

**APPENDIX A**  
**RESULTS OF FIELDWORK**

BOREHOLE NO.:	BH1	SHEET :	1 OF 2
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	11/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Gemco	RL:	
HOLE DIAMETER:	100 mm	COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION		
											1	2	3
1	AD/T	C			CL		SILTY SANDY CALCAREOUS CLAY: orange - pale orange brown, low plasticity, fine to coarse grained sand	D	S				
					CL		SANDY CLAY: brown, low plasticity, fine to coarse grained sand	D - M	S - F				
					CL		SANDY SILTY CLAY: pale yellow brown mottled orange, low plasticity, fine to coarse grained sand						
2	AD/T	C		SPT 1.50 - 1.95 m 3, 3, 3 N*=6	SM		CLAYEY SILTY SAND: pale yellow brown, fine to coarse grained, low plasticity silt						
						GRAVELLY SILTY SAND: pale yellow brown, fine to coarse grained, low plasticity silt, fine grained gravel	MD						
3	AD/T	C		SPT 3.00 - 3.45 m 5, 5, 6 N*=11	SM		SANDY SILT: pale yellow - cream mottled orange, low plasticity, fine grained sand						
4	AD/T	C		SPT 4.50 - 4.95 m 6, 4, 7 N*=11	ML		SILTY CLAY: pale yellow mottled orange grey, medium to high plasticity	M	SI				
5	WB	N	▲	SPT 6.00 - 6.45 m 5, 10, 10 N*=20	CH		SILTY CLAY: pale yellow - orange brown, medium to high plasticity						
6	WB	N	▲	USO 7.50 - 7.90 m	SC		GRAVELLY CLAYEY SAND: pale yellow brown, fine to coarse grained, low to medium plasticity clay, fine grained gravel						

**TECHNIQUE**  
 AD/T auger drilling with t-bit  
 AD/V auger drilling with v-bit  
 AS auger screwing  
 AT air track  
 CT cable tool  
 DB washbore drag bit  
 DT diatube  
 HA hand auger  
 MZ mazier  
 RR rock roller  
 WB washbore

**SUPPORT**  
 C casing  
 M mud/polymer  
 N none  
 T timber  
 W water

**SAMPLES AND TESTING**  
 B bulk disturbed sample  
 BLK block sample  
 D small disturbed sample  
 LB large bulk disturbed sample  
 M mazier type sample  
 P piston sample  
 SPT standard penetration test  
 U undisturbed tube dia mm  
 PP pocket penetrometer (UCS) kPa

**WATER**  
 standing water level  
 inflow  
 partial loss  
 complete loss

**CONSISTENCY/DENSITY**

*Fines*  
 VS very soft  
 S soft  
 F firm  
 St stiff  
 VSt very stiff  
 H hard

*Coarse*  
 VL very loose  
 L loose  
 MD medium dense  
 D dense  
 VD very dense

**MOISTURE CONDITION**  
 D dry  
 M moist  
 W wet

**PENETRATION**  
 0 no resistance  
 to  
 4 absolute refusal

**NOTES**

BOREHOLE NO.:	BH1	SHEET :	2 OF 2
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	11/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Gemco	RL:	
HOLE DIAMETER:	100 mm	COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION		
											1	2	3
9	WB	N		SPT 8.50 - 8.95 m 2, 4, 7 N <sub>s</sub> =11	SP		SILTY SAND: pale grey - cream, fine to coarse grained, low plasticity silt, trace fine grained gravel	M	MD				
10				SPT 10.00 - 10.45 m 14, 21, 26 N <sub>s</sub> =47	SM		SILTY SAND: pale yellow - grey brown, fine to coarse grained, low plasticity silt, trace fine to medium grained gravel		D				
12				SPT 11.50 - 11.95 m 8, 13, 10 N <sub>s</sub> =23	GP		SILTY SANDY GRAVEL: pale grey - cream, fine to medium, fine to coarse grained sand, low plasticity silt	M - W	MD				
13				SPT 13.00 - 13.45 m 9, 16, 17 N <sub>s</sub> =33	SP		SILTY GRAVELLY SAND: pale grey - cream, fine to coarse grained, fine to medium grained gravel, low plasticity silt		D				
14							BOREHOLE BH1 TERMINATED AT 13.45 m						
15													

