SHEET 3 OF 6

PROJECT

METHO	D			R	otary		0	O-ORDIN	NATES					W. O. NO. GE/2013/21.45
MACHIN	NE 8	& NO.		V	3M40		] ε	E 846471.	.51	N 81	4476.	53		DATE : 04/04/2014 to 25/04/2014
FLUSHI	NG	MEDIL	М	V	/ater		C	ORIENTA	TION	Verti	cal			GROUND LEVEL + 26.77 mPD
	Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests	Samples	Level	(m) 20.00	Legend	Grade	Description
11/04/2014   1     2 3	200 PW PV:00 PW PV:00 HW								No. Type Dept	+6.77				See sheet 2 of 6
<u>11/04/2014</u> 12/04/2014		18:00 23.10m at 08:00	50 50 50 50 50 50 50 50 50 50 50 50 50 5	43					T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101	5				
-	ample con sa disturt ndistu sampl er san sample	e ample bed sample irbed samp le nple e	<b>50</b>		Permea Pressu Packer Acousti teleview Piezom Standp Ground Vibratin	vane sh ability te remete Test c or opt ver surv neter tip ipe dwater \$	near te est r test cical rey Sampl piezor	ing Well neter	LOGGED		2014 eung	REMA	RKS	Grey (N 5) and dark brown (7.5YR 3/4), slightly sandy angular to subangular fine to coarse GRAVEL of moderately decomposed and slightly decomposed rock



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH03

SHEET 4 OF 6

PROJECT

METHOD			P	otary			0-ORDIN						W. O. NO. GE/2013/21.45
MACHINE	& NO.			3M40		4	846471.		N 81	4476.	.53		DATE : 04/04/2014 to 25/04/2014
FLUSHING		Л		/ater		_			Verti				GROUND LEVEL + 26.77 mPD
		%		%	%						σ	ő	
Drilling Progress Casing Depth/Size	Level (m) Shift	Flush Returns	T C R	SCR	RQD	Ξ	Tests	Samples	Reduced	Depth (m)	Legend	Grade	Description
— <u> </u>								No. Type Dep	th	<u>30.00</u>			fragments with some angular cobble sized slightly
-		50	78					T2 IOI	15	-			decomposed Granite and asphalt, occasional angular boulder sized slightly decomposed Granite up to 430mm and occasional wood fragments. (FILL)
-		50	60					T2101		-			
<u>81</u> - -								31.	30	 			
-			$\square$							-			
- 	6.70m at	50	63					T2101		-			
<u>32 14/04/2014</u> - 15/04/2014 -	18:00 23.30m at 08:00							32.	15	-			
	00.00	50	63					T2101					
- <u>13</u>								33.	10	-			
			$\overline{\Lambda}$					33.		-			
-		50	56					T2101		-			
- <u>34</u> -										-			
-			$\overline{\boldsymbol{\lambda}}$					34.:	20	-			
-		50	50					T2101		-			
<u>15</u>	10.80m at									-			
<u>15/04/2014</u> 16/04/2014	18:00 23.80m at 08:00		$\overline{\Lambda}$					35.:	30	-			
-	08:00	50	75					T2101		-			
<u>36</u> - -			$\mathcal{A}$					36.	10	 			
-										-			
- - 		50	66					T2101		-			
-			4					37.	20	-			
-										-			
18		50	67					T2101		-			
			$\Delta$					38	40 -11.63	- - - 38.40			
\$7 		50						T2101		-			Grey (N 5), dappled brownish grey, angular COBBLE sized slightly decomposed Tuff and concrete with some angular to subangular fine to coarse gravel of moderately
- <u>19</u> -								39.	15	-			decomposed and slightly decomposed rock fragments, occasional brick and metal fragments. (FILL)
-		50						T2101		-			
- - <u>16/04/2014</u>	6.50m at 18:00							39.	35	-			
17/04/2014 Disturbed s	•	50	<u>∕75</u> ↓ V		rd pene vane sh				T. C. Y	 /ip	REMA	RKS	
Piston sam Split spoon	•			Permea Pressu	ability te remeter	est				<u> </u>			
U100 undis	urbed sample sturbed samp			televiev	c or opt ver surv	ey		DATE	26/04/2	U14			
Mazier sam	•			Standp	ieter tip ipe dwater S		a Well	CHECKED	Y. M. Le	ung			
<ul> <li>Water sam</li> </ul>			±		ng wire			DATE	28/04/2				



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH03

SHEET 5 OF 6

PROJECT

METHO	D			R	otary			CO-ORDIN	ATES					W. O. NO. GE/2013/21.45
MACHI	NE 8	& NO.		VE	3M40		1	E 846471	.51	N 81	4476.	53		DATE : 04/04/2014 to 25/04/2014
FLUSH	ING	MEDIL	JM	N	/ater		0	ORIENTA	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 26.77 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	Ē	Tests	Samples	pended 13.23	40.00	Legend	Grade	Description
	HW	at 08:00	50 50	75					T2101 40.65 T2101 T2101	10.20				See sheet 4 of 6
		5.90m	50 50 50	66					T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101		41.80 			Grey (N 5), dappled brownish grey, slightly sandy angular to subangular fine to coarse GRAVEL of moderately decomposed rock fragments, some angular cobble sized concrete, brick fragments and occasional cloth fragments. (FILL)
- 17/04/2014 22/04/2014 - 5 - - - - - - - - - - - - - - - - -		at 18:00 24.30m at 08:00 7.20m at 18:00		89				61 bls 3,4, 6,8,10,14 N=38	5 44.50 6 44.96 7 45.10 8 45.45	5	-			From 44.38m to 44.50m : Very stiff, dark grey (N 3), slightly sandy clayey SILT with some subangular fine to medium gravel and shell fragments. Very stiff, dark grey (N 3), spotted white, SILT / CLAY with some angular fine to medium gravel and shell fragments. (DISTURBED MARINE DEPOSIT)
- 22/04/2014 - 23/04/2014 		24.10m at 08:00	50	189					45.55 T2101 46.30 T2101 T2101 T2101 T2101	-10.70	- 40.00			Dark grey (N 3), spotted grey, angular BOULDER sized slightly decomposed Tuff up to 390mm with occasional angular cobble sized slightly decomposed Tuff and pockets of silt / clay. (FILL)
<u>23/04/2014</u> 24/04/2014 <u>-</u> - - - - -		at <u>18:00</u> 24.10m at 08:00	80	63	24	0	NA 15.0 NA NR 15.4		T2101 49.30 T2101 49.30 T2101	-21.85 -22.05 -22.23	48.50 48.62 48.82 49.00 49.30		V III V	Moderately strong, dark grey, spotted grey, dappled brown, moderately decomposed coarse ash crystal TUFF. Joints are very closely to closely spaced, rough stepped, narrow, iron stained, dipping 0° to 10°, 30° to 40° and subvertically. From 48.50m to 48.62m : Extremely weak, brown, completely decomposed TUFF. (Slightly sandy silty CLAY with some angular fine to coarse gravel)
U100 un Mazier	bed sa sample boon s ndisturi indistu sampl	at 18:00 mple e ample bed sample rbed samp			In-situ Perme Pressu Packer Acoust televier Piezon Standp	ic or opf wer surv neter tip pipe	near te est r test tical vey	est	9 0 0000 LOGGED DATE CHECKED	T. C. Y 26/04/2 Y. M. Le	014	REMA	RKS	From 48.82m to 49.00m : Extremely weak, brown, completely decomposed TUFF. (Slightly sandy silty CLAY
<ul> <li>SPT line</li> <li>▲ Water s</li> <li>En Environ</li> </ul>	sampl	e		≛ 1	Vibrati	dwater S ng wire sion pa	piezo		DATE _	28/04/2	014			J201328e_21.45



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH03

SHEET 6 OF 6

PROJECT

METHO	OD			R	otary		(	CO-ORDI	NATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M40	)	E	846471	.51	N 81	4476	.53		DATE : 04/04/2014 to 25/04/2014
		MEDIU		N	/ater			ORIENTA	TION	Verti	cal			GROUND LEVEL + 26.77 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end 24.20m at 08:00	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	peonped -23.23	<b>Depth</b> (m) <sup>20.00</sup>	Legend	Grade	Description
25/04/2014	*	24.20m at 08:00	80		100	100	0.5 5.9		T2101					with some angular fine to coarse gravel and occasional angular cobbles)           From 49.00m to 49.30m : No recovery, inferred to be completely decomposed TUFF.           Strong, dark grey, spotted grey, locally streaked dark brown, slightly decomposed coarse ash crystal TUFF.           Joints are medium to widely spaced, locally very closely to closely spaced, rough planar and rough stepped, very narrow to narrow, manganese and occasional iron stained, dipping 0° to 10°, 10° to 20°, 50° to 60° and occasional subvertically.           From 49.30m to 49.56m : With very closely to closely spaced joints.
			80	100	100	100	1.1		T2101					From 52.38m to 53.30m : Subvertical joint.
			80	100	91	75	8.7		T2 IOI		-			
25/04/2014		6.30m at 18:00	80	8	95	60	2.7 9.1 3.8 12.5		T2101	-27.77	- - - - - - - - - - - - - - - - - - -			
					Standa			n test				DEMA		End of Investigation Hole at 54.54m.
Piston Split s U76 u U100 Mazie	poon s Indistur undistu	le sample rbed sample urbed samp ble			In-situ Perme Pressu Packet Acoust televie Piezon Standp	tic or op wer surv neter tip pipe	near te est r test tical vey	est	LOGGED _ DATE _ CHECKED _	T. C. \ 26/04/2 Y. M. Le	014	REMA	RKS	
Water	r samp	•		± ≜ 1	Vibrati	dwater ng wire ssion pa	piezoi		DATE _	28/04/2	014			J201328e_21.



HOLE NO. TKO/FB-DH04

CONTRACT NO. : GE/2013/21

SHEET 1 OF 10

PROJECT

METHOD			R	otary		CO-OF	RDIN/	ATES					W. O. NO. GE/2013/21.45
MACHINE	& NO.		VE	3M45		E 846	429.7	8	N 8	14377	.90		DATE : 03/03/2014 to 31/03/2014
FLUSHING	MEDIU	M	W	ater		ORIEN	ITATI	ON	Vert	cal			GROUND LEVEL + 28.45 mPD
	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	Ξ Te	sts	Samples	penpez pth +28.45	0.00 Depth	Legend	Grade	Description
03/03/2014 SW SW 1.00								A INSPECTION PIT	50				Brown (7.5YR 5/4), silty fine to coarse SAND with some angular to subangular fine to coarse gravel of highly decomposed and moderately decomposed rock fragments and occasional tile fragments. (FILL)
<u>1.00</u> HW 03/03/2014 04/03/2014	Dry at <u>18:00</u> Dry at 08:00		15 50 50 50 50 50 50 50 50 50 50					T2101 T2101	15 80 30 80				Light grey (N 6), dappled greyish brown, angular to subangular COBBLE sized slightly decomposed Granite and concrete with some angular medium to coarse gravel of slightly decomposed rock fragments. (FILL)
<u>04/03/2014</u> 05/03/2014	Dry at 18:00		0 86 84 84					T2101 T210 T210	80 33 52	- <u>5.30</u> - <u>5.30</u> - <u> </u>			Dark brown (7.3YR 3/4), the to coarse SAND with much angular to subangular fine gravel of slightly decomposed fragments and occasional angular cobble sized wood piece (FILL) Dark grey (N 3), dappled greyish brown and light brown, angular COBBLE sized concrete and slightly decomposed Granite and Tuff with occasional angular medium to coarse gravel of slightly decomposed rock fragments. (FILL)
05/03/2014	Dry at 08:00	0	75					T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101	61 21				
Disturbed sa Piston samp Split spoon s U76 undistu U100 undist	le sample rbed sample urbed samp			In-situ Permea Pressu Packer Acousti televiev	vane sh ability te remeter Test c or opt ver surv neter tip	test ical ey	ſ	LOGGED DATE CHECKED	T. C. 7 02/04/2 Y. M. Lo	2014	2. A cor 3. A wa 4. A pie 5. Piezo	nspect nstant iter sa zome omete	ion pit was excavated to 1.00m. head permeability test was carried out from 63.00m to 64.50m. mple was taken at 57.00m. ter was installed at 35.00m. r buckets were installed in piezometer from 22.00m to 27.00m 50m intervals.
<ul> <li>SPT liner sa</li> <li>Water samp</li> </ul>	•		≛	Ground	dwater S	Sampling Well piezometer		DATE	03/04/2	0014			



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HOLE NO. TKO/FB-DH04

SHEET 2 OF 10

PROJECT

METHO	OD			R	otary			CO-ORDIN	NATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M45		E	E 846429	.78	N 81	4377.	.90		DATE : 03/03/2014 to 31/03/2014
FLUSH			ЛМ	N	/ater		0	ORIENTA	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Elush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples No. Type Dep	pennpear Fevel +18.45	<b>Depth</b> (m) 10.00	Legend	Grade	Description
2 05/03/2014 06/03/2014	HW	Dry at 18:00		80 80 80 75					T2101 T2101	31 81 31				See sheet 1 of 10
06/03/2014		Dry at 08:00 Dry at 18:00 Dry at 08:00		0 76 84 0 73						10 +15.25 70 20 05 70 70	-			Dark grey (N 3), dappled light brown, angular to subangular medium to coarse GRAVEL of concrete and moderately decomposed rock fragments with occasional subangular cobble sized slightly decomposed Tuff. (FILL) Grey (N 5), dappled light grey and dark grey, angular to subangular COBBLE sized concrete, slightly decomposed Granite and Tuff with some subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments and occasional brick fragments. (FILL)
Z ₽ ● Distur	rbed sa	ample		74 76 80 +		ard pene			T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 20	<ul> <li>31 +11.14</li> <li>20</li> <li>70</li> <li>50</li> <li>00</li> </ul>		REMA	RKS	Grey (N 5), dappled dark grey and reddish brown, slightly sandy angular to subangular fine to coarse GRAVEL of concrete, moderately decomposed and slightly decomposed rock fragments with occasional angular cobble sized slightly decomposed Tuff, concrete and asphalt fragments. (FILL)
Piston Split s U76 u U100 Mazie	n samp poon s indistu undist er samp	le sample rbed sampl urbed samp ble		<b>→ ∨</b> <u></u> <u>+</u>	In-situ Perme Pressu Packer Acoust televiev	vane sh ability te remeter Test ic or opt wer surv neter tip	near te est r test tical vey		LOGGED DATE CHECKED	T. C. Y 02/04/2 Y. M. Le	014	κεΜΑ	κης	
SPT li ▲ Water En Enviro	r samp	le		⊡ ≜ 1	Ground		piezoi		DATE	03/04/2	014			J201328e_21.



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HOLE NO. TKO/FB-DH04

SHEET 3 OF 10

PROJECT

METH	OD			R	otary		0	CO-ORDIN	NATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		V	3M45		<b>]</b> [	E 846429	.78	N 81	4377.	90		DATE : 03/03/2014 to 31/03/2014
FLUSH	HING	MEDIU	М	v	/ater		0	ORIENTA	TION	Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests	Samples	penced th +8.45	Depth (m)	Legend	Grade	Description
	нw	Dry	0	68					T2101		20.00			See sheet 2 of 10
07/03/2014 08/03/2014	4	at <u>18:00</u> Dry at 08:00	0	70					T2101 20. 21.	50	- 20.35 - - - - - -			Grey (N 5), dappled light grey and dark grey, angular to subangular COBBLE sized concrete and slightly decomposed Granite and Tuff with some angular to subangular medium to coarse gravel of concrete, moderately decomposed and slightly decomposed rock
08/03/2014		Dry at 18:00	0	60					T2101	50				fragments. (FILL)
08/03/2014 10/03/2014	4	Dry at 08:00	0	85					T2101		- - - -			
			0						T2101	15	- - - -			
									22.	70	_			
			0	75					T2101	10	- - - -			
			0	58					T2101	70 +4.75	23.70			
			o	0							-			Grey (N 5), dappled light grey, slightly sandy angular to subangular medium to coarse GRAVEL of concrete, moderately decomposed and slightly decomposed rock
									4 4 24	35 45	-			fragments with occasional angular cobble sized slightly decomposed Tuff and brick fragments. (FILL)
			0	78					T2101		- 24.85 - -			Grey (N 5), dappled dark grey and greyish brown, angular to subangular COBBLE sized concrete and slightly
			0	76					T2101	70	-			decomposed Granite and Tuff with occasional angular to subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments,
			0	70					T2101		-			occasional wood pieces and metal fragments. (FILL)
			0	60					26. T2101	30	-			
				2					26	80	-			From 26.80m to 27.60m : Dark brown, angular COBBLE sized wood piece.
			0	0							- - -			
									5 277	70	-			
		2.10m at 18:00	0	83					T2101	50	-			
<u>10/03/2014</u> 11/03/2014	4	24.10m at 08:00									-			From 28.50m to 29.50m : Grey, dappled light brown, angular to subangular medium to coarse GRAVEL of slightly decomposed rock fragments.
			0	0						40	-			
			0	78					6 29 29 T2101	50				
	rbed sa	ample	-	∕ ▼		ard pene vane sl			LOGGED	T. C. Y		REMA	RKS	
2	spoon s	sample			Perme Pressu Packer	ability te iremete <sup>-</sup> Test	est r test		DATE	02/04/2	<u> </u>			
	undist er samp				Acoust televiev Piezon Standp	ic or opi wer surv neter tip pipe	)	ling Well	CHECKED	Y. M. Le				
Water		le tal Sample		≜	Vibratii	ng wire sion pa	piezoi	meter	DATE	03/04/2	014			



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SHEET 4 OF 10

PROJECT

METHO	DD			R	otary		0	O-ORDI	NATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		V	3M45		] e	846429	.78	N 81	4377.	90		DATE : 03/03/2014 to 31/03/2014
FLUSH	IING		М	V	Vater		0	ORIENTA	TION	Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	S C R %	RQD%	F	Tests	Samples	Rec	( <b>m</b> ) 30.00	Legend	Grade	Description
<u>11/03/2014</u> 13/03/2014 <u>13/03/2014</u> 14/03/2014	L	1.67m at 24.31m at 08:00 1.84m at 24.21m at 08:00	0 0 0 0 0	<b>10</b> <b>60</b> <b>60</b> <b>60</b> <b>68</b> <b>75</b>					T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101	1.00 1.00 1.50 2.20 2.60				See sheet 3 of 10
<u>14/03/2014</u> 15/03/2014		1.75m at <u>18:00</u> 24.30m at 08:00	0 0 0 0	60 60					T2101 → 34 T2101 → 34 T2101 → 34 T2101 → 35 T2101 → 35 T2101 → 35 T2101		- 33.55			Grey (N 5), dappled dark grey and greyish brown, angular to subangular medium to coarse GRAVEL of concrete, brick and moderately decomposed and slightly decomposed rock fragments with some angular to subangular cobble sized concrete and moderately decomposed and slightly decomposed Tuff. (FILL)
<u>15/03/2014</u> 17/03/2014	4	1.90m at 18:00 24.36m at 06:00	0 0 0 0	80 60 90 75					T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101 T2101	<ul> <li>7.00</li> <li>7.65</li> <li>3.20</li> <li>4.20</li> <li>4.20</li> <li>4.20</li> <li>4.20</li> <li>4.20</li> <li>4.20</li> <li>4.20</li> <li>4.20</li> <li>4.21</li> <li< td=""><td></td><td></td><td></td><td>Grey (N 5), dappled greyish brown and light brown, angula to subangular COBBLE sized concrete and slightly decomposed Granite and Tuff with some angular to subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments, concrete and occasional metal fragments. (FILL)</td></li<></ul>				Grey (N 5), dappled greyish brown and light brown, angula to subangular COBBLE sized concrete and slightly decomposed Granite and Tuff with some angular to subangular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments, concrete and occasional metal fragments. (FILL)
Distur Piston Split s U76 u U100 u Mazier	samp poon s ndistui undisti r samp	le sample rbed sample urbed samp ble			In-situ Perme Pressu Packer Acoust televiev	ic or opt wer surv neter tip	near te est r test tical rey		LOGGED DATE CHECKED	 T. C. `   Y. M. Le	014	REMA	RKS	1
SPT lii ▲ Water En Enviro	samp	•		ľ ≜ 1	Ground Vibratii		piezor		DATE	03/04/2	014			



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SHEET 5 OF 10

PROJECT

METH	OD			R	otary		6	CO-ORDIN	IATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M45		E	E 846429.	78	N 81	4377.	.90		DATE : 03/03/2014 to 31/03/2014
FLUSH			JM	N	/ater			ORIENTAT		Verti	cal	1		GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Elush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	peonpea Level	Depth (m)	Legend	Grade	Description
	нw		0	81					T2101	-11.00	40.00			See sheet 4 of 10
			0	80					40.53		-			
<u>17/03/2014</u> 18/03/2014	4	1.70m at <u>18:00</u> 24.27m							41.20		- - -			
		at 08:00	0	78					1	-13.20	 41.65			Grey (N 5), dappled dark grey and greyish brown, angular
<u>18/03/2014</u> 19/03/2014	4	1.80m at <u>18:00</u> 23.50m at	0	70					T2101		- 			to subangular medium to coarse GRAVEL of concrete, moderately decomposed and slightly decomposed rock fragments with some angular to subangular cobble sized
		08:00	0	15					T2101		-			concrete and slightly decomposed Granite and Tuff, occasional plastic and metal fragments. (FILL)
			0	70					T2101		-			
			0	70					T2101		-			
			0	70					T2101		- - 			
19/03/201/		1.65m at <u>18:00</u> 24.40m	0	80					T2101		-			
19/03/2014 20/03/2014	4	24.40m at 08:00	0	75					T2101		- - 			
			0						45.42 T2101		-			
									45.94		- - 			
			0	65					T2101		-			
			0	80					T2101		- - 			
		1.52m at	0	81					T2101					
20/03/2014 22/03/2014	4	18:00 24.71m at 08:00	0	75					T2101		-			
			0	80					48.30		-			
									48.85		-			
			0	83					T2101		-			
1			0	80					T2101		- - -			
Piston	rbed sa n samp spoon s			¥ H H	In-situ Perme	ard pene vane sh ability te remeter	near te est		LOGGED	T. C. Y	/ip	REMA	RKS	
U76 u U100	indistu undisti	rbed sampl urbed samp			Packer Acoust televiev	Test	ical /ey			02/04/2				
Mazie SPT li Water	iner sa	mple		đ	Standp Ground	oipe dwater S	Sampl	ling Well		Y. M. Le				
Water	r samp			⊥ 1	Vibrati	ng wire sion pa	piezoi	meter	DATE _	03/04/2	014			J201328e



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SHEET 6 OF 10

PROJECT

ME	тнс	DD			R	otary			CO-ORDIN	IATES						W. O. NO. GE/2013/21.45
MAG	СНІ	NE	& NO.		V	3M45		F	E 846429.	78		N 81	4377.	90		DATE : 03/03/2014 to 31/03/2014
FLU			MEDI	JM	v	later	I			ΓΙΟΝ		Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling	Progress	Casing Depth/Size	Water Level (m) Shift start / end	Elush Returns %	TCR%	SCR%	RQD%	Ē	Tests	Sam No. Typ	<b>ples</b> e Depth	peonpea Level	<b>Depth</b> (m) 50.00	Legend	Grade	Description
<u>22/03</u> 24/03/	3/2014 3/2014	HW .	1.85m at 18:00 25:51m at 08:00	0 0 0 0	70 83 80 88						50.60 51.20 51.60 52.25 52.90					See sheet 5 of 10
				0	73 95 78 56						54.05 DI 54.70 DI 55.25 DI	-25.95 -27.55				Grey (N 5), dappled greyish brown, angular to subangular COBBLE sized concrete and slightly decomposed Granite and Tuff with some angular to subangular medium to coarse gravel of slightly decomposed rock fragments, occasional plastic and metal fragments. (FILL)
				0	0				15 bls 2,1, 2,3,2,3 N=10	64 7 8 9 10 11	57.00 57.10 57.55 57.60 58.20 58.50 58.55 58.50					
	iston plit sp 76 ur 100 ι 1azier	samp boon s ndistu undist	sample rbed samp urbed sam ble			In-situ Perme Pressu Packet Acoust televie Piezon Standp	tic or opt wer surv neter tip pipe	near te est r test tical vey	est	LOGGE DATE CHECK	D	T. C. \ 02/04/2 Y. M. Le	014		RKS	S
В U Ш U Ш м П SI	176 ur 100 u Iazier PT lir Vater	ndistu undist samp ner sa samp	rbed samp urbed sam ble mple	ole		Packer Acoust televier Piezon Standg Ground Vibrati	r Test tic or opt wer surv neter tip pipe	tical vey Sampl			ED		ung			



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SHEET 7 OF 10

PROJECT

METHO	DD			R	otary		_ c	O-ORDIN	IATES						W. O. NO. GE/2013/21.45
МАСНІ	INE a	& NO.		VE	3M45		E	846429.	78		N 81	4377.	.90		DATE : 03/03/2014 to 31/03/2014
FLUSH	IING		JM	N	/ater		0	ORIENTA	ΓΙΟΝ		Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	S C R %	RQD%	F	Tests	Sample No. Type		Pevel	(m) (m)	Legend	Grade	Description
<u>24/03/2014</u> 25/03/2014	HW	1.62m at <u>18:00</u> 25.30m		777			,	2,1, 2,3,3,3 N=11	13 <b>1</b> 4 14 15 <b>•</b>	60.10 60.20 60.30 60.60 60.65 60.85	01.00		- - - - - - - - - - - - - - - - - - -		See sheet 6 of 10 From 60.10m to 60.20m : With occasional organic matters Dark grey (N 3), dappled light brown, subangular to
		at 08:00	0	95							-33.05			V	subrounded COBBLE sized slightly decomposed Tuff with some sandy silty subangular medium to coarse gravel of moderately decomposed rock fragments. (ALLUVIUM) Extremely weak, light brown, completely decomposed fine ash crystal TUFF. (Sandy SILT with some angular to subangular fine gravel)
								6,9, 11,29,60/70m (100/220mm) 2.83 x 10 <sup>-6</sup> m/sec	m 19 •	62.50 62.60 62.62 62.92 62.97	-34.15	- - - - - -		V	Extremely weak, light brown, dappled greyish brown, completely decomposed fine ash crystal TUFF. (Slightly sandy SILT with occasional angular fine gravel)
<u>25/03/2014</u> 26/03/2014		1.67m at <u>18:00</u> 25.47m at 08:00	0	95				6,10, 10,28,62/60m (100/210mm)	21	63.50 64.50 64.60 64.61 64.91 64.96				V	Extremely weak, light brown, dappled brown, completely decomposed fine ash crystal TUFF. (Sandy SILT with som angular to subangular fine gravel)
			0	95				7,12, 35,65/65mm (100/140mm)	25 26	65.50 66.50 66.60 66.84 66.89	-37.05	- <u>65.50</u> 		V	Extremely weak, brown, dappled light brown, completely decomposed fine ash crystal TUFF. (Silty fine to coarse SAND with some angular fine gravel)
			0	95			,	8,17, 36,41,23/20m ((100/170mm)	29 30	67.50 68.50 68.60 68.87 68.92					
Disturt	ha -1		0		Standa	Ird pene	etration	n test		69.50			о	RKS	
Piston Split sp U76 ur U100 u Mazier	sampl poon s ndistur undistu r samp	le sample rbed sample urbed samp ble		<b>▼</b> <u></u>	In-situ Perme Pressu Packer Acoust televiev	vane sł ability te remete Test ic or opt ver surv neter tip	near te est r test ical /ey		LOGGED DATE CHECKEI	_	T. C. \ 02/04/2 (. M. Le	014	I VENTA		
SPT lir	samp			≜	Ground Vibratii		piezor		DATE		03/04/2	014			



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PROJECT

NETH	OD			R	otary		(	CO-ORDIN	IATES						W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M45		1	E 846429.	78		N 81	4377.	.90		DATE : 03/03/2014 to 31/03/2014
LUSH		MEDIL	М	N	/ater				ΓΙΟΝ		Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	E	Tests		n <b>ples</b> pe Depth	peonpea Fevel	<b>Depth</b> (m) 70.00	Legend	Grade	Description
	нw		0	/ <b>95</b>						70.50 70.60	-42.15	-	0 	V	See sheet 7 of 10
								10,27, 44,56/25mm (100/100mm)	33 34 35	70.80	-42.15	  		V	Extremely weak, light brown, dappled brown, locally streaked dark grey, completely decomposed fine ash crystal TUFF. (Sandy SILT with some angular to subangul fine gravel)
			0	95					36	71.50		- - - - -			
<u>26/03/2014</u> 27/03/2014	<u>1</u>	1.84m at <u>18:00</u> 24.17m at 08:00						13,24, 46,54/15mm (100/90mm)	37 38 39	72.50 72.60 72.79 72.84					
									40	73.50					
			0	95					41	74.50 74.60		- - - - - -			
								14,29, 171,29/15mm (100/90mm)	42 •	74.84		- - - - - -			
			0	95					43	75.50	-47.05			V	Extremely weak, brown, spotted light grey, dappled light brown, completely decomposed coarse ash crystal TUFF. (Sandy SILT with some angular fine gravel)
								↓50/45mm, 70,30/10mm (100/85mm)	44 45	76.50 76.60 76.73		- - - - - -			
									46	77.50		-			
			0	95				27,23/25mm,	47 48	78.50 78.60 78.75	-50.15			V	Extremely weak to very weak, light brown, dappled brown
								70,30/25mm (100/100mm)	49 •	78.75			0 		and grey ish brown, completely decomposed coarse ash crystal TUFF. (Silty fine to coarse SAND with some angula to subangular fine gravel)
Distur			0		Standa	ard pen	etratio	n test				-	REMA	RKS	
Piston Split s	n samp spoon s	le sample	e		In-situ Perme Pressu Packer	vane s ability t iremete	hear té est er test		LOGGE DATE	_	T. C. N 02/04/2	<u> </u>			
U100 Mazie SPT li							o Samp	-		(ED	Y. M. Le	eung			



HOLE NO. TKO/FB-DH04

CONTRACT NO. : GE/2013/21

SHEET 9 OF 10

PROJECT

METHO	OD			Ro	otary			CO-ORDIN	IATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		VE	3M45		E	846429.	.78	N 81	4377.	.90		DATE : 03/03/2014 to 31/03/2014
FLUSH	HING		M	W	later		0	ORIENTA	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 28.45 mPI
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests	Samples	peonpeal oth -51.55	(m) (m)	Legend	Grade	Description
	HW		0	95				<sup>↓</sup> 50/25mm, 100/45mm (100/45mm)	51 • 80. 52 • 80.	01.00		0 0 0	V	See sheet 8 of 10
<u>27/03/2014</u> 28/03/2014	<u>4</u> 4	1.74m at <u>18:00</u> 24.51m at 08:00	0	95				↓50/35mm, 100/65mm (100/65mm)	53 81. 54 • 82. 55 • 82.			0 0 0 0 0		
			0	95				150/70mm, 100/70mm (100/70mm)	56 83. 57 84. 58 84.	50 60				
			0	95				↓50/45mm, 100/65mm (100/65mm)	59 85. 60 61 86.	50				
	HW 88.50		0	100					62 87. 63 • 88.					Weak to moderately weak, brown, dappled light brown an dark brown, highly decomposed coarse ash crystal TUFF with closely spaced, iron and manganese stained relict joints, dipping 0° to 10° and 30° to 40°. (Angular COBBLE with some sandy angular fine to coarse gravel)
<u>28/03/2014</u> 29/03/2014	4	1.65m at <u>18:00</u> 24.27m at 08:00	70	86	0	0	NA NI >20		T2101 T2101 T2101 T2101 R89. R8	-61.25			III	Moderately strong, brown, dappled light brown and dark brown, spotted light grey, moderately decomposed coarse ash crystal TUFF. Joints are very closely spaced, locally extremely closely spaced, rough planar and rough stepped, extremely narror iron and manganese stained, dipping 30° to 40°, 40° to 50° 50° to 60° and occasional 60° to 70°.
Distur			70	100/						T. C. Y	 /in		RKS	Strong, locally moderately strong, dark grey, spotted light
Piston Split s U76 u U100 Mazie	08:00     70     100     6       roted sample     70     70     100       roted sample     70     70     100						est r test tical vey	:51	LOGGED DATE CHECKED	02/04/2 Y. M. Le	014			
		•		ă ≜	Ground				DATE	03/04/2	014			



