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CLIENT : TMR

POSITION : E: 10416, N: 152910 (56 South East Transit Horizontal Datum)

PAGE : 1 OF 6

PROJECT : GUSBUS

SURFACE ELEVATION : 28.3 (AHD)

DATE DRILLED : 30/8/12 to 30/8/12

JOB NO : QB10312.540

DIP / AZIMUTH : 90°

LOGGED BY : NC

LOCATION : Western bank of Bulimba Creek

CONTRACTOR : Geodrill

CHECKED BY : DWL

DRILLING					MATERIAL								
PROGRESS		PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER												
<div><div>AS</div><div>CASING</div><div>WB</div></div>					28.3	0.0		MH	TOPSOIL (MH): Grey brown, medium to high plasticity, trace sand, trace rootlets.		S	0.00: - 0.30m TOPSOIL	
								MH	FILL (MH): Grey brown, medium to high plasticity, with cobbles (drainage channel fill), trace sand.			0.30 - 0.50m COBBLE FILL	
						27.8	0.5		MH	SILT (MH): Grey brown, medium to high plasticity, trace sand, Without cobbles.			0.50 - 6.00m ALLUVIUM
									MH				6.00 - 8.70m RESIDUAL
					1.00m SPT 2, 2, 3 N=5	27.3	1.0		MH	(MH): Grey mottled orange brown, with medium to coarse grained sand.		F	
									MH		M		
					1.45m	26.8	1.5		MH	(MH): Colour change to blue grey.			
									MH				
						26.3	2.0		MH			St	
					2.50m SPT 5, 5, 5 N=10	25.8	2.5		ML	SANDY SILT (ML): Grey mottled orange brown, low plasticity, fine to medium grained sand, trace coarse grained, sub-rounded to sub-angular sand, trace organics and rootlets.			
								ML	(ML): Orange brown and grey.				
				2.95m	25.3	3.0		ML			St		
								ML					
					24.8	3.5		ML					
				4.00m SPT 4, 3, 5 N=8	24.3	4.0		ML	(ML): Predominantly fine grained.				
								ML					
				4.45m	23.8	4.5		ML			F to St		
					23.3	5.0		ML					

DRILLING				SAMPLES & FIELD TESTS				DENSITY (SPT N-value)				CONSISTENCY (Su) {N-value}			
HA	Hand Auger	RR	Rock Rolling	D	Disturbed Sample	SPT	Standard Penetration Test	VL	Very Loose	0 - 4	VS	Very Soft	< 12 kPa	{0-2}	
AS	Auger Screw	HQ	HQ Coring	ES	Env Soil Sample	U	Undisturbed Tube Sample	L	Loose	4 - 10	S	Soft	12 - 25	{2-4}	
AD/T	Auger Drill TC-bit	NQ	NQ Coring	EW	Env Water Sample	W	Water Sample	MD	Medium Dense	10 - 30	F	Firm	25 - 50	{4-8}	
AD/V	Auger Drill V-bit	PQ	PQ Coring					D	Dense	30 - 50	St	Stiff	50 - 100	{8-15}	
WB	Washbore	NMLC	NMLC Coring	HP	Hand Penetrometer			VD	Very Dense	50 - 100	VSt	Very Stiff	100 - 200	{15-30}	
DRILLING PENETRATION				MOISTURE CONDITION				CO	Compact	>50/150mm	H	Hard	> 200 kPa	{>30}	
VE	Very Easy	F	Firm	VH	Very Hard	D = Dry M = Moist W = Wet									
E	Easy	H	Hard			(P: Peak Su R: Residual Su)									
GROUNDWATER SYMBOLS				N SPT blows per 300mm											
▼ = Water level (static)				HW SPT penetration by hammer weight											
▽ = Water level (during drilling)				RW SPT penetration by rod weight											

CLIENT : TMR

POSITION : E: 10416, N: 152910 (56 South East Transit Horizontal Datum)

PAGE : 2 OF 6

PROJECT : GUSBUS

SURFACE ELEVATION : 28.3 (AHD)