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<b>TECHNIQUE</b> AD/T auger drilling with t-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT diatube HA hand auger MZ mazier RR rock roller WB washbore	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>CONSISTENCY/DENSITY</b> <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>WATER</b> standing water level inflow partial loss complete loss				

BOREHOLE NO.:	BH2	SHEET :	1 OF 2
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	11/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Gemco	RL:	
HOLE DIAMETER:	100 mm	COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION						
											1	2	3				
0 - 1	AD/T	C			CL		SANDY SILTY CLAY: brown, low plasticity, fine grained sand	S									
1 - 2			CL-CL	SANDY CLAY: orange brown - pale yellow brown, low to medium plasticity, fine grained sand													
2 - 3	AD/T	C		SPT 1.50 - 1.95 m 3, 2, 3 N*=5	CI		SANDY CLAY: yellow brown, medium plasticity, fine grained sand	S - F									
3 - 4				SPT 3.00 - 3.45 m 1, 2, 2 N*=4													
4 - 5	AD/T	C			CL-CL		SANDY CLAY: yellow brown, low to medium plasticity, fine to medium grained sand	M	F								
5 - 6			CI	SILT CLAY: pale grey mottled yellow orange, medium plasticity, trace fine grained sand													
6 - 7	AD/T	C		SPT 4.50 - 4.95 m 4, 4, 7 N*=11	CI		SILTY SANDY CLAY: pale yellow - yellow brown, medium plasticity, fine grained sand	St									
7 - 8				SPT 6.00 - 6.45 m 3, 5, 5 N*=10													
8 - 9	WB	C			SM		SILTY SAND: grey brown, fine to coarse grained, low plasticity silt, trace fine grained gravel	MD									
9 - 10				SPT 7.00 - 7.45 m 4, 5, 5 N*=10													

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<b>TECHNIQUE</b> AD/T auger drilling with to-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT dialtube HA hand auger MZ mazier RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b> <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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<b>BOREHOLE NO.:</b>	BH2	<b>SHEET :</b>	2 OF 2
<b>CLIENT:</b>	Town & Country	<b>JOB NO :</b>	TE07-178
<b>PROJECT:</b>	Proposed Shopping Centre Redevelopment	<b>DATE:</b>	11/12/07
<b>LOGGED BY:</b>	DK	<b>REVIEWED BY:</b>	CP
<b>DRILL MODEL:</b>	Gemco	<b>RL:</b>	
<b>HOLE DIAMETER:</b>	100 mm	<b>COORDINATES:</b>	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION			
											1	2	3	
8.50 - 8.95	WB	C		SPT 8.50 - 8.95 m 5, 7, 9 N*=16	SM		SILTY SAND: yellow brown - pale grey, fine to medium grained, low plasticity silt, trace fine to medium grained gravel							
10.00 - 10.45	WB	N		SPT 10.00 - 10.45 m 5, 7, 14 N*=21	SM		SILTY SAND: pale grey brown, fine to coarse grained, low plasticity silt, trace fine grained gravel	M	MD					
11.50 - 11.95				SPT 11.50 - 11.95 m 11, 17 N*=28						Side walls of borehole collapsed. SPT pushed through to start at 11.2m with two blow counts recorded.				
11.95							BOREHOLE BH2 TERMINATED AT 11.95 m							

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<b>TECHNIQUE</b> AD/T auger drilling with t-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT diatube HA hand auger MZ mazier RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <b>Fines</b> VS very soft S soft F firm St stiff VSt very stiff H hard  <b>Coarse</b> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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BOREHOLE NO.:	BH3	SHEET :	1 OF 2
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	12/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Gemco	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION			
											1	2	3	
0 - 1	AD/T	C	Not Observed	SPT 1.50 - 1.95 m 2, 2, 3 N <sup>o</sup> =5	CL		SANDY SILTY CLAY: brown with pale orange, low plasticity, fine to medium grained sand	S - F						
1 - 2														
2 - 3	WB	N	Not Observed	SPT 3.00 - 3.45 m 3, 4, 4 N <sup>o</sup> =8	SM		SILTY SAND: pale yellow - yellow brown, fine to coarse grained, low plasticity silt	L - MD						
3 - 4														
4 - 5	WB	N	Not Observed	SPT 4.50 - 4.95 m 2, 4, 4 N <sup>o</sup> =8	SM		SILTY SAND: cream - pale yellow, fine to medium grained, low plasticity silt, with fine grained gravel	M						
5 - 6														
6 - 7	WB	N	Not Observed	SPT 6.00 - 6.45 m 4, 4, 4 N <sup>o</sup> =8	CI		SILTY CLAY: pale grey - cream mottled orange and yellow, medium plasticity, trace fine grained sand	St						
7 - 8														
8 - 9	WB	N	Not Observed	SPT 7.50 - 7.95 m 5, 8, 10 N <sup>o</sup> =18	CI		SILTY CLAY: pale grey - cream mottled orange and yellow, medium plasticity, trace fine grained sand	St - VS <sub>t</sub>						
9 - 10														