HOLE NO. TKO/FB-DH04

CONTRACT NO. : GE/2013/21

SHEET 10 OF 10

PROJECT

METH	OD			R	otary		_	CO-ORDIN	IATES					W. O. NO. GE/2013/21.45
МАСН	INE	& NO.		VE	3M45		E	E 846429.	78	N 81	4377.	.90		DATE : 03/03/2014 to 31/03/2014
FLUSH	HING	MEDIU	М	N	/ater		0	ORIENTA	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 28.45 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	peonped -61.55	( <b>m</b> ) ( <b>m</b> ) ( <b>m</b> ) ( <b>m</b> )	Legend	Grade	Description
			70	100	69	64	6.5 >20 4.0		T2101		- - - -		II	grey, locally dappled light brown and brown, slightly decomposed fine ash crystal TUFF. Joints are closely spaced, locally very closely and medium spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and locally manganese stained, silt
			70	100	66	39	12.5		T2101		- - - - -			coated, dipping 0° to 10°, 40° to 50°, 50° to 60° and occasional 60° to 70°. From 89.70m to 90.00m : With very closely spaced microfractures, dipping 10° to 20°, 60° to 70° and 70° to 80°.
				$\square$			7.9		91.65		- - - 91.86			From 90.60m to 91.48m : Subvertical joint.
			70	98	52	47	>20		T2101	-63.81	 - - 92.26 -			From 91.86m to 92.26m : Moderately strong, moderately decomposed TUFF.
	1.84m         70         100         94           13/2014         18:00         100					63	6.9		92.61 T2101		- <u>92.70</u> - <u>92.85</u>  - 93.15		- 111	From 92.70m to 92.85m : Moderately strong, moderately decomposed TUFF.
<u>29/03/2014</u> 31/03/2014	4	at <u>18:00</u> 24.00m at							93.45		93.50			From 93.15m to 93.50m : Moderately strong, moderately decomposed TUFF.
			70	180	44	13	15.0 >20		T2101		- - - - -			From 93.83m to 94.57m : Subvertical joint.
31/03/2014		1.71m at 18:00	70	97	67	23	11.9		T2101	-66.45	94.90		- 111	From 94.47m to 94.70m : With very closely spaced microfractures, dipping 10° to 20°, 60° to 70° and 70° to 80°. From 94.90m to 95.07m : Moderately strong, moderately
0														decomposed TUFF with closely spaced, kaolin infilled joints up to 1mm thick, dipping 40° to 50°. End of Investigation Hole at 95.07m.
Piston	ton sample I Permeabilit				vane sl ability te	hear te est		LOGGED _	T. C. Y	ſip	REMA	RKS		
U76 u U100 Mazie	ston sample In-situ var ston sample I Permeabil Viti spoon sample Packer Te 46 undisturbed sample Packer Te azier sample Piezomete Standpipe Standpipe				Test ic or op wer sum neter tip pipe	tical vey	ing Well	DATE _	02/04/2 Y. M. Le					
Water	r samp	•		₫		ng wire	piezoi		DATE	03/04/2	014			



HOLE NO. TKO/FB-DH06

CONTRACT NO. : GE/2013/21

SHEET 1 OF 10

PROJECT

METHOD			Ro	otary		c	O-ORDIN					ĺ	W. O. NO. GE/2013/21.45
MACHINE	& NO.			3M45		-	846435.		N 81	14252.	.83		DATE : 07/04/2014 to 10/05/2014
FLUSHING		м	w	ater		c		ΓΙΟΝ	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress Casing Depth/Size	Water Level (m) Shift start / end	Flus eturn:	TCR%	SCR%	RQD%	Ē	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
07/04/2014 PW								A ● 0.50	)	0.00			Greyish brown (2.5Y 5/2), silty fine to coarse SAND with some angular to subangular fine to coarse gravel of moderately decomposed rock fragments. (FILL)
07/04/2014 08/04/2014	Dry at 18:00 Dry at 08:00	50 50 50 50 50 50 50						$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		2.00 			Grey (N 5), dappled greyish brown and light brown, locally dappled dark grey, angular to subangular COBBLE sized slightly decomposed Granite and Tuff, concrete and asphalt with occasional angular medium to coarse gravel of moderately decomposed and slightly decomposed rock fragments. (FILL)
Disturbed s     Disturbed s     Piston sam     Split spoon     U76 undistu     U100 undis     Mazier sam     SPT liner sa     Water sam	ole sample urbed sample turbed samp ple ample	50	<b>⋎</b> <u>⊢</u> <u></u> <u></u>	Standa In-situ Permee Pressu Piezom Standp Grounc	vane sh ability te remeter Test c or opti ver surv neter tip ipe fwater S	iear te st test ical ey Samplii	st ng Well	T2101 T2101 T2101 T2101 T2101 T2101 P.00 T2101 P.00 T2101 P.00 CHECKED DATE DATE		2014 eung	2. A cons	pect stant	From 8.75m to 8.90m : Greyish brown (2.5Y 5/2), dappled brown, silty fine to coarse SAND with some angular to subangular fine gravel of moderately decomposed rock fragments.



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HOLE NO. TKO/FB-DH06

SHEET 2 OF 10

PROJECT



HOLE NO. TKO/FB-DH06

CONTRACT NO. : GE/2013/21

SHEET 3 OF 10

PROJECT

METHO	OD			R	otary			CO-ORDI	NATES					W. O. NO. GE/2013/21.45
MACH	INE	& NO.		V	3M45		E	846435	.34	N 81	4252.	.83		DATE : 07/04/2014 to 10/05/2014
			М	V	later			ORIENTA	TION	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Samples	Level 415 06	(m)	Legend	Grade	Description
 1 1 1 2 3 4 1 1/04/2014 5 1/04/2014 1/04/2014 5 1/04/2014 1	PW	10.00m at 10.00m at 08:00 07 08:00 07 08:00		50 54 55 55 56 57 56 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 57 58 58 57 58 58 57 58 58 57 58 58 58 58 58 58 58 58 58 58 58 58 58	Standa	Ird pene			No. Type Dep         T2101         T2101 <td><ul> <li>+15.96</li> <li>+15.96</li> <li>+14.16</li> /ul></td> <td>20.00</td> <td></td> <td>RKS</td> <td>Grey (N 5), dappled greyish brown and brown, slightly sandy angular to subangular fine to coarse GRAVEL of moderately decomposed rock fragments with some angular to subangular cobble sized slightly decomposed Granite and concrete and asphalt fragments. (FILL) Grey (N 5), dappled greyish brown and dark grey, angular to subangular COBBLE sized slightly decomposed Granite and concrete with some angular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments and occasional asphalt fragments. (FILL)</td>	<ul> <li>+15.96</li> <li>+15.96</li> <li>+14.16</li> /ul>	20.00		RKS	Grey (N 5), dappled greyish brown and brown, slightly sandy angular to subangular fine to coarse GRAVEL of moderately decomposed rock fragments with some angular to subangular cobble sized slightly decomposed Granite and concrete and asphalt fragments. (FILL) Grey (N 5), dappled greyish brown and dark grey, angular to subangular COBBLE sized slightly decomposed Granite and concrete with some angular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments and occasional asphalt fragments. (FILL)
Piston Split sp U76 ur	n samp poon s ndistu undist r samp ner sa r samp	le sample rbed sample urbed samp ble mple ble		V ++↓ ↓ □ □ □ <b>1</b> ↓ ↓ □ <b>1</b> □ <b>1</b> ↓	Perme Pressu Packer Acoust televier Piezon Standp Ground Vibrati	ic or opt wer surv neter tip pipe	est r test tical vey Sampl piezor	ing Well meter	LOGGED DATE CHECKED	T. C. Y 12/05/2 Y. M. Le 12/05/2	014 eung			



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HOLE NO. TKO/FB-DH06

SHEET 4 OF 10

PROJECT

METHO	D	R	otary		6	O-ORDIN	ATES					W. O. NO. GE/2013/21.45
MACHIN	NE & NO.	v	BM45		1 E	846435	.34	N 8'	14252.	.83		DATE : 07/04/2014 to 10/05/2014
FLUSHI	NG MEDI	JM N	Vater		C	RIENTA	ΓΙΟΝ	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress Casing	Water Level (m) Start / en	Elush Returns % T C R %	SCR%	RQD%	FI	Tests	Samples		( <b>m</b> ) 30.00	Legend	Grade	Description
F 30	PW 0.54 1W 28.00m 18:00 Dry	50 57	_				T2101 30		-			See sheet 3 of 10
	at 08:00	50 57	_				T2101	.50				
2 <u>15/04/2014</u> 16/04/2014	29.20m at 18:00 29.15m at 08:00	50 54	_					20				
3		50 <b>57</b> 50 <b>67</b>	-				T2101	.90				
4		50 76	-				T2101	.50				
5		50 67 50 67	-				T2101 	.60	- - 34.45 - - - - -			Grey (N 5), dappled greyish brown. brown and dark grey, slightly sandy angular to subangular fine to coarse GRAVEL of moderately decomposed and slightly decomposed rock fragments and concrete fragments with some angular cobble sized concrete and slightly decomposed Granite and
6		50 61	-				T2101	.90				Tuff, occasional wood pieces, brick and plastic fragments. (FILL)
z		50 53	-				T2101	.60				From 36.40m to 36.60m : Angular boulder sized slightly decomposed Tuff.
1 <u>6/04/2014</u> 17/04/2014	26.50m at 18:00 29.20m at 08:00	50 60	_						- - - - - - -			
В		50 88					T2IOI	.90 .30	- - - - - - -			From 38.03m to 38.30m : Angular boulder sized slightly decomposed Tuff.
9 <u>17/04/2014</u> 23/04/2014	26.00m at 18:00 29.25m at 08:00	50 61					T2101	.00 <u>-3.04</u>	- 39.00 - - -			From 38.80m to 39.00m : Angular boulder sized slightly decomposed Tuff. Greyish brown (2.5Y 5/2), dappled brown, grey and light brown, angular to subangular COBBLE sized concrete and slightly decomposed Granite and Tuff with some angular to
O ● Disturbe ■ Piston si	ed sample ample	50 57	In-situ	ard pene vane sh	near te		139 T2101	.70 T. C. Y	F Yip	REMA	RKS	subangular fine to coarse gravel of moderately decomposed and slightly decomposed rock fragments, occasional brick, tile, wood pieces and metal gragments.
Split spot U76 und U100 un Mazier s	oon sample listurbed samp ndisturbed sam sample	*	Pressu Packer Acoust televier	ic or opt wer surv neter tip	r test ical rey		DATE CHECKED	12/05/2 Y. M. Le				
▲ Water s	er sample ample mental Sample	≜ ≜	Groun Vibrati		, piezor		DATE	12/05/2	2014			



HOLE NO. TKO/FB-DH06

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SHEET 5 OF 10

PROJECT

METH	IOD			R	otary		C	O-ORDIN	IATES					W. O. NO. GE/2013/21.45
MACH	HINE	& NO.		VE	3M45		Ē	846435.	34	N 81	4252.	83		DATE : 07/04/2014 to 10/05/2014
FLUS	HINC	G MEDIL	Л	N	/ater			DRIENTAT	ION	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	E	Tests	Samples	bth -4 d	(m)	Legend	Grade	Description
L 23/04/20 2 24/04/20 2 24/04/20 3 3 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	14 14	27.00m at 18:00 29.75m at 08:00 28.00m 18:00 29.20m at 08:00		- 55 68 55 54 55 54 55 55 55 55 55 55 55 55 55					$ \begin{array}{c}     T_{2}(0) \\     \hline      \hline     T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      T_{2}(0) \\     \hline      \hline      \hline      T_{2}(0) \\     \hline      \hline      \hline      T_{2}(0) \\     \hline      \hline      \hline                 $	<ul> <li>4.04</li> <li< td=""><td></td><td></td><td></td><td>(FILL) See sheet 4 of 10 From 40.15m to 40.40m : Angular boulder sized slightly decomposed Granite.</td></li<></ul>				(FILL) See sheet 4 of 10 From 40.15m to 40.40m : Angular boulder sized slightly decomposed Granite.
Distu	urbed s	ample	50	∕57 ▼		ard pene					- 		RKS	S
<ul> <li>Pisto</li> <li>Split</li> <li>U76</li> <li>U100</li> <li>Mazi</li> <li>SPT</li> <li>Wate</li> </ul>	on sam spoon undistu 0 undis ier sam liner sa er sam	ple sample urbed sampl turbed samp ple ample	ble		Perme Pressu Packer Acoust televiev Piezom Standp Ground	ic or opt wer surv neter tip pipe	est r test tical vey Sampli	ing Well	LOGGED DATE CHECKED DATE	T. C. Y 12/05/2 Y. M. Le	014 eung			



HOLE NO. TKO/FB-DH06

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SHEET 6 OF 10

PROJECT

METHO	DD			R	otary			CO-ORDI	NATES					W. O. NO. GE/2013/21.45
МАСНІ		& NO.		V	3M45		E	846435	.34	N 8'	14252	.83		DATE : 07/04/2014 to 10/05/2014
FLUSH	ling		M	۷	Vater		0	ORIENTA	TION	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests	Samples	penced perced	(m)	Legend	Grade	Description
25/04/2014 26/04/2014 28/04/2014 28/04/2014 28/04/2014	HW	27.00m at <u>18:00</u> 29.15m at 08:00 29.15m at 08:00 29.15m at 08:00 29.15m at 08:00		8 14 18 18 18 18 18 18 18 18 18 18 18 18 18					T2101 T2101	<ul> <li>-14.04</li> /ul>	50.00			See sheet 5 of 10 Grey (N 5), dappled greyish brown and light brown, slightly sandy angular to subangular fine to coarse GRAVEL of highly decomposed and slightly decomposed rock fragments with some angular to subangular cobble sized slightly decomposed Granite and concrete, occssional brick wood pieces and metal fragments. (FILL)
<ul> <li>Disturt</li> <li>Piston</li> <li>Split sp</li> </ul>	samp	le	50 50 50	67 56 ▼>	In-situ Perme	ard pene vane sl ability te	near te est		T2101 T2101 T2101 T2101 T2101 59 T2101 LOGGED	<sup>80</sup> T. C. Y		REMA	RKS	
	undistu r samp				Piezon Standp	ic or opt wer surv neter tip pipe	/ey	ing Well	DATE CHECKED	12/05/2 Y. M. Le				
Water	samp			≜ ↑	Vibrati	dwater : ng wire ision pa	piezor	neter	DATE	12/05/2	2014			



HOLE NO. TKO/FB-DH06

CONTRACT NO. : GE/2013/21

SHEET 7 OF 10

PROJECT

METHO	DC			R	otary		(	CO-ORDIN	IATES					W. O. NO. GE/2013/21.45
MACH		& NO.		VE	3M45		E	E 846435.	34	N 8′	14252.	.83		DATE : 07/04/2014 to 10/05/2014
FLUSH	IING		М	N	/ater		(		ΓΙΟΝ	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	E	Tests	Samples	Rec	<b>Depth</b> (m)	Legend	Grade	Description
	HW	00.50	50	56					T2101	-24.04				See sheet 6 of 10
<u>29/04/2014</u> 30/04/2014	-	26.50m at 18:00 29.50m	50							0.60	F			
l		at 08:00	50	22					T2101	-24.89	- <u>60.85</u>			Grey (N 5), spotted and mottled light grey, angular
			30							1.50				BOULDER sized slightly decomposed Granite up to 600mm. (FILL)
			50	82					T2101	1.50				
									1 62	2.00 -26.04	<u>62.00</u>			Firm to stiff, grey (N 5), dappled light grey, silty CLAY.
			50	95							-			(ALLUVIUM)
				~ / /				3,4, 6,5,7,10 N=28	-	3.00 3.10 3.20	Ē			
								N=28	4 ● 65	3.50 3.55				
									5	1.00	Ē			
			50	95							F			
									6	5.00	Ē			
								4,3, 4,6,7,12	-	5.10 5.20	E			
								N=29	8 • 65	5.50 5.55	F			
				, , , ,					9 777 66	5.00	Ē			
										5.00				
			50	95							E			
									10	7.00	Ē			
								2,3, 5,7,7,8 N=27	-	7.20	F			
								IN-27	12 • 67	7.50 7.55	Ē			
									13 7 68	-32.04	68.00			
											Ē			Firm to stiff, grey (N 5), silty CLAY with occasional organic matters. (ALLUVIUM)
			50	95										
									14	9.00 9.10	-			
								3,4, 6,6,8,11 N=31	15 69	9.20				
				///					69	9.50 9.55 <u>-33.64</u> 9.60	<u>    69.60                               </u>	000		Dark grey (N 3), spotted light grey, dappled light brown,
<ul> <li>Disturi</li> </ul>	bod	25.00m at	50	<u>/9</u> 2/	Standa	ard pen	etratio	n test			70.00		RKS	subangular COBBLE sized slightly decomposed Tuff.
Piston Split sp	samp	le		¥ I	In-situ Perme	vane s ability to remete	hear te est		LOGGED	T. C. Y	Yip			
🛛 U76 ur	ndistur	bed sample urbed sample			Packer Acoust televiev	r Test			DATE	12/05/2	2014			
Mazier	r samp	le	ine.		Piezon Standp	neter tip pipe	)		CHECKED	Y. M. Le	eung			
SPT lir ▲ Water	ner sa • samp	•		₫		dwater ng wire		ling Well	DATE			1		



CONTRACT NO. : GE/2013/21

HOLE NO. TKO/FB-DH06

SHEET 8 OF 10

PROJECT

METHOD		P	otary		<u> </u>	אוסאכ	ATES						W. O. NO.	GE	/2013/21.4	5
MACHINE	& NO.		3M45		4	16435.:			N 81	4252.	83			7/04/2014		)/05/2014
FLUSHING			/ater		ORIE	ENTAT	ION		Verti	cal			GROUND LEV		+ 35.96	mPD
Drilling Progress Casing Depth/Size		Flush Returns % T C R %	SCR%	RQD%		Tests	Samp No. Type	e Depth	-34.04	(m) 70.00	Legend	Grade		Descriptio	on	
Image: Second	23.50m at 08:00 29.50m at 08:00	114     0       50     0       50     68       50     95       50     95       50     95       50     95       50     95       50     95       50     95       50     95       50     95       50     95       50     95	U U	o x	5.6, 13.25 (100/ 2.22 > m/st 14.30 (100/ 100/ 100/ 100/	5,62/70mr 220mm)	No. Type 17 17 17 17 17 17 17 17 17 17	2 Depth 2 70.10 70.50 70.60	-34.04 -34.64 -35.04	70.00			(ALLUVIUM)         Firm, light grey (N 6)         sandy SILT. (ALLUV)         Dark grey (N 3), dap         subangular to subro         decomposed Tuff w         medium to coarse g         fragments. (ALLUV)         Extremely weak, bigt         (Sandy SILT with oc         gravel)	), dappled lig /IUM) popled light brown unded COBI ith occasional ravel of mod UM) wwn, dappled by decompos ccasional ang ccasional ang scasional ang the brown, dap h crystal TU relict joints,	ht brown, slig own, spotted BLE sized slig al angular to lerately decor light brown, ed fine ash c gular to subar	light grey, ghtly subangular mposed rock locally spotted rystal TUFF. ngular fine
79 	29.00m at	50 95				1	33	79.00								
Disturbed s     Diston samp	ble	¥	In-situ	rd pene vane sh ability te:			LOGGEE	<b>_</b>	T. C. Y	/ip	REMA	ĸĸs				
Split spoon U76 undistu U100 undist Mazier sam SPT liner sa Water sam	urbed sample turbed samp ple ample ble		remeter Test ic or opti- ver surve neter tip ipe dwater S ng wire p	test cal ey ampling W piezometer	ell	DATE CHECKE DATE		12/05/2 Y. M. Le 12/05/2	ung							
Water sample     Environmen		1 1			biezometer ker test		DATE		12/05/2	014						J201328e_21



HOLE NO. TKO/FB-DH06

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SHEET 9 OF 10

PROJECT

METHO	DD			R	otary		•	CO-ORDIN	IATES					W. O. NO. GE/2013/21.45
МАСНІ	INE	& NO.		VE	3M45		י [	E 846435.	34	N 81	4252.	.83		DATE : 07/04/2014 to 10/05/2014
FLUSH	IING	MEDIU	М	v	/ater		•		ΓΙΟΝ	Verti	cal			GROUND LEVEL + 35.96 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	Ē	Tests	Samples	bth -44.04	<b>Depth</b> (m) 80.00	Legend	Grade	Description
03/05/2014 05/05/2014	HW .	18:00 29.15m at 08:00						22,28/65mm, 100/70mm (100/70mm)	34 <b>•</b> 80. 35 • 80.	10				See sheet 8 of 10
			50	95				18,32/45mm, 100/70mm (100/70mm)	36 81. 37 82. 38 82.	00	<u>81.00</u>			Extremely weak, brown, dappled dark brown, completely decomposed fine ash crystal TUFF. (Slightly sandy SILT with occasional angular fine gravel)
<u>05/05/2014</u> 07/05/2014		26.50m at <u>18:00</u> 29.20m at 08:00	50	95				27,23/35mm, 100/60mm	39 83. 40 84. 41 84.	00 10 <u>-48.14</u>				Extremely weak to very weak, brown, dappled light brown and dark grey, completely decomposed fine ash crystal
			50	95				150/70mm, 100/40mm (100/40mm)	42 85. 43 ● 86. 44 ● 86.	00				TUFF. with occasional iron and manganese stained relict joints, dipping 60° to 70° and 70° to 80°. (Sandy SILT with occasional angular fine gravel)
	HW 87.70		50	83			NI		45 87. 46 87.	60 70 <u>-51.74</u>	- - - - - - - - - - - - - - - - - - -			Moderately strong, locally moderately weak, light brown, dappled grey and brown, moderately decomposed fine ast crystal TUFF.
<u>07/05/2014</u> 08/05/2014		23.00m at 18:00 29.25m at	50	92 94	0	0	NA NI		T2 101	-52.44	- 88.40 - - -			Joints are extremely closely to very closely spaced, locally closely spaced, rough planar and rough stepped, extremel narrow to very narrow, iron and manganese stained, dipping 40° to 50°, 50° to 60° and 60° to 70°. From 88.10m to 88.40m : Extremely weak to very weak,
		08:00	50	97	13	0	>20 NA 12.5 NI 13.5	-	T2101 89.	03 -53.34 -53.44	- - 89.30 89.40 - - -			light brown, dappled greyish brown, completely decomposed fine ash crystal TUFF. (Sandy SILT with som- angular fine to medium gravel) From 89.30m to 89.40m : Very weak to weak, light brown, highly decomposed fine ash crystal TUFF. (Sandy angular fine to coarse GRAVEL)
U100 u Mazier	samp poon s ndistui undisti r samp	le sample rbed sample urbed samp ble			Perme	vane sl ability te remete Test ic or op wer surv neter tip	near t est r test tical /ey	est	LOGGED DATE CHECKED	T. C. Y 12/05/2 Y. M. Le	014	REMA	1 RKS	1
SPT lir	samp	•		≛ ≜	Ground		, piezo		DATE	12/05/2	014			



HOLE NO. TKO/FB-DH06

CONTRACT NO. : GE/2013/21

SHEET 10 OF 10

PROJECT

METHO	עכ			R	otary		⊥`	CO-ORDIN						W. O. NO. GE/2013/21.45
MACH	NE (	& NO.		VE	3M45		E	E 846435.	34	N 8'	14252	.83		DATE : 07/04/2014 to 10/05/2014
FLUSH	IING	MEDIU	M	N	/ater		0	ORIENTA	ΓΙΟΝ	Verti	ical			GROUND LEVEL + 35.96 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	Ξ	Tests	Samples	pended Level	(m) 90.00	Legend	Grade	Description
				$\square$			<b>—</b>		90.0		-			See sheet 9 of 10
			50	98	12	0	NI 16.7		T2101	-54.66	90.62		]	
							NA 10.0			-54.87 -54.97	- - 90.83 - 90.93	6% o'		From 90.62m to 90.83m : Weak to moderately weak, grey dappled dark grey, highly decomposed fine ash crystal
			50	/190/	69	43	NA >20 7.4		91.0 T2101	-55.07	<u>-91.03</u> - -			TUFF, (Slightly sandy angular fine to coarse GRAVEL with occasional angular cobbles) From 90.93m to 91.03m : Weak to moderately weak, grey
				$\square$		-	>20		91.4	-55.57	91.53	$\langle \sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$	1	dapled dark grey, highly decomposed fine ash crystal TUFF, (Slightly sandy angular fine to coarse GRAVEL with
							13.3 >20			-55.84	91.80			occasional angular cobbles) locally moderately strong to strong, greyish brown, dapple
			50	/100	53	20	14.3 >20		T2101			/. <u>`</u> ,∨`∖		light brown and grey, moderately decomposed fine ash crystal TUFF.
							13.2				92.45			Joints are very closely to closely spaced, rough planar and rough stepped, extremely narrow, iron and manganese
				$\square$			>20		92.7		-			stained, dipping 10° to 20°, 40° to 50°, 50° to 60° and occasional 60° to 70°. From 91.53m to 91.80m : Strong, slightly decomposed
			50	97	35	11	13.2		T2101		-			TUFF. Strong, dark grey, locally spotted light grey, dappled greyis
		24.50m at					>20					(.∵ ¥.\ (.∵∀.)		brown, slightly decomposed fine ash crystal TUFF. Joints are closely spaced, locally very closely spaced,
08/05/2014 09/05/2014		<u>18:00</u> 29.15m at		$\square$			42.5		93.7		-			occasional medium spaced, rough planar and rough stepped, tight to extremely narrow, clean, locally iron and
		08:00	_				13.5				-			manganese stained, dipping 10° to 20°, 40° to 50° and 50' to 60°.
			50	100	75	16	5.0		T2101	-58.56	94.52		1	From 94.52m to 95.10m : Moderately strong, moderately
09/05/2014 10/05/2014		25.00m at 18:00					>20		94.9	1	-	(.∵, ♥ .\ (.`, ♥ .		decomposed TUFF.
10/05/2014		29.20m at 08:00								-59.14	95.10			
							3.8					$\langle \cdot \lor \lor \rangle$		
			50	100	83	55	15.0		T2101		-			
		26.00m at					6.9 >20			-60.30	- 96.16 - 96.26	$\left( \begin{array}{c} \cdot \\ \cdot $		From 96.16m to 96.26m : Moderately strong, moderately
10/05/2014		18:00		///			20.0		96.3	60.40	<u>- 96.36</u>		1	decomposed TUFF. End of Investigation Hole at 96.36m.
											-			
											-			
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)														
Distur		•	¥		ard pen vane s			LOGGED	T. C. `	⊥ Yip	REMA	RKS	1	
Piston Split s				Ī	Perme Pressu	ability t iremete	est		_		•			
		bed sample		ļ	Packer Acoust televier	r Test ic or op wer sur	tical vey		DATE _	12/05/2	2014			
Maziei	r samp	le			Piezon Standp	neter tip pipe	)		CHECKED	Y. M. Le	eung			
SPT lii Water		•		≜	Groun Vibrati		•	ling Well				1		

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CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH01

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SHEET 1 of

Ground Investig	ation Now Territories East (	Contract) Announcet No. 0524	
			/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
METHOD	ROTARY	CO-ORDINATES E <b>846548.53</b>	WORKS ORDER NO. GE/2011/25.45A
MACHINE	SD8	N 814126.32	DATE 26.11.2013 to 05.12.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +16.44 mPD
0 =	SCR% RQD% Fracture Index Tests	Samples Reduced Level Depth (m) Legend Grade	Description
11.2013 SW		1 = 0.45 2 = 0.95 3 = 1.45 +14.94 1.50	Brown (10YR 5/3), clayey silty fine to coarse SAND with some subangular fine to coarse gravel of rock fragments. (FILL)
80 84		1456 +1454 1.50 T2-120	Angular to subangular, light grey (10YR 7/2) and brown (10YR 5/3), slightly clayey silty sandy fine to coarse GRAVEL and COBBLE of rock fragments and with some concrete, wood, steel, and brick fragments. (FILL)
80 5		T2-120	
5 3.50 11.2013 1800		T2-120	
0 83 0 0 80		T2-120	• •
0 90		T2-120	
8 0 54		T2-120	
9 9.00m PW 0 95		T2-120 +6.44 10.00	
SMALL DISTURBED SAMPLE LARGE DISTURBED SAMPLE U76 SAMPLE PISTON SAMPLE (76mm) MAZIER SAMPLE SPT LINER SAMPLE U400 SAMPLE	STANDARD PENETRATION TEST     IN-SITU VANE SHEAR TEST     PACKER TEST     PREMEABILITY TEST     PRESSUREMETER TEST     BOREHOLE TELEVIEWER     PIEZOMETER TIP     STANDPIPE TIP	LOGGED         L. Zhang         ✓           DATE         12.12.2013            CHECKED         R. Chu 44           DATE         17.12.2013	REMARKS 1. An inspection pit was excavated to 1.50m deep by hand tools. 2. Constant head permeability test was carried out at section from 35.50m to 37.00m. 3. Groundwater sample was taken at 45.70m. 4. A piezometer was installed with tip at 40.00m.



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HOLE NO. TKO/SZ-DH01

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SHEET 2 of

PROJECT	Grou Study	nd Inve /	estig	atior	ı - Ne	w Te	erritories Eas	st (Term Contr	act), A	green	ient No.	CE21	//2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
METHOD				RO	TAR	Y		CO-OR		TES 46548	53		WORKS ORDER NO. GE/2011/25.45A
MACHINE	Ę			S	5D8					14126			DATE 26.11.2013 to 05.12.2013
FLUSHIN	g med	MUIG				WAT	TER	ORIEN	TATIC	ON V	ERTIC/	۹L	GROUND LEVEL +16.44 mPD
Drilling Progress Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
11 12 12 12 13 13 14 14 14 14 16 16 17 18 19 28.11.2013 29.11.2013 29.11.2013 20.11.	5.50 at 1800 8.70 at 0800							10:00         T2-120         11:00         T2-120         12:00         T2-120         12:00         T2-120         12:00         T2-120         12:00         T2-120         11:00         T2-120	-3.56				As sheet 1 of 5. From 12.00m to 12.30m: With a boulder of moderately decomposed tuff fragment. From 13.60m to 14.00m: With a boulder of concrete fragment.
SMALL DIST     LARGE DIST     U76 SAMPLE     PISTON SAM     MAZIER SAM     SPT LINER S     WATER SAM     U100 SAMPL	'URBED S/ E MPLE (76m MPLE SAMPLE MPLE	MPLE			N-SITU PACKER PERMEA PRESSL	VANE : ABILITY JREME DLE TE	Y TEST TER TEST ELEVIEWER TIP	LOGGE DATE CHECK DATE		12. F	Zhang 12.2013 R. Chu 12.2013	U	REMARKS

									RILLF			DE		DD	HOLE N	0.	rko	)/S	Z-I	DH01
	D	R		Γ	=(	C	Н		CONTRA					KD	SHEET		3		of	5
PRO	JECI	Grou Study	nd In	vestig	atior	n - Ne	ew Te	rritories East	(Term Contr	act), A	green	nent No.	CE21	/2012(WS)	, Desalinatio	on Plar	nt at Tse	ung l	Kwan	O - Feasibility
MET	HOD				RO	TAR	Y		CO-OR		TES 46548	59		WORKS	ORDER N	10.	G	E/20 <sup>-</sup>	11/25.	45A
MAC	HINE	•			S	SD8					46546			DATE		26	5.11 <b>.20</b> 1	3	to	05.12.2013
FLUS	SHIN	g med	DIUM				WAT	ER	ORIEN	TATIO	N N	ERTICA	L	GROUN	ID LEVEL			+16.4	<b>44</b> mF	סי
Progress	Casing Size	Water Level (m) Shift Start/ End		TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade		÷	De	escriptio	on		
21 22 23 24 <u>1112013</u> 25 26 27 28 28	PW	5.90 at 1800 12.70 at 0800							T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120	-13.56				From 2 fragme	nt.	21.30r	n: With	ab	oulde	r of concrete
PW 5.70								SHEAR TEST TEST TER TEST LEVIEWER IP	LOGGE DATE CHECK DATE	D	L. 12. F	Zhang . 12.2013 R. Chu . 12.2013	U	REMAR	:KS	z	,			a.

