

Engineering Log - Cored Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,415m**

Borehole ID: **BH1023**

sheet: 2 of 3

project no: **GEOTLCOV24443AA**

date started: **18 Jun 2012**

date completed: **19 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506109; N: 6708318 (MGA94 Zone 56) surface elevation : 11.76m (AHD) angle from horizontal: 90°
drill model: Intertech 450 mounting: Truck hole diameter : 76 mm

drilling information				material substance				rock mass defects			
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is(50) X = axial O = diametral a = axial d = diametral	samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)
			11								
			10								
			9								
			8								
			4		start coring at 4.05m						
			7		SANDSTONE: fine to medium, pale brown, remoulds to sandy clay. SANDSTONE: fine to medium grained, orange brown, indistinctly bedded at 0°-5°, trace siltstone laminae	XW HW		a=0.04 d=0.06			PT x5, 0°, PL, RO, CN PT, 0°, PL, RO, Fe SN JT closed, 75°, Fe SN
			6		6.15m - Becoming pale grey	XW MW		a=1.84 d=0.69	64%		PT closely spaced, 0°, PL, RO, CN PT, 0°, PL, RO, CN PT, 0°, PL, RO, CL Clay CO, 1 mm PT, 0°, PL, RO, Fe SN PT, 5°, PL, RO, Sandy clay CO PT, 0°, PL, RO, Fe SN PT, 0°, PL, RO, Fe SN PT, 0°, PL, RO, CL Clay CO
			5			SW FR		a=3.35 d=6.26			PT, 0°, PL, RO, CN SM, 0°, PL, RO, 10 mm, fine gravel
			7		INTERLAMINATED SILTSTONE & SANDSTONE: siltstone is dark grey, sandstone is fine grained, pale grey, indistinct bedding, thinly laminated with some very thin beds (50% siltstone, 50% sandstone)				88%		
			4					a=0.95			

method & support DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit W washbore NMLC NMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown	graphic log / core recovery core recovered (graphic symbols indicate material) no core recovered core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)	weathering & alteration* RS residual soil XW extremely weathered HW highly weathered DW distinctly weathered MW moderately weathered SW slightly weathered FR fresh *W replaced with A for alteration strength VL very low L low M medium H high VH very high EH extremely high	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished SO smooth RO rough VR very rough	planarity PL planar CU curved UN undulating ST stepped IR irregular coating CN clean SN stain VN veneer CO coating
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Engineering Log - Cored Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,415m**

Borehole ID. **BH1023**

sheet: 3 of 3

project no. **GEOTLCOV24443AA**

date started: **18 Jun 2012**

date completed: **19 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506109; N: 6708318 (MGA94 Zone 56) surface elevation : 11.76m (AHD) angle from horizontal: 90°
drill model: Intertech 450 mounting: Truck hole diameter : 76 mm

drilling information				material substance		rock mass defects					
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is(50) X = axial; O = diametral	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm) 30 100 300 1000 3000	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)
							VL J M H VH EH				particular



PointID : BH1023 Depth Range: 4.05 - 13.00 m

drawn			client: Roads and Maritime Services NSW		
approved			project: HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)		
date	25/10/2012		title: CORE PHOTOGRAPH BH1023		
scale	N.T.S.		project no: GEOTLCOV24443AA	fig no: FIGURE 1	rev:
original size	A4				

CDF 0.9_03AE.GLB GrcTbL COF PHOTO CORE PHOTO 1 PER PAGE GEOTLCOV24443AA SECTION 3.GPJ <<DrawingFile>> 25/10/2012 11:07



PointID : BH1023 Depth Range: 13.00 - 15.00 m

drawn			client:	Roads and Maritime Services NSW		
approved			project:	HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)		
date	25/10/2012		title:	CORE PHOTOGRAPH BH1023		
scale	N.T.S.		project no:	GEOTLCOV24443AA	fig no:	FIGURE 2
original size	A4				rev:	

Engineering Log - Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,420m**

Borehole ID. **BH1024**

sheet: 1 of 3

project no. **GEOTLCOV24443AA**

date started: **21 Jun 2012**

date completed: **21 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506113; N: 6708346 (MGA94 Zone 56)

surface elevation : 11.80m (AHD)

angle from horizontal: 90°

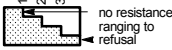
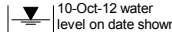
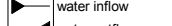
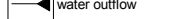
drill model: Intertech 450