**TECHNIQUE**  
 AD/T auger drilling with t-bit  
 AD/V auger drilling with v-bit  
 AS auger screwing  
 AT air track  
 CT cable tool  
 DB washbore drag bit  
 DT dilatube  
 HA hand auger  
 MZ mazier  
 RR rock roller  
 WB washbore

**SUPPORT**  
 C casing  
 M mud/polymer  
 N none  
 T timber  
 W water

**SAMPLES AND TESTING**  
 B bulk disturbed sample  
 BLK block sample  
 D small disturbed sample  
 LB large bulk disturbed sample  
 M mazier type sample  
 P piston sample  
 SPT standard penetration test  
 U undisturbed tube dia mm  
 PP pocket penetrometer (UCS) kPa

**WATER**  
 standing water level  
 inflow  
 partial loss  
 complete loss

**CONSISTENCY/DENSITY**  
*Fines*  
 VS very soft  
 S soft  
 F firm  
 St stiff  
 VS<sub>t</sub> very stiff  
 H hard

*Coarse*  
 VL very loose  
 L loose  
 MD medium dense  
 D dense  
 VD very dense

**MOISTURE CONDITION**  
 D dry  
 M moist  
 W wet

**PENETRATION**  
 0 no resistance  
 to  
 4 absolute refusal

NOTES

<b>BOREHOLE NO.:</b>	BH3	<b>SHEET :</b>	2 OF 2
<b>CLIENT:</b>	Town & Country	<b>JOB NO :</b>	TE07-178
<b>PROJECT:</b>	Proposed Shopping Centre Redevelopment	<b>DATE:</b>	12/12/07
<b>LOGGED BY:</b>	DK	<b>REVIEWED BY:</b>	CP
<b>DRILL MODEL:</b>	Gemco	<b>RL:</b>	
<b>HOLE DIAMETER:</b>		<b>COORDINATES:</b>	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION				
											1	2	3		
9	WB	N	Not Observed	SPT 9.00 - 9.45 m 3, 6, 6 N*=12	CI		SILTY CLAY: pale grey - cream mottled orange and yellow, medium plasticity, trace fine grained sand	M	SI-VSt						
10					SM		SILTY SAND: pale yellow brown, fine to medium grained, low plasticity silt, with fine to medium grained gravel		MD						
11					GM		SANDY SILTY GRAVEL: grey brown, fine to coarse, low plasticity silt, fine to medium grained sand		VD						
11							BOREHOLE BH3 TERMINATED AT 10.95 m								
12															
13															
14															
15															

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<b>TECHNIQUE</b> AD/T auger drilling with t-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT diatube HA hand auger MZ mazier RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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BOREHOLE NO.:	BH4	SHEET :	1 OF 2
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	12/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Gemco	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION		
											1	2	3
1	AD/T	C	▲		CL		SANDY SILTY CLAY: brown, low plasticity, fine grained sand	M	S-F				
2				SPT 1.50 - 1.95 m 2, 3, 2 N*=5	SC		CLAYEY SAND: yellow brown, fine to coarse grained, low plasticity clay, trace fine grained gravel		MD				
3				SPT 3.00 - 3.45 m 3, 3, 4 N*=7	CI		SANDY CLAY: yellow brown, medium plasticity, fine to coarse grained sand		F				
4	WB	N			SM		SILTY SAND: yellow brown, fine to medium grained, low plasticity silt	M	MD				
5				SPT 4.50 - 4.95 m 2, 4, 4 N*=8			SM						SILTY SAND: yellow brown - cream, fine to coarse grained, low plasticity silt, trace fine grained gravel
6				SPT 6.00 - 6.45 m 9, 9, 7 N*=15	SM	CLAYEY SAND: pale yellow brown, fine to medium grained, low to medium plasticity clay							
7					SC								
				SPT 7.50 - 7.95 m 3, 6, 9 N*=15	CI	SILTY CLAY: yellow mottled pale grey, medium plasticity, trace fine grained sand	St - VSt						