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CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH01

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SHEET 4 of

METHOD MACHINE FLUSHING MEDIUM Start/St	C Return% Return% C Return% C	E     846548.53 N 814126.32     DATE     26.11.20       ORIENTATION     VERTICAL     GROUND LEVEL       Solution     Solution     Solution     Solution       Solution     Solution     Solution       Solu	+16.44 mPD
FLUSHING MEDIUM SSDDOL 2122013 HW 15477 100 31 32 32 33 34 35 35 36 37 37 37 37 37 37 37	WATER	N 814126.32       DATE       26.11.20         ORIENTATION       VERTICAL       GROUND LEVEL         Solution       Diamond       Description         Solution       Diamond       Diamond       Diamond       Description         Solution       Diamond       Diamond       Diamond       Diamond       Diamond         Solution       Diamond       Diamond       Diamond       Diamond       Diamond       Diamond         Solution       Diamond       Diamond </th <th>+16.44 mPD</th>	+16.44 mPD
Separation     Separation     Separation       1222013     HW     15,50 0,800     0       .31     HW     15,50 0,800     0       .32     HW     15,50 0,800     0       .33	C Return% Return% C Return% C	Single with the second seco	ion
Shift       Level (m)       Shift       Shift         1122013       HW       15,50 0,800       0         31       HW       15,50 0,800       0         32       HW       15,50 0,800       0         33       I       I       0         33       I       I       0         34       I       I       0         35       I       I       0         36       I       I       0         37       I       13,20 0,000       0         37       I       13,20 0,000       0		30.00 2-101 	•
.31 0. .32 0. .33 0. .34 0. .35 0. .36 0. .37 13,20 0. .37 13,20 0. .37 13,20 0. .38 0. .39 0. .39 0. .31 0. .31 0. .31 0. .32 0. .33 0. .33 0. .34 0. .35 0. .36 0. .37 1. .13,20 0. .13,20 0. .13,10 0. .13,		As sneet 3 or 5. As sneet 3 or 5. Firm, greyish brown (15YR 5 (ALLUVIUM)	/2), clayey sandy SILT.
.37 13.20 at 1800 512.2013 15.50 at 0800	3,5 5,4,5,6 N=20	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
38 0		$\begin{array}{c c c c c c c c c c c c c c c c c c c $	'1) and yellowish brown y SILT. (ALLUVIUM)
. <sup>39</sup> 0	0 55	2       37.80       -21.36       37.80       -1       1	ey SILT. (ALLUVIUM) vellowish brown (10YR
40 40.00m		4 40.00 + 0.	e ash TUFF. (Angular, RAVEL and COBBLE o
SMALL DISTURBED SAMPLE     LARGE DISTURBED SAMPLE     DT6 SAMPLE     PISTON SAMPLE (76mm)     MAZIER SAMPLE     SPT LINER SAMPLE     WATER SAMPLE	LE STANDARD PENETRATION TEST	LOGGED <u>L. Zhang</u> Y DATE <u>12.12.2013</u> CHECKED <u>R. Chu</u>	

	R	R			-7				DF	RILLH	10	LE	RE	CO	RD HC	DLE NO.	TK	0/5	<b>5Z-</b>	DH01
		The second		1000						CONTRA					2	IEET	5		of	5
PRO	JEC	Stud	nd In y	vestig	gation	1 - Ne	ewie	rritories	East (	l erm Contr	act), A	greem	ient No.	CE21	/2012(WS), Desa	alination P	lant at T	seung	g Kwan	O - Feasibility
MET	HOD	(			RO	TAR	Y			CO-OR		TES <b>46548</b>	.53		WORKS ORE	DER NO.		GE/2	011/25	.45A
MAC	HINE	3			S	SD8					N 8	14126	.32		DATE		26.11.20	013	to	05.12.2013
FLUS	SHIN	g Mei					WAT	ER		ORIEN		N V	ERTIC/		GROUND LE	VEL		+16	<b>6.44</b> mF	PD
Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Taete		Samples	Reduced Level	Depth (m)	Legend	Grade			Descrip	tion		
			80	54	23	0	NI			↑ <sup>40.00</sup> T2-101	-23.84	- - 40.28		IV	As sheet 4 c			2		×
_41	×		80	100	52	0			·	40.48 T2-101		· · · · · · · · · ·		111	planar and r oxide staine 75° and sub	d fine as xtremely closely ough un d, dippin	h TUFF closely and me dulating g at 5 / from 4	to ve dium , iron to 15 0.28	ery clos space and r 5°, 35° m to 4	sely spaced, ed, rough nanganese to 45°, 65° to 0.69m, 41,10r
_42 _43			80	100	63	0	>20	÷		T2-101		-			to 41.31m, 4	11.80m to	o 42.05r	n, 42	2.22m	to 42.36m, 43.59m to 45.07m and
_43			80	100	68	31	7.0			T2-101		43.07								
_44 _			80	100	63	9	>20			43.77		- 43.77			From 43.95r moderately s	m to 44.( strong.	05m: Mc	odera	ately w	eak and
										45.17		Ē								
- )5.12.2013		14.70 at 1300	80		58	0	_			T2-101	-29.26	45.70								
_46 _47 _48								4							End of hole	at 40.70	m.	×		
49																				
-												E			2					

50 T REMARKS SMALL DISTURBED SAMPLE STANDARD PENETRATION TEST L. Zhang 🌱 MAAL DISTURBED SAMPLE
 LARGE DISTURBED SAMPLE
 U76 SAMPLE
 PISTON SAMPLE (76mm)
 MAZIER SAMPLE LOGGED V IN-SITU VANE SHEAR TEST PACKER TEST DATE 12.12.2013 PERMEABILITY TEST PRESSUREMETER TEST R. Chu CHECKED SPT LINER SAMPLE BOREHOLE TELEVIEWER I WATER SAMPLE PIEZOMETER TIP DATE 17.12.2013 U100 SAMPLE STANDPIPE TIP



CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH02

of

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SHEET 1

							_							SHEET TOTS
PRO	JEC	Grou Study	nd Inv V	vesti	gation	n - Ne	ew Te	rritories East (	Term Cont	ract), A	green	nent No.	CE21	I/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
MET	HOD				RO	TAR	Y		CO-OF		TES 46597	10		WORKS ORDER NO. GE/2011/25.45A
MAC	HINE	E			S	SD38					14164			DATE 04.12.2014 to 11.12.2013
FLUS	SHIN	g med	DIUM				WAT	ĒR	ORIEN	ITATIC	DN V	/ERTIC/	AL.	GROUND LEVEL +13.82 mPD
Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
.12.2013	sw								1 = 0.45	+13.82	- 0.00 			Very pale brown (10YR 7/3), slightly sandy SILT with much angular to subangular fine to coarse gravel of rock fragments and with some concrete fragments. (FILL)
5					×				3 1.55	+12.32	- - - <u>1.50</u> -			Reddish yellow (5YR 6/6), slightly clayey silty fine to coarse SAND with much angular to subangular fine to coarse gravel of rock fragments and with some concrete fragments. (FILL) Angular to subangular, grey (5YR 7/2) mottled
2			0						T6-146	+11.60	- 			brown, slightly sandy clayey silty fine to coarse GRAVEL and COBBLE of rock fragments and with some concrete fragments. (FILL)
.3			0						T6-146		-			Angular to subangular, grey (2.5Y 6/1) mottled brown, medium to coarse GRAVEL and COBBLE of rock fragments and with some concrete fragments. (FILL)
4			0	7				т. Т	T6-146	+9.77	- - - - - - - - - - - - - - - - - - -			Angular to subangular, yellowish brown (10YR 5/8)
.5			0	10					T6-146		• • •			mottled grey, slightly clayey silty sandy fine to coarse GRAVEL and COBBLE of rock fragments and with some concrete fragments. (FILL)
_6			0	10		×		*	T6-146	+7 62	- - - - - - -			
.7			0	6					6.20 6 <u>7.00</u> 7.10	+6.72				Reddish yellow (7.5YR 6/6), clayey silty fine to coarse SAND with much angular to subangular fine to coarse gravel of rock fragments and with some concrete fragments. (FILL)
.8			0	22				×	T6-146					Angular to subangular, grey (10YR 6/1) mottled brown, slightly silty sandy fine to coarse GRAVEL and COBBLE of rock fragments and with some concrete, asphalt and refuse fragments. (FILL)
9			0	10			2		T6-146					
~			0	65					T6-146	+4.46	- - - <u>9.36</u> -			Angular to subangular, reddish yellow (7.5YR 7/8), clayey silty sandy fine to coarse GRAVEL and
10			0	18					T6-146		-			COBBLE of rock fragments and with some refuse
SMALL DISTURBED SAMPLE     LARGE DISTURBED SAMPLE     U76 SAMPLE     DISTON SAMPLE     DISTON SAMPLE     MAZIER SAMPLE     SPT LINER SAMPLE     WATER SAMPLE     WATER SAMPLE						N-SITU PACKER PERMEA PRESSU BOREHO	VANE S R TEST ABILITY JREMET	ER TEST LEVIEWER	LOGGE DATE CHECK		16. F	Zhang 12.2001 R. Chu 01 2014	Û	REMARKS 1. An inspection pit was excavated to 1.50m deep by hand tools. 2. Constant head permeability test was carried out at section from 27.80m to 29.30m. 3. Groundwater sample was taken at 45.20m. 4. A piezometer was installed with tip at 35.00m.
WAT		IPLE			Ê F	PIEZOM		IP	DATE		02.	.01.2014	<u>ا</u>	

														×.				
1		R	LT				DF	RILLF					RD	HOLE N	10.	гко/	SZ-	DH02
								CONTRA	CT N	0. <b>ge</b>	5/2011/2	5		SHEET		2	of	5
PRO	JECT	Grou Study	nd Inves	stigat	tion - N	ew Te	rritories East (	Term Contr	act), A	green	nent No.	CE21	/2012(WS)	, Desalinatio	on Plai	nt at Tseur	ng Kwar	n O - Feasibility
METI	HOD			F	ROTAF	RY .		CO-OR		TES 46597	. 18		WORKS	ORDER N	NO.	GE/	2011/2	5.45A
MAC	HINE			с <b>Б</b>	SD3	B				14164			DATE		04	1.12.2014	to	11.12.2013
FLUS	SHIN	g mee	NUM			WAT	ER	ORIEN	TATIO	ON N	/ERTIC/		GROUN	ID LEVEL		+1	13.82 m	IPD
Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	%YD1	SCK% RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade			D	escription	I	
_11 _12 _12 _13 _14 _15 _16 _17 18 19	sw 13.78m PW	4.70 at 1800 9.50 at 0800						T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T6-146 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120 T2-120	3				Angula brown, and CC	nts. (FILL) r to suban BBLE of r BBLE of r te, brick ar	gular, ty sar rock f	grey (10 ndy fine to ragments use fragr	PYR 6/1 o coars s and w ments.	I) mottled ie GRAVEL ith some (FILL)
LAR U76 PIST MAZ SPT	GE DIS SAMPL FON SAI LIR SAI	MPLE (76m MPLE SAMPLE MPLE	AMPLE 1m)	8L	V IN-SIT PACK PERM PRES BORE PIEZO	U VANE ER TEST EABILIT SUREME	Y TEST ETER TEST ELEVIEWER TIP	LOGGE DATE CHECK DATE		16	. Zhang . 12.200 R. Chu 2.01.201	1 U	REMAR	RKS				

(								DI	RILLH	10	LE	RE	co	RD	HOLE NO	D. <b>1</b>	ſKO	/ <b>S</b> 2	Z-[	DH02	
		R							CONTRA	CT N	0. <b>ge</b>	/2011/2	5		SHEET	-	3	c	of	5	
PRO	JEC	Grou Stud	nd In V	vestig	atio	n - Ne	ew Te	erritories East (	Term Contr	act), A	Agreen	nent No.	CE21	/2012(WS)	, Desalinatior	n Plan	t at Tseı	ung K	wan (	O - Feasibility	/
MET	HOD				RO	TÁR	Y		CO-OR			40		WORKS	ORDER NO	Э.	GE	E/201 <sup>·</sup>	1/25.4	45A	
MAC	HINE	Ξ			5	SD38					46597 14164			DATE		04.	12.2014	4 t	0	11.12.2013	
FLUS	SHIN	g mei	NUI				WAT	TER	ORIEN	TATIO	N NC	ERTIC/	AL.	GROUN	D LEVEL		4	+13.8	<b>2</b> mP	D	
Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade			De	scriptio	'n			
□ 1. 6.122013 6.122013 7.122013 - 221 - 222 - 223 - 224 - 224 - 224 - 225 - 226 6.122013 7.122013 7.122013 - 228 - 228 - 228 - 229 7.122013 - 229 7.122013 - 229 7.122013 - 229 7.122013 - 229 7.122013 - 220 - 200 - - - - - - - - - - - - -	PW 29.30m HW	End 5.80 at 12.10 5.80 at 12.10 5.80 at 14.20 0800 14.00 14.00 0800 14.00 14.00 0800 14.00					20.0	T V 1.2 2.4.6.7 №19 V	O       T2-120       T2-120       21.20       21.20       21.20       T2-120       21.20       T2-120       21.20       T2-120       22.78       T2-120       22.810       12       22.800       13       22.900       12       22.800       13       22.900       14       22.900       12       22.900       13       22.900       13       22.900       13       22.900       13       22.900       22.900       22.900       22.900       22.900       22.900       22.900       22.900       22.900    <		24.20 			Firm, gr with sor gravel c Angular yellowis COBBL Extreme grey an TUFF. ( Weak to decomp sandy fi tuff frag Modera modera	tely strong, tely decom	ular, s ne to agme ale ol omple slightl	bangul s. (FILL grey (1) coarse ents. (F ive (5Y tely de y sand y sand ak, oliv UFF. (/ XAVEL grey s	er fir OYR GRA GRA GRA GRA GRA GRA GRA GR	5/1) Spor pose T) ey (5 lar, s ghly d yel	medium mottled L and tted light d fine ash Y 5/2), high slightly sithy decompose	
30			0	100						-16.18	- 30.00			(CORE	tely decom STONE)	pose	u tine a	asn I	UFF	•3	_
SMAL LARG U76 S PISTO	PLE (76m) IPLE AMPLE PLE	MPLE			ACKER ERMEA RESSU	VANE S TEST BILITY REMET	er test Leviewer IP	LOGGE DATE CHECK DATE	D	16. F	Zhang 12.2001 2. Chu 4 01.2014		REMAR	KS		n					



CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH02

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SHEET 4 of

PRO IEC.	+ Grour	nd Inv	/estia	ation	- Ne	w Ter	ritories East (	Term Contr	act), A	areem	nent No.	CE21	/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
METHOD					TAR			CO-OR					WORKS ORDER NO. <b>GE/2011/25.45A</b>
MACHINE	-			te statis :	D38				E 8	46597 14164			DATE 04.12.2014 to 11.12.2013
FLUSHIN	IG MED	IUM				WAT	ER	ORIEN	TATIO	DN V	ERTIC/	۲L	GROUND LEVEL +13.82 mPD
Drilling Progress Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
.31 .32 .33		0	395	83	72	_NI 2.7 15.2	3,5 7,10,20,44 N=61	15 15 30.15 30.25 T2-101 16 31.80 17 32.80 18 32.80 19 33.30		- <u>30.25</u> - <u>30.35</u> 	المتعادلين ا المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين ا المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين المتعادلين		Extremely weak, light olive grey (5Y 6/2) mottled yellow, completely decomposed fine ash TUFF. (Very stiff, slightly clayey sandy SILT) Strong, dark grey, slightly decomposed fine ash vitric TUFF. (CORESTONE) From 30.25m to 30.35m: Moderately weak to moderately strong and moderately decomposed. From 31.47m to 31.80m: Moderately strong and moderately decomposed. Extremely weak, light yellowish brown (10YR 6/4) spotted white, completely decomposed fine ash TUFF. (Very stiff, clayey sandy SILT)
.34 9.12.2013 9.12.2013 .35	10.50 at 1800 14.35 at 0800	0		0	0	NI NR NI 15.6		33.62 T2-101 20 34.10 21 34.60 34.70 T2-101	<u>-20.28</u> -21.10	- 33.62 - 33.97 - 34.10 - 34.70 - 34.92 - 34.92 		IV IV IV III	Moderately weak to moderately strong, greyish brown (10YR 5/2), highly decomposed fine ash TUFF. (Angular, medium to coarse GRAVEL and COBBLE of highly decomposed tuff fragments) From 33.97m to 34.10m: No recovery, assumed to be completely decomposed TUFF. Moderately strong, grey spotted white, moderately decomposed fine ash TUFF. (CORESTONE) From 35.56m to 35.90m, 36.75m to 36.88m and 37.62m to 37.83m: No recovery, assumed to be
36		0		80 59	61 53	0.6 2.1 NR 7.1 >20 NR		→ 35.90 T2-101 → 36.88 T2-101 ↓	-22.93	36.88		           	completely decomposed TUFF. From 36.28m to 36.75m and 36.88m to 37.44m: Strong and slightly decomposed. From 37.44m to 37.62m: Moderately weak to moderately strong.
_38 HW 38.66r _39 0.12.2013	m 10.40 at		100	53 58	28 19	8.3 >20 13.8		T2-101 ↓ 38.66 T2-101 ↓ 39.74	-24.28	- 38.10 38.19 - - -		     	Strong, dark grey spotted white, slightly decomposed fine ash TUFF. Joints are very closely to closely spaced, occasionally medium spaced, rough planar and rough undulating, iron and manganese oxide stained, dipping at 0° to 10°, 15° to 25°, 45° to 55°, 60° to 70° and subvertically from 38.06m to 38.26m, 38.18m to 38.45m and 39.45m to 39.67m. From 38.10m to 38.90m and 40.32m to 40.45m: Moderately weak to moderately strong.
1.12.2013 40 Constant of the second	STURBED SA LE AMPLE (76m) AMPLE SAMPLE AMPLE	MPLE			N-SITU PACKEP PERME PRESSI BOREH PIEZON	VANE S R TEST ABILITY UREMET	TER TEST LEVIEWER IP	LOGGE DATE CHECK DATE		16. F	Zhang 12.2001 R. Chu .01.2014	Ü	REMARKS

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CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH02

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SHEET 5

PRO	JECT	Grou	nd In	vestig	atior	n - Ne	w Te	rritories East (	Term Contr	ract), A	green	nent No.	CE21	/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
MET						TAR			CO-OR	DINA	TES			WORKS ORDER NO. <b>GE/2011/25.45A</b>
MAC	HINE	Ξ			S	SD38			1		46597 14164			DATE 04.12.2014 to 11.12.2013
FLUS	SHIN	g med	NUM				WAT	ER	ORIEN	TATIC	DN V	ERTIC/	AL.	GROUND LEVEL +13.82 mPD
Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
		0800	0	96	62	56	3.4 >20		T2-101	-26.50	40.32		11	From 40.45m to 40.77m: Moderately strong and moderately decomposed. From 43.25m to 43.36m: No recovery, assumed to be completely decomposed TUFF.
41 42	0         100         92         5.8           100         92         12.5           100         93         93         93           0         93         93         6.7								40.77		- <u>41.63</u> - <u>41.87</u>		11	be completely decomposed TUFF.
43			0	283	93	93			42.26 T2-101	<u>-29.43</u> -29.54	- 42.95 - 43.25 - 43.36 - 43.81		 	
44 45 .12.2013		12.00 at 1800	0	100	100	71	8.9 3.6 10.7 2.6		43.81	-31.38	44.26			· ·
46														End of hole at 45.20 m.
47														,
48											-			
49														
LARG	ge dist Sample On San Ier San Liner S	MPLE (76m MPLE SAMPLE MPLE	MPLE			N-SITU PACKER PERME/ PRESSU BOREHO PIEZOM	VANE S R TEST ABILITY JREMET	ER TEST LEVIEWER IP	LOGGE DATE CHECK DATE		16. F	Zhang 12.2001 8. Chu 01.2014	U	REMARKS



CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH03

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SHEET 1 of

PROJECT Ground Invest Study	igation - New Territories East (	Term Contract), Agreement No. CE21	/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
METHOD	ROTARY	CO-ORDINATES E <b>846668.22</b>	WORKS ORDER NO. GE/2011/25.45A
MACHINE	SD37	N 814198.72	DATE 26.11.2013 to 28.11.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.38 mPD
Drilling Progress Casing Size Invary Mater Return% TCR%	SCR% RQD% Fracture Index Tests	Samples Reduced Level Depth (m) Legend Grade	Description
6.11.2013 SW			Yellowish red (5YR 5/6), sandy very clayey SILT with some subangular fine gravel of quartz and rock fragments. (FILL) Light yellowish brown (10R 6/4), clayey silty fine to
.1			coarse SAND with some subangular fine to coarse gravel of quartz and rock fragments. (FILL)
0 22		3 → 1.65 T2-120 → 2.00 T2-120 T2-120	Angular to subangular, light grey (10YR 7/1) and brownish yellow (10YR 6/6), slightly sandy COBBLE and some fine to coarse gravel of rock fragments and with some concrete fragments. (FILL)
3		T2-120 T2-120 T2-120 T2-120	
.4		3.50         -           T2-120         -           ★ 4.00         -           T2-120         -	
2.10 0 26 <u>5512013</u> 1200 2.11.2013 <u>3.10</u> <u>1200</u> 80 44	-	4.50 T2-120 T2-120 T2-120 T2-120	
.6 80 117		T2-120	Angular to subangular, light brownish grey (10YR 6/2), slightly sandy fine to coarse GRAVEL and COBBLE of rock fragments. (FILL)
.7 PW 80 40		T2-120	
8 80 81		T2-120	
9 80 4		× 8.95 T2-120 ↓ 4.62 10.00	
SMALL DISTURBED SAMPLE     LARGE DISTURBED SAMPLE     U76 SAMPLE     PISTON SAMPLE (76mm)     MAZIER SAMPLE     SPT LINER SAMPLE     WATER SAMPLE     WATER SAMPLE	STANDARD PENETRATION TEST  IN-SITU VANE SHEAR TEST  PACKER TEST  PERMEABILITY TEST  PRESSUREMETER TEST  BOREHOLE TELEVIEWER  PIEZOMETER TIP	LOGGED <u>L. Zhang</u> DATE <u>09.12.2013</u> CHECKED <u>R. Chu</u> DATE <u>16.12.2013</u>	REMARKS 1. An inspection pit was excavated to 1.50m deep by hand tools. 2. A groundwater sample was taken at 18.15m. 3. A piezometer was installed with tip at 12.00m.



HOLE NO. TKO/SZ-DH03

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PRO	JEC	Grou	nd In	vestig	atior	n - Ne	ew Te	rritories Ea	st (Term Cont	ract), A	lgreen	nent No.	CE21	/2012(WS)	, Desalination	Plant at	Tseun	g Kwar	ı O -	Feasibilit	y
MET	HOD					TAR			CO-OF	RDINA	TES				ORDER NO			2011/2			
MAC	HINE	Ξ			S	SD37					46668 14198			DATE	,	26.11.	2013	to	28	.11.2013	ł
FLU	SHIN	g mei	DIUM	3		-	WAT	ER	ORIEN	ΙΤΑΤΙΟ	N NC	/ERTIC/	AL.	GROUN	ID LEVEL		+5	5.38 ml	PD		
Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade			Descr	iption			÷	
-	PW 10.60m		80	10					T2-120	-5.22	- - - - 10.60				et 1 of 2.	5					
	нw		80	85	0	0			T2-120		Ē		111	Modera decom	tely strong, bosed fine a	yellowis sh TUF	sh bro F. (Co	wn, m ORES	iode TON	rately IE)	
			80	92	0	0	>20 NI		T2-120	-6.27		a. 6 < < <	IV	From 1 and hig and CC	1.65m to 12 hly decompo BBLE of hig	.11m: V osed. (/ ghly dec	Veak Angul compo	to moo ar, co sed tu	dera arse uff fr	tely wea GRAV agment	ak EL s)
			80	22	61	0	>20 10.0		T2-120	-0.73	12.11 - - - 12.49 		111	Joints a occasio	grey, slightl are very clos onally mediu	ely to c m spac	losely ed, ro	space	ed, lana	r and	
13	HW 13.10m		80	100	21	21			T2-120	Your				stained	indulating, ir , calcite coa 75° and subv	on and ted, dip verticall	mang ping a v from	anese at 5° to 12.1	e oxi o 15 1m t	de °, 45° tc o 12.35	) 55° m,
27.11.2013 28.11.2013	13.10m 2.78 1800 1800 24 0								T2-101	-8.30	- - - <u>13.68</u>		11	13.79m 15.56m 16.11m	a to 12.89m, a, 14.91m to a to 15.68m, a, 16.50m to	15.06m 15.80m 16.77m	n, 15.1 n to 15 n and	7m to 5.98m, 17.69	15. 15. 15. m to	43m, 98m to 17.88m	1.
14		0800	80	100	86	57	8.2 >20		T2-101	-9.15	- - - - - - - - - - - - - - - - - - -		-111		2.11m to 13 ately strong a						
15			80	100	74	60	9.7		T2-101	-10.02	- - - - - 15.40		-11								
16			80	100	60	16	>20		T2-101		<u>- 15.78</u> - - <u>16.18</u> - -					3					
17					04		3.8		T2-101		- <u>16.81</u> - - -										
	3	3.10 at 1300	80		91	77	13.8 0.0			-12.77	<u>17.61</u> <u>17.92</u> <u>18.15</u>							v			
-														End of	hole at 18.1	5 m.					
19 											-					æ					
20											F			REMAR	PKS						
LAR U76 PIST	GE DIST SAMPLE TON SAM	MPLE (76m	AMPLE		V I I F I F	N-SITU PACKER PERME PRESSI	VANE S R TEST ABILITY JREMET	NETRATION TES SHEAR TEST TEST TER TEST LEVIEWER	ILOGGI DATE CHECI		09.	Zhang .12.2013 R. Chu	3								
WAT	LINER SAN TER SAN D SAMPI	<b>NPLE</b>			Å F	PIEZON	IETER T	ΊP				.12.2013							5		

																	71/6			
	D	Ri	Ľ	T	<b>E(</b>		$\mathbf{H}$	D							RD					DH04
										0				0504	100404140	SHEET	1		of	4
		Study		vestig				ritories Eas					ient No.	GEZT						O - Feasibility
MET						TAR		· · · · · · · · · · · · · · · · ·	_	CO-OF	E 8	46562				ORDER NO.				5.45A
MAC					S	SD38			_			14048			DATE		26.11.20		to	30.11.2013
FLUS	SHIN	G MED Water	MUIG				WAT	ER	+	ORIEN		N N	/ERTIC/	аL.	GROUN	DLEVEL		+15.:	28 m	PD
Drilling Progress	Casing Size	Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests		Samples	Reduced Level	Depth (m)	Legend	Grade	э.		Descript	ion		ас 2
26.11.2013	SW							e i			+15.28				to coars	to subangui reddish yello se GRAVEL nd refuse frag	ow, slight of rock fra	ly cla agme	yey :	(10YR 5/2) silty sandy fine and with some
2			0	0					<u>3</u> Te	1:55 6-146 2.20	+13.78	<u>-</u> - - - - - - - - - - - - - - - - -			brown, and CC	r to subangu slightly silty s BBLE of roo e and refuse	sandy fine	e to c nts a	oars	rith some
_3			0	33					4 5 6	3.20 3.30 4.20 4.20					a.					
- - - - - - - - - - - - - - - - - - -		2.70 at	0	45					T( 7	6-146 5.15 5.70										Ϋ́
2011.2013 27.11.2013 		1800 4,55 at 0800	0						-	5.80 6-146 6.36 6-146 7.20	+8.92	- - - - - - - - - - - - - - - - - - -			brown.	r to subangu clayey silty s )BBLE of roc	andy fine	e to c	oars	R 6/1) mottled e GRAVEL -)
- - - - - - - - - - -			0						÷	6-146 8.00 8.50 8.60	+7.52	- 7.76								pale brown,
-9			0	And the second s			-		-	6-146 9.00					brown, and BC	r to subangu slightly claye DULDER of r te, mortar an	ey silty sa ock fragn	ndy g nents	grave	R 7/1) mottled ally COBBLE with some s. (FILL)
LAR U76 PIST MAZ SPT	GE DIST SAMPLI TON SAM TIER SAM	MPLE (76m MPLE SAMPLE MPLE	AMPLE	<u>v///</u>		IN-SITU PACKEI PERME PRESSI BOREH PIEZON	I VANE S R TEST ABILITY UREME	TER TEST LEVIEWER TP		LOGGE DATE CHECH DATE		09	. Zhang .12.201: R. Chu .12.201:	3 U	REMAR 1. An ins 2. A grou 3. A piez		excavated to was taken alled with ti	o 1.50 at 34. p at 25	m dee 11m. 5.70m	ep by hand tools.