DATE DRILLED : 30/8/12 to 30/8/12

JOB NO : QB10312.540

DIP / AZIMUTH : 90°



LOGGED BY : NC

LOCATION : Western bank of Bulimba Creek

CONTRACTOR : Geodrill

CHECKED BY : DWL

PROGRESS				DRILLING			MATERIAL					
DRILLING & CASING	WATER	PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations
						23.3	5.0	ML	5.10m (ML): Predominantly fine grained. (continued)	M	F to St	
				5.50m SPT 4, 4, 11 N=15		22.8	5.5	GC	CLAYEY GRAVEL (GC): Fine to coarse gravel, sub-angular.	M	MD to D	
				5.95m		22.3	6.0		6.00m			
						21.8	6.5	SC	CLAYEY SAND (SC): Grey and orange brown, medium to coarse grained sand, with fine sized gravel.	M	D	
				7.00m SPT 20, 30/110mm N=R 7.26m		21.3	7.0		7.10m			
						20.8	7.5	SP	SAND (SP): Pink red, coarse grained sand.	M	VD	
						20.3	8.0					
				8.50m SPT 16, 25, 30/130mm N=R		19.8	8.5		8.50m	M to W		
									8.70m			
				8.93m		19.3	9.0					8.70: [Properties of Clayey SAND]
									9.10m			
										M	VD	
						18.8	9.5					
				10.00m		18.0	10.0		10.00m			

DRILLING				SAMPLES & FIELD TESTS				DENSITY (SPT N-value)				CONSISTENCY (Su) {N-value}			
HA	Hand Auger	RR	Rock Rolling	D	Disturbed Sample	SPT	Standard Penetration Test	VL	Very Loose	0 - 4	VS	Very Soft	< 12 kPa	{0-2}	
AS	Auger Screw	HQ	HQ Coring	ES	Env Soil Sample	U	Undisturbed Tube Sample	L	Loose	4 - 10	S	Soft	12 - 25	{2-4}	
AD/T	Auger Drill TC-bit	NQ	NQ Coring	EW	Env Water Sample	W	Water Sample	MD	Medium Dense	10 - 30	F	Firm	25 - 50	{4-8}	
AD/V	Auger Drill V-bit	PQ	PQ Coring					D	Dense	30 - 50	St	Stiff	50 - 100	{8-15}	
WB	Washbore	NMLC	NMLC Coring	HP	Hand Penetrometer	MOISTURE CONDITION		VD	Very Dense	50 - 100	VSt	Very Stiff	100 - 200	{15-30}	
DRILLING PENETRATION				HV	Hand Vane Shear	D = Dry M = Moist W = Wet		CO	Compact	>50/150mm	H	Hard	> 200 kPa	{>30}	
VE	Very Easy	F	Firm	VE	Very Easy	(P: Peak Su R: Residual Su)									
E	Easy	H	Hard			N SPT blows per 300mm									
GROUNDWATER SYMBOLS				HW	SPT penetration by hammer weight										
				RW	SPT penetration by rod weight										
= Water level (static)															
															
= Water level (during drilling)															

CLIENT : TMR

POSITION : E: 10416, N: 152910 (56 South East Transit Horizontal Datum)

PAGE : 3 OF 6

PROJECT : GUSBUS

SURFACE ELEVATION : 28.3 (AHD)