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<b>TECHNIQUE</b> AD/T auger drilling with to-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT diatube HA hand auger MZ mauler RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mauler type sample P piston sample SPT standard penetration test U undisturbed tube dia. mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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<b>BOREHOLE NO.:</b>	BH4	<b>SHEET :</b>	2 OF 2
<b>CLIENT:</b>	Town & Country	<b>JOB NO :</b>	TE07-178
<b>PROJECT:</b>	Proposed Shopping Centre Redevelopment	<b>DATE:</b>	12/12/07
<b>LOGGED BY:</b>	DK	<b>REVIEWED BY:</b>	CP
<b>DRILL MODEL:</b>	Gemco	<b>RL:</b>	
<b>HOLE DIAMETER:</b>		<b>COORDINATES:</b>	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION			
											1	2	3	
9.00 - 9.45	WB	N		SPT 9.00 - 9.45 m 5, 15, 25 N <sub>60</sub> =40	CI		SOFT CLAY: yellow mottled pale grey, medium plasticity, trace fine grained sand		St-VSt					
9.45 - 10.50					SC		GRAVELLY CLAYEY SAND: pale grey - cream, fine to coarse grained, low plasticity clay, fine to medium grained gravel	M	D					
10.50 - 10.95				SPT 10.50 - 10.95 m 15, 22, 30 N <sub>60</sub> =52										
10.95 - 11.00							BOREHOLE BH4 TERMINATED AT 10.95 m							
11.00 - 11.10														
11.10 - 11.20														
11.20 - 11.30														
11.30 - 11.40														
11.40 - 11.50														
11.50 - 11.60														
11.60 - 11.70														
11.70 - 11.80														
11.80 - 11.90														
11.90 - 12.00														
12.00 - 12.10														
12.10 - 12.20														
12.20 - 12.30														
12.30 - 12.40														
12.40 - 12.50														
12.50 - 12.60														
12.60 - 12.70														
12.70 - 12.80														
12.80 - 12.90														
12.90 - 13.00														
13.00 - 13.10														
13.10 - 13.20														
13.20 - 13.30														
13.30 - 13.40														
13.40 - 13.50														
13.50 - 13.60														
13.60 - 13.70														
13.70 - 13.80														
13.80 - 13.90														
13.90 - 14.00														
14.00 - 14.10														
14.10 - 14.20														
14.20 - 14.30														
14.30 - 14.40														
14.40 - 14.50														
14.50 - 14.60														
14.60 - 14.70														
14.70 - 14.80														
14.80 - 14.90														
14.90 - 15.00														

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<b>TECHNIQUE</b> ADT auger drilling with t-bit ADV auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT distube HA hand auger MZ mazier RR rock roller WS washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b> <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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HOLE NO.:	TP1	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	3/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION		
											1	2	3
0.0	BH	N	Not Observed	B 0.20 - 0.40 m	CL		SILTY CLAY: brown, low plasticity, trace fine grained sand	M	F				
0.5					CL		SANDY SILTY CLAY: orange - orange pale yellow, low plasticity, fine grained sand		VS - S				
1.0					CL		SANDY SILTY CLAY: pale yellow - pale grey, low plasticity, fine grained sand		T				
2.5					CL		SANDY SILTY CLAY: orange mottled yellow and red, low plasticity, fine grained sand		F - St				
3.0					CL		SANDY CLAY: pale yellow, low plasticity, fine grained sand						
4.0				SC	CLAYEY SAND: pale yellow - cream, fine to medium grained, low plasticity clay	MD							
4.5						TEST TP1 TERMINATED AT 4.20 m							

## DRAWING

GINT 8.1.024 ETS LB 01.0LB Log TEST PIT TE07\_178.GPJ &lt;&lt;DrawingFile&gt;&gt; 24/07/2008 17:58 Developed by Digital Pty Ltd