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	D	R	iLTI		CI	Ð	DF						RD	HOLEN	10.	TKO/	SZ-	DH04
				100										SHEET		2	of	4
PRO	JEC	Grou Stud	nd Investig Y	gatio	n - Ne	ew Territo	ries East (	Term Contr	act), A	Agreen	nent No.	CE21	/2012(WS)	, Desalinati	on Pl	lant at Tseur	ig Kwar	o O - Feasibility
MET	HOD	2		RO	TAR	Y		CO-OR		TES 46562	.83		WORKS	ORDER I	NO.	GE/	2011/25	5.45A
MAC	HINE	Ξ		Ş	SD38	6				14048			DATE			26.11.2013	to	30.11.2013
FLUS	SHIN	g mei	NUIC		-	WATER		ORIEN	TATIO	ол <b>л</b>	/ERTIC/		GROUN	D LEVEL		+1	<b>5.28</b> m	PD
Drilling Progress	Casing Size	Water Level (m) Shift Start/ End		%AOS	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade				Description	1	
11	×							10.10 10.20 10.30 10.46	<u>+5 18</u> +4.98	10 10. - 10.30 			Stiff, gro sandy s Angular brown, and BO	to suban slightly cla ULDER c	. (FI igula ayey of roo	r, light grey silty sand	/ (10Yl / grave ts and	R 7/1) mottled elly COBBLE with some
13			0 82					T6-146 										
- 	SW	4.00 at 1800 5.65 at 0800	· 0 88 0 70 0 88			1		T6-146 T6-146 T6-146 T6-146 T6-146 T6-146	152						ž.			
17 	16.90m PW		0 0 0 80 0 84	51	-			16.90 12 17.10 17.20 12-120 17.84 12-120 18.48 12-120 18.48	-1.62	<u>16,90</u>			Angula red and coarse with so (FILL)	r to subar I brown, s GRAVEL me concre	ngula light and ete, l	ar, light gre ly clayey s COBBLE brick and s	y (10Y lty san rock fr teel fra	R 7/1) mottled dy fine to agments and agments.
-								13 19,60	-4.32	- <u>19.60</u>			Mediun	n dense, l	ight	yellowish b	rown (	2.5Y 6/3),
LARC	ge dist Sample 'On Sam Ier Sam	NPLE (76m NPLE SAMPLE NPLE	AMPLE		IN-SITU PACKEI PERME PRESSI BOREH PIEZON	ARD PENETRA I VANE SHEAR R TEST ABILITY TEST UREMETER TE OLE TELEVIEW METER TIP PIPE TIP	R TEST	LOGGE DATE CHECK DATE		09 	Zhang 12.2013 R. Chu 12.2013		REMAR	the second se		árse SANE	<u>, (ΓΙΓΙ</u>	-/

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CONTRACT NO. GE/2011/25

HOLE NO. TKO/SZ-DH04

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PRO	JECT	Grou Study	nd Inv /	/estig	ation	- Ne	w Te	rritories	East (	Ferm Contra	act), A	greem	ent No.	CE21	/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility
MET	HOD				RO	TAR	(			CO-OR		TES 16562	02		WORKS ORDER NO. GE/2011/25.45A
MAC	HINE				S	D38						14048			DATE 26.11.2013 to 30.11.2013
FLUS	SHING	G MED	NUM			3	WAT	ER		ORIEN	TATIC	N V	ERTICA	L	GROUND LEVEL +15.28 mPD
Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture	Tests		Samples	Reduced Level	Depth (m)	Legend	Grade	Description
- 28.11.2013 29.11.2013		5.30 at 1800 8.70	0							14 20.30	-5.12	- - 20.40			As sheet 2 of 4.
21		8.70 at 0800	0	14			÷			T2-120 T2-120 T2-120					Angular to subangular, light grey (10YR 7/1) mottled red and brown, slightly clayey silty sandy fine to coarse GRAVEL and COBBLE rock fragments and with some concrete, brick and steel fragments. (FILL)
									1	15 22.80	-7.52	22.80			
23	0 54							÷							Angular to subangular, greenish grey (10G 6/1) mottled white, clayey silty sandy fine to coarse GRAVEL and COBBLE of rock fragments and with some coral fragments. (FILL)
24	0 394								16 23.80 17 23.90 18 24.40 24.50	-9.22			2		
25	a.	17	0	300					,	T2-120					Angular to subangular, light grey (10YR 7/1) and yellowish brown (10YR 5/6), slightly clayey silty sandy fine to coarse GRAVEL and COBBLE rock fragments. (FILL)
 			0	100	24	0	>20 NI	-		T2-120		- 25.45 25.62 25.88		III , IV	Dense, light olive brown (2.5Y 5/3), clayey silty fine to coarse SAND with some angular fine to coarse gravel and occasional cobble of rock fragments. (FILL)
-	PW 26.52m		0	100	90	90	╞──	1		T2-120 	-11.00	<u>26.28</u>		11	Weak to moderately weak, light grey (2.5Y 7/1), highly decomposed fine ash TUFF. (Angular, slightly
27 29.11.2013	HW	8.00 at 1800 14.50	0	100	100	100	1.2			T2-120					clayey silty sandy fine to coarse GRAVEL and some cobble of highly decomposed tuff fragments) From 25.62m to 25.88m: Moderately strong to strong
-		14.50 at 0800	0	100	100	100				T2-120		- - - - - - - -			and moderately decomposed. (CORESTONE) Very strong, grey spotted white, slightly decomposed fine ash TUFF.
28 	HW 28.71m		0	100	100	100						أيدياء			Joints are medium to widely spaced, occasionally closely spaced, rough planar and rough undulating, iron and manganese oxide stained, calcite and chlorite coated, dipping at 5° to 15°, 25° to 35°, 65° to 75° and subvectionly for 20 047 to 20 427 and 20 707
29		×	0	100	100	94	3.0			-28.71 T2-101					75° and subvertically from 29.04m to 29.13m, 29.70m to 29.82m and 31.53m to 32.07m.
20 10 10 10 10 10 10 10 10 10 10 10 10 10	AALL DISTURBED SAMPLE J STANDARD PENETRATIC										-14.72	30.00	71	~	REMARKS
U76 PIST	SMALL DISTURBED SAMPLE LARGE DISTURBED SAMPLE U76 SAMPLE VIN-STIU VANE SHEAR TES PISTON SAMPLE PERMEABILITY TEST MAZIER SAMPLE IPRESSUREMETER TEST SPT LINER SAMPLE IBOREHOLE TELEVIEWER									LOGGE DATE CHECK		09.	Zhang 12.2013 R. Chu		
	ER SAN D'SAMPL				-					DATE		17.	12.2013	<u> </u>	

	D	R		T	Ξ(	CI	F						<b>RE</b>		RD	HOLE NO	ΤΚΟ	SZ	-DH04
		a tangé mini di	and the second													SHEET	4	of	4
PRO	JEC	Grou Study	nd In /	vesti	gatio	n - Ne	w Terr	itories Eas	t (Tern	n Contr	act), A	Agreen	nent No.	CE21	/2012(WS)	, Desalination	Plant at Tseu	ng Kwa	n O - Feasibility
MET	HOD	*			RO	TAR	Y			CO-OR		TES 46562	.83		WORKS	ORDER NO	). GE	2011/2	25.45A
MAC	HINE	Ξ			5	SD38						14048			DATE		26.11.2013	to	30.11.2013
FLUS	SHIN	g med	NUM				WATE	R	(	ORIEN	TATIO	N N	/ERTIC/	AL	GROUN	D LEVEL	+	15.28 r	nPD
Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests		Samples	Reduced Level	Depth (m)	Legend	Grade			Descriptior	1	
31			0	100	99	88	8.8		, ,	29.97 101 31.46		30.61		11	As shee	et 3 of 4.			
32			0	100	73	73	14.3 7.2		T2-'	101		<u>31.72</u> - - - - - - - - - - - - - - - - - - -					r		
34 <u>11.2013</u>		10.60 at 1800	0	100	98	68	2.0		T2-	101 7	-18.83	- <u>33.46</u> - <u>33.97</u> - <u>34.11</u>			Fred of	hole at 34.1			
35						,										1016 at 34.1	1 116		
36 37											×.	يتايين بيايي							-
38				5				r N				بيابيداييرياي				а 2			
.39 40								-						2	DEMAS	N/S			
LARG U76 S PISTO MAZI SPT I	BE DIST SAMPLE ON SAN	APLE (76m APLE SAMPLE APLE	MPLE	T.		N-SITU PACKEF PERME PRESSU BOREH PIEZOM	VANE SH	R TEST VIEWER		OGGE DATE CHECK		09 F	Zhang 12.2013 R. Chu 12.2013		REMAR		i		

		R	17		-(		2		DF					REG		RD	HOI	E NO.	T	(0/	SZ-	DH05
						-								5/2011/2			SHE			1	of	3
PRO	JEC	Grou Study	nd Inve /	estiga	ation	- Ne	ew Tei	ritories Ea	ast (1	Ferm C	ontra	ict), A	green	nent No.	CE21	/2012(WS)	, Desal	ination	Plant a	t Tseun	g Kwan	n O - Feasibility
MET	HOD				RO	TAR	Y	•		co	-ORE		TES 46689	).54		WORKS	ORD	ER NO		GE/2	2011/25	5.45A
MAC	HINE	E			S	D37							14155			DATE			03.12	2.2013	to	05.12.2013
FLUS	SHIN	G MED		_			WAT	ER		OR	IENT		ол <b>1</b> Т	/ERTIC/	¥L.	GROUN	ID LEV	ΈL		+	5.27 ml	PD
Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests		Samples		Reduced Level	Depth (m)	Legend	Grade				Desc	ription		
.12.2013	SW											+5.27	- 0.00 -			clavey s	silty sa	andy fi	ne to c	oarse	GRA\	R 7/1), slightly /EL and
.1										Hreecond RT	0.95	+4.77	- 0.50 		Ń.	Subance Subance sandy f with occ	ular, g ine to	greyish coarse	brow	n (10Y VEL o	'R 5/2) f rock	, clayey silty fragments an
.2	0 75									T6-146	1.50		-			brown.	slightl EL and	y claye	ey silty BLE o	sandy f rock	/ fine to	R 7/1) mottled o coarse ents and with FILL)
4			0	100						T6-146	4.00											
5			0	45		÷		6		T6-146	- 5.00 ; - 6.00											
7 <u>2.2013</u> 12.2013	SW 7.00m PW	4.50 at 1800 4.10 at 0800	0	0	-					T6-146	- 7.00	-0.93	- 6.20 			Angula brown, COBBI	slight	v sanc	ly fine	to coa	rse G	R 7/1) mottle RAVEL and
8 .9			0							T2-120	- 9.00		والمتعد المتعد الم									
10												-4.73	- 10.00									
LAR U76 PIST MAZ SPT	ge dis Sampl Ton Sa Lier Sa	MPLE (76n MPLE SAMPLE MPLE	AMPLE			N-SITU PACKE PERME PRESS BOREF PIEZO	UVANE S R TEST ABILITY UREME	TER TEST LEVIEWER TIP	EST	DA	ECKE		09	Zhang ).12.201: R. Chu 7.12.201:	3 U	REMAF 1. An ins 2. A grou 3. A piez		pit was r sample was insi	excavat e was ta talled w	ed to 1. ken at 2 ith tip at	50m dee 21.57m. 14.80m	ep by hand tools. I.

		R		-					D	RILLH	10	LE	RE	CO	RD	HOLE NO	Э. <b>Т</b>	<b>[KO</b> /\$	SZ-I	DH05	
										CONTRA						SHEET		2	of	3	
PRO	JEC	Grou Stud	nd Inv Y	estig	atior	n - Ne	ew Te	rritorie	es East (	1			nent No.	CE21						O - Feasibili	ty
MET						TAR				CO-OR	Εŧ	346689				S ORDER N			011/25		
MAC	67				5	SD37						314155			DATE		03.	.12.2013	to	05.12.2013	3
FLUS	SHIN						WA1	TER		ORIEN	r	ON N	/ERTIC/		GROUN	ID LEVEL		+5	5 <b>.27</b> mP	D	
Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index		Tests	Samples	Reduced Level	Depth (m)	Legend	Grade		u.	De	escription			
□ □ □ □ □ □ □ □	PW 15.30m HW 16.17m	3,50 at 1800 420 at 0800	0 0 70 70 70		18 100 97	14	>20			O3         T2-120         T2-101         T2-101         T2-101	-9.23				Extrem (10YR fine ask with sol Strong decom Joints a very clo rough u stained and sul 17.80m	me angula to very stro posed fine are closely sely and v indulating, dipping a povertically f a, 17.89m to	ong, g ash T to me videly iron a t 5° to from 1	gravel of Trey spott UFF. adium spaced, spaced, and mang 5 15°, 45° 15.35m to	ed whi aced, o rough anese to 55° 0 16.23		y j° n to
LAR	ge dist Sampli On Sam Ier Sam Liner S	NPLE (76m NPLE SAMPLE NPLE	AMPLE			N-SITU PACKEP PERME PRESSI BOREH PIEZON	VANE & R TEST ABILITY JREME	TER TEST LEVIEWE FIP	est	LOGGE DATE CHECK DATE		<u>09</u>	. Zhang .12.2013 R. Chu .12.2013	3 U	REMAR	RKS					

1		Ri		TI	=/		C		DR	RILLF	10	LE	RE	CO	RD	HOLE NO.	тко	SZ-	<b>DH05</b>
										CONTRA	CT N	0. <b>ge</b>	5/2011/2	5		SHEET	3	of	3
PRO	JECT	- Grou Study	nd In	vestig	gatior	ı - Ne	w Tei	ritories Ea	st (T	erm Contr	act), A	green	nent No.	CE21	/2012(WS)	, Desalination	Plant at Tseu	ng Kwa	n O - Feasibility
METH	HOD				RO	TAR	Y			CO-OR		TES 46689	54		WORKS	ORDER NO	. GE	2011/2	5.45A
MAC	HINE	1			S	SD37						40003			. DATE		03.12.2013	to	05.12.2013
LUS	SHIN	g med	DIUM	I			WAT	ER		ORIEN	TATIO	N NC	/ERTIC/	¥L.	GROUN	ID LEVEL	•	<b>5.27</b> m	PD
Progress	Casing Size	Water Level (m) Shift Start/ End		%	%	%0	Fracture Index	S		Samples	Reduced Level	Depth (m)	Legend	de			Descriptior	1	
Proç	Casil	Start/ End	Wat	TCR%	SCR%	RQD%	Frac	Tests		San	Red		Leg	Grade					
										T2-101		_ 20.12  		11	As she	et 2 of 3.			
1 2.2013		5.10 at 1800	70	380	100	100	1.4			T2-101	-16.30								
2															End of	hole at 21.5	7 m.		
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SMA		TURBED S				STAND	ARD PE	NETRATION TE	ST			<u> </u>		5	REMA	RKS			
U76	SAMPL	TURBED S E			Ĩ	PACKE	R TEST	SHEAR TEST			ED		Zhang						
PIST	IER SA	MPLE (76r MPLE	nm)		Î	PRESS		TER TEST		DATE	ED	-	9.12.201 R. Chu	11					
WAT	LINER TER SAI				Ě.	PIEZO	HOLE TE METER " PIPE TI			DATE			7.12.201						



HOLE NO. TKO/FB-DH02

CONTRACT NO. : GE/2013/21

SHEET 1 OF 2

PROJECT

Ground Investigation - New Territories East (Term Contract) Agreement No. CE21/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility Study (Natural Terrain)

**CO-ORDINATES** W. O. NO. GE/2013/21.45B METHOD Rotary E 846581.83 N 814575.61 MACHINE & NO. VBM53 DATE : 02/03/2015 07/03/2015 to FLUSHING MEDIUM Water ORIENTATION Vertical **GROUND LEVEL** + 5.40 mPD Wate \$ **Drilling** Progress Reduced ~ ling Si:S Leve (m) (m) Legend Level Grade TCR' SCR: RQD Returns ŝ Ē Tests Samples Description (m) Casi Shift , e start / end No. Type Depth +5.40 0.00 PW Brown (7.5YR 5/4), silty fine to coarse SAND with some angular to subangular fine gravel of highly decomposed and moderately decomposed rock fragments and occasional brick fragments. 0.50 é . В (FILL) 0.65 +4.75 0.65 Grey (N 5), dappled light grey, angular COBBLE sized slightly decomposed Tuff with occasional angular to subangular fine to 0 T210 coarse gravel of moderately decomposed rock fragments. PW 1.30 HW (FILL) 1.30 0 T2IO 1.80 0 T2IO 2.30 +3.10 2.30 1.24n Grey (N 5), dappled light brown, angular COBBLE sized slightly 0 0 2.50 2.60 decomposed Tuff with some silty / clayey fine to coarse sand. +2.80 2.60 02/03/2015 18:00 2.07m (FILL) Grey (N 5), dappled light grey and dark grey, angular to subangular COBBLE sized slightly decomposed Granite and 50 T2IOI at 08:00 3.00 Tuff with occasional angular to subangular medium to coarse 50 TZIOI gravel of moderately decomposed and slightly decomposed 3.46 rock fragments. (FILL) T2101 50 100 3.65 50 100 T2101 4.01 HW 4.22 1.22 50 108 T2101 73 Strong, grey, dappled dark grey, spotted light grey, slightly 73 4.33 decomposed fine ash vitric TUFF. Ċ 50 108 100 91 T2101 Joints are closely to medium spaced, locally very closely 4.68 spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, occasional clean, dipping 0° to 10°, 10° to 20°, 50° to 60° and 60° to 70°. 1.50n 50 88 88 88 T2)01 18:00 3 20m 5.2 5.00 03/03/2015 at 08:00 50 92 83 T2101 10 5.82 16.0 50 28 ⁄95 0 T2101 -0.82 From 6.22m to 6.65m : Moderately strong, moderately  $\sim$ 6.46 V decomposed TUFF. 19.0 v 1.25 6 65 2.30n 50 х'n 70 33 T2101 \, 7.06 18:00 04/03/2015 ۰, 8.0 08.00 30 T2101 88 77 7.83 5.4 From 7.80m to 8.08m : Subvertical joint. T2IOI 30 100 100 76 20.0 8.21 30 100 100 78 T2jOI 8.53 5.7 30 100 100 100 T210 8.94 2.43n 30 /100 72 33 T2IOI 13.0 18:00 9.33 05/03/2015 30 89 66 T210 at 08:00 9.1 -4.30 9.70 From 9.70m to 9.85m : Moderately strong, moderately 9.77 111 >20 decomposed TUFF -4.45 9.85 ÷ Ŷ T2101 || Strong to very strong, grey, dappled dark grey, spotted light 10 Standard penetration test REMARKS Disturbed sample T. C. Yip In-situ vane shear test LOGGED 1. An inspection pit was excavated to 0.65m Piston sample An acoustic televiewer survey was carried out from 4.22m to 14.28m.
 A piezometer was installed at 3.80m. Permeability test 8 Split spoon sample Pressuremeter test Packer Test Acoustic or optical televiewer survey DATE Piezometer buckets were installed in piezometer from 0.50m to 3.50m depth at 0.50m intervals. 11/03/2015 U76 undisturbed sample U100 undisturbed sample Piezometer tip 0 Mazier sample CHECKED Y. M. Leung Ê Standpipe SPT liner sample Groundwater Sampling Well Water sample ▲ Vibrating wire piezometer DATE 12/03/2015 En Environmental Sample Impression packer test J201328e\_21.45B



HOLE NO. TKO/FB-DH02

CONTRACT NO. : GE/2013/21 SHEET 2 OF 2

PROJECT

METHO	DD			R	otary		(	CO-ORDIN	ATES					W. O. NO. GE/2013/21.45B
MACHI	NE	& NO.		VE	3M53		E	E 846581.8	33	N 81	14575.	61		DATE : 02/03/2015 to 07/03/2015
FLUSH	IING	MEDIU	М	W	later			ORIENTAT	ION	Verti	cal			GROUND LEVEL + 5.40 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	Ē	Tests	Samples	Level	( <b>m</b> ) ( <b>m</b> ) 10.00	Legend	Grade	Description
			30		76	76	5.3		T2101 10.2	4.00	-		II	grey, slightly decomposed fine ash vitric TUFF. Joints are medium spaced, locally very closely to closely spaced, rough planar and rough stepped, locally smooth planar,
			30	108	90	90			T2101	5				extremely narrow, clean, occasional iron and manganese stained and silt coated, dipping 40° to 50°, 50° to 60°, 60° to 70° and occasional 0° to 10°. From 10.23m to 10.65m : Subvertical joint.
			30	100	100	83	2.1			5	- - - -			From 10.56m to 13.77m : Subvertical joint.
06/03/2015 07/03/2015		2.50m at 18:00 3.22m	30	100	90	75			T2101	2				
		at 08:00	30	100	100	93	9.5		T2101	6				
			30	100	29	0	>20		12:00 12:60	ŀ				
			30	100	100	100	1.4		T2101		- - - -			
			30	100	100	100			T2101					
07/03/2015		2.51m at 18:00	30	100	95	81	8.9		T2101	-9.11	  14.51			
Piston	sam			¥ I	In-situ	ard pen vane s eability f	heart	on test test		T. C. Y	ſip	REMA	RKS	
U76 u U100 Mazie	ndistu undis r sam	sample Irbed samp turbed sam ple ample			Packe Acoust televiev Piezor Stand	ic or op wer sur neter ti pipe	tical vey p		DATE _	11/03/2 Y. M. Le				



HOLE NO. TKO/FB-DH05

CONTRACT NO. : GE/2013/21

SHEET 1 OF 3

PROJECT

METHO	DD			R	otary		6	CO-ORDIN	NAT	ËS					W. O. NO. GE/2013/21.45B
MACH	NE	& NO.		V	BM53		] e	E 846577	.62		N 81	4482.	20		DATE : 24/01/2015 to 30/01/2015
FLUSH	IING	MEDIU	М	V	/ater		0	ORIENTA	TION	N	Verti	cal			GROUND LEVEL + 5.45 mPD
	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests	N	Samples	Pevel +5.45	0.0 (m)	Legend	Grade	Description
24/01/2015 	SW SW 0.50								,		+4.95	0.50			Brown (7.5YR 5/4), silty fine to coarse SAND with some angula fine to medium gravel of moderately decomposed rock fragments. (FILL)
- - - -	PW		60	86						T2101 1.00		  			Grey (N 5), dappled greyish brown and brown, angular COBBLE sized concrete and slightly decomposed Granite, with some angular to subangular medium to coarse gravel of
-			60	90						T2101		-			moderately decomposed and slightly decomposed rock fragments, occasional metal fragments, wood pieces and refuse. (FILL)
- - - 2			60	80						T2101		-			
-			0	90						T2101 		-			
- - - -	PW 3.00		0	86						T2101		-			
-	HW		0	90						T2101 		-			
- - - -		0.85m at	0	64						† T2101		-			
24/01/2015 26/01/2015		<u>18:00</u> 2.70m at 08:00								4.20 T2101		-			From 4.00m to 4.20m : With angular boulder sized concrete up to 200mm.
- - 5 <u>26/01/2015</u> _ 27/01/2015		0.87m at <u>18:00</u> 2.73m	0							5.00		-			From 5.00m to 5.25m : With angular boulder sized slightly
-		at 08:00	30	50						T2101		-			decomposed Granite up to 250mm.
- - 5			30	60						T2101 6.00		- - - -			
-			30	/50						1 0 6.30	-0.85	6.30		V	Extremely weak, brown, dappled greyish brown, spotted light grey, completely decomposed coarse ash crystal TUFF. (Very
- - -			30	93								- - - -	0		silty fine to coarse SAND with some angular fine gravel)
-								8,20, 27,20,20,23 N=90		2 7.30 7.40 3 7.50		-	     		
- - - - - -								1 00		4 <b>•</b> 7.80 7.85		-	0		
- - - -			30	28						<sup>5</sup>		-	о  -   р		
- <u>9</u>			30	20						6 9.20 9.30	-3.85	- - - 9.30	 		
- - - - -			30	80	0	0	NI NR			T2101 7 7 7 9.80	-3.85 -4.15 -4.35	9.60 9.80		III V V	Moderately strong, grey, dappled greyish brown, moderately decomposed coarse ash crystal TUFF. Fractured. From 9.60m to 9.80m : No recovery, inferred to be completely decomposed TUFF.
Distur		ample	l ł	V I	In-situ	ard pen vane s ability	hear t	on test test	LO	GGED	T. C. Y	ſip	REMA	RKS	tion pit was excavated to 0.50m.
Split s	poon ndistu	sample irbed samp turbed sam				uremete r Test	er test	t	DA	TE _	03/02/2	015	3. Piezo 4. Piezo	meter	tic televiewer survey was carried out from 11.40m to 21.40m. rs were installed at 7.00m and 10.50m. r buckets were installed in piezometers a) from 1.50m to 6.50m and t n to 10.00m depth at 0.50m intervals.
Mazie	r sam ner sa	ple ample	hie		Piezor Standı Groun	neter ti pipe dwater	p Samp	bling Well	сн	ECKED	Y. M. Le	eung			
Water  Enviro		ple ntal Sample		1 1		ng wire ssion pa		ometer test	DA	TE	04/02/2	015			J201328e_21.4



HOLE NO. TKO/FB-DH05

CONTRACT NO. : GE/2013/21

SHEET 2 OF 3

PROJECT

Ground Investigation - New Territories East (Term Contract) Agreement No. CE21/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility Study (Natural Terrain)

Rotary **CO-ORDINATES** W. O. NO. GE/2013/21.45B METHOD E 846577.62 N 814482.20 MACHINE & NO. VBM53 DATE : 24/01/2015 30/01/2015 to **FLUSHING MEDIUM** Water ORIENTATION Vertical **GROUND LEVEL** + 5.45 mPD Casing Depth/Size Wate \$ **Drilling** Progress > Reduced Leve Flush Returns (m) (m) Legend Level Grade TCR' SCR: RQD Ē Tests Samples Description (m) Shift start / end No. Type Depth 10.00 Extremely weak to very weak, brown, dappled greyish brown, HW 30 100 completely decomposed coarse ash crystal TUFF. (Slightly sitty fine to coarse SAND with some angular fine to medium gravel) HW 10.55 18:45 8 -5.10 10.55 Moderately strong, locally moderately weak, greyish brown, dappled brown, moderately decomposed coarse ash crystal >20 20 /88 0 0 T2101 1.50n 10.0 TUFF 11 Joints are very closely to closely spaced, rough planar and 11.15 27/01/2015 18:00 2 75m >20 T2|01 rough stepped, very narrow, iron and manganese stained, dipping 40° to 50° and 50° to 60°. 20 /100 67 67 11.33 -5.88 15.4 at 08:00 Strong, dark grey, spotted light grey, slightly decomposed coarse ash crystal TUFF. Joints are closely to medium spaced. locally very closely 20 83 76 3.6 T210 12 spaced, rough planar and rough stepped, occasional rough undulating, extremely narrow, clean and locally calcite coated, dipping 10° to 20°, 20° to 30°, 40° to 50°, 50° to 60° and occasional 70° to 80°. 12.50 16.0 13 20 100 72 T2101 ío 3.7 13.42 20 82 49 T210 14 14.09 14.0 20 83 72 T2101 **100** 14.55 From 14.45m to 15.60m : Subvertical joint. 7.1 15 T2101 20 40 27 100 2.35m >20 18:00 2.68m 28/01/2015 15.37 08:00 20 94 94 T2IO 100 15.88 16 6.2 20 97 61 T210 10 16.50 >20 17 20 100 83 74 T2101 6.3 2.36m 18:00 2.69m 17.47 29/01/2015 30/01/2015 -12.15 Strong to very strong, dark grey, spotted light grey, slightly 08:00 decomposed coarse ash crystal TUFF. 20 100 100 T210 100 18 Joints are widely spaced, rough planar, tight to extremely narrow, clean, dipping 30° to 40° and 40° to 50°. 18.23 1.1 20 100 100 T210 10 19 19.44 12.1 T2101 20 Standard penetration test In-situ vane shear test REMARKS Disturbed sample LOGGED T.C.Yip Piston sample Permeability test 8 Split spoon sample Pressuremeter test Packer Test Acoustic or optica televiewer survey DATE 03/02/2015 U76 undisturbed sample U100 undisturbed sample Piezometer tip 0 Mazier sample CHECKED Y. M. Leung Standpipe SPT liner sample Groundwater Sampling Well Water sample ▲ Vibrating wire piezometer DATE Ť 04/02/2015 En Environmental Sample Impression packer test J201328e\_21.45B



HOLE NO. TKO/FB-DH05

CONTRACT NO. : GE/2013/21 SHEET 3 OF 3

PROJECT

м	ETHO	DD			R	otary			CO-ORDIN		TES					W. O. NO. GE/2013/21.45B
			& NO.			3M53		-	E 846577.			N 81	4482.	20		DATE : 24/01/2015 to 30/01/2015
				м	N	/ater			ORIENTAT	ΓΙΟ	N	Verti	cal			GROUND LEVEL + 5.45 mPD
	Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%		Tests	1	Samples	peonpea Fevel	<b>Depth</b> (m) 20.00	Legend	Grade	Description
				20		82	73	5.4 13.2			T2101	-14.72	<u>- 20.17</u>		=	See sheet 2 of 3 Strong, dark grey, spotted light grey, slightly decomposed coarse ash crystal TUFF. Joints are closely to medium spaced, locally very closely
<b>2</b> 1			2.53m at	20	100	77	57	2.9 10.2			T2101					spaced, rough planar, extremely narrow, clean and occasional calcite coated, dipping 10° to 20°, 20° to 30° and 60° to 70°.
$\begin{array}{c} - & 22 \\ - & - \\ - & 23 \\ - & - \\ - & - \\ 23 \\ - & - \\ 24 \\ - & - \\ 25 \\ - & - \\ 27 \\ - & - \\ 27 \\ - & - \\ 28 \\ - &$	Piston	rbed s	18:00			In-situ Perme	vane s ability	hear i test		LC	DGGED	T. C. 1	21.53	REMA	RKS	End of Investigation Hole at 21.53m.
	Split s U76 u U100	spoon ndistu undis	sample irbed samp turbed sam			Pressi Packe Acoust televier	uremete	er test tical vey	t			03/02/2				
	Mazier SPT li Water	iner sa r sam	ample			Stand Groun Vibrat	pipe dwater	Samp piezo	bling Well ometer		HECKED _	Y. M. Le				



HOLE NO. TKO/FB-DH07

CONTRACT NO. : GE/2013/21

SHEET 1 OF 3

PROJECT

METHOD			R	otary		C	O-ORDIN		s						W. O. NO. GE/2013/21.45B
MACHINE	& NO.			3M53		-	846609.		•		N 81	4308	.92		DATE : 12/01/2015 to 19/01/2015
FLUSHIN	G MEDIL	Л	w	ater		0		TION			Verti	cal			GROUND LEVEL + 5.91 mPD
Drilling Progress Casing		Flush Returns %	TCR%	SCR%	RQD%	Ē	Tests		ample		peonced Fevel	(m) 0.00	Legend	Grade	Description
12/01/2015 SW 0.77 PW 1. 2. 12/01/2015 13/01/2015		50	47					-	Ľ●	0.50 0.70 1.30 2.00	+5.21	- 0.70 - 0.70 			Brown (7.5YR 5/4), silty fine to coarse SAND with some angular to subangular fine to coarse gravel of moderately decomposed rock fragments and occasional brick fragments. (FILL) Brown (7.5YR 5/4), dappled dark grey and grey, angular COBBLE sized slightly decomposed Granite and Tuff with occasional angular to subangular medium to coarse gravel of moderately decomposed rock fragments. (FILL)
- PW 2.50 - HW - 3 		50	90			11111	2.3, 5,9,17,30 N=61			2.50 3.50 3.60 3.70 4.00 4.05	+3.41 +1.81	- <u>2.50</u> - <u>-</u> 			Very dense, brown (7.5YR 5/4), dappled light grey, very silty fine to coarse SAND with some angular to subangular fine gravel of moderately decomposed rock fragments. (FILL)
		50	81				i	- - -	F2101	4.10 5.36 5.70 5.80	+1.31	- 4.60 			Grey (N 5), angular to subangular COBBLE sized concrete, slightly decomposed Granite and Tuff. (FILL) CONCRETE. Soft to firm, brown (7.5YR 5/4), sandy clayey SILT with some angular to subangular fine gravel of moderately
6 	0.75m at 18:00 2.89m	50	95				4.7, 7,12,20,27 N=66		r2101	5.80 6.10 7.10 7.20 7.30 7.60 7.65	+0.11	<u>5.80</u>		V	decomposed rock fragments. (FILL) Grey (N 5), subangular COBBLE sized moderately decomposed Tuff and concrete with some sandy silt. (FILL) Extremely weak, brown, dappled grey and light brown, completely decomposed coarse ash crystal TUFF. (Silty fine to coarse SAND with some angular fine gravel)
	at 08:00	50	85				.25 x 10 <sup>-6</sup> m/sec 20,30/70mn∳ 26,24,50/65m (100/215mm)	10 11 12 13		8.10 9.10 9.20 9.21 9.51 9.56	-3.29	- - - - - - - - - - - - - - - - - - -		V	Extremely weak, brown, dappled greyish brown, completely decomposed coarse ash crystal TUFF. (Very silty fine to coarse SAND with some angular fine gravel)
	nple I sample urbed sampl sturbed samp nple ample			In-situ Permea Pressu Packer Acousti teleview Piezom Standp Ground	c or opt ver surv ieter tip	near tes est r test ical 'ey Samplin	st ig Well	LOGO DATE CHEO DATE	E	 <u>י_</u> נ	T. C. 1 20/01/2 (. M. Le 21/01/2	2015 eung	2. A con 3. An ac 4. Piezo 5. Piezo	nspect nstant cousti ometer ometer	ion pit was excavated to 0.70m. head permeability test was carried out from 8.50m to 10.00m. c televiewer survey was carried out from 18.53m to 28.65m. rs were installed at 5.70m and 12.00m. r buckets were installed in piezometers a) from 0.50m to 5.00m and 0m to 11.50m depth at 0.50m intervals.