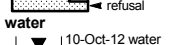
mounting: Truck

hole diameter : 6 mm

drilling information						material substance						
method & support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description	moisture condition	consistency / relative density	hand penetrometer (kPa)	structure and additional observations
	1 2 3							SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components			100 200 300 400	
AD/T Casing Not Observed			SPT 3, 3, 5 N*=8	11	1		CH	FILL: CLAYEY SAND: fine to coarse, orange-brown, low plasticity fines, trace fine to medium grained sub-angular gravel. FILL: CLAYEY GRAVELLY SAND: fine to coarse, orange brown, medium plasticity fines, fine sub-angular gravel. CLAY: high plasticity, pale grey to pale brown, mottled orange, trace of fine grained angular sandstone gravel.	M			FILL
									<Wp	H		RESIDUAL SOIL
			SPT 9, 16/12mm N*=R	10	2			SANDSTONE: pale orange brown, extremely weathered to highly weathered, recovered as sandy gravelly clay.				WEATHERED ROCK
			SPT 9/50mm N*=R	8	4			Borehole BH1024 continued as cored hole				
				7	5							
				6	6							
				5	7							
				4								

method		support		samples & field tests		classification symbol & soil description		consistency / relative density	
AD	auger drilling*	M	mud	U##	undisturbed sample ##mm diameter	based on Unified Classification System		VS	very soft
AS	auger screwing*	C	casing	D	disturbed sample			S	soft
RR	roller/tricone			B	bulk disturbed sample			F	firm
W	washbore			E	environmental sample			St	stiff
CT	cable tool			HP	hand penetrometer (kPa)			VS _t	very stiff
HA	hand auger			N	standard penetration test (SPT)			H	hard
DT	diatube			N*	SPT - sample recovered			Fb	friable
B	blank bit			Nc	SPT with solid cone			VL	very loose
V	V bit			VS	vane shearpeak/remoulded (uncorrected kPa)			L	loose
T	TC bit			R	refusal			MD	medium dense
* bit shown by suffix								D	dense
e.g. AD/T								VD	very dense

penetration		water	
			
			
			

method AD auger drilling* AS auger screwing* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit * bit shown by suffix e.g. AD/T	support M mud C casing N nil penetration  no resistance ranging to refusal water  10-Oct-12 water level on date shown water inflow water outflow	samples & field tests U## undisturbed sample ##mm diameter D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shearpeak/remoulded (uncorrected kPa) R refusal	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Engineering Log - Cored Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,420m**

Borehole ID. **BH1024**

sheet: 2 of 3

project no. **GEOTLCOV24443AA**

date started: **21 Jun 2012**

date completed: **21 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506113; N: 6708346 (MGA94 Zone 56) surface elevation : 11.80m (AHD) angle from horizontal: 90°
drill model: Intertech 450 mounting: Truck hole diameter : 6 mm

drilling information				material substance		rock mass defects														
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 X = axial; O = diametral a = axial; d = diametral				samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)						
							VL	L	M	H	VH	EH		30	100	300	1000	3000	particular	general
			11																	
			10																	
			9																	
			8																	
			4		start coring at 4.05m															
↑ NC3 Not Observed			7		INTERLAMINATED SILTSTONE & SANDSTONE: siltstone is pale brown, grey and orange, sandstone is fine to medium grained, pale brown to orange, thinly laminated at 0° with some extremely weathered seams (70% siltstone, 30% sandstone)	XW / HW		a=0.60 d=0.01	66%		SM, CL Clay, 80 mm									
		a=0.63 d=0.15	JT closed, 65°, IR, CL Clay CO																	
							JT, 90°, PL, RO, Fe SN													
							JT, 90°, IR, RO, Fe SN SM, 5°, PL, RO, Clay, 5 mm													
			6		SANDSTONE: fine to medium grained, pale brown, indistinct bedding (0°-5°), trace irregular siltstone laminae	MW		a=1.06 d=0.44	47%											
			5		NO CORE: 0.09 m															
			7		SANDSTONE: fine to medium grained, pale brown to orange, becoming pale grey, indistinct bedding (0°-5°), trace irregular siltstone laminae	MW		a=1.06 d=0.44	35%											
						SW														
			4																	