**TECHNIQUE**  
 AD/T auger drilling with t-bit  
 AD/V auger drilling with v-bit  
 AS auger screwing  
 AT air track  
 CT cable tool  
 DB washbore drag bit  
 DT diatube  
 HA hand auger  
 MZ mazier  
 RR rock roller  
 WB washbore

**SUPPORT**  
 C casing  
 M mud/polymer  
 N none  
 T timber  
 W water

**SAMPLES AND TESTING**  
 B bulk disturbed sample  
 BLK block sample  
 D small disturbed sample  
 LB large bulk disturbed sample  
 M mazier type sample  
 P piston sample  
 SPT standard penetration test  
 U undisturbed tube dia mm  
 PP pocket penetrometer (UCS) kPa

**WATER**  
 standing water level  
 inflow  
 partial loss  
 complete loss

**CONSISTENCY/DENSITY**  
*Fines*  
 VS very soft  
 S soft  
 F firm  
 St stiff  
 VSt very stiff  
 H hard  
  
*Coarse*  
 VL very loose  
 L loose  
 MD medium dense  
 D dense  
 VD very dense

**MOISTURE CONDITION**  
 D dry  
 M moist  
 W wet

**PENETRATION**  
 0 no resistance to  
 4 absolute refusal

## NOTES

HOLE NO.:	TP2	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	5/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION											
											1	2	3									
0.0	BH	N	Not Observed		CL		SILTY CLAY: brown, low plasticity, trace fine grained sand	D - M	S													
0.5							SANDY SILTY CLAY: orange - orange pale yellow, low plasticity, fine grained sand	VS - S														
1.0				D 0.50 - 0.70 m	CL			M														
1.5																	F - St					
2.0				D 1.80 - 2.00 m													CL					
2.5																						
3.0		CL																				
3.5		CL																				
4.0					SC		CLAYEY SAND: pale yellow - cream, fine to medium grained, low plasticity clay		D													
4.5							TEST TP2 TERMINATED AT 4.20 m															

DRAWING

S:\NT 01.064 ETS LIB 01.GLB Loc TEST PIT TE07\_178.GPJ <<Drawing File>> 24/01/2008 17:59 Developed by Dalziel Pty Ltd

<p><b>TECHNIQUE</b>  AD/T auger drilling with t-bit  AD/V auger drilling with v-bit  AS auger screwing  AT air track  CT cable tool  DB washbore drag bit  DT dialube  HA hand auger  MZ mauler  RR rock roller  WB washbore</p> <p><b>SUPPORT</b>  C casing  M mud/polymer  N none  T timber  W water</p>	<p><b>SAMPLES AND TESTING</b>  B bulk disturbed sample  BLK block sample  D small disturbed sample  LB large bulk disturbed sample  M mauler type sample  P piston sample  SPT standard penetration test  U undisturbed tube dia mm  PP pocket penetrometer (UCS) kPa</p> <p><b>WATER</b>   standing water level   inflow   partial loss   complete loss</p>	<p><b>CONSISTENCY/DENSITY</b></p> <p><i>Fines</i>  VS very soft  S soft  F firm  St stiff  VSt very stiff  H hard</p> <p><i>Coarse</i>  VL very loose  L loose  MD medium dense  D dense  VD very dense</p>	<p><b>MOISTURE CONDITION</b>  D dry  M moist  W wet</p>	<p><b>PENETRATION</b>  0 no resistance  to  4 absolute refusal</p>	<p>NOTES</p>
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HOLE NO.:	TP3	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	5/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION		CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION			
								D	M			S	F	1	2
0.0 - 0.5				B 0.15 - 1.30 m	CL		SILTY CLAY: brown, low plasticity	D	M	S	F				
0.5 - 1.5					CL		SANDY CLAY: red - orange, low to medium plasticity, fine to medium grained sand			S					
1.5 - 2.5				B 1.30 - 2.50 m	SC		CLAYEY SAND: pale yellow brown, fine to coarse grained, low to medium plasticity clay		M						
2.5 - 3.5					SC		CLAYEY SAND: cream - pale yellow, fine to coarse grained, low to medium plasticity clay			MD					
3.5 - 4.2					SC		CLAYEY SAND: cream - pale yellow, fine to coarse grained, low to medium plasticity clay								
4.2 - 4.5							TEST TP3 TERMINATED AT 4.20 m								