HOLE NO. TKO/FB-DH07

CONTRACT NO. : GE/2013/21 SHEET 2 OF 3

PROJECT

METHO	DD			Ro	otary		_ (	CO-ORDIN	ATES						W. O. NO. GE/2013/21.45B
MACHI	NE	& NO.		VE	3M53		] 6	E 846609.	49	Ν	81	4308.	92		DATE : 12/01/2015 to 19/01/2015
FLUSH	IING	MEDIU	М	W	ater		0	ORIENTAT	ION	v	erti	cal			GROUND LEVEL + 5.91 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests	Samples No. Type D		level Fevel	(m) 10.00	Legend	Grade	Description
	HW		50	109			10.0				4.59 4.79	- - - <u>10.50</u> - 10.70			See sheet 1 of 3 Moderately strong to strong, grey, dappled brown and light
1			50 50	40 0	34	34	NR			11.00	5.09	- - <u>11.00</u> - -	9	V	brown, moderately decomposed coarse ash crystal TUFF. Joints are closely spaced, rough planar, very narrow, iron and manganese stained, dipping 0° to 10° and 20° to 30°. From 10.70m to 11.00m : No recovery, inferred to be completely decomposed TUFF.
2		2.75m	50 50	60	0	0	NI NR	i		11.90 -{	5.59 5.83 5.99	_ 11.50 _ _ 11.74 _ 11.90		III V V	Extremely weak, brown, completely decomposed coarse ash crystal TUFF. (Silty fine to coarse SAND with some angular fine gravel) Moderately strong, locally moderately weak, greyish brown,
<u>14/01/2015</u> 15/01/2015		at <u>18:00</u> 2.96m at 08:00	60	50	13	0	>20 NR		T2101	-6	5.29 5.49 5.69	- 12.20 - 12.40 - 12.60		V V	dappled brown, moderately decomposed coarse ash crystal TUFF. Fractured. From 11.74m to 11.90m : No recovery, inferred to be completely decomposed TUFF.
3	HW 12.90		60 60	0 67	41	41	>20 NR		T2101	-1	6.99 7.15 7.35	- 12.90 13.06 			becomposed roors. Extremely weak, brown, dappled greyish brown, completely decomposed coarse ash crystal TUFF. (Silty fine to coarse SAND with some angular fine gravel) Moderately strong, grey, dappled brown, moderately decomposed coarse ash crystal TUFF.
<del>1</del> 15/01/2015		2.76m at 18:00	60	97	64	34	4.0		T2101	{ <u></u>		- - - - <u>13.95</u> -		- 111	Fractured. From 12.40m to 12.60m : No recovery, inferred to be completely decomposed TUFF. Extremely weak to very weak, greyish brown, dappled brown, completely decomposed coarse ash crystal TUFF. (Silty fine to
16/01/2015		2.98m at 08:00	60	98	41	16	NI 13.3 >20		т2101	4.82	3.39 3.69 3.87	14.30 14.60 14.78			coarse SAND with some angular fine to medium gravel) Strong, grey, locally dappled light brown and brown, slightly decomposed coarse ash crystal TUFF. Joints are closely to medium spaced, locally very closely spaced, rough planar, locally rough stepped, extremely narrow
5			60	93	58	33	9.5		T2101		9.09 9.29	<u>15.00</u> 15.20 - - - -		, 111	and locally very narrow, iron and manganese stained, occasional clean, dipping 0° to 10°, 10° to 20°, 50° to 60° and occasional 40° to 50° From 13.06m to 13.26m : No recovery, inferred to be completely decomposed TUFF. From 13.95m to 14.30m : Moderately strong, moderately
6			60	108	84	62	2.9 15.0 4.0		T2101	16.02		- - - - - -			decomposed TUFF. From 14.60m to 14.78m : Moderately strong, moderately decomposed TUFF. From 15.00m to 15.20m : Moderately strong, moderately decomposed TUFF.
Z							12.5 4.5			17.21		- - - - - -			From 16.82m to 17.21m : Subvertical joint.
₿			60	70	61	45	13.5 NR		T2101		1.87 2.22	- 17.78 		III V	From 17.78m to 18.13m : Moderately strong, moderately decomposed TUFF. From 18.13m to 18.53m : No recovery, inferred to be completely decomposed TUFF.
,			60	100	85	64	10.3		T2101	18.53 <u>-1</u> 19.05	2.62	<u>- 18.53</u> - - - -		11	Strong, dark grey, locally dappled grey and brown, slightly decomposed coarse ash crystal TUFF. Joints are closely to medium spaced, locally very closely spaced, rough planar and rough stepped, extremely narrow and
<u>16/01/2015</u> 17/01/2015		2.78m at 18:00 2.98m	60	100	62	52			T2101	19.74		- - - - -			locally very narrow, iron and manganese stained, occasional clean, dipping 0° to 10°, 10° to 20°, 40° to 50°, 50° to 60°, occasional 60° to 70° and 70° to 80°.
Piston Split s	sam spoon	at ample ple sample urbed samp	l[		In-situ Perme Pressu Packe	ard pen vane s ability f uremete	hear t test er test	est	LOGGED		. C. \ /01/2	<u> </u>	REMA	RKS	
	undis r sam ner sa	turbed sam ple ample			Piezor Stand Groun		p Samp	oling Well	CHECKED DATE		VI. Le				



HOLE NO. TKO/FB-DH07

CONTRACT NO. : GE/2013/21

PROJECT

Ground Investigation - New Territories East (Term Contract) Agreement No. CE21/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility Study (Natural Terrain)

GE/2013/21.45B METHOD **CO-ORDINATES** W. O. NO. Rotary E 846609.49 N 814308.92 MACHINE & NO. VBM53 DATE : 12/01/2015 19/01/2015 to **FLUSHING MEDIUM** ORIENTATION Vertical mPD Water **GROUND LEVEL** + 5.91 Casing Depth/Size Water \* Drilling Progress ~ Reduced Level Legend Leve Flush Returns (m) (m) Grade TCR' SCR: RQD (m) Ē Tests Samples Description Shift tart / end No. Type Depth -14.09 20.00 08.00 See sheet 2 of 3 3.8 60 96 84 100 T2101 20.82 60 85 0 T2101 21 100 19.2 21.08 8.7 60 100 94 86 T2101 22 2.85m 18:00 3.19m 22.27 17/01/2015 19/01/2015 at 08:00 60 100 100 T2101 100 22.79 23 3.1 60 /101 100 100 T2101 23.76 24  $\vee$ -18.35 24.26 60 100 74 69 T2101  $\overline{}$ >20 Ш From 24.26m to 24.45m : Moderately strong, moderately -18.54 24.45 V  $\overline{}$ decomposed TUFF. 9.4  $\sim$ 24.77  $\mathbf{n}$ 25 60 100 100 84 T2101 3.6 25.32  $\sim$  $\sim$ -19.59 25.50 7 From 25.50m to 26.00m : Moderately strong, moderately  $\vee$ 60 100 83 T2101 1.00 decomposed TUFF. 10.7 26 20.09 26.00  $\vee$ 26.0  $\forall$ From 26.07m to 26.17m : Moderately strong, moderately 4.8 Ш decomposed TUFF. 60 65 65 T2101 \, 26.61 From 26.50m to 26.65m : With some gravelly sandy silt infilled joints up to 15mm thick, dipping 50° to 60°. >20 20.74 26.65 ₩ Ш V -20.94 26.85 From 26.65m to 26.85m : Moderately strong, moderately Ш 27 6.7 decomposed TUFF From 26.85m to 27.20m : Subvertical joint. T2101 60 66 53 27.98 28 3.1 60 T2101 100 100 100 3.11m 18:00 19/01/2015 28.85 22.94 28.85 29 End of Investigation Hole at 28.85m. 30 Standard penetration test In-situ vane shear test Permeability test REMARKS Disturbed sample v LOGGED T. C. Yip Piston sample Split spoon sample Î Pressuremeter test Packer Test Acoustic or optical televiewer survey DATE 20/01/2015 U76 undisturbed sample U100 undisturbed sample Piezometer tip Ø Mazier sample CHECKED Y. M. Leung Standpipe SPT liner sample Groundwater Sampling Well ▲ Water sample Vibrating wire piezometer Î DATE 21/01/2015 En Environmental Sample Impression packer test



HOLE NO. TKO/NT-DH01

CONTRACT NO. : GE/2013/21

SHEET 1 OF 2

PROJECT

METHO	DD			R	otary		0	CO-ORDIN	IATE	S						W. O. NO. GE/2013/21.45B
MACHI	INE a	& NO.		Н	D24		] E	E 846742.	78			N 81	4485	.34		DATE : 14/03/2015 to 19/03/2015
FLUSH	ling	MEDIU	M	V	/ater		0	ORIENTAT	TION			Verti	cal			GROUND LEVEL + 68.65 mPD
Drilling Progress	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	FI	Tests		Samp	o <b>les</b> e Depth	Reduced Level	0.00 Depth	Legend	Grade	Description
14/03/2015	HW									INSPECTION PIT	0.50		-		-	Firm, brown (7.5YR 5/4), slightly sandy clayey SILT with occasional subangular to subrounded fine gravel of highly decomposed rock fragments. (COLLUVIUM)
<u>14/03/2015</u> 16/03/2015		0.50m at <u>18:00</u> Dry at 08:00	70 70 70	100					В		1.42 1.60	+67.73	<u>0.92</u>		)	Dark grey (N 3), spotted light grey, subangular BOULDER sized slightly decomposed Tuff up to 570mm. (COLLUVIUM)
			70	50					1		2.20	+66.45	    		)   vi   	Firm, brown, dappled reddish brown, slightly sandy SILT. (RESIDUAL SOIL)
<u>16/03/2015</u> 17/03/2015		2.50m at <u>18:00</u> Dry at 08:00	70	86					23		3.20 3.30	+65.35	- <u>3.30</u> 			Extremely weak, reddish brown, spotted light grey, completely decomposed fine ash vitric TUFF. (Slightly sandy SILT with occasional angular to subangular fine gravel)
			70	95					45		4.30 4.40		- - - - - - -	0     0      0       0 		
			70	95					677		5.40 5.50					
			70	95					89		6.50 6.60		- - - - - - -			
			70	95					10 11		7.60 7.70		- - - - - - - -			
<u>17/03/2015</u> 18/03/2015		7.30m at 18:00 Dry at 08:00	70	95					12 13		8.70 8.80					
Distur	rbed s	ample				ard pen			14 15	GEL	9.80 9.90	+58.75 T. C. Y				
	poon	sample			Perme Pressi	vane s ability t uremete	est		DAT		-	19/03/2		2. A co 3. Piez	onstant ometer	ion pit was excavated to 0.90m. : head permeability test was carried out from 13.50m to 15.00m. s were installed at 3.00m and 14.50m.
U100 Mazie	undist r sam iner sa	ample			Piezor Standı Groun	ic or op wer surv neter tij pipe dwater	o Samp	bling Well		E		19/03/2 Y. M. Le				buckets were installed in piezometers a) from 0.50m to 2.50m and b to 14.00m depth at 0.50m intervals.
Water		ple Ital Sample	9	1		ng wire ssion pa			DAT	E	_	20/03/2	015	-		J201328e 21.4



HOLE NO. TKO/NT-DH01

CONTRACT NO. : GE/2013/21

SHEET 2 OF 2

PROJECT

MACHINE & NO.         HD24         E 848742.78         N 814485.34         DATE:         14/03/2015         to         19/02/1           FLUSHING MEDIUM         Water         ORIENTATION         Vertical         GROUND LEVEL         + 66.65           Big         Statular (and particle)         Statular (and particle)         Samples         Samples </th <th>METHOD</th> <th></th> <th></th> <th>Rotary</th> <th></th> <th>0</th> <th>CO-ORDIN</th> <th>ATES</th> <th></th> <th></th> <th></th> <th></th> <th>W. O. NO.</th> <th>GE/2</th> <th>2013/21.</th> <th>45B</th> <th></th>	METHOD			Rotary		0	CO-ORDIN	ATES					W. O. NO.	GE/2	2013/21.	45B	
Bigger Hear in the minimum of the stress ress of the stress of the stress of the stress of the stress of	MACHINE	& NO.		HD24		] [	E 846742.7	78	N 81	4485.	34		DATE :	14/03/2015	to	19/03/	2015
With we have a set of the set of	FLUSHING	G MEDIU	М	Water		0	ORIENTAT	ION	Verti	cal			GROUND L	EVEL	+ 68.65		mPD
The service of the se			Flush Returns % T C R %	SCR%	0 D	Ē	Tests		people for the second s		Legend	Grade					
Disturbed sample       Standard penetration test       LOGGED       T. C. Yip         Piston sample       Pressuremeter test       Perssuremeter test         U76 undisturbed sample       Pressuremeter test       Packer Test         U100 undisturbed sample       Piston sample       Pressuremeter test         Piston sample       Pressuremeter test       Packer Test         Acoustic or optical       televiewer sulvey       Piezometer tip         V100 undisturbed sample       Piezometer tip       CHECKED       Y. M. Leung         SPT liner sample       Standpipe       Standpipe	HW HW HW HW H H H H H	13.50m at 18:00 Dry at 08:00 14.50m 18:00 14.50m 18:00	70 99	Stand Press Press Press Press Press	u vane s eability f uremete er Test tic or op wer sum meter ti pipe	hear test er test tical vey p	on test test t	16 17 18 19 12.10 13.10 13.10 13.20 22 14.20 13.20 13.20 13.20 13.20 13.20 14.20 14.20 14.30 14.	+53.65 T. C. Y 19/03/2	15.00 15.00			decomposed fin manganese stain 30°. (Slightly sar fine gravel)	<ul> <li>ash vitric TUFF w red relict joints, dip idy SILT with occas</li> </ul>	vith occasie ping 10° tr sional angu	onal iron 20° and	and 20° to



HOLE NO. TKO/NT-DH02

OF

2

CONTRACT NO. : GE/2013/21 1

SHEET

PROJECT

METHO	D			R	otary			CO-ORDIN	IATES						W. O. NO. GE/2013/21.45B
MACHI	NE	& NO.		н	D24		1	E 846754	22		N 81	4360.	.66		DATE : 02/03/2015 to 09/03/2015
FLUSH	ING	MEDIU	М	N	/ater		•	ORIENTA	ION		Verti	cal			GROUND LEVEL + 78.98 mPD
	Casing Depth/Size	Water Level (m) Shift start / end	Flush Returns %	TCR%	SCR%	RQD%	F	Tests	Sample No. Type		Level Level +78.98	0.00 (m)	Legend	Grade	Description
2. 02/03/2015 03/03/2015 03/03/2015 03/03/2015 04/03/2015 04/03/2015 04/03/2015 06/03/2015 06/03/2015 06/03/2015 06/03/2015 06/03/2015 06/03/2015 06/03/2015 06/03/2015	HW	Dry at 18:00 Dry at 18:00 0:00 0:00 0:00 0:00 0:00 0:00 0:0	75 85 85 80 70 70 70 70	106 105 105 105 105 105 105 105 105 105 105	80 48 79 7	80 48 64 0	6.3 NA 5.7 NA	3.66 x 10 <sup>-6</sup>	No. Type	0.30 0.50 0.85	+78.98 +78.68 +78.48 +78.00 +78.00 +76.78 +76.43	0.00			Firm to stiff, dark brown (7.5YR 3/4), sandy SILT with some subangular fine to medium gravel of highly decomposed rock fragments. (TOP SOIL / COLLUVIUM)) Dark grey (N 3), dappled dark brown, subangular COBBLE sized slightly decomposed Tuff with some silty sandy subangular medium to coarse gravel of moderately decomposed rock fragments and occasional rootlets. (COLLUVIUM) Strong, locally moderately strong, dark grey, spotted light grey, slightly decomposed fine ash vitric TUFF. Joints are closely to medium spaced, rough planar, very narrow, iron and manganese stained, dipping 50° to 60° and subvertically. Extremely weak to very weak, light brown, dappled reddish brown, completely decomposed fine ash vitric TUFF. (Slightly sandy SILT with occasional subangular cobbles) Strong, dark grey, spotted light grey, slightly decomposed fine ash vitric TUFF. Joints are closely spaced, rough planar, extremely narrow, iron stained, dipping 40° to 50° and 50° to 60°. Very weak to weak, reddish brown, dappled light brown, highly decomposed fine ash vitric TUFF. (Angular to subangular COBBLES with some slightly sandy silty angular fine to coarse gravel) Extremely weak, light brown, dappled reddish brown, completely decomposed fine ash vitric TUFF. (Slightly sandy SILT with occasional angular fine gravel)
6. 	bed s	at 08:00 7.30m at 3.60m 9.60m 3.60m	70 70 70 70	94				on test	8 9 10 11 12 12 13 14 15	6.40 6.50 7.50 8.60 8.70 9.70 9.80					Extremely weak, locally very weak, light brown, dappled pinkish brown, completely decomposed fine ash vitric TUFF. (Slightly sandy SILT with occasional angular fine gravel)
Piston Piston Split s U76 u U100 u Mazieu SPT lii	sam poon ndistr undis r sam ner s	ple sample urbed samp turbed sam ple ample		<b>→</b> > <u>+</u> +	In-situ Perme Pressu Packe Acoust televier Piezor Standg	vane s ability f r Test ic or op wer sur- neter ti pipe	hear test er test tical vey p	test	LOGGED DATE CHECKEI		T. C. N 11/03/2 Y. M. Le	015	1. An i 2. A co 3. Piez 4. Piez	nspect Instant ometer ometer	ion pit was excavated to 0.90m. head permeability test was carried out from 4.00m to 5.50m. s were installed at 2.70m and 14.80m. buckets were installed in piezometers a) from 0.50m to 2.50m and b) to 14.00m depth at 0.50m intervals.
▲ Water En Enviro		ple ntal Sample	)	1	Vibrati		, piez	ometer	DATE		12/03/2	015			J201328e_21.45B



HOLE NO. TKO/NT-DH02

CONTRACT NO. : GE/2013/21 SHEET 2 OF 2

PROJECT

METHOD	Rotary	CO-ORDIN	ATES		W. O. NO. GE/2013/21.45B
MACHINE & NO.	HD24	E 846754.2		N 814360.66	DATE : 02/03/2015 to 09/03/2015
FLUSHING MEDIUM	Water	ORIENTATI	ION V	/ertical	GROUND LEVEL + 78.98 mPD
Point Market	TCR% SCR% RQD%	正 Tests	Samples	Carade Grade	Description
HW       at 08:00       70         11	35 36 36 36 36 36 36 36 36 36 36 36 36 36			36.98 12.00 11 1 - 1 1 1 1 - 1 1 1 1 - 1 1 1 1 - 1 1 1 1 1 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	See sheet 1 of 2 Extremely weak to very weak, light brown, dappled brown, completely decomposed fine ash vitric TUFF. (Slightly sandy SILT with occasional angular fine to medium gravel) End of Investigation Hole at 15.00m. S
<ul> <li>Disturbed sample</li> <li>Piston sample</li> <li>Split spoon sample</li> <li>U76 undisturbed sample</li> <li>U100 undisturbed sample</li> <li>Mazier sample</li> <li>SPT liner sample</li> <li>Water sample</li> <li>En Environmental Sample</li> </ul>	<ul> <li>Standard pene</li> <li>In-situ vane sh</li> <li>Permeability te</li> <li>Pressuremeten</li> <li>Packer Test</li> <li>Acoustic or opti</li> <li>televiewer surve</li> <li>Piezometer tip</li> <li>Standpipe</li> <li>Groundwater S</li> <li>Vibrating wire</li> <li>Impression pai</li> </ul>	ical ey Gampling Well piezometer	DATE 11/ CHECKED Y. N	<u>. C. Yip</u> /03/2015 M. Leung /03/2015	-



HOLE NO. TKO/NT-DH03

CONTRACT NO. : GE/2013/21 SHEET 1 OF 2

PROJECT

METHOD					otary			CO-ORDIN							W. O. NO. GE/2013/21.45B
MACHINE	E & NO			VB	BM53			E 846608.	74	Ν	81	4471.	87		DATE : 04/02/2015 to 10/02/2015
FLUSHIN	G MED	NUI		W	ater	1		ORIENTAT	ION	Ve	erti	cal	1	1	GROUND LEVEL + 10.53 mPD
Drilling Progress Casing	start/e	t Insh	Returns %	TCR%	SCR%	RQD%	E	Tests	Samples	Red	<b>Pevel</b>	(m) 0.00	Legend	Grade	Description
04/02/2015 HV 06/02/2015 06/02/2015 07/02/2015 07/02/2015	V 1.51n at 18:00 2.80n at 08:00 4.13n at 08:00			100 100 100 100 100 100 100 100	58 0 70 57 93 87 87 46 73 83 72 68	36 0 70 52 93 87 58 15 37 83 45 49	2.9 12.5 NA 1.9 1.9 4.7 11.4 6.2 4.0 12.1		T2101 T2101	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	.63 .38 .98 .47 .90 .76	- 0.90 - 1.15 - 1.55 			<ul> <li>Dark grey (N 3), spotted light grey, subangular BOULDER sizes slightly decomposed Tuff up to 900mm. (COLLUVIUM)</li> <li>Soft to firm, brown (7.5YR 5/4), slightly sandy clayey SILT with occasional subangular fine to medium gravel of moderately decomposed rock fragments. (COLLUVIUM)</li> <li>Greyish brown (25Y 5/2), dappled brown, subangular to subrounded COBBLE sized moderately decomposed Tuff with occasional silty subangular to subrounded medium to coarse gravel of moderately decomposed fine ash vitric TUFF. Joints are closely to medium spaced, rough planar, very narrow iron and manganese stained, dipping 20' to 30°.</li> <li>Weak tor moderately weak, locally moderately strong, greyish brown, dappled light brown and grey, highly decomposed fine ash vitric TUFF. Joints are closely to medium spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, dipping 20' to 30°.</li> <li>Strong, dark grey, dappled light brown and brown, slightly decomposed fine ash vitric TUFF.</li> <li>Joints are closely to medium spaced, rough planar and rough stepped, extremely narrow to very narrow, iron and manganese stained, dipping 10' to 20° and 20' to 30°.</li> <li>From 2.7m to 2.87m to 2.87m to 2.85m to weak, highly decomposed TUFF. (Silty sandy angular to subangular fine to coarse GRAVEL with occasional subangular cobbles)</li> <li>From 3.7m to 2.87m to 3.46m : Weak to moderately weak, highly decomposed TUFF. (Silty sandy angular to subangular fine to coarse GRAVEL with occasional subangular cobbles)</li> <li>Strong dark grey, spotted light grey, slightly decomposed fine ash vitric TUFF.</li> <li>Joints are very closely to closely spaced, locally medium spaced, rough planar and rough stepped, extremely narrow to very narrow to very narrow to very narrow to very narrow to see stained, dipping 10° to 20°, 40° to 50°, 50° to 60°, 50° to 60°.</li> <li>Strong dave stained, dipping 10° to 20°, 40° to 50° and 50° to 60°.</li> </ul>
<ul> <li>Disturbed</li> <li>Piston sa</li> <li>Split spool</li> <li>U76 undis</li> </ul>	mple on sample			VH H	In-situ Perme Pressu Packe	vane s ability uremeter r Test	hear test er test		LOGGED		C. 1 02/2	/ip 015	2. An a 3. Piezo	zomet	ter was installed at 3.00m. ic televiewer survey was carried out from 6.25m to 13.60m. r buckets were installed in piezometer from 0.50m to 2.50m depth at vals.
U100 und Mazier sa SPT liner Water sa	listurbed s imple sample	•	•		Piezor		р	oling Well	CHECKED	Y. N	l. Le	eung			



HOLE NO. TKO/NT-DH03

CONTRACT NO. : GE/2013/21

SHEET 2 OF 2

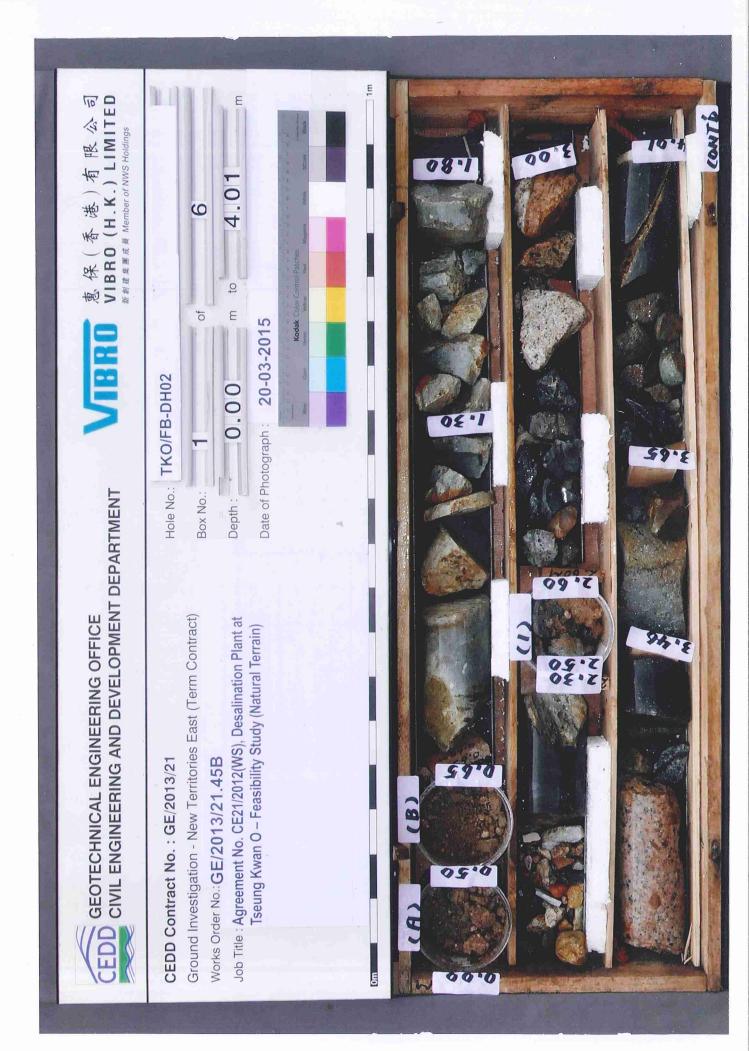
PROJECT

Ground Investigation - New Territories East (Term Contract) Agreement No. CE21/2012(WS), Desalination Plant at Tseung Kwan O - Feasibility Study (Natural Terrain)

METHOD **CO-ORDINATES** W. O. NO. GE/2013/21.45B Rotary E 846608.74 N 814471.87 MACHINE & NO. VBM53 DATE : 04/02/2015 10/02/2015 to **FLUSHING MEDIUM** Water ORIENTATION Vertical **GROUND LEVEL** mPD + 10.53 Casing Depth/Size Water \* Drilling Progress \* Reduced Level Legend (m) (m) Leve Flush Returns Grade TCR' SCR. RQD (m) Shift Ē Tests Samples Description tart / end No. Type Depth +0.53 10.00 From 9.95m to 10.25m : With very closely spaced 4.18m T2101 at 18:00 5.18m microfractures, dipping 50° to 60°. 10.33 Ċ 07/02/2015 13.6 at 08:00 11 20 97 92 T2101 10 11.77 1.5 12 20 100 100 T2101 100 4.25n 13 18:00 5 16m 13.18 09/02/2015 at 48:00 20 100 93 T2101 100 5.3 × Ċ at 18:00 10/02/2015 13 77 -3.24 13.7 End of Investigation Hole at 13.77m. 14 15 16 17 18 19 20 Standard penetration test In-situ vane shear test Permeability test REMARKS Disturbed sample LOGGED T. C. Yip Piston sample Split spoon sample Pressuremeter test Packer Test Acoustic or optical televiewer survey DATE 13/02/2015 2 U76 undisturbed sample U100 undisturbed sample Piezometer tip Ø Mazier sample CHECKED Y. M. Leung Standpipe SPT liner sample Groundwater Sampling Well Water sample Vibrating wire piezometer DATE 16/02/2015 En Environmental Sample Impression packer test J201328e\_21.45B