Defects are: PT, 0 - 10°, PL, RO, Fe CN - SN, unless otherwise described

method & support DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit W washbore NMLC NMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown 25uL	graphic log / core recovery core recovered (graphic symbols indicate material) no core recovered core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)	weathering & alteration* RS residual soil XW extremely weathered HW highly weathered DW distinctly weathered MW moderately weathered SW slightly weathered FR fresh *W replaced with A for alteration strength VL very low L low M medium H high VH very high EH extremely high	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished SO smooth RO rough VR very rough	planarity PL planar CU curved UN undulating ST stepped IR irregular coating CN clean SN stain VN veneer CO coating
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Engineering Log - Cored Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,420m**

Borehole ID: **BH1024**

sheet: 3 of 3

project no: **GEOTLCOV24443AA**

date started: **21 Jun 2012**

date completed: **21 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506113; N: 6708346 (MGA94 Zone 56) surface elevation : 11.80m (AHD) angle from horizontal: 90°
drill model: Intertech 450 mounting: Truck hole diameter : 6 mm

drilling information				material substance				rock mass defects			
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is(50) X = axial; O = diametral a = axial; d = diametral	samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)
							VL J M H V EH				particular general
			3		INTERLAMINATED SILTSTONE & SANDSTONE: sandstone is fine grained, pale grey, siltstone is dark grey, distinct bedding (0°-5°), thinly laminated (60% sandstone, 40% siltstone) <i>(continued)</i>	SW			35%		JT sub-vertical, PL, RO, Fe VN - SN, mineral
			9			FR		a=0.72 d=0.32			JT, 70°, IR, RO, Mineral VN
			10					a=0.85 d=1.10			
			11		SANDSTONE: fine to medium grained, pale grey, indistinct bedding (0°-5°), trace highly weathered lamination	HW		a=0.35 d=0.04	64%		JT sub-vertical, 85°, PL, RO, Mineral VN
			12		SILTSTONE: dark grey, indistinct bedding (0°-5°)	FR		a=1.01 d=0.79			JT, 45°, PL, RO, Mineral VN JT, 45°, PL, RO, Mineral VN
			13		INTERLAMINATED SILTSTONE & SANDSTONE: siltstone is dark grey, sandstone is fine grained, pale grey, distinct bedding (0°-5°), thinly laminated (70% sandstone, 30% siltstone)			a=1.21 d=1.10	95%		JT, 80°, IR, RO, Mineral VN JT, 75°, PL, RO, Mineral VN
			14					a=1.31 d=1.14			JT, 40°, PL, RO, Mineral VN JT, 60°, PL, RO, Mineral VN JT, 55°, PL, RO, CN
			15					a=0.95 d=1.10			JT, 55°, IR, RO, CN
			15.15		SILTSTONE: dark grey, indistinct bedding			a=1.35 d=1.34			
			15.15		Borehole BH1024 terminated at 15.15 m Target depth						
			15.15		Grouted upon completion						
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method & support DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit W washbore NMLC NMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss 25uL water pressure test result (lugeons) for depth interval shown	graphic log / core recovery core recovered (graphic symbols indicate material) no core recovered core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)	weathering & alteration* RS residual soil XW extremely weathered HW highly weathered DW distinctly weathered MW moderately weathered SW slightly weathered FR fresh *W replaced with A for alteration strength VL very low L low M medium H high VH very high EH extremely high	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished SO smooth RO rough VR very rough	planarity PL planar CU curved UN undulating ST stepped IR irregular coating CN clean SN stain VN veneer CO coating
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PointID : BH1024 Depth Range: 4.05 - 13.00 m

drawn			client:	Roads and Maritime Services NSW		
approved			project:	HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)		
date	25/10/2012		title:	CORE PHOTOGRAPH BH1024		
scale	N.T.S.		project no:	GEOTLCOV24443AA	fig no:	FIGURE 1
original size	A4		rev:			