**DRAWING**

Q:\INT & \024-ETS-UB-01-Sub-Log-TEST-PT-TE07-178.GPJ -<DrawingFile>> 24/01/2008 17:58 Developed by Daugel Pty Ltd

<b>TECHNIQUE</b> AD/T auger drilling with to-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT diatube HA hand auger MZ mazier RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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HOLE NO.:	TP4	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	5/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION		
											1	2	3
0.0 - 0.5	BH	N	Not Observed	B 0.20 - 1.50 m	CL		SILTY CLAY: brown, low plasticity	D - M					
0.5 - 1.0				CL	SANDY SILTY CLAY: yellow - pale orange, low plasticity, fine to medium grained sand, trace fine grained gravel	S - F							
1.0 - 1.5				CL									
1.5 - 2.0				SC	CLAYEY SAND: pale yellow - orange brown, fine to medium grained, medium plasticity clay	MD							
2.0 - 2.5					CL		SANDY CLAY: cream - pale yellow, medium plasticity, fine to coarse grained sand	M	F - St				
2.5 - 3.0					CL								
3.0 - 3.5					CL								
3.5 - 4.0					CL								
4.0 - 4.5					CL								
4.5							TEST TP4 TERMINATED AT 4.50 m						

DRAWING

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<b>TECHNIQUE</b> AD/T auger drilling with t-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT diatube HA hand auger MZ mazier RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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HOLE NO.:	TP5	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	5/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION			
											1	2	3	
0.0					CL		SILTY CLAY: brown, low plasticity, trace fine grained sand	D - M						
0.5					CL		SANDY SILTY CLAY: yellow - pale orange, low plasticity, fine grained sand		S - F					
1.0					CL									
1.70 - 2.30			Not Observed	B 1.70 - 2.30 m	SC		CLAYEY SAND: pale yellow - orange brown, fine to medium grained, medium plasticity clay, trace fine grained gravel		MD					
2.0					SC									
2.5					GI		SANDY CLAY: cream - pale yellow, medium plasticity, fine to coarse grained sand		St - VS:					
3.0					GI									
4.0														
4.2							TEST TP5 TERMINATED AT 4.2 m							
4.5														

**DRAWING**

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<b>TECHNIQUE</b> AD/T auger drilling with t-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit OT diatube HA hand auger MZ mazier RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazier type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <i>Fines</i> VS very soft S soft F firm St stiff VSI very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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HOLE NO.:	TP6	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	5/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION		
											1	2	3
0.0	BH	N	Not Observed		CL		SILTY CLAY: brown, low plasticity, trace fine grained sand	D - M					
0.5					CL		SILTY CLAY: orange - orange brown, low plasticity	S - F					
1.0					CL		SILTY CLAY: orange - yellow, low plasticity						
1.5					CL								
2.0					CL			F - St					
2.5				B 2.50 - 4.50 m				M					
3.0							SILTY CLAY: orange mottled cream - pale grey, low to medium plasticity	SI					
3.5					CL - Cl								
4.0									VSt				
4.5							TEST TP6 TERMINATED AT 4.50 m						

DRAWING

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<b>TECHNIQUE</b> AD/T auger drilling with t-bit AD/V auger drilling with v-bit AS auger screwing AT air track CT cable tool DB washbore drag bit DT datube HA hand auger MZ mazer RR rock roller WB washbore	<b>SUPPORT</b> C casing M mud/polymer N none T timber W water	<b>SAMPLES AND TESTING</b> B bulk disturbed sample BLK block sample D small disturbed sample LB large bulk disturbed sample M mazer type sample P piston sample SPT standard penetration test U undisturbed tube dia mm PP pocket penetrometer (UCS) kPa	<b>WATER</b> standing water level inflow partial loss complete loss	<b>CONSISTENCY/DENSITY</b>  <i>Fines</i> VS very soft S soft F firm St stiff VSt very stiff H hard  <i>Coarse</i> VL very loose L loose MD medium dense D dense VD very dense	<b>MOISTURE CONDITION</b> D dry M moist W wet	<b>PENETRATION</b> 0 no resistance to 4 absolute refusal	<b>NOTES</b>
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HOLE NO.:	TP7	SHEET :	1 OF 1
CLIENT:	Town & Country	JOB NO :	TE07-178
PROJECT:	Proposed Shopping Centre Redevelopment	DATE:	5/12/07
LOGGED BY:	DK	REVIEWED BY:	CP
DRILL MODEL:	Backhoe	RL:	
HOLE DIAMETER:		COORDINATES:	