DATE DRILLED : 30/8/12 to 30/8/12

JOB NO : QB10312.540

DIP / AZIMUTH : 90°



LOGGED BY : NC

LOCATION : Western bank of Bulimba Creek

CONTRACTOR : Geodrill

CHECKED BY : DWL

DRILLING										MATERIAL			
PROGRESS			PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations
DRILLING & CASING	WATER												
					SPT 30/150mm N=R 10.15m	18.3	10.0			PEBBLY SANDSTONE: Grey and orange brown, fine to coarse grained sand, sub rounded, extremely weathered, very low strength.	M	VD	10.00: [Properties of Silty Sandy GRAVEL]
						17.8	10.5						
						17.3	11.0						
					11.50m SPT 5, 6, 9 N=15	16.8	11.5		11.60m	CLAYSTONE: Grey mottled red, extremely weathered, very low strength.			11.60: [Properties of CLAY]
					11.95m	16.3	12.0				M	VSt	
						15.8	12.5		12.50m	SANDSTONE: Orange-brown and white, coarse grained sand, sub-rounded, extremely weathered, extremely low strength.	M	VD	
					13.00m SPT 7, 12, 16 N=28	15.3	13.0		13.00m	CLAYSTONE: Grey mottled purple and orange, medium grained sand, extremely weathered, very low strength.			13.00: [Properties of CLAY with sand] Grading: Gravel - 0%; Sand - 10%; Fines - 90% Atterberg Limits: LL = 51%; PL = 23.4%; PI = 27.6%; LS = 11.6%; MC = 22.9%
					13.45m	14.8	13.5						
									13.80m	Increased sand content.			
						14.3	14.0				M	VSt	
					14.50m SPT 5, 8, 14 N=22	13.8	14.5		14.50m	Green brown and grey, without sand, some red staining.			
					14.95m								
									15.00m				

DRILLING				SAMPLES & FIELD TESTS				DENSITY (SPT N-value)		CONSISTENCY (Su) {N-value}			
HA	Hand Auger	RR	Rock Rolling	D	Disturbed Sample	SPT Standard Penetration Test		VL	Very Loose	0 - 4	VS	Very Soft	< 12 kPa {0-2}
AS	Auger Screw	HQ	HQ Coring	ES	Env Soil Sample	U Undisturbed Tube Sample		L	Loose	4 - 10	S	Soft	12 - 25 {2-4}
AD/T	Auger Drill TC-bit	NQ	NQ Coring	EW	Env Water Sample	W Water Sample		MD	Medium Dense	10 - 30	F	Firm	25 - 50 {4-8}
AD/V	Auger Drill V-bit	PQ	PQ Coring					D	Dense	30 - 50	St	Stiff	50 - 100 {8-15}
WB	Washbore	NMLC	NMLC Coring	HP	Hand Penetrometer	MOISTURE CONDITION		VD	Very Dense	50 - 100	VSt	Very Stiff	100 - 200 {15-30}
DRILLING PENETRATION				HV	Hand Vane Shear	D = Dry M = Moist W = Wet		CO	Compact	>50/150mm	H	Hard	> 200 kPa {>30}
VE	Very Easy	F	Firm	VH	Very Hard	(P: Peak Su R: Residual Su)							
E	Easy	H	Hard			N SPT blows per 300mm							
GROUNDWATER SYMBOLS				HW		SPT penetration by hammer weight							
 = Water level (static)				RW		SPT penetration by rod weight							
 = Water level (during drilling)													





BOREHOLE ENGINEERING LOG

BOREHOLE NO : BH-SKM-21

CLIENT : TMR	POSITION : E: 10416, N: 152910 (56 South East Transit Horizontal Datum)	PAGE : 4 OF 6
PROJECT : GUSBUS	SURFACE ELEVATION : 28.3 (AHD)	DATE DRILLED : 30/8/12 to 30/8/12
JOB NO : QB10312.540	DIP / AZIMUTH : 90°	LOGGED BY : NC
LOCATION : Western bank of Bulimba Creek	CONTRACTOR : Geodrill	CHECKED BY : DWL

DRILLING						MATERIAL						
PROGRESS		PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations
DRILLING & CASING	WATER											
WB					13.3	15.0			CLAYSTONE: Green brown and grey, extremely weathered, very low strength, red staining.			
					12.8	15.5					VSt	
				16.00m SPT 16, 22, 30 N=52	12.3	16.0		16.00m	Grey, fine grained sand, red staining.			16.00: [Properties of CLAY with sand]
				16.45m	11.8	16.5						
					11.3	17.0						
				17.50m SPT 8, 13, 20 N=33	10.8	17.5		17.50m	Orange brown iron staining present.	M		
				17.95m	10.3	18.0					H	
					9.8	18.5						
				19.00m SPT 8, 12, 15 N=27	9.3	19.0		19.00m	Dark grey, with some dark brown to black staining along incipient fractures.			
				19.45m	8.8	19.5						
				8.3	20.0		20.00m					