# APPENDIX D

# DRILLHOLE COREBOX PHOTOGRAPHS



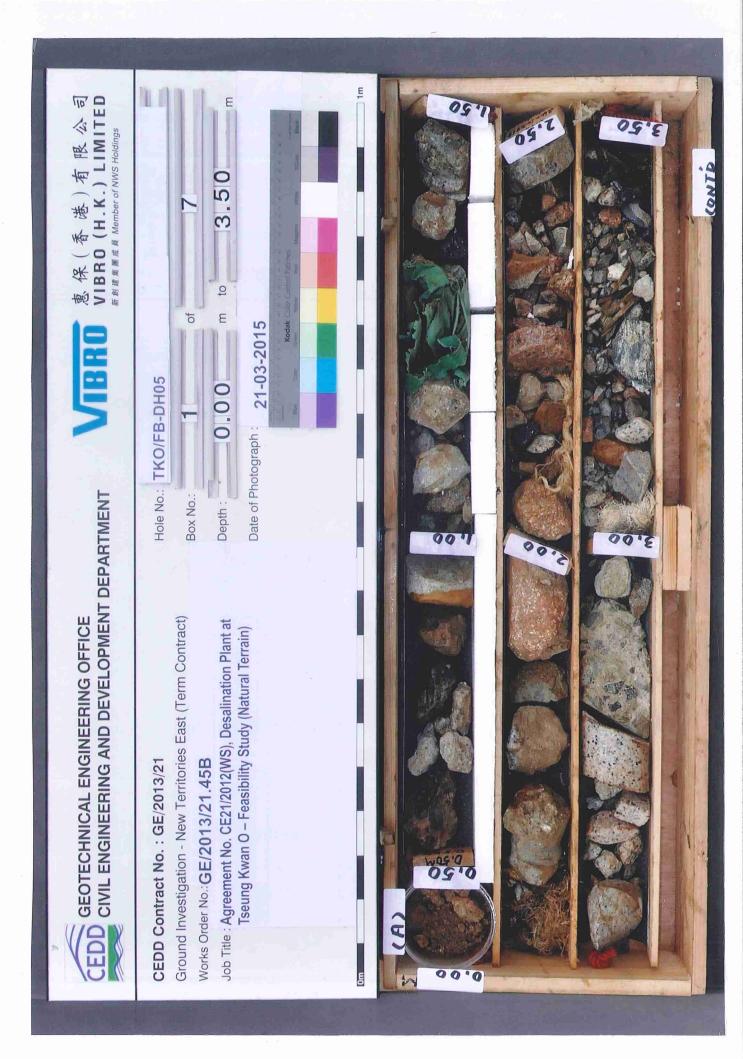


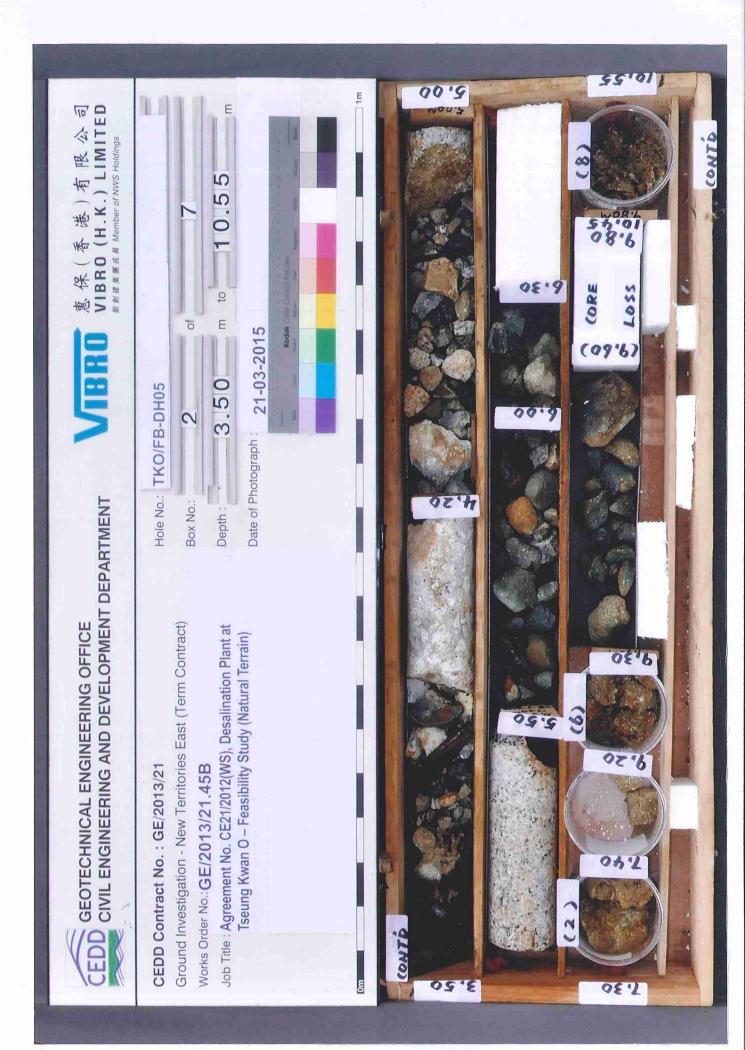












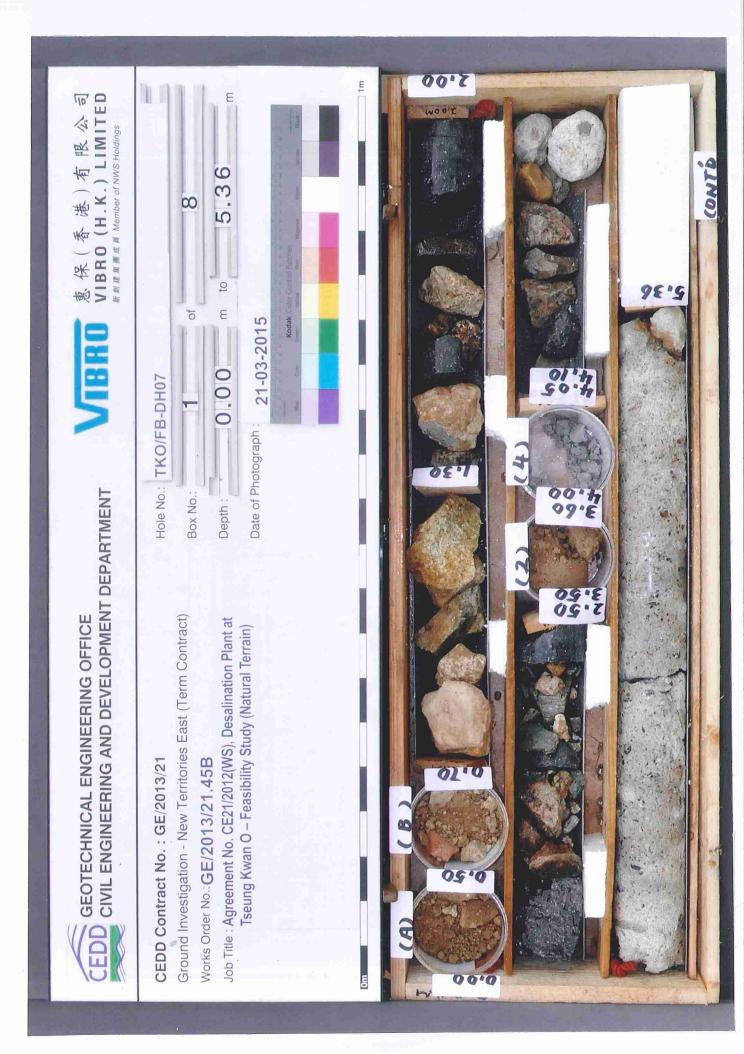
















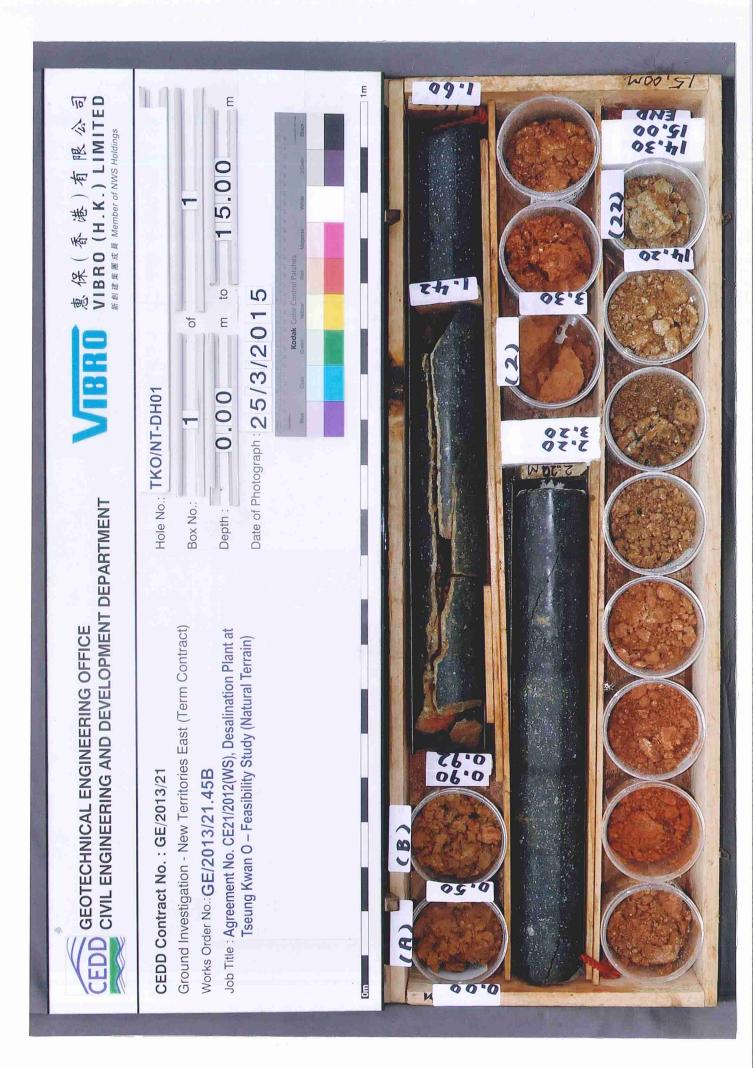






















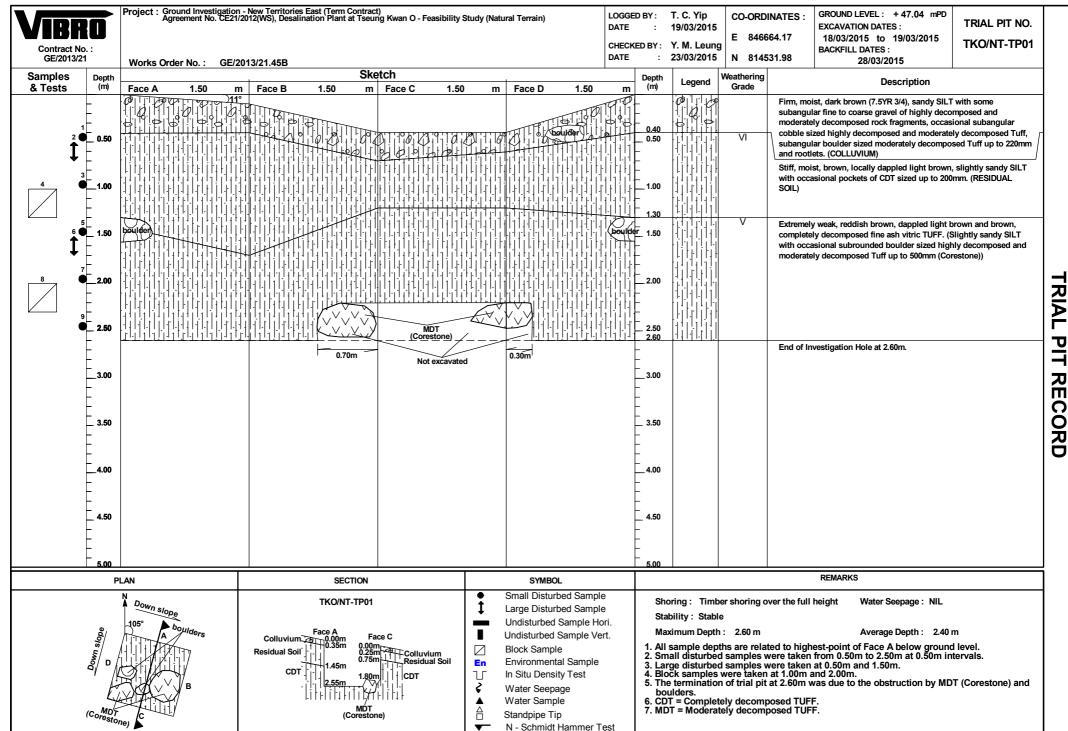






## APPENDIX E

## TRIAL PIT RECORDS



Contract No. : GE/2013/21	Project : Ground Investigation Agreement No. CE21 Works Order No. : GE/2			Study (Natu	ral Terrain)	LOGGED BY : DATE : CHECKED BY : DATE :	17/03/2015 Y. M. Leung	CO-ORDIN E 846611 N 814493	EXCAVATION DATES : 9.46 10/03/2015 to 14/03/ BACKFILL DATES :	TRIAL PIT NO.
Samples Depth			etch		1	Depth	Legend	Weathering	Descript	ion
& Tests (m) 2 0.50 3 1.00 - Col - 1.50 - 2.00 - 2.50 - 3.00 	Face A         1.50         r           I		Face C 1.50		Face D 1.50	m (m) 0.30 0.50		Grade	Firm, moist, dark brown (7.5YR 3/4), sa to subangular fine to coarse gravel of moderately decomposed rock fragmer COLLUVIUM) Firm to stiff, moist, brown (7.5YR 5/4), slightly sandy SILT with some subang coarse gravel of highly decomposed a rock fragments, subangular to subrou decomposed and moderately decomp subangular boulder sized moderately 500nm. (COLLUVIUM 1) Stiff, moist, brown (7.5YR 5/4), dapple brown, subangular to subrounded B decomposed Tuff up to 600nm with g subangular to subrounded cobble siz moderately decomposed Tuff. (COLLU End of Trial Pit at 1.40m.	andy SILT with some angular highly decomposed and its and rootlets. (TOP SOIL / dappled grey and light brown, jular to subrounded fine to and moderately decomposed nded cobble sized highly osed Tuff and occasional decomposed Tuff up to d light grey and reddish ULDER sized moderately ravelly slightly sandy silt and ed highly decomposed and
F	LAN	SECTION			SYMBOL				REMARKS	
N 88° 55° (	N SIDE D V V V V V V V V V V V V V	TKO/NT-TP02	ce C Top Soil / Colluvium Colluvium 1 Mum 2	↓ ■ ∠ ↓ ↓ ↓	Small Disturbed Samp Large Disturbed Sample H Undisturbed Sample V Block Sample Environmental Sample In Situ Density Test Water Seepage Water Sample Standpipe Tip N - Schmidt Hammer	le Si lori. Si ert. M 2. Si 3. A 2. Si 3. A 4. A 5. Ti	ability : Stable aximum Depth I sample dept nall disturbe large disturbe block sample	e 1: 1.40 m ths are relate d samples we ed sample wa e was taken a	er the full height Water Seepage Average Depth d to mid-point of Face A below gr ere taken at 0.50m and 1.00m. as taken at 0.50m. t 1.00m. t 1.40m was due to the obstructio	ı: 1.10 m ound level.

Contract No GE/2013/2	<b>P.</b> : 1	Works Order No. : GE/2013/21.45B									DAT	E: CKED BY:	T. C. Yip 03/02/20 Y. M. Le 04/02/20	015 eung	CO-ORDI E 8467 N 8143	05.51	GROUND LEVEL : + 54.43 mPD EXCAVATION DATES : 28/01/2015 to 02/02/2015 BACKFILL DATES : 03/03/2015	TRIAL PIT NO. TKO/NT-TP03	
Samples & Tests	Depth (m)	Face A	1.50	m	Face B	1.50	Ske		l.50 m	Face D	1.50		Depth n(m)	Legen	nd W	Veathering Grade		Description	
	1 0.50 1 0.50 1 1.00 1 1.00 1 1.50 1 1.50 1 1.50 1 1.50 1 1.50					<b>15°</b>		Pace C						$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} $	1/39	VI	subangu moderate COLLUV Firm, mo sandy SI decompo sized hig Stiff, moi SILT with	ist, dark brown (7.5YR 3/4), slightly sam lar fine to medium gravel of highly deco ly decomposed rock fragments and roo UM) ist, brown (7.5YR 5/4), dappled greyish i LT with occasional subangular fine grav sed rock fragments and subangular to i hly decomposed Tuff. (COLLUVIUM) st, brown, locally dappled reddish brow occasional angular to subangular fine used rock fragments. (RESIDUAL SOIL)	mposed and ttlets. (TOP SOIL / brown, slightly vel of highly subrounded cobble vn, slightly clayey gravel of highly
	2.70 2.300												2.40 2.40 2.50 3.00 3.00		- - - - - - - - - - - - - - - - - - -	V	complete SILT with	y weak, brown, dappled light brown and ly decomposed coarse ash crystal TUFi n occasional angular fine gravel) rial Pit at 3.20m.	
	3.50 4.00 4.50 4.50 5.00												3.50 4.00 4.50 4.50 						
216°	Colluvium Face A Colluvium Face A Colluv				Face 0.00m 0.20m 0.40m	Colluvium		Large Dist Undisturbe Undisturbe Block Sam Environme In Situ Der Water See Water Sam Standpipe	curbed Sam curbed Sam ed Sample ed Sample ad Sample ental Sampl nsity Test epage nple	ple Hori. /ert. e	St M; 1. Al 2. Sr 3. La 4. Bl 5. Dy	ability : Si aximum De I sample o nall distur ock samp vnamic pro	epth : depth : rbed s rbed s oles w robe to	s are relat samples w samples w vere taken	ed to high vere taken vere taken at 1.00m, was carri	Average Depth: 3.00 n test-point of Face A below ground from 0.50m to 3.00m at 0.50m into at 0.50m, 1.50m and 2.50m. 2.00m and 2.70m. ed out at the base of trial pit.			

Contract No. : GE/2013/21	Ō	Project : Grour Agree Works Order			es East (Term Contrac lination Plant at Tseu		sibility Study (Nat	ural Terrain)	DATE	: DBY:	T. C. Yip 11/03/2015 Y. M. Leung 12/03/2015	E 846660.07	GROUND LEVEL : + 34.27 mPD EXCAVATION DATES : 09/03/2015 to 11/03/2015 BACKFILL DATES : 23/03/2015	TRIAL PIT NO. TKO/NT-TP04
	Depth (m)	Face A	1.50 ı	n Face B		etch Face C	1.50 m	Face D 1.5		Depth (m)	Legend	Weathering Grade	Description	
	0.50 .1.00 1.50 .2.00 2.50 3.00 3.50 4.50 5.00						1.50 m	Not excavated		(, 0.30 0.50 1.00 1.20 1.20 2.00 2.00 2.50 -3.00 -3.50 -4.00 5.00		III Moderat light brc Joints a narrow ti 266/75°	pist, dark brown (7.5YR 3/4), sandy SILT rgular fine to coarse gravel of highly de lely decomposed rock fragments, occas sized moderately decomposed Tuff and /IUM) stiff, moist, brown (7.5YR 5/4), dappled ILT with some subangular to subround f highly decomposed rock fragments ar ular cobble sized highly decomposed reclosely to medium spaced, rough pla to very narrow, iron and manganese sta , 268°/65° and 320°/54°. Trial Pit at 1.50m.	composed and ional subangular rootlets. (TOP SOIL / light brown, slightly ed fine to coarse id occasional uff. (COLLUVIUM) eyish brown, dappled d fine ash vitric nar, extremely
	PL	AN			SECTION			SYMBOL					REMARKS	
320°/54² ▼ 0 268°/6	N 81° D 226°/75° 320°/54° V V V V V V V V V V V V V V V V V V V				Face A         Face           0.00m         0.00m           0.30m         0.30m           0.075m         0.90m	e C Top Soil / All Colluvium		Small Disturbed Sar Large Disturbed Sar Undisturbed Sample Block Sample Environmental Samp In Situ Density Test Water Seepage Water Sample Standpipe Tip N - Schmidt Hamme	ple Hori. Vert.					l level.

Contract No. GE/2013/21	U	Project : Ground Investigation Agreement No. CE21 Works Order No. : GE/2			Study (Natu	ural Terrain)	DATE :	T. C. Yip 17/03/201 Y. M. Leu 18/03/201	5 E 8466	BACKFILL DATES : IKO/NI-IP05	
Samples & Tests	Depth (m)	Face A 1.50 n		etch Face C 1.5	0 m	Face D 1.50	Dept m (m)	Legend	Weathering Grade	Description	
	0.50				<u>, 11777</u>				_	Firm, moist, dark brown (7.5YR 3/4), sandy SILT with some subangular fine to coarse gravel of highly decomposed and moderately decomposed rock fragments and rootlets. (TOP SOIL / COLLUVIUM) Firm to stiff, moist, brown (7.5YR 5/4), dappled light grey and reddish brown, slightly sandy SILT with some subangular to subrounded fine to coarse gravel of highly decomposed and moderately decomposed rock fragments, subangular to subrounded	
	1.00				╎ ╎ ╵ ╎ ╵ ╎ ╵ ╎ ╎ ╎ ╎ ╎ ╎ ╎ ╎ ╎ ╎ ╎ ╎ ╎					cobble sized highly decomposed Tuff and some subangular to subrounded boulder sized moderately decomposed Tuff up to	
	1.50 	'Ψ'         Φ         Φ         Φ	0.40m	boulders Not excavat	ed		0.60m 1.50			800mm. (COLLUVIUM 1) Extremely weak, reddish brown, streaked light brown, completely decomposed fine ash vitric TUFF. (SILT with occasional angular fine to medium gravel)	
	2.00 2.00						2.0			End of Trial Pit at 1.30m.	
	- - - 2.50 -						2.50				
-	3.00 3.00 						3.00				
	3.50 						_ 3.5( 				
-	4.00 4.00						_ 4.00 				
	- _ 4.50 -						4.50 				
-	- - 5.00						- 5.0				
	PL	AN	SECTION			SYMBOL				REMARKS	
		ners	TKO/NT-TP05 Top Soil / Face A Colluvium / Face A 0.00m Colluvium / 0.25m Face C 1.00m 0.20m Colluvium 1.30m 0.20m Colluvium 1.30m 0.20m Colluvium 1.30m 0.20m Colluvium 1.30m 0.20m Colluvium			Small Disturbed Sam Large Disturbed Sample I Undisturbed Sample I Block Sample Environmental Sampl In Situ Density Test Water Seepage Water Sample Standpipe Tip N - Schmidt Hammer	ble 5 lori. 5 lert. 1. / 2. 5 3. / 4. 7 5. 0	Shoring : Timber shoring over the full height       Water Seepage : NIL         Stability : Stable       Maximum Depth : 1.30 m       Average Depth : 1.00 m         1. All sample depths are related to mid-point of Face A below ground level.       2. Small disturbed samples were taken at 0.50m and 1.00m.         3. A large disturbed sample was taken at 0.50m.       4. The termination of trial pit at 1.30m was due to the obstruction by boulder         5. CDT = Completely decomposed TUFF.			

Contract No. GE/2013/21		Project : Ground Investigation Agreement No. CE21 Works Order No. : GE/2			Study (Natu	ural Terrain)	DATE	: ED BY :	T. C. Yip 17/03/2015 Y. M. Leung 18/03/2015	E 8466	47.07	GROUND LEVEL: + 26.07 mPD EXCAVATION DATES: 11/03/2015 to 14/03/2015 BACKFILL DATES: 28/03/2015	TRIAL PIT NO. TKO/NT-TP06
Samples	Depth	F		etch		<b>5</b>		Depth (m)	Legend	Weathering Grade		Description	
& Tests	(m) 	Face A         1.50         r           0         1         0         1         0         0         0           1         0         1         0         1         0         0         1         0         0         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         1		Face C 1.5		Face D 1.50		(m) - - - - - - - - - - - - -			to suban moderate subroun rootlets. Firm to s subangu decompo sized hig moderate 220mm.( Stiff, mo	ist, dark brown (7.5YR 3/4), sandy SILT gular fine to coarse gravel of highly de aly decomposed rock fragments, occasi ded cobble sized highly decomposed T (TOP SOIL / COLLUVIUM) tiff, moist, brown (7.5YR 5/4), slightly s lar to subrounded fine to coarse gravel ised rock fragments, subangular to sub hly decomposed and slightly decompose COLLUVIUM 1) ist, brown (7.5YR 5/4), dappled light bro ded BOULDER sized moderately decom	composed and ional subangular to iuff and some andy SILT with some of highly orounded cobble boulder sized seed Tuff up to www and light grey,
	 2.00   2.50 	Not	excavated boulder		Not ex	cavated	-	- - - - - - - - - 2.50			highly de	vith gravelly slightly sandy silt and sub acomposed Tuff. (COLLUVIUM 2) rial Pit at 1.50m.	angular cobble sized
	3.00 3.00   3.50							- - - - - - - - - - 3.50					
	- - - - - - - - - - - - - - - - - - -							- - - - - - - - - - - - -					
-	4.50 - - - <u>5.00</u>				<u> </u>			4.50 - - - <u>5.00</u>				REMARKS	
•	N	LAN	SECTION TKO/NT-TP06 Top Soil / Face A Colluvium 0.45m Face Colluvium 0.45m Face Colluvium 0.50m Colluvium 2 0 0.00m Colluvium			SYMBOL Small Disturbed Samp Large Disturbed Sample H Undisturbed Sample V Block Sample Environmental Sample In Situ Density Test Water Seepage Water Sample Standpipe Tip N - Schmidt Hammer	ole Iori. /ert.	Sta Ma 1. All 2. Sm 3. A l 4 A h	oring : Timb ability : Stabl ximum Depth sample dep nall disturber arge disturb lock sample e termination	e 1 : 1.30 m ths are relat d samples v ed sample v was taken	ted to mid vere taken vas taken at 1 00m		el.

Contract No. : GE/2013/21	Project : Ground Investigation Agreement No. CE21/ Works Order No. : GE/2			idy (Natu	ral Terrain)	LOGGED E DATE CHECKED DATE	: 03/02 ву: Ү.М.	2/2015	E 8467	31.08	GROUND LEVEL : + 63.10 mPD EXCAVATION DATES : 27/01/2015 to 02/02/2015 BACKFILL DATES : 03/03/2015	TRIAL PIT NO. TKO/NT-TP07
Samples Depth	Easo A 1.50 m	Ske			Eaco D 1 50		epth (m) Le	gend	Weathering Grade		Description	
& Tests (m)	Face A       1.50       n         1011110110110000000000000000000000000		Face C 1.50		Face D     1.50       Image: constraint of the state of the s		1.10	-  : . .¢	VI	subangui fragment Firm to s slightly s moderate boulder s (COLLUV Stiff, moi occasion fragment Stiff, moi SILT with decompo sized up	ist, dark brown (7.5YR 3/4), sandy SILT ar fine to coarse gravel of moderately v s and rootlets. (TOP SOIL / COLLUVIUI tiff, moist, brown (7.5YR 5/4), dappled e andy SILT with some subangular fine t ly decomposed rock fragments, suban ized moderately decomposed Tuff up	decomposed rock A) greyish brown, to coarse gravel of gular cobble and to 700mm. Intly clayey SILT with omposed rock Intly sandy clayey Inoderately ind pockets of CDT
3.00  3.50  4.00   4.50   5.00							3.00 3.50 4.00 4.50					
F	PLAN	SECTION			SYMBOL						REMARKS	
N 00 70°	WN 9000 D Residual Soil 2 	Colluvium 0.00m 0.15m Residual Soil 1 0.60m 0.00n 0.10n 0.10n	ace C Top Soil / Colluvium Colluvium Colluvium Residual Soil 1 Soil 2		Small Disturbed Samp Large Disturbed Sample H Undisturbed Sample H Undisturbed Sample V Block Sample Environmental Sample In Situ Density Test Water Seepage Water Sample Standpipe Tip	le ori. ert.	Stability Maximun 1. All samp 2. Small dis 3. Large dis 4. Block sa	: Stabl n Depth le dep sturbe sturbe mples	ths are relat ths are relat d samples w d samples w were taken	ed to mid- vere taken vere taken at 1.00m a	height Water Seepage : NIL Average Depth : 2.10 r point of Face A below ground lev from 0.50m to 2.00m at 0.50m in at 0.50m and 1.50m. and 2.00m. ed out at the base of trial pit.	

		Ga	<u>ה</u> הי		$\sim$		$\mathbf{r}$		DI	RILI	_H(	OLE	-	R	EC	ORD	Н	DLE No. <b>D1</b>
										·				GE/20			SHEET	1 of
PRC	JECT			ent No	5. CE	21/20	)12 (	WS) Desa			nt at I	seung	Kwan	0 - Fei				
	HOD		tary					CO-OR		IATES 6766.3	3					ORK ORDER NO.		
MAC	HINE	& No.	FDI					N		4045.6	0						9/2013 to	
FLU	SHING	G MED	IUM	W/	ATER			ORIEN	TAT			Ve	ertica	 	SE	ABED LEVEL	-2.35	mPD
Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	1	Solid core Recovery %	R.Q.D.	Fracture Index			Samı No. Typ		c. Reduced	o Depth 8 (m)	Legend	Grade		Description	
26/09/2013	SX	07:00		0				17 bis 33 bis		1	0.45 0.50		- 1.00			Light greenish gr SAND with some DEPOSIT)	ey (5BG 7/1), shell fragmen	fine to coarse its. (MARINE
								3,4 4,4,5,6 N=19		3 4	0,95 1.00 1.40 1.45	-3.35			V	Extremely weak, orangish brown a decomposed TUF	ind black, con	npletely
-				85						6	2.50							
2 <u>6/09/2013</u> 27/09/2013		19:00 07:00						1,1 1,1,2,3 N=7		7 <b>(</b> 8 <b>()</b> 9 •	3.50 3.60 4.00 4.05	-5.95	3.60		v	Extremely weak, mottled orangish completely decon medium SAND)	brown and sp	otted white,
	SX 5.50 HX HX	19:00		68						10	5.45							
27/09/2013 28/09/2013	6.60	07:00		100	93	84	>20 7.7 2.0 9.1 2.9			12 T2101	6.50 - 6.60	<u>-8.95</u> <u>-9.10</u>	<u>6.60</u> <u>6.75</u>		<u>   </u> 	Strong, grey and locally striped wh ash crystal TUFF. locally very closel planar, tight to ve and chlorite coate 40°-50° and 70°- 6.60 - 6.75m; Mo	ite, slightly de Joints are me y spaced, rou ery narrow, irc ed, dipping 0° 80°.	ecomposed coa edium to closel gh and smooth on stained, kac -10°, 30°-40°,
				100	100 100	33 85	10.0 3.1 <u>&gt;20</u> 5.0			T2101	- 8.08 - 8.38	11.00				moderately decor		
				100	100		<del>16.7</del> 4.8 10.0 2.3			T2101	- 9.75	-11.40 -11.57 -12.35			III II KS	9.05 - 9.22m: Mo moderately decor 9.22 - 10.11m: St	nposed.	
SP     SP     U7     U1     Ma	T liner s '6 undist	urbed sau sturbed s uple	mple		t Pie Pe Pa Im Im	rmeabil cker (W pressio	er / St ity tes /ater / n pacl	andpipe tip it Absorption) te ker test wer Survey T		LOGGE DATE CHECKI	02/1	0/2013 (Y	- 1. de 2. - 3. 4.	Constar epth. Pressur Acoustic Packer	nt hea emete c tele (Wate	ad permeability test w er test was carried ou viewer survey was ca er Absorption) tests w .50m depths.	it at 4.50m-5.5 rried out at 7.1	50m depth 00m-21.92m de
		pie enetratio ample	n test	Ň			ne she	ear test	COL	DATE		0/2013	_					

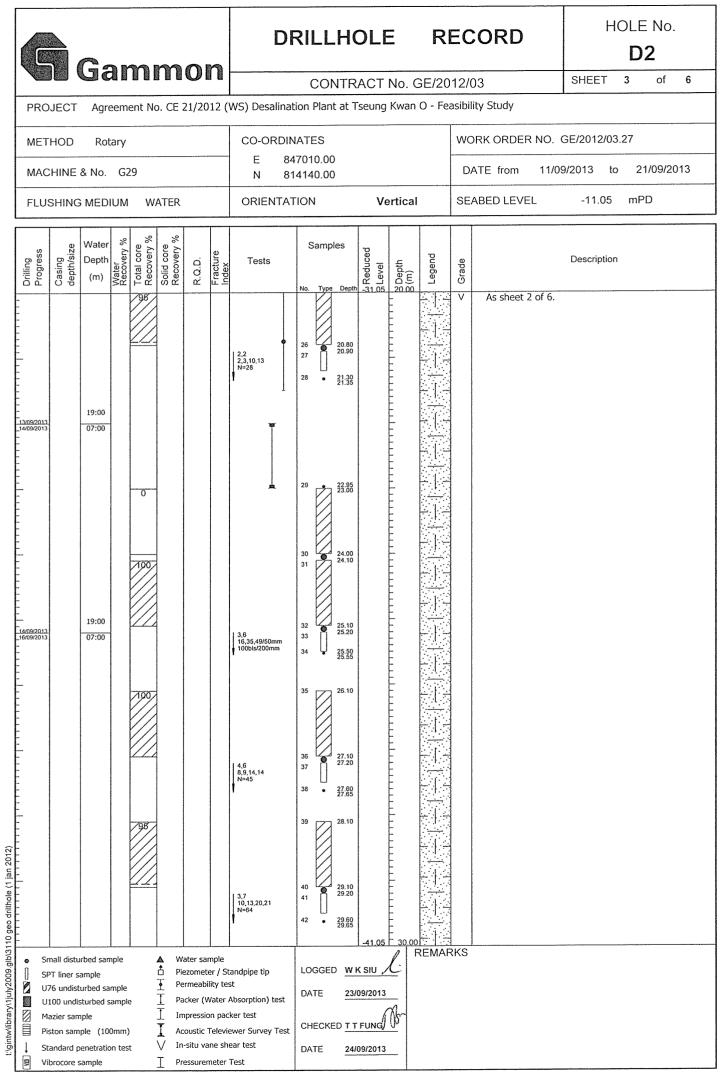
		<b>^</b> _		<b>~ n</b>		~		D	RILLH	OLE	RI	EC	ORD	HOLE No. <b>D1</b>
		Ga			II	O			CONTR	ACT No. G	GE/20	12/0	)3	SHEET 2 of 3
PRO.	IECT	Agre	eemer	nt No	. CE :	21/20	)12 (\	VS) Desalina	ation Plant at <sup>-</sup>	rseung Kwan	O - Fea	asibili	ty Study	
NETH	HOD	Rot	ary					CO-ORDI E 8	NATES 346766.33			wo	RK ORDER NO. (	GE/2012/03.27
/ACI	HINE	& No.	FDR	-06					340700.55			DA	ATE from 26/09	9/2013 to 30/09/2013
LUS	HING	MED	UM	WA	TER			ORIENTA	TION	Vertical		SEA	ABED LEVEL	-2.35 mPD
Progress	Casing depth/size	Water Depth	Water Recovery %	Recovery %	Solid core Recovery %	a.D.	Fracture Index	Tests	Samples	Reduced Level Depth (m)	Legend	Grade		Description
ď.	de O	(m)	Šå F	° 22 100	ගි සී 100	⊡ 96			No. Type Dept	2-12.35 10.00 -12.46 - 10.11		Ο 	As sheet 1 of 3.	
ويعتبون والمعاولين والمحاصر والمحاصر والمحافظة والمحافظة والمحافظة والمحافظة والمحافظة والمحافظة والمحافظة والم				100	100	90	5.4 		1 T2101 11.02 T2101 11.88 T2101 11.88	-13.32 - 10.97			10.97 - 12.78m: l	.ight greenish grey.
<u>2/2013</u> 2/2013		19:00 07:00		100	100 100 100 94	87 92 66 83	10.8 2.7 8.3 >20 5.2 18.7 3.1		12.78 T2101 13.75 T2101 14.71 T2101 14.71 T2101 15.78	-15.13 - 12.78 -15.58 - 13.23 -15.58 - 13.23 -15.77 - 13.42 -16.34 - 13.99 -16.51 - 14.16 -17.22 - 14.87 -17.32 - 14.97 -17.64 - 15.29 -17.78 - 15.43 		11	white, locally strip crystal bearing fir closely, locally me rough and smootl chlorite and kaolin stained, dipping ( 70°-80°. 13.23 - 13.42m: ( green, coarse ash 13.99 - 14.16m: ( green, coarse ash 14.87 - 14.97m: I moderately decor	Greenish grey, spotted dark n crystal TUFF. Moderately strong, brown, nposed. Greenish grey, streaked dark
a sa ang ang ang ang ang ang ang ang ang an				198	100	85	5.7 - ≥20 3.5		T2101 T2101 T2101 T2101 T2101 T2101	-18.99 - 16.64 		11	and spotted black ash crystal TUFF. locally very closel planar, tight to ve	ish green, streaked dark green s, slightly decomposed coarse Joints are medium to closely, y spaced, rough and smooth rry narrow, clean, kaolin manganese stained, dipping and 60°-70°.
				100	100	79	1 <u>3.3</u> 7.0 ≥20 8.2		19.18	-21.30 18.95 				Dark grey, spotted white, he ash vitric TUFF.
SPT U76 U10 Maz	liner sa undisti	urbed sau turbed s ple	mple		Pie Pe Pe I Pa	ermeabi icker (V npressio	mple er / Sta ility tes Vater A on pack	andpipe tip t bsorption) test er test wer Survey Tesl		<u>к siu /</u> R 110/2013	REMAR	κs <sup>1</sup>		