PointID : BH1024 Depth Range: 13.00 - 15.15 m

drawn			client:	Roads and Maritime Services NSW		
approved			project:	HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)		
date	25/10/2012		title:	CORE PHOTOGRAPH BH1024		
scale	N.T.S.		project no:	GEOTLCOV24443AA	fig no:	FIGURE 2
original size	A4				rev:	

Engineering Log - Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,422m**

Borehole ID. **BH1025**

sheet: 1 of 3

project no. **GEOTLCOV24443AA**

date started: **19 Jun 2012**

date completed: **20 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506115; N: 6708378 (MGA94 Zone 56)

surface elevation : 11.37m (AHD)

angle from horizontal: 90°

drill model: Intertech 450

mounting: Truck

hole diameter : 76 mm

drilling information					material substance								
method & support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	hand penetrometer (kPa)	structure and additional observations	
AD/T CASING	1						CH	CLAY: high plasticity, pale brown, trace fine grained sand, trace fine sub-angular gravel.	<Wp	St / VSt	100	RESIDUAL SOIL	
	2			11				=Wp	200				
	3			1					300				
				10					400				
			SPT 1, 2, 3 N*=5					0.90m - colour change to pale brown, mottled orange			X		
				2									
				9				SANDSTONE: extremely to highly weathered, very low strength, recovered as clayey sand, fine to medium grained.			>>X		WEATHERED ROCK
			SPT 16/110mm N*=R										
				3									
				8									
				4				Borehole BH1025 continued as cored hole					
			SPT 16/50mm N*=R										
				7									
					5								
					6								
					5								
					7								
					4								

method AD auger drilling* AS auger screwing* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit * bit shown by suffix e.g. AD/T	support M mud C casing N nil penetration  no resistance ranging to refusal water 10-Oct-12 water level on date shown water inflow water outflow	samples & field tests U## undisturbed sample ##mm diameter D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shearpeak/remoulded (uncorrected kPa) R refusal	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole ID.	<i>BH1025</i>
sheet:	2 of 3
project no.	<i>GEOTLCOV24443AA</i>
date started:	<i>19 Jun 2012</i>
date completed:	<i>20 Jun 2012</i>
logged by:	<i>JR</i>
checked by:	<i>MF</i>

principal:

date completed: **20 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506115; N: 6708378 (MGA94 Zone 56)				surface elevation : 11.37m (AHD)				angle from horizontal: 90°									
drill model: Intertech 450				mounting: Truck				hole diameter : 76 mm									
drilling information				material substance				rock mass defects									
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is(50)			samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm)				additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)	
							VL	L	H			FH	30	100	300	1000	3000
		-11															
			1														
		-10															
			2														
		-9															
			3														
		-8															
			4		start coring at 4.05m												
				X	NO CORE: 0.28 m												
		-7			SANDSTONE: fine to medium grained, pale brown to orange, indistinct bedding (0°-5°), trace siltstone laminae	XW MW									SM, Sandy clay, 15 mm		
			5		SILTSTONE: pale brown to grey, some orange, indistinct bedding (0°-5°), trace of fine grained sandstone laminae										SM, Sandy clay, 4 mm		
		-6															
			6		INTERLAMINATED SILTSTONE & SANDSTONE: siltstone is grey to orange, sandstone is fine to medium grained, pale brown to orange (80% siltstone, 20% sandstone)	XW MW									SM, Clayey sand, 60 mm		
		-5			SANDSTONE: fine to medium grained, pale grey, with some pale orange, indistinct bedding (0°-5°)										JT x2, 50°, PL, RO, Fe SN, 10 mm		
			7												JT, 35°, IR, RO, Fe SN, fractured		
		-4													JT, 75°, PL, RO, Fe SN		
															fractured		
															JT, 15°, PL, RO, CN		
															50 mm, highly fractured zone		
															JT, 45 - 80°, IR, RO, CN		
															JT, 45°, PL, RO, Fe SN		
															JT, 45°, PL, RO, Fe SN		
					7.60m - some irregular siltstone laminae, dark grey	SW											
method & support		water			graphic log / core recovery			weathering & alteration*			defect type			planarity			
DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit W washbore NMLC NMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test		10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss			 core recovered (graphic symbols indicate material) no core recovered			RS residual soil XW extremely weathered LW highly weathered DW distinctly weathered MW moderately weathered SW slightly weathered FR fresh *W replaced with A for alteration			PT parting SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break			PL planar CU curved UN undulating ST stepped IR Irregular			
		25uL water pressure test result (lugeons) for depth interval shown			 core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)			strength VL very low L low M medium H high VH very high FH extremely high			roughness SL slickensided POL polished SO smooth RO rough VR very rough			coating CN clean SN stain VN veneer CO coating			