DEPTH (m)	TECHNIQUE	SUPPORT	WATER	SAMPLE OR FIELD TEST	USCS SYMBOL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION		CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	PENETRATION					
								D - M	S - F			1	2	3			
0.0	BH	N	Not Observed	B 0.20 - 1.50 m	CL		SILTY CLAY: brown, low plasticity	D - M	S - F	M							
0.5																	
1.0																	
1.5																	
2.0				B 2.00 - 4.50 m	CL		SANDY CLAY: pale yellow - orange, low plasticity, fine to medium grained sand										
2.5							CLAYEY SAND: pale yellow, fine to coarse grained, low to medium plasticity clay										
3.0					SC												
3.5																	
4.0																	
4.5							TEST TP7 TERMINATED AT 4.50 m										

## DRAWING

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**TECHNIQUE**  
 AD/T auger drilling with t-bit  
 AD/V auger drilling with v-bit  
 AS auger screwing  
 AT air track  
 CT cable tool  
 DB washbore drag bit  
 DT diatube  
 HA hand auger  
 MZ mauler  
 RR rock roller  
 WB washbore

**SUPPORT**  
 C casing  
 M mud/polymer  
 N none  
 T timber  
 W water

**SAMPLES AND TESTING**  
 B bulk disturbed sample  
 BLK block sample  
 D small disturbed sample  
 LB large bulk disturbed sample  
 M mauler type sample  
 P piston sample  
 SPT standard penetration test  
 U undisturbed tube dia mm  
 PP pocket penetrometer (UCS) kPa

**WATER**  
 standing water level  
 inflow  
 partial loss  
 complete loss

**CONSISTENCY/DENSITY**  
*Fines*  
 VS very soft  
 S soft  
 F firm  
 St stiff  
 VSt very stiff  
 H hard  
*Coarse*  
 VL very loose  
 L loose  
 MD medium dense  
 D dense  
 VD very dense

**MOISTURE CONDITION**  
 D dry  
 M moist  
 W wet

**PENETRATION**  
 0 no resistance  
 1 to 3 lo  
 4 absolute refusal

## NOTES





**GEOTECHNICAL &  
MATERIALS TESTING**

ETS (Cairns) Pty Ltd      ETS (Townsville) Pty Ltd  
 171 Lyons Street      Unit D 26-30 Lorna Court  
 Cairns Qld 4870      Bohle Qld 4818  
 ABN: 71 882 809 366      ABN: 89 119 263 366  
 Telephone: 07 4031 1122      Telephone: 07 4774 4135  
 Facsimile: 07 4051 9480      Facsimile: 07 4774 4357  
 Nata Accred. No: 1833      Nata Accred. No: 2894  
 PO Box 292  
 Bungalow Qld 4870

**DYNAMIC CONE PENETROMETER TEST -- REPORT**

**A.S. 1289 6.3.2**

<b>CLIENT</b>	Town & Country Ltd 2 Mill Street MOSSMAN QLD 4873	<b>REPORT NUMBER</b>	CL07-1253-01
<b>JOB NO</b>	CL07-1253	<b>REPORT DATE</b>	10-Jan-08
<b>PROJECT</b>	Proposed Shopping Centre MOSSMAN QLD 4873	<b>TEST DATE</b>	03-Dec-07
<b>SAMPLE LOCATION</b> (See Site Plan)		<b>TECHNICIAN</b>	D.K.
<b>SAMPLE DESCRIPTION</b> (Soil Profile)		<b>CLIENT ORDER No.</b>	*
		<b>CLIENT JOB No.</b>	*