Gammon	DRILLH	OLE RI	ECORD	HOLE No. D1
		ACT No. GE/20		SHEET 3 of 3
PROJECT Agreement No. CE 21/2012 (V	·	seung Kwan O - Fea		
METHOD Rotary	CO-ORDINATES E 846766.33		WORK ORDER NO. (	
MACHINE & No. FDR-06	N 814045.60			0/2013 to 30/09/2013
FLUSHING MEDIUM WATER	ORIENTATION	Vertical	SEABED LEVEL	-2.35 mPD
Progress Progress Casing depth/size (u) un unter Water Recovery % Solid core Recovery % R.Q.D. R.O.D.	Tests No. Type Depth	25 Reduced 8 Cepth 9 (m) Legend	Grade	Description
100 100 79 94 66 8.9 100 100 86 3.4 12.5 5.1	12001 12101 12101 12101 12101 12101		II As sheet 2 of 3.	
	<b>A</b> <u>1</u> 21.00	-24.33 - 21.98 V V	End of hole at 21.	98m depth.
●       Small disturbed sample       ▲       Water sample         □       SPT liner sample       □       Piezometer / Stan         □       U76 undisturbed sample       ⊥       Permeability test         □       U100 undisturbed sample       ⊥       Packer (Water At         □       U100 undisturbed sample       ⊥       Packer (Water At         □       Mazier sample       ⊥       Impression packet         □       Piston sample       ⊥       Acoustic Teleview         ↓       Standard penetration test       ∨       In-situ vane sheat         ☑       Vibrocore sample       ⊥       Pressuremeter Teleview	DATE 02/1 DATE 02/1 DATE 02/1 DATE 02/1 DATE 02/1 DATE 03/1 DATE 03/1	SIU 0/2013 FUNC	KS	

Gammon	DRILLH	OLE R	ECORD	HOLE No. D2
		RACT No. GE/20		SHEET 1 of 6
PROJECT Agreement No. CE 21/2012 (	-	Iseung Kwan O - Fe	T	
METHOD Rotary	CO-ORDINATES E 847010.00		WORK ORDER NO.	
MACHINE & No. G29	N 814140.00		DATE from 11/0	9/2013 to 21/09/2013
FLUSHING MEDIUM WATER	ORIENTATION	Vertical	SEABED LEVEL	-11.05 mPD
Drilling Progress Casing depth/size (m/ad water Recovery % Recovery % Recovery % Recovery % Recovery % Recovery % Recovery % Recovery % Recovery %	Tests	الب 11: Reduced 9 Level 8 (m) Legend Legend	Grade	Description
07:00	v 2		Soft, greenish gre DEPOSIT)	⊇y (5GY 5/1), CLAY. (MARINE
	v 4 2.00 2.95 3.00		Soft, greenish gre occasional shell fi	ey (5GY 5/1), CLAY with agments. (MARINE DEPOSIT)
	v 6 4.00			
	v v v v v v v v v v v v v v v v v v v			
e drithole (1 jan 2012)	v 10 \$ \$.00			
Small disturbed sample     SPT liner sample     SPT liner sample     SPT liner sample     UT6 undisturbed sample     U100 undisturbed sample     U100 undisturbed sample     Permeability test     Mazier sample     Packer (Water All     Mazier sample     Piston sample     Standard penetration test     V In-situ vane shea	bsorption) test DATE 23	/09/2013 /09/2013 /09/2013 /09/2013 /09/2013 /09/2013 /09/2013 /09/2013 /09/2013 /09/2013	nt head permeability test w	as carried out at 20.00m-21.50r t at 22.00m-23.00m depth. at 1.00m, 3.00m, 5.00m, 7.00m
Image: Standard penetration test     V     In-situ vane sheat       Image: Standard penetration test     V     In-situ vane sheat       Image: Standard penetration test     V     In-situ vane sheat       Image: Standard penetration test     Image: Standard penetration test     V	DATE 24	/09/2013		

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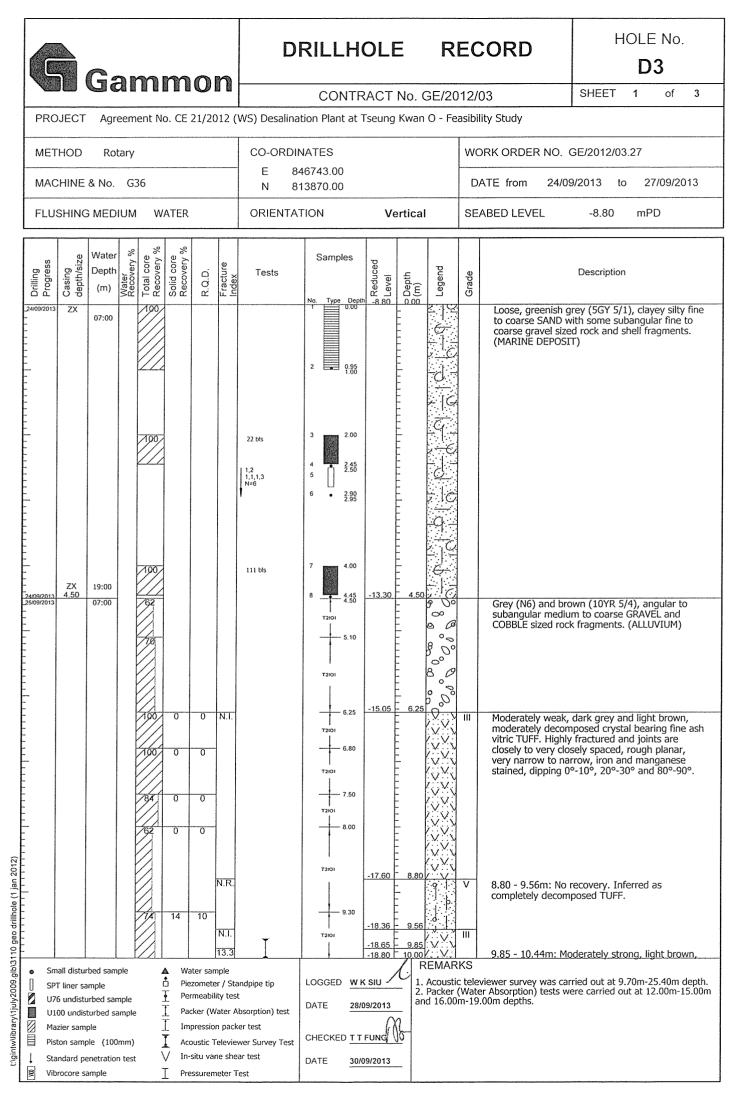
		<b>^</b> .						Ι	DF	RILI	_H(	DLE	=	RI	EC	CORD	HOLE No. <b>D2</b>
		Ga	n	n ľ	n	O				СО	NTR	ACT	No. C	GE/20	12/	03	SHEET 2 of 6
PRC	JECT	Agre	emer	nt No.	. CE 2	21/20	12 ('	WS) Desal	inati	on Plai	nt at T	seung	Kwan	0 - Fea	asibi	lity Study	
MET	HOD	Rota	ary					CO-OR	DIN	ATES					wo	ORK ORDER NO. (	GE/2012/03.27
MAC	HINE	& No.	G29					E N		7010.0 4140.0					D	ATE from 11/09	9/2013 to 21/09/2013
FLU	SHING	G MEDI	UM	WA	TER			ORIEN	ΤΑΤ	ION		Ve	ertical		SE	ABED LEVEL	-11.05 mPD
Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	l otal core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests		Sam	ples	k Reduced 9 Level	5 Depth 8 (m)	Legend	Grade		Description
				100					v	12	10.00					As sheet 1 of 6.	
-				100						13	12.00 12.95 13.00	-23.05	- 12.00			Firm, brownish gr DEPOSIT)	ey (5YR 5/2), CLAY. (MARINE
-				78 <b>2</b>				0,0 0,0,0,0 N=0		15 16 17 18	14.00 15.00 15.10	<u>-25.05</u> -26.15	- <u>14.00</u> 			(MARINE DEPOSI	silty fine to coarse SAND. T) ey (N3), SILT. (MARINE
- <u>1/09/2013</u> 2/09/2013 -	ZX 16.72 SX	19:00 07:00		68 77	71	71	6.1 N.R. 4.7			19 20 T2/0		<u>-27.77</u> -28.10	<u> </u>			Strong, dark grey decomposed fine medium to closel planar, extremely and kaolin coatec	, spotted white, slightly ash vitric TUFF. Joints are y spaced, rough and smooth narrow, iron stained, chlorite , dipping 10°-20° and 30°-40° No recovery. Inferred as
12/09/2013		19:00 07:00		780 				1,3 3,6,11,18 N=38		21 22 23 24 25	17.80 18.80 18.90 19.30 19.35				V	Extremely weak, 6/4), spotted whi	ight yellowish brown (10YR te, completely decomposed y fine to medium SAND)
	PT liner s 76 undist 100 undi azier san ston sam	turbed san sturbed sa nple nple (100 penetration	ple nple ample ample		Pie Pe Pa ∏ Pa ∏ In ↓ In	rmeabi cker (V npressic oustic	er / St lity tes Vater v on pac Felevia ne sh	Absorption) te ker test ewer Survey T ear test		DATE	<u>23/</u> KED <u>T T</u>	K SIU / 09/2013 FUNG /	<u>l</u>	REMAR	RKS		



		Ga				•		DI	RILLH	OLI		RI	ΞC	ORD	HOLE No. D2
									CONTR						SHEET 4 of 6
ROי 	JECT	Agr	eeme	ent No	). CE	21/20	)12 (	WS) Desalina		seung	Kwan	0 - Fea			
	HOD		tary					CO-ORDIN E 84	NATES 47010.00					ORK ORDER NO. (	
		& No.							14140.00						0/2013 to 21/09/2013
		G MED			ATER			ORIENTA			ertica		SE/	ABED LEVEL	-11.05 mPD
Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	k Reduced G Level	60 Depth 00 (m)	Legend	Grade		Description
				/85				3.5 8,12,17,19 №56	43 30.10 44 31.10 45 31.20				V	As sheet 3 of 6.	
				190				T	46 • 31 60 31 65 47 32.10 48 33.10 48 33.10						
				750				6,12 16,20,23,27 N=56	49 33.60 50 • 33.65 51 34.10	-45.15			v	completely decom coarse SAND with	h brown (10YR 5/2), jposed TUFF, (Silty fine to much angular to subangular vel sized rock fragments)
	SX <u>35.20</u> HX			48					52 <b>3</b> 5.10 53 <b>3</b> 5.20	-46.25	- - - - - - - - - - - - - - - - - - -		IV	Weak, brown (10' TUFF. (Angular to	(R 5/4), highly decomposed subangular fine to coarse k fragments in sandy matrix)
2013. 2013	HX 36.30	19:00 07:00		100	0	0	N.I. 10.5		54 36.20 T2101 37.12	-47.35	- 36.30 - - - - - -		111	brown, spotted bl decomposed lithic Joints are very clo rough planar and to narrow, iron ar	, light brown and light greyish ack and white, moderately bearing fine ash vitric TUFF. sely, locally closely spaced, undulating, extremely narrow d manganese stained, dipping
							19.0		T2101					0°-10°, 30°-40°, (	50°-70° and 80°-90°.
				91	33	0	<u>N.I.</u> >20								
				100	26 0 94	0 0 13			38.50 						
					74	13	7.7 20.0 11.3		T2101	-51.05	40.00				
SP U7 U1	T liner si 6 undist 00 undis	urbed sa turbed s	mple	-	➡ Pie ■	rmeabi cker (V	er / St lity tes Vater /	Absorption) test				REMAR	KS		
	izier sam ton sam	iple ple (100	)mm)		*	•		ker test ewer Survey Test	CHECKED TT	FUNG	Ø				

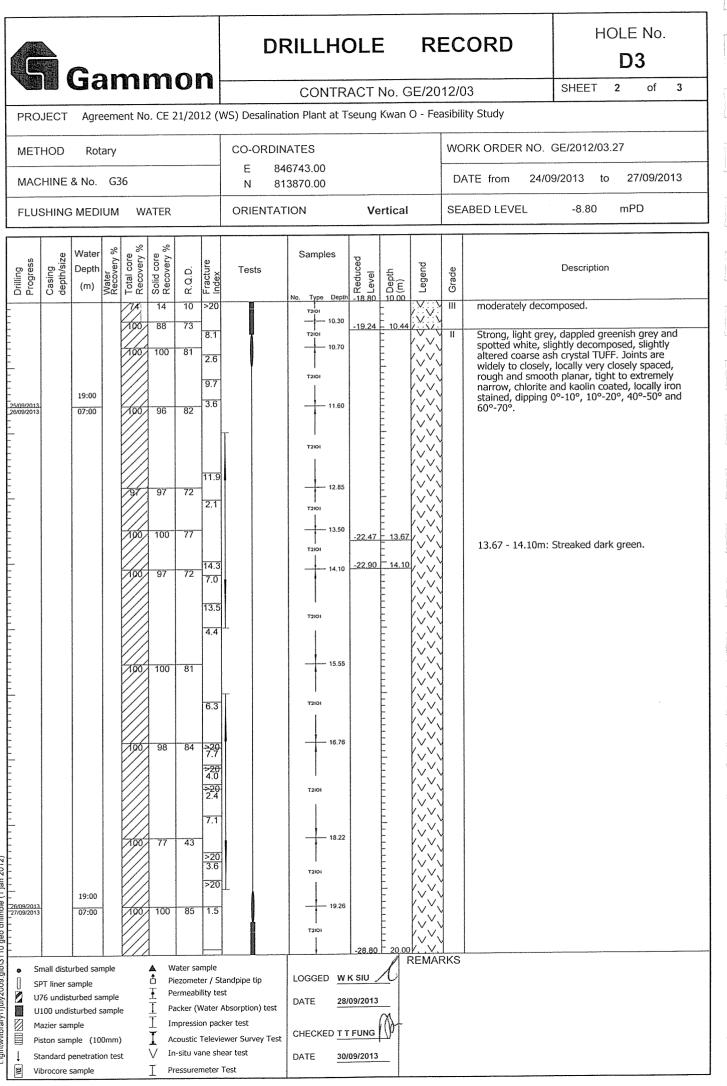
Gamr	200	DI	RILLH	OLE		R	EC	ORD	HOLE No. D2
· · · · · · · · · · · · · · · · · · ·			CONTR						SHEET 5 of 6
PROJECT Agreement No.	. CE 21/2012 (			seung	Kwan	0 - Fea			
METHOD Rotary		CO-ORDIN E 84	IATES 17010.00					RK ORDER NO.	
MACHINE & No. G29			4140.00						09/2013 to 21/09/2013
FLUSHING MEDIUM WA	TER	ORIENTAT		Ve	rtical		SEA	ABED LEVEL	-11.05 mPD
Drilling Progress Casing depth/size (u) (u) (w) Water Recovery %	Solid core Recovery % R.Q.D. Fracture Index	Tests	Samples	5 Reduced	0 (m) 0 (m)	Legend	Grade		Description
12/09/2013 12/09/2013 18/09/2013 07:00 1002 1002 1002	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		35.97 T2(0) 40.89 41.00 T2(0) 41.55 41.55				111	As sheet 4 of 6.	
19:00 19:09/2013 19:00 10:00 10:0	$\begin{array}{c c c c c c c c c c c c c c c c c c c $		T2/01 T2/01 T2/01 T2/01 42.41 T2/01 43.25 T2/01 43.25 T2/01 43.75 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 45.25 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 45.25 T2/01 44.29 T2/01 44.29 T2/01 44.29 T2/01 45.25 T2/01 44.29 T2/01 45.25 T2/01 44.29 T2/01 45.25 T2/01	-54.30 -54.55 -54.90 -56.30 -56.54 -56.78	- - - - - - - - - - - - - - - - - - -			decomposed fine closely, locally m rough planar and to narrow, iron a 0°-10° and 30° 43.50 - 43.85m: decomposed. 45.25 - 45.49m: decomposed.	Strong, grey, slightly Strong, grey, slightly
	95         83         7.4           2.4         2.4           86         78         1.6		T2101 47.05 T2101	-56.98	45.93			Strong, grey, da white, slightly de ash vitric TUFF. widely, closely a planar and undu and manganese 30°-40°, 40°-50°	
19:00 19:00 21/09/2013 07:00 100	9.5           97         91         3.0           100         92         \$20 3.1		47.99 T2i01 48.69	59.38 -59.38	47.81			47.81 - 47.99m: 47.99 - 48.33m:	Light grey, fine ash vitric TUFF Coarse ash crystal TUFF. Light grey, fine ash vitric TUFF Lithic bearing coarse ash cryst
	5.3		72/01	-60.49 -60.65 -60.97 -61.05	49.44 49.60 49.92 50:00			49.44 - 49.60m: 49.60 - 49.92m: TUFF.	Light grey, fine ash vitric TUFF Crystal bearing fine ash vitric
Small disturbed sample     SPT liner sample     SPT liner sample     U76 undisturbed sample     U100 undisturbed sample     Mazier sample     Piston sample (100mm)     Standard penetration test     Vibrocore sample     Vibrocore sample	Piezometer / Sta Permeability test Packer (Water A Impression pack Acoustic Televier	t bsorption) test er test wer Survey Test ar test	CHECKED TT	09/2013		EMAR	NΟ		

		6-	<b>N E</b> -4	<u>~ -</u>	~~	~	~	DF	RILL	HC	OLE	Ξ	R	EC	ORD	HOLE No. <b>D2</b>
		Ga									ACT					SHEET 6 of 6
PRC	JECT	Agre	eme	ent No	o. CE	21/20	12 (\	WS) Desalinat	ion Plant	at T	seung	Kwan	0 - Fe	asibil	lity Study	
MET	HOD	Rot	ary					CO-ORDIN						wo	ORK ORDER NO.	GE/2012/03.27
MAC	HINE	& No.	G2	9					7010.00 4140.00					D,	ATE from 11/0	9/2013 to 21/09/2013
FLU	SHING	6 MEDI	UM	W	ATER			ORIENTAT	TION		Ve	rtical		SE	ABED LEVEL	-11.05 mPD
Drilling Progress	Casing depth/size	Water Depth (m)			Solid core Recovery %		Fracture Index	Tests	Sample No. Type		b Reduced D Level	명 Depth 8 (m)	Legend	Grade		Description
				700	100 95 100	92 90 86	>20 3.0 9.1 2.8 >20 1.3		T3001	50.27	-61.37	<u>50.32</u>				Light greenish grey.
21/09/2013		19:00								52.38	-63.43	- - - 52.38	$\langle \mathbf{v}, $		51.93 - 52.38m: ash vitric TUFF. End of hole at 52	Light grey, crystal bearing fine
											-71.05					
[] Si М U Ш U М	PT liner s 76 undist 100 undis azier sam	urbed sar sturbed sa nple	mple ample		ੈ Pi ↓ Pe ↓ Pa ↓ In	ermeabi acker (V apressio	er / Sta lity tes Vater A on pack	ubsorption) test ker test	LOGGED DATE CHECKE	23/	K SIU /	() '  -  }}	REMAF	103		
I Pi ↓ Si I III Vi		ple (100 enetration ample			I∩	oustic -situ va essurer	ine she		DATE		09/2013					



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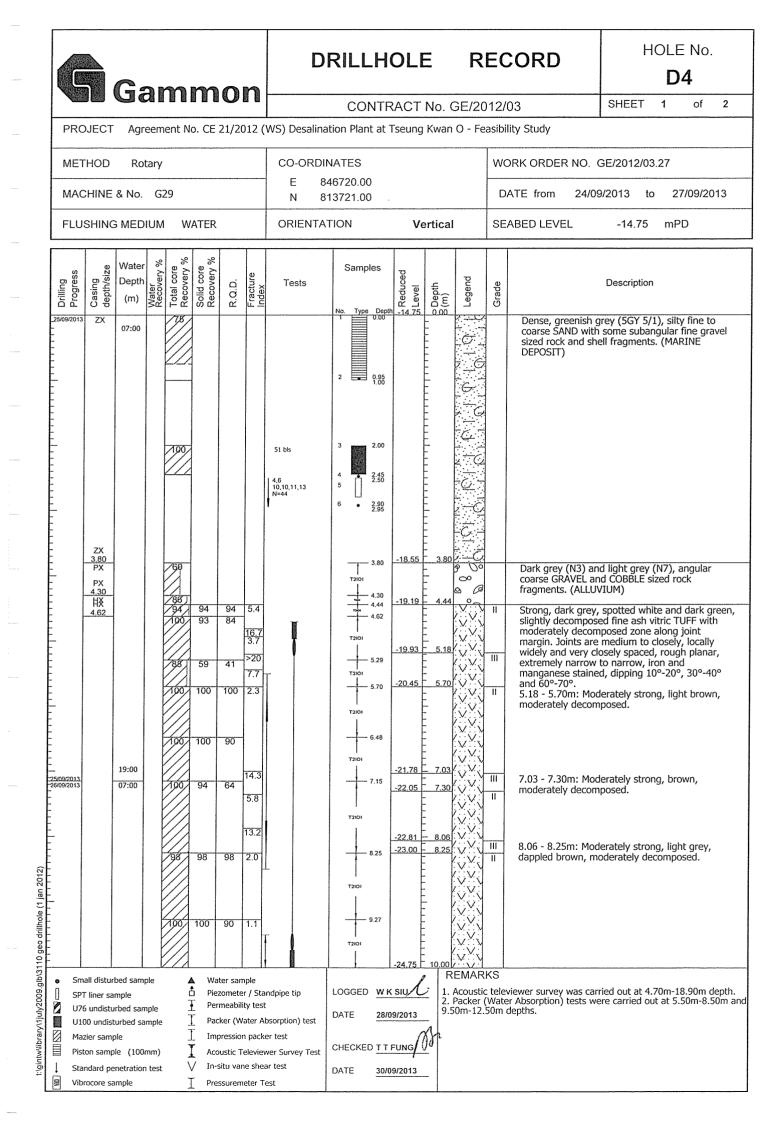


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G		Gá	ลท	ากเ	m		n	D	RILLH						HOLE No. D3
PRO								NS) Deceline	CONTF						SHEET 3 of 3
METH		_	tary		0. CE	21/20		CO-ORDII			NWdII	0 - re		DRK ORDER NO. (	GE/2012/03.27
MACI	HINE	& No.	G3	36					46743.00 13870.00				D	ATE from 24/09	1/2013 to 27/09/2013
FLUS	HING	MED	IUM	W	ATER			ORIENTA	TION	Ve	ertical		SE	ABED LEVEL	-8.80 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 S Level	00 Depth 00 (m)	Legend	Grade		Description
				700	100	85	3.1 11.1 3.4 1.1 520 6.2 1.1		T2:01 T2:01 T2:01 T2:01 T2:01 T2:01 T2:01		_20.00     		11	As sheet 2 of 3. 21.24 - 21.35m: S	treaked dark green.
				100	100	92	2.8 10.0 3.7		22.90 T2101 	<u>-32.33</u> <u>-32.68</u>	23.53			23.53 - 23.88m: Li aitered coarse ash quartz vein.	ight grey, dappled white, crystal TUFF fused with
		19:00							25.59	-34.39	- 25.59			End of hole at 25.	59m depth.
<ul> <li>SPT</li> <li>U76</li> <li>U10</li> <li>Maz</li> <li>Pisto</li> <li>↓ Star</li> </ul>	all disturi iner sa undistu 00 undistu 20 undist zier samp on samp ndard pe	mple rbed sar urbed si ble de (100 metratio	mple ample Omm)		Die Pie Pe Pa I I I I Ac V In·	rmeabil cker (W Ipressio	er / Sta lity tesi /ater A n pack Televie ne she	bsorption) test er test wer Survey Test ar test	DATE 28/	<u>&lt; siu /</u> 09/2013	- 30.00 - F	EMAR	KS		

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			m						CONTR		<b></b>				SHEET 2 of 2
PROJI	ECT	Agre	ement	No.	CE 2	21/20	12 (V	VS) Desalinati	on Plant at T	seung	Kwan	0 - Fea	asibili	ity Study	
METH	IOD	Rota	ary					CO-ORDIN					wo	ORK ORDER NO. (	GE/2012/03.27
MACH	IINE 8	k No.	G29						6720.00 3721.00				DA	ATE from 24/09	0/2013 to 27/09/2013
FLUSI	HING	MEDI	UM	WA	TER			ORIENTAT	ION	Ve	ertical		SE/	ABED LEVEL	-14.75 mPD
s	ize	Water	ery % ore	ery %	ore ery %		ω		Samples	pe					· · ·
Drilling Progress	Casing depth/size	Depth (m)	Water Recovery Total core	Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests		k Reduced	Depth (m)	Legend	Grade		Description
				1	100	90	7.1		No. Type Depth	-24.75	10.00 		11	As sheet 1 of 2.	
			K		94	89	-20		10.52	-25.27 -25.42				lithic bearing coar	nish grey, slightly decomposed se ash crystal TUFF. Joints are
							<u>&gt;20</u> 7.8		T2IOI		-		11	medium to closely rough and smootl	, locally very closely spaced, n planar, tight to very narrow, n coated, iron and manganese
											<u>- 11.34</u> - -	$\langle \vee \rangle \vee$	111	stained, dipping 0 70°-80°.	<ul><li>You and You are also also also also also also also also</li></ul>
			19	18	92	85	3.8			-26.54	<u>- 11.79</u> - -		11	moderately decor 11.34 - 11.79m:	nposed. Moderately strong, grey,
									T2101					dappled orangisn decomposed.	brown, moderately
							8.3								
6/09/2013 7/09/2013	F	19:00 07:00		00	100	100	>20 2.7								
									T2101						
			H		100	100	10.3		14.66						
									T2101	-29.89	<u>- 15,14</u>			15.14 - 16.18m: l	Dark grey, fine ash vitric TUFF.
					100	87	2.7 8.2			-30.63	- - - 15.88				
					100					<u>-30.93</u> -31.14	- - - 16.18			15.88 - 16.39m: I thick), dipping 70	Dark green, calcite vein (2-4mm °-80°.
							3.8		T2IOI	-31,14	-				
			T		100	60	-		16.95						
				8	92	88	<u>14.3</u> 5.7								
							3.4								
									T2IOI						
-					80	80	7.1 >20 8.3 2.1								
		10.00					2.1		T2/01						
7/09/2013		19:00	-	4			>20	4m 1 V	19.69	-34.44	- 19,69 - - 20.00			End of hole at 19	.69m depth.
0		bed sam	iple			ater sa ezomet	•	andpipe tip	LOGGED W		1	REMAR	RKS		
💆 U76		imple irbed sai turbed si		Ī		ermeab	ility tes		DATE <u>28/</u>	09/2013					
Maz	ier sam		·	Ī	_ In	npressi	on pac	ker test wer Survey Test	CHECKED TT	FUNG	$\Delta$				
↓ Star		enetratio		√ ∖ T	_ / In		ane she	ear test	DATE <u>30/</u>	09/2013	<u> </u>				

			Ga	ar	$\mathbf{n}$	m	0	n	G		A E					<b>PLE</b>	HOLE NO. GS1 SHEET 1 of 1
	PRC	JECT	Agro	eem	ent N	o. CE	21/20	)12 (	WS) Desalii								<u>Maria ( 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997</u>
	MET	HOD	GR	AB					CO-ORI	DINATI	ES				w	ORK ORDER NO. (	GE/2012/03.27
-	MAC	HINE	& No.	G2	29					84697 81415					D	ATE from 02/10	/2013 to 02/10/2013
	FLU	SHING	MED	IUM	w	ATER			ORIENT	ΑΤΙΟΝ	١	Ve	ertical		SE	ABED LEVEL	-9.20 mPD
	SS	Casing depth/size	Water Depth (m) 07:00	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests		Samples	Peduced DCB- DCB- DCB- DCB- DCB- DCB- DCB- DCB-	0.10 0.00 0.10	Legend	Grade	Greenish grey (50	Description Y 5/1), clayey silty fine to
tiguiuwibrary/juj2009.gbi3110.geo drilliole (1 jan 2012) [www	Sn SP UJ Ma Sta	hall distur T liner sa 6 undistu 2 zier sam ton samp andard pe procore sa	bed sam mple urbed sar turbed sa ple enetration	nple ample		Pie Pe Pa I I Ac √ In・	rmeabil cker (W pressio	er / Sta ity tesi 'ater A n pack Televie ne she	bsorption) test er test wer Survey Tes ar test	DAT	ECKED <u>T T</u>	19.20 < SIU / 10/2013		REMAR	RKS	Coarse SAND with (MARINE DEPOSI End of grab samp	some shell fragments.

Gamn	1	RAE	B SAN	MPLE	HOLE No. GS2
		CONTF	RACT No. GE/20	012/03	SHEET 1 of 1
PROJECT Agreement No.	CE 21/2012 (WS) Desal	ination Plant at	Tseung Kwan O - Fe	easibility Study	
METHOD GRAB	CO-OR	DINATES		WORK ORDER NO.	GE/2012/03.27
MACHINE & No. G29	EN	846950.00 814090.00		DATE from 02/1	0/2013 to 02/10/2013
FLUSHING MEDIUM WAT	FER ORIEN	ΓΑΤΙΟΝ	Vertical	SEABED LEVEL	-9.50 mPD
Drilling Progress Casing depth/size depth/size (w) mort rotal core Recovery % Recovery % Solid core	Recovery % Recovery % Index Index	Samples	B Reduced B Level B Depth B (m) Legend	Grade	Description
02/10/2013       10:00         02/10/2013       10:00         02/10/2013       10:00         02/10/2013       10:00         02/10/2013       10:00         02/10/2013       10:00         02/10/2013       10:00         02/10/2013       10:00         0       Small disturbed sample         0       SPT liner sample         1       U100 undisturbed sample         1       U100 undisturbed sample         1       Yibrocore sample         1       Standard penetration test         1       Standard penetration test	Water sample         Piezometer / Standpipe tip         Permeability test         Packer (Water Absorption) test         Impression packer test         Acoustic Televiewer Survey Tr         In-situ vane shear test	LOGGED W DATE 03/ St CHECKED T T	-19.50 10.00 K SIU	(MARINE DEPOS) End of grab sam	GY 5/1), clayey silty fine to n some shell fragments. IT) ole at 0.10m depth.