Engineering Log - Cored Borehole

client: **Roads and Maritime Services NSW**

principal:

project: **HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)**

location: **Approximate Ch 41,422m**

Borehole ID. **BH1025**

sheet: 3 of 3

project no. **GEOTLCOV24443AA**

date started: **19 Jun 2012**

date completed: **20 Jun 2012**

logged by: **JR**

checked by: **MF**

position: E: 506115; N: 6708378 (MGA94 Zone 56) surface elevation: 11.37m (AHD) angle from horizontal: 90°
drill model: Intertech 450 mounting: Truck hole diameter: 76 mm

drilling information				material substance	rock mass defects								
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is(50) X = axial; O = diametral a = axial; d = diametral	samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)	particular	general
			3		INTERLAMINATED SILTSTONE & SANDSTONE: dark grey and pale grey, sandstone is fine grained, distinctly inter laminated at 0°-5° (60% siltstone, 40% sandstone)	SW			86%		JT sub-vertical, 75 - 90°, IR, RO, Calcite VN, 180 mm JT, 80°, PL, RO, CN		
			9			FR							
			2										
			10		SILTSTONE: dark grey, indistinct bedding, some thin pale grey fine grained sandstone laminae				78%		JT, 45°, PL, RO, CN JT closed, 85°, PL JT, 15°, PL, RO, CN JT, 60°, PL, RO, CN JT, 10°, PL, RO, CN JT, 10°, PL, RO, CN		
			11										
			0										
			12						85%		JT, 80°, PL, RO, Mineral VN JT, 50°, PL, RO, Mineral VN JT, 80°, PL, RO, Mineral VN		
			-1										
			-2					a=1.47 d=1.18					
			14		INTERLAMINATED SILTSTONE & SANDSTONE: dark grey and pale grey, sandstone is fine grained, distinctly inter laminated at 0°-5° (80% siltstone, 20% sandstone)				a=1.14 d=0.66		JT, 30°, IR, RO, CN		
			-3										
			15		Borehole BH1025 terminated at 15.00 m Target depth								
			-4		Grouted upon completion								

method & support DT diatube AS auger screwing AD auger drilling RR roller/tricone CB claw or blade bit W washbore NMLC NMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown	graphic log / core recovery core recovered (graphic symbols indicate material) no core recovered core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)	weathering & alteration* RS residual soil XW extremely weathered HW highly weathered DW distinctly weathered MW moderately weathered SV slightly weathered FR fresh *W replaced with A for alteration strength VL very low L low M medium H high VH very high EH extremely high	defect type PT parting JT joint SZ shear zone SS shear surface CS crushed seam SM seam DB drilling break roughness SL slickensided POL polished SO smooth RO rough VR very rough	planarity PL planar CU curved UN undulating ST stepped IR irregular coating CN clean SN stain VN veneer CO coating
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PointID : BH1025 Depth Range: 4.05 - 13.00 m

drawn			client:	Roads and Maritime Services NSW		
approved			project:	HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)		
date	25/10/2012		title:	CORE PHOTOGRAPH BH1025		
scale	N.T.S.		project no:	GEOTLCOV24443AA	fig no:	FIGURE 1
original size	A4				rev:	



PointID : BH1025 Depth Range: 13.00 - 15.00 m

drawn			client:	Roads and Maritime Services NSW		
approved			project:	HW10 Pacific Highway Upgrade - Section 3 (Glenugie to Tyndale)		
date	25/10/2012		title:	CORE PHOTOGRAPH BH1025		
scale	N.T.S.		project no:	GEOTLCOV24443AA	fig no:	FIGURE 2
original size	A4				rev:	