DRILLING				SAMPLES & FIELD TESTS				DENSITY (SPT N-value)		CONSISTENCY (Su) {N-value}					
HA	Hand Auger	RR	Rock Rolling	D	Disturbed Sample	SPT	Standard Penetration Test	VL	Very Loose	0 - 4	VS	Very Soft	< 12 kPa {0-2}		
AS	Auger Screw	HQ	HQ Coring	ES	Env Soil Sample	U	Undisturbed Tube Sample	L	Loose	4 - 10	S	Soft	12 - 25 {2-4}		
AD/T	Auger Drill TC-bit	NQ	NQ Coring	EW	Env Water Sample	W	Water Sample	MD	Medium Dense	10 - 30	F	Firm	25 - 50 {4-8}		
AD/V	Auger Drill V-bit	PQ	PQ Coring					D	Dense	30 - 50	St	Stiff	50 - 100 {8-15}		
WB	Washbore	NMLC	NMLC Coring	HP	Hand Penetrometer	MOISTURE CONDITION		VD	Very Dense	50 - 100	VSt	Very Stiff	100 - 200 {15-30}		
DRILLING PENETRATION				HV	Hand Vane Shear	D = Dry M = Moist W = Wet		CO	Compact	>50/150mm	H	Hard	> 200 kPa {>30}		
VE	Very Easy	F	Firm	VH	Very Hard										
E	Easy	H	Hard												
GROUNDWATER SYMBOLS															
															
															



BOREHOLE ENGINEERING LOG

BOREHOLE NO : BH-SKM-21

CLIENT : TMR

POSITION : E: 10416, N: 152910 (56 South East Transit Horizontal Datum)

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PROJECT : GUSBUS

SURFACE ELEVATION : 28.3 (AHD)

DATE DRILLED : 30/8/12 to 30/8/12

JOB NO : QB10312.540

DIP / AZIMUTH : 90°

LOGGED BY : NC

LOCATION : Western bank of Bulimba Creek

CONTRACTOR : Geodrill

CHECKED BY : DWL

DRILLING						MATERIAL						
PROGRESS		PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations
DRILLING & CASING	WATER											
						8.3	20.0					
				20.50m SPT 25, 30/100mm N=R 20.75m	7.8	20.5						
					7.3	21.0						
					6.8	21.5						
				22.00m SPT 29, 30/110mm N=R 22.26m	6.3	22.0				M	VD	
					5.8	22.5						
					5.3	23.0			23.00m With orange brown iron staining.			
				23.50m SPT 6, 15, 23 N=38	4.8	23.5			23.60m			
				23.95m	4.3	24.0			CLAYSTONE: Grey, extremely weathered, medium strength.			23.60: [Properties of CLAY]
					3.8	24.5				M	H	
				25.00m	3.3	25.0			25.00m			

DRILLING

HA Hand Auger RR Rock Rolling
 AS Auger Screw HQ HQ Coring
 AD/T Auger Drill TC-bit NQ NQ Coring
 AD/V Auger Drill V-bit PQ PQ Coring
 WB Washbore NMLC NMLC Coring

DRILLING PENETRATION
 VE Very Easy F Firm VH Very Hard
 E Easy H Hard

GROUNDWATER SYMBOLS

▼ = Water level (static)
 ▼ = Water level (during drilling)

SAMPLES & FIELD TESTS

D Disturbed Sample SPT Standard Penetration Test
 ES Env Soil Sample U Undisturbed Tube Sample
 EW Env Water Sample W Water Sample