Gammon	GRAB SAN	GS3
<u></u>	CONTRACT No. GE/20 ///////////////////////////////////	
	-	
	CO-ORDINATES E 846720.00	WORK ORDER NO. GE/2012/03.27
MACHINE & No. G29	N 813800.00	DATE from 02/10/2013 to 02/10/2013
FLUSHING MEDIUM WATER	ORIENTATION Vertical	SEABED LEVEL -10.50 mPD
Drilling Progress Casing depth/size depth/size (Water Recovery % Solid core Recovery % R.Q.D. R.Q.D.	Tests	Description
D2/10/2013       14:00         D2/10/2013       14:00         Small disturbed sample       Mater sample         SPETINE Sample       Permeability test         U100 undisturbed sample       Impression packer (Water Abso         Mazier sample       Impression packer test         Vibrocore sample       Impression packer test         Vibrocore sample       Impression packer test         Vibrocore sample       Impression packer test	dipe tip         LOGGED         W K SIU           DATE         03/10/2013           CHECKED         T T FUNC	Greenish grey (5GY 5/1), clayey silty fine to coarse SAND with some shell fragments. (MARINE DEPOSIT) End of grab sample at 0.10m depth.

			Ga	aı	m	m	0	n	G	RAI CONT					<b>PLE</b>	HOLE No. GS4 SHEET 1 of 1
F	PRO	DJECT	Agr	eem	ent N	o. CE	21/20	)12 (	WS) Desalina	ation Plant at	Tseung	Kwan	O - Fe	asibi	llity Study	
	ME	THOD	GR	AB					CO-ORDI	NATES				w	ORK ORDER NO. (	GE/2012/03.27
	MAG	CHINE	& No.	GZ	29					46680.00 13730.00				D	ATE from 02/10	/2013 to 02/10/2013
Ĺ	FLU	SHING	6 MED	IUM	W	'ATER			ORIENTA	TION	Ve	ertical		SE	ABED LEVEL	-10.70 mPD
	Progress	1	Water Depth (m) 18:00	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	peoq Fevel 10.80	multication (m)	Legend	Grade	Greenish grey (5G	Description Y 5/1), clayey silty fine to some shell fragments.
t:\gintw\library\1july2009.g	] SP 2 U7 1 U1 2 Ma Pis 5ta	hall distur T liner sa 6 undistu zier samp andard pe procore sa	mple irbed sar turbed sa ple ple enetration	nple ample	:	t Pie Pe Pa I Pa Im Im In-	rmeabil cker (W pressio	r / Sta ity tesi ater A n pack elevie ne she	bsorption) test er test wer Survey Test ar test	DATE 03	-20.70 K SIU 10/2013	C R 	EMAR	KS	(MARINE DEPOSI End of grab samp	

and the second s

	G		G	 או רב	~~··	m		$\mathbf{r}$	VI	BROC	OR	E	R	E	CORD	HOLE No. <b>SD1</b>
										CONTR						SHEET 1 of 1
	PROJ	ECT	Agr	eem	ent N	o. CE .	21/20	12 (		tion Plant at	Iseung	Kwan	0 - Fe			
N	NETH	IOD	Vib	roco	re				CO-ORDII E 8	NATES 46766.50				wo	ORK ORDER NO.	
M	ACH	IINE (	& No.	LA	M8				N 8	14046.70				D	ATE from 10/0	9/2013 to 10/09/2013
F	LUS	HING	MED	IUM	W	ATER			ORIENTA	TION	Ve	rtica		SE	ABED LEVEL	-2.45 mPD
1		N 1	Water Depth (m)		Total core Recovery %		R.Q.D.	Fracture Index	Tests	Samples	ہ h Reduced A Level	o Depth 8 (m)	Legend	Grade		
E	v2013		08:00		230 /	4				2 0.00	-2.85	- - - 0.40		 	Brownish grey (5 coarse SAND. (M End of hole at 0.4	YR 5/2), silty clayey fine to ARINE DEPOSIT)
tigintwikearviju/2009.gbb3110 geo drihole (1 jan 2012) [  → [    ] ⊠  ☎  ☎ ●	SPT U76 U10 Mazi Pisto Stan	liner sa undistu 0 undisl ier samp on samp	irbed sa turbed s ple ble enetratic	mple ample	:	Dee     Pe     Pe     Pa     Im     Ac     V     In	rmeabil cker (M pressic oustic	er / Sta lity tes Vater A n pack Felevie ne she	ubsorption) test ker test wer Survey Test ear test	DATE <u>11</u> CHECKED <u>T</u>	-12.45 K SIU /09/2013	1. 	REMAF		re sample was sent to	the laboratory.

hare

	A	Ga	าก		าก	<b>^</b>	1	VII								CORD		ole SD	)2	
	ROJECT							WS) Desalinat						GE/20			SHEET	1	of	2
					. CL 2			CO-ORDIN								DRK ORDER NO. (	SE/2012/03		-1.1 190001000000	
								E 84	1700	7.00							)/2013 to		/10/20	
	LUSHIN				TER			N 81 ORIENTAT	413		)		ertica	1		ABED LEVEL	-11.20	, 02 		
																			-	
Drilling	Progress Casing deoth/size	Water Depth (m)	Water Recovery %	l otal core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests		amp		Level Level	o Depth 8 (m)	Legend	Grade		Descriptior			
02/10/ ~		07:00		100					1	VIO	Deptt 0.00	<u></u>	- - - -			Very soft, brownis (MARINE DEPOSI	sh grey (5YF T)	. 5/2), (	CLAY.	
				100					2 3	V100 -	0.85 0.90	-12.10	- <u>0.9(</u> 			Very soft, grey (N	6), CLAY. (N	1ARINE	DEPO	SIT)
-				100					4	•	1.85 1.90	-13.10	- - - - - -			Soft to firm, greer occasional shell fr	hish grey (50 agments. (N	GY 5/1) IARINE	, CLAY DEPO	′ with SIT)
										(0) 100										
-				100					6 7	ŀ	2.85 2.90			6-						
-										VI0										
				100					8 9		3.80 3.90		-	5119						
										80I/										
-				100					10 11		4.85 4.90									
-										00I/										
				100					12 13	-	5.85 5.90									
-										V100										
				100					14 15	L.	6.85 6.90		-							
										00I/				G						
	ZX 7.90			100					16 17		7.80 7.90									
12)										001A										
(1 jan 20				100					18 19		8.85 8.90			6						
drillhole										V100										
3110 geo									20	ê	9.85 9.90	-21.20	10.00	REMAR	RS					
t:\gintwlibrary1july2009.glb\3110 geo drillihole (1 jan 2012)	Small dist SPT liner	sample		▲ 5 €	5 Pie	iter sam zomete meabili	r / Sta	andpipe tip	LOC		D <u>W</u>	K SIU 🗸	1 1			e samples were sent t	to the labora	tory.		
rary\1july2	U76 undis U100 unc Mazier sa	isturbed :		L L L	[ Pa	cker (W	ater /	Absorption) test ker test	DAT	Έ	03/	10/2013 (i	- M							
Vgintw\libran	Piston sar Standard	nple	on test	Ĭ \	Acc		elevie	ewer Survey Test	CHE DA1			FUNG	ΨŢ							
	Vibrocore	-		Ì		ssurem			DAI	C	04/	10/2013	-							

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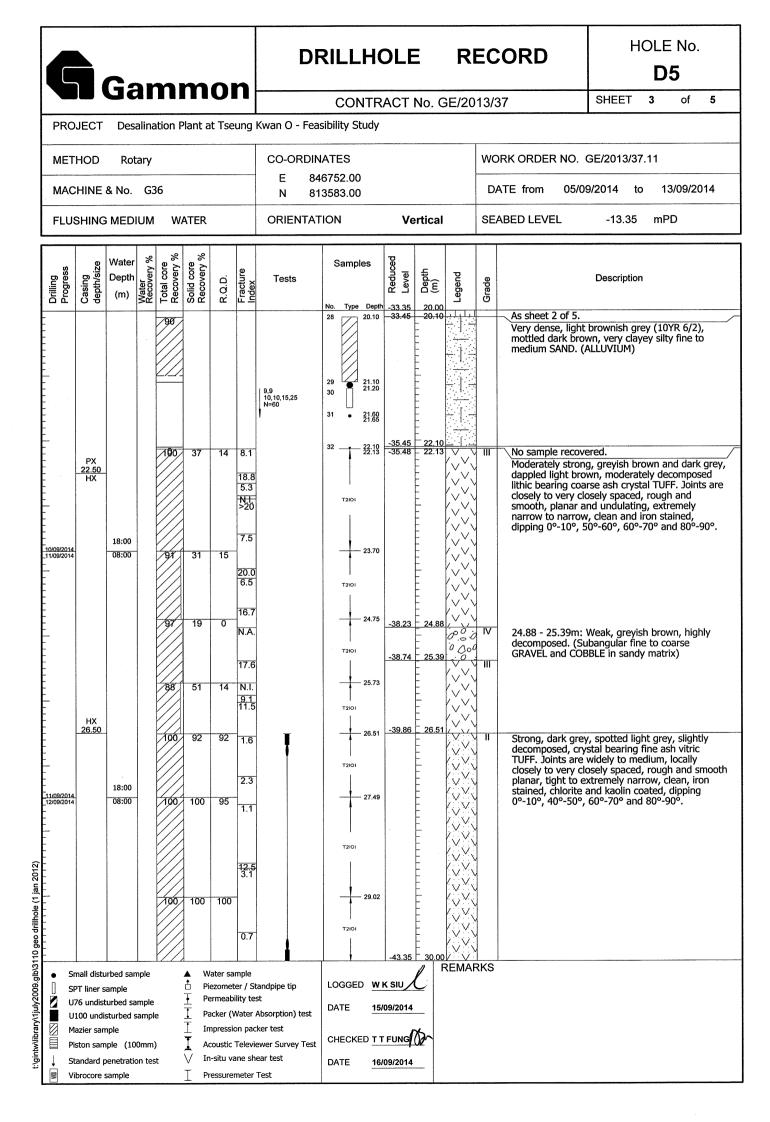
		Ga	<b>.</b> P	<b>9</b> 78 I	~		<b>n</b>	V	IBROC	0	RE		R	E	CORD	HOLE SE	
									CONT							SHEET 2	of 2
	JECT			and a second	D. CE	21/20	12 (		ation Plant a	t iset	ing i	kwan	U - Fe				
METH		Vib 	roco						347007.00					<u> </u>	ORK ORDER NO. ( DATE from 02/10		2/10/2013
		MED			ATER			N I ORIENT/	314139.00  \TION		Vei	rtical			EABED LEVEL	-11.20 mP	
						1					1						
Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced	2 Level	0 Depth 0 (m)	Legend	Grade	AS sheet 1 of 2.	Description	
									22 . 10.	85 -22	.10	10.90					
		19:00		100					<sup>23</sup>						Stiff, grey (N6), s DEPOSIT)	ilty sandy CLAY. (M	IARINE
10/2013		17.00							24 11.	80 90 -23	.10	<u>11,90</u>			End of hole at 11.	.90m depth.	
												• • • • •					
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SPT	liner sa			1	🖞 Pie	ater sar ezomete	er / Sta	andpipe tip t	LOGGED Y			r 1	EMAR	KS	<u> </u>		- Mariana
U10 Maz				-	∏ Pa ∏ Im	cker (W Ipressio	/ater A n pack	bsorption) test		3/10/20	m	- }-					
Star		netratio	n test	١	√ In•	-situ va essuren	ne she	ar test		4/10/20	13	-					

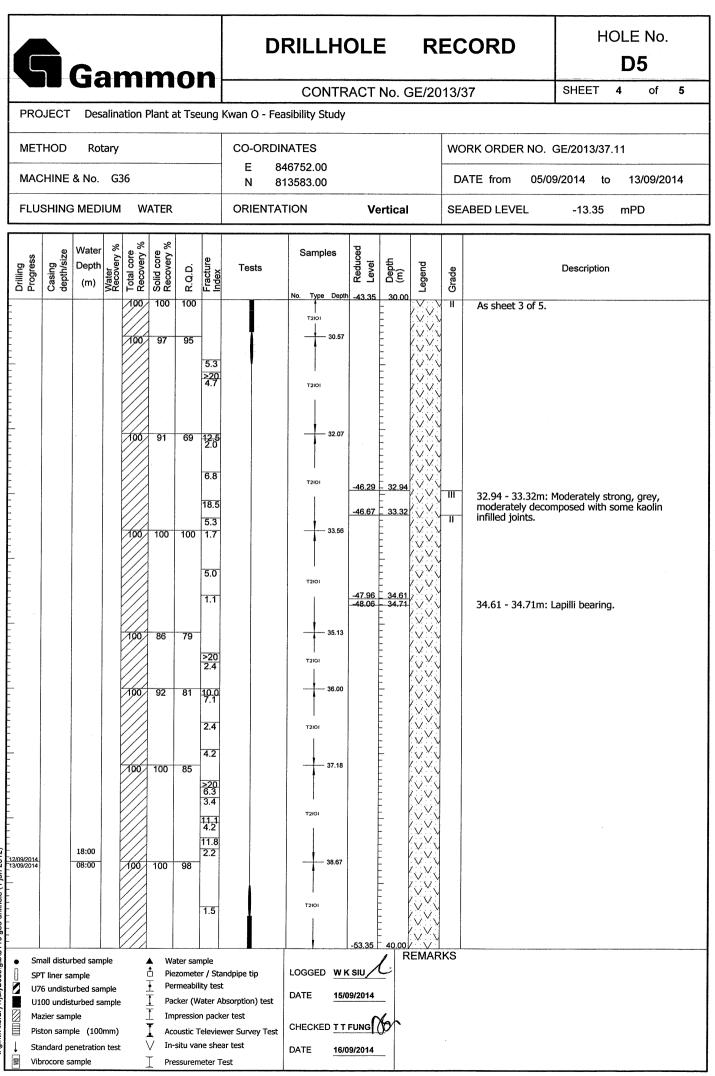
		<u>}</u>	Gá	ar	າກາ	$\hat{\mathbf{n}}$	O	n	VI							CORD	HOLE No. SD3
	PRO	DJECT							WS) Desalina	CON tion Plant							SHEET 1 of 1
		гнор		roco					CO-ORDIN							DRK ORDER NO. (	GE/2012/03.27
	MAG	CHINE	& No.	LA	.M8					13871.70					D	ATE from 10/09	0/2013 to 10/09/2013
	FLU	SHING	6 MED	IUM	W	ATER			ORIENTA	FION		Ve	rtical		SE	ABED LEVEL	-7.15 mPD
	Drilling Progress		Water Depth (m)	Water Recovery %		Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Sample	S Depth	-7-Reduced	e Depth B (m)	Legend	Grade		Description
	_10/09/2013 - - - - - - - - - - - - - - - - - - -		08:00							001	.60 .70	-7.85	0.70			Coarse SAND with (MARINE DEPOSI End of hole at 0.7	
													-				
99 j. or.													-				
t.'Gintw\library/1july2009.glb\3110 geo drillhole (1 jan 2012)																	
10 geo dr												-17.15	- - - - 10.00				
1 july2009.glb/31	<ul> <li>Si</li> <li>Si</li> <li>V</li> <li>U</li> <li>U</li> </ul>	mall distu PT liner si 76 undisti 100 undist	ample urbed sar	nple		Ĉ Pie ∳ Pe	rmeabili	r / Sta ty tes	andpipe tip st Absorption) test	LOGGED DATE				EMAR		e sample was sent to	the laboratory.
t:\gintw\library\		azier sam ston sam; andard p brocore s	ple ple enetratio		:	Im I Ac V In∙	pression	n pacl elevie ne she	ker test ewer Survey Test ear test	CHECKED DATE		FUNG	- D-				

		Ga	ar	m	m	OI	n	VI						<b>R</b> 6E/20			HOLE No. SD4
PF	ROJECT							WS) Desalina									
M/	ETHOD ACHINE	& No.		.9	ATER				34672 31372	2.00 2.00		Ve	ertical		D	ORK ORDER NO. ATE from 30/0 ABED LEVEL	GE/2012/03.27 9/2013 to 30/09/2013 -15.00 mPD
		Water Depth (m) 07:00	Water Recovery %	B Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	2 3	• 001	S Depth 1.00 9.85 9.90	-17.00	(iii) Cebth C C C Cebth C C C C C C C C C C C C C C C C C C C		Grade	Greenish grey (50 coarse SAND with (MARINE DEPOS) End of hole at 2.0	
tigintwikibrarytiuty2009.glb/3110 geo drillhole (1 jan 2012) ] 🏢 🔊 📾 🔊 💿 💿	Small dist		nple			ater sa		andpipe tip		GGED	WK	25.00	1/1	REMAF		re sample was sent to	
tw/library/1july2009	SPT liner U76 undis U100 und Mazier sa	sturbed sa listurbed s mple		9	∮ Pe I Pa I In	ermeabi icker (V npressio	ility tes Vater <i>i</i> on pac	st Absorption) test ker test	DAT	re	02/1	0/2013			*		
t:\gintw\	Piston sar Standard Vibrocore	penetratio	on test	_	√ In →		ine shi	ewer Survey Tes ear test Test	DA			0/2013					

		• -				_		D	R	ILLHO	DLE		R	EC	CORD	HOLE No. <b>D5</b>
5		3D	ar	n	m	0	n			CONTR	АСТ	No. (	GE/20	013/	37	SHEET 1 of 5
PROJE	ЕСТ	Des	alina	tion F	lant a	t Tse	ung l	Kwan O - Fe	easit	oility Study						
METH	OD	Rot	ary					CO-ORD						w	ORK ORDER NO.	GE/2013/37.11
MACH	INE 8	& No.	G3	6						752.00 583.00				D	ATE from 05/0	9/2014 to 13/09/2014
FLUSH	HING	MEDI	UM	W	ATER			ORIENTA	ATIC	DN	Ve	ertical		SE	ABED LEVEL	-13.35 mPD
Progress	N	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	N	Samples o. Type Depth	Reduced Level	(m) (m)	Legend	Grade		Description
5/09/2014	ZX	08:00		100						0.50	-13.35				Soft, greenish gr SILT with occasio DEPOSIT)	ey (5GY 5/1), slightly sandy onal shell fragments. (MARINE
											15.85	- 2.50			Very soft, greeni occasional shell f	sh grey (5GY 5/1), SILT with fragments. (MARINE DEPOSIT)
				100												
	ZX 7.50 SX			100												
				100						9 0 9,45 9,50	-21.85				Firm, greenish g occasional shell i	rey (5GY 5/1), SILT with fragments. (MARINE DEPOSIT)
SPT     U76     U100     Mazie     Pisto	liner sa undistu ) undist er samp n samp	irbed sa turbed s	mple ample Omm)		Dia     Pie     Pe     Pe     Pa     Pa     In     Ac	ermeab Icker (\ Inpression Coustic	er / St ility tes Vater / on pac Televie	andpipe tip st Absorption) test ker test ewer Survey Tes ear test	st C	DATE <u>15/</u> CHECKED <u>T T</u>	-23.35 K SIU / 09/2014 FUNG 09/2014	$\begin{pmatrix} 1\\ 1\\ 2\\ d\\ 3\\ 4\\ 1 \end{pmatrix}$	REMA . Pressu . Const epth. . Acous .Vane	ureme ant he tic tel shear	eter test was carried o ead permeability test eviewer survey was c	out at 15.10m-16.10m depth. was carried out at 18.15m-19.65 arried out at 26.51m-41.68m dep It at 2.00m, 4.00m, 6.00m, 8.00r Is.

		G	<b>.</b>					D	RILLH	OLE		R	EC	ORD	HOLE No. <b>D5</b>
									CONTR		No. C	GE/20	13/:	37	SHEET 2 of 5
	JECT				riant a	at ise	ung	[	easibility Study						
	HOD		tary		·•••			1	846752.00					ORK ORDER NO. (	
	CHINE				ATED			N 8 ORIENTA	813583.00		ertical			ATE from 05/09  ABED LEVEL	9/2014 to 13/09/2014 
FLU	SHING				ATER		1	ORIENT					36		-13.33 IIIFD
Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	revel	(m) Deptµ (m) 10.00	Legend	Grade		Description
	SX 15.00 PX	18:00 08:00 18:00 08:00		100				1.1 2.2.3.4 N=11 1.1.1.2 N=5	10.       19,9       10,50         11       10,50         12       11,1,55         13       12,50         14       13,3,65         14       13,3,65         15       14,00         16       15,00         18       15,555         19       16,10         21       17,10         22       17,20         23       17,68         24       18.10	-27.35					eenish grey (5BG 7/1), mottled SILT. (ALLUVIUM)
- 18/09/2014 0/09/2014		18:00 08:00						1.1 1.1.2.2 N=6	25 • 19.10 26 19.20 27 • 19.60 19.65	-33,35	- - - - - - - - - - - - - - - - - - -	REMAF	RKS		
<ul> <li>SF</li> <li>U7</li> <li>U7</li> <li>U7</li> <li>U7</li> <li>W7</li> <li></li></ul>	nall distu PT liner s 76 undist 100 undis azier sam ston sam andard p brocore s	ample urbed sa sturbed s sple ple (100 enetratio	mple ample 0mm)	:	In the second secon	ermeabi acker (V npressic coustic	er / St lity tes Vater / on pac Televie ine she	Absorption) test ker test ewer Survey Tes ear test	t CHECKED T	/09/2014 *	<u>(</u> ) 				





Vaintw/library/1july2009.glb/3110 geo drillhole (1 jan 2012)

		Ga	ər	n	m	O	n	DF	RILLHO						HOLE No. <b>D5</b>
	JECT							Kwan O - Fea	CONTR	ACT	No. (	GE/20	13/:	37	SHEET 5 of 5
	HOD		tary					CO-ORDIN					wc	DRK ORDER NO. (	SE/2013/37 11
	HINE			36				E 84	6752.00						9/2014 to 13/09/2014
	SHING				ATER			N 81 ORIENTAT	3583.00 	Ve	ertica	l.		ABED LEVEL	-13.35 mPD
			1	·····	1					I		1			
Urilling Progress	Casing depth/size	Water Depth (m)		Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	People Level	(m) 40.00	Ľ	Grade		Description
		18:00		100	100	100	4.8		- 40.10 T2101				11	As sheet 3 of 5.	
109/2014										-55.03				End of hole at 41.	68m depth.
SI U U M Pi	nall distu PT liner si 76 undist 100 undis azier sam ston sam andard p	ample urbed sa sturbed s pple ple (10)	imple ample 0mm)	2		ermeabi icker (V inpressio coustic	er / St lity tes Vater / on pacl Televie	andpipe tip st Absorption) test ker test ewer Survey Test ear test	DATE <u>15/</u> CHECKED <u>T T</u>	K SIU 09/2014 FUNG 09/2014		REMAF	RKS		

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			<b>U</b> č						CONTRACT No. GE/20								37	SHEET 1 of	2			
	PRC	JECT	Des	alina	ition F	Plant a	t Tse	ung	Kwan O - Fea	sibili	ity Stud	/										
	METHOD Vibrocore CO-OF															WC	ORK ORDER NO. (	GE/2013/37.11				
	MAC	HINE	& No.	G3	6				E 846753.00 N 813582.00								DATE from 27/08/2014 to 27/08/2014					
ĺ	FLU	SHING	MED	IUM	NA	۱			ORIENTAT		ON Vertical					SEABED LEVEL -14.15 mPD						
	Drilling Progress	Casing depth/size	Water Depth		Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	s	amples	Reduced Level Depth (m) Legend				Grade		Description				
	27/08/2014	de C de C		Re	001 70 Re	ς Υ Β	<u>ж</u>	Fra		No.	Type De 0.00		1	تد	M	Ğ	Very soft, greenis	n grey (5GY 5/1), SILT v	vith			
	-		08:00		700					2 3 4 5 6 7	0)// 0.55 00)// 1.85 00)// 2.55 00)// 00//							n grey (5GY 5/1), SILT v agments. (MARINE DEP hish grey (5GY 5/1), SIL agments. (MARINE DEP				
10 geo drilhole (1 jan 2012)	-				100					8 9 10 11 12 13 14 15 16 17 18 19 20	00/A • 4.900 00/A • 4.900 00/A • 5.850 00/A • 5.850 00/A • 6.850 00/A • 6.850 00/A • 8.850 00/A • 8.900 00/A • 9.950 00/A											
t:\gintw\library\1july2009.glb\3110 geo drillhole (1 jan 2012)	Small disturbed sample     SPT liner sample     SPT liner sample     U76 undisturbed sample     U100 undisturbed sample     U100 undisturbed sample     U100 undisturbed sample     Permeability test     Packer (Water Abson     Mazier sample     Impression packer te     Piston sample     Standard penetration test     Vibrocore sample     Vibrocore sample     T Pressuremeter Test								st Absorption) test ker test ewer Survey Test ear test	DA	GGED <u>V</u> TE <u>2</u> ECKED <u>1</u>	/ K SIU 2 B/08/2014	80	REM 1. The	/IAR e vibi	roco	re samples 0.00-0.90r .90-8.90m and 10.90-	n, 0.90-1.90m, 1.90-2.90r 1.90m were sent to the l	n, aboratory.			

		Ga	) r	<b>n</b>	m		n	VI							CORD		DLE No. <b>SD5</b>
	JECT							Kwan O - Fea				No. (	GE/20	13/	/37	SHEET	2 of 2
МЕТ	HOD		roco					CO-ORDI						w	ORK ORDER NO.	GE/2013/37.	11
MAC	HINE	& No.	G3	6					46753.0 13582.0					C	DATE from 27/08	B/2014 to	27/08/2014
FLU	SHING	MED	IUM	NA	1			ORIENTA	TION	V	ertica		SEABED LEVEL -14.15 mPD				
Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests		iples	peonpea Panpea -24.15		1	Grade	1	Description	
		18:00		100					22 23 0//	- 10.85 10.90					Stiff, greenish gre DEPOSIT)	ey (5GY 5/1),	SILT. (MARINE
/08/2014.		10100						****	24	11.90 12.00	-26.15	- <u>12.00</u> - -			End of hole at 12	.00m depth.	
SP U7 U1 Ma Pis	Small disturbed sample       Mater sample         SPT liner sample       Piezometer / Star         U76 undisturbed sample       Permeability test         U100 undisturbed sample       Packer (Water Ab         Mazier sample       Impression packer         Piston sample       Acoustic Teleview         Standard penetration test       V						t bsorption) test er test wer Survey Test	DATE		< SIU 08/2014 FUNG 08/2014	€ ≱~	REMAR	RKS				

Gammon	GRAB SA	MPLE HOLE No. GS5					
	CONTRACT No. GE/2	2013/37 SHEET 1 of 1					
PROJECT Desalination Plant at Tseung K	Kwan O - Feasibility Study						
METHOD GRAB	CO-ORDINATES E 846718.10	WORK ORDER NO. GE/2013/37.11					
MACHINE & No. Vessel	N 813713.30	DATE from 28/08/2014 to 28/08/2014					
FLUSHING MEDIUM NA	ORIENTATION Vertical	SEABED LEVEL -13.41 mPD					
Drilling Progress Casing depth/size () () () () () () () () () () () () () (	Samples         B         E         D         E         D         E         D         E         D         E         D         D         E         D         D         E         D </td <td></td>						
200022014       12:00         20002014       12:00         Image: Signal disturbed sample       Image: Signal disturbed sample         Image: Signal disturbed sample       Image: Signal disturbed sample <t< td=""><td>andpipe tip t bisorption) test ter test wer Survey Test aar test Ne. 1/yee Deptin -13.41 0.00 11. 9.10 13.81 0.16 11. 0.10 11. 0.10 11. 0.00 11. 0.10 11. 0.00</td><td>Very soft, greenish grey (SGY 5/1), SILT with occasional shell fragments. (MARINE DEPOSIT) End of grab sample at 0.10m depth.</td></t<>	andpipe tip t bisorption) test ter test wer Survey Test aar test Ne. 1/yee Deptin -13.41 0.00 11. 9.10 13.81 0.16 11. 0.10 11. 0.10 11. 0.00 11. 0.10 11. 0.00	Very soft, greenish grey (SGY 5/1), SILT with occasional shell fragments. (MARINE DEPOSIT) End of grab sample at 0.10m depth.					

								n	G	R A	HOLE No. GS6									
										CONTRACT No. GE/2013/37 SHEET 1 of 1										
	PRO	JECT	Des	alina	ition F	Plant a	it Tse	ung	Kwan O - Fea	sibility Stu	udy									
	MET	HOD	GR	AB					CO-ORDIN						wo	ORK ORDER NO. (	GE/2013/ <b>37</b> .	11		
	MAC	HINE	& No.	Ve	ssel					46742.20 13615.10					DATE from 28/08/2014 to 28/08/2014					
	FLU	SHING	MED	IUM	N/	4			ORIENTAT	ΓΙΟΝ		Ve	ertical		SE	ABED LEVEL	-13.63	mPD		
2	Drilling Progress	Casing depth/size	Water Depth (m) 13:00 15:00	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Sample		peonpea -13.63 -13.73	(m) (m) (m) (m) (m) (m) (m) (m) (m) (m)	Legend	Grade	- Very soft, greenis	Description	5/1), SILT v	vith	
tigintwilibrary/1july2009.glb/3110.geo drillhole (1 jan 2012)	● Sr SF U U Wa W Y St	nall distu T liner sa 76 undist 100 undist azier sam ston sam andard p	rbed san ample sturbed sa sturbed s ple enetratic	mple ample	2	$ \begin{array}{ccc}                                   $	ermeabi icker (V inpressio coustic	er / St lity tes Vater / on pac Televia ine sha	Absorption) test ker test ewer Survey Test ear test	LOGGED DATE CHECKEE DATE	<u>W K</u> 29/0	SIU		REMAR		very sort, greenis occasional shell fr End of grab samp	agments. (M/	ARINE DEP(		

Gammon									G	R A	٩B	PLE	HOLE No. GS7							
										CONTRACT No. GE/2013/37 SHEET 1 of 1										
F	PRO	JECT	Des	alina	ation F	Plant a	it Tse	ung	Kwan O - F	) - Feasibility Study										
ľ	MET	HOD	GR	AB					CO-ORE E	NATES 846969.3	20				wc	ORK ORDER NO.	GE/2013/37	.11		
1	MAC	HINE	& No.	Ve	ssel					814125.1				-	DATE from 28/08/2014 to 28/08/2014					
F	FLUS	SHING	MED	IUM	NA	۹			ORIENT	ATION		Ve	ertica		SE	ABED LEVEL	-13.29	mPD		
	Progress Progress Casing depth/size depth/size www. Water Recovery % Recovery % R.O.D. R.O.D. R.O.D.							Tests	Sam	ples	Pequced Fevel -13.29	Depth (m) 0.00	Legend	Grade						
tigintwitibrary1july2009.glb/3110 geo drillhole (1 jan 2012)	SF U7 U1 Ma Pis St	PT liner s 76 undist 100 undis azier san ston sam	urbed sa sturbed s nple ple penetratio	imple sample		$ \begin{array}{cccc}                                  $	ermeab acker (V npressio coustic	er / St ility tes Vater / on pac Televia ane sh	Absorption) tes ker test ewer Survey Te ear test	LOGGI	ED <u>W K</u> 29/0 KED <u>T T</u>	SIU 🖉		REMAI		Very soft, greenis occasional shell fi End of grab samp	agments. (M	ARINE DEP	with YOSIT)	