HP Hand Penetrometer
 HV Hand Vane Shear
 (P: Peak Su R: Residual Su)
 N SPT blows per 300mm
 HW SPT penetration by hammer weight
 RW SPT penetration by rod weight

MOISTURE CONDITION
 D = Dry M = Moist W = Wet

DENSITY (SPT N-value)

VL Very Loose 0 - 4
 L Loose 4 - 10
 MD Medium Dense 10 - 30
 D Dense 30 - 50
 VD Very Dense 50 - 100
 CO Compact >50/150mm

CONSISTENCY (Su) {N-value}

VS Very Soft < 12 kPa {0-2}
 S Soft 12 - 25 {2-4}
 F Firm 25 - 50 {4-8}
 St Stiff 50 - 100 {8-15}
 VSt Very Stiff 100 - 200 {15-30}
 H Hard > 200 kPa {>30}





BOREHOLE ENGINEERING LOG

BOREHOLE NO : BH-SKM-21

CLIENT : TMR	POSITION : E: 10416, N: 152910 (56 South East Transit Horizontal Datum)	PAGE : 6 OF 6
PROJECT : GUSBUS	SURFACE ELEVATION : 28.3 (AHD)	DATE DRILLED : 30/8/12 to 30/8/12
JOB NO : QB10312.540	DIP / AZIMUTH : 90°	LOGGED BY : NC
LOCATION : Western bank of Bulimba Creek	CONTRACTOR : Geodrill	CHECKED BY : DWL

DRILLING					MATERIAL										
PROGRESS		PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations			
DRILLING & CASING	WATER														
WB				SPT 13, 23, 30/110mm N=R	3.3	25.0			CLAYSTONE: Grey and brown, with fine to medium grained sand, extremely weathered, medium strength.	M	H	25.00: [Properties of CLAY]			
				25.41m											
					2.8	25.5									
					2.3	26.0									
				26.50m SPT 30/130mm N=R	1.8	26.5									
				26.63m											
					1.3	27.0									
					0.8	27.5									
				28.00m SPT 7, 14, 25 N=39	0.3	28.0			Grey, extremely weathered, low to medium strength, red staining.						
				28.45m											
					-0.2	28.5			SANDSTONE: Grey, fine to coarse, sub-angular, poorly cemented clay matrix, extremely weathered, very low strength.			28.50: [Properties of Clayey SAND]			
					-0.7	29.0									
				29.50m SPT 30/110mm N=R	-1.2	29.5			29.61m			29.61: BH Terminated BH sealed with grout			
				29.61m											
					-1.7	30.0									

DRILLING				SAMPLES & FIELD TESTS				DENSITY (SPT N-value)		CONSISTENCY (Su) {N-value}			
HA	Hand Auger	RR	Rock Rolling	D	Disturbed Sample	SPT	Standard Penetration Test	VL	Very Loose	0 - 4	VS	Very Soft	< 12 kPa {0-2}
AS	Auger Screw	HQ	HQ Coring	ES	Env Soil Sample	U	Undisturbed Tube Sample	L	Loose	4 - 10	S	Soft	12 - 25 {2-4}
AD/T	Auger Drill TC-bit	NQ	NQ Coring	EW	Env Water Sample	W	Water Sample	MD	Medium Dense	10 - 30	F	Firm	25 - 50 {4-8}
AD/V	Auger Drill V-bit	PQ	PQ Coring					D	Dense	30 - 50	St	Stiff	50 - 100 {8-15}
WB	Washbore	NMLC	NMLC Coring	HP	Hand Penetrometer			VD	Very Dense	50 - 100	VSt	Very Stiff	100 - 200 {15-30}
DRILLING PENETRATION				HV	Hand Vane Shear	MOISTURE CONDITION		CO	Compact	>50/150mm	H	Hard	> 200 kPa {>30}
VE	Very Easy	F	Firm	VH	Very Hard	D = Dry M = Moist W = Wet							
E	Easy	H	Hard										
GROUNDWATER SYMBOLS													
													
= Water level (static)													
													
= Water level (during drilling)													