DEPTH (Metres)	*TEST COMMENCED AT 0.0 m BELOW SURFACE LEVEL											
	SITE: P3		P3 Cont'd - Test Date 05.12.07				SITE: P4		SITE: P4 Cont'd - Test Date 05.12.07			
	No. Blows	Np	No. Blows	Np	No. Blows	Np	No. Blows	Np	No. Blows	Np		
0.0 -- 0.1	2		2.5 --- 2.6	5		0.0 --- 0.1	3		2.5 --- 2.6	5		
0.1 -- 0.2	3		2.6 --- 2.7	6		0.1 --- 0.2	3		2.6 --- 2.7	5		
0.2 -- 0.3	4	9	2.7 --- 2.8	7	18	0.2 --- 0.3	4	10	2.7 --- 2.8	4	14	
0.3 -- 0.4	2		2.8 --- 2.9	8		0.3 --- 0.4	2		2.8 --- 2.9	4		
0.4 -- 0.5	1		2.9 --- 3.0	10		0.4 --- 0.5	2		2.9 --- 3.0	5		
0.5 -- 0.6	2	5	3.0 --- 3.1	18	36	0.5 --- 0.6	2	6	3.0 --- 3.1	8	17	
0.6 -- 0.7	2					0.6 --- 0.7	2		3.1 --- 3.2	12		
0.7 -- 0.8	2					0.7 --- 0.8	3		3.2 --- 3.3	10		
0.8 -- 0.9	2	6				0.8 --- 0.9	3	8	3.3 --- 3.4	10	32	
0.9 -- 1.0	3					0.9 --- 1.0	4		3.4 --- 3.5	9		
1.0 -- 1.1	5					1.0 --- 1.1	5		3.5 --- 3.6	7		
1.1 -- 1.2	4	12				1.1 --- 1.2	4	13	3.6 --- 3.7	8	24	
1.2 -- 1.3	3					1.2 --- 1.3	4		3.7 --- 3.8	11		
1.3 -- 1.4	5					1.3 --- 1.4	5		3.8 --- 3.9	15		
1.4 -- 1.5	4	12				1.4 --- 1.5	7	16	3.9 --- 4.0	18	44	
1.5 -- 1.6	3					1.5 --- 1.6	4					
1.6 -- 1.7	3					1.6 --- 1.7	5					
1.7 -- 1.8	2	8				1.7 --- 1.8	7	16				
1.8 -- 1.9	3					1.8 --- 1.9	8					
1.9 -- 2.0	4					1.9 --- 2.0	4					
2.0 -- 2.1	3	10				2.0 --- 2.1	4	16				
2.1 -- 2.2	4					2.1 --- 2.2	5					
2.2 -- 2.3	4					2.2 --- 2.3	5					
2.3 -- 2.4	4	12				2.3 --- 2.4	6	16				
2.4 -- 2.5	5					2.4 --- 2.5	4					

WATER TABLE: 'Not encountered'      MOISTURE CONDITION: Moist

(Np) : Penetration Resistance  
 = blows per 300 mm

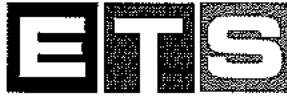


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SIGNATURE: *[Signature]*

SIGNED BY: Darren Koch  
 POSITION: Laboratory Manager  
 DATED: 10-Jan-08

Regional Laboratory: CAIRNS



**GEOTECHNICAL &  
MATERIALS TESTING**

ETS (Cairns) Pty Ltd  
171 Lyons Street  
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Nata Accred. No: 1833  
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Bohle Qld 4818  
ABN: 89 119 253 386  
Telephone: 07 4774 4135  
Facsimile: 07 4774 4357  
Nata Accred. No: 2694

**DYNAMIC CONE PENETROMETER TEST -- REPORT**

**A.S. 1289 6.3.2**

<b>CLIENT</b> Town & Country Ltd 2 Mill Street MOSSMAN QLD 4873	<b>REPORT NUMBER</b> CL07-1253-01
<b>JOB NO</b> CL07-1253	<b>REPORT DATE</b> 10-Jan-08
<b>PROJECT</b> Proposed Shopping Centre MOSSMAN QLD 4873	<b>TEST DATE</b> 03-Dec-07
<b>SAMPLE LOCATION</b> (See Site Plan)	<b>TECHNICIAN</b> D.K.
<b>SAMPLE DESCRIPTION</b> (Soil Profile)	<b>CLIENT ORDER No.</b> *
	<b>CLIENT JOB No.</b> *

DEPTH (Metres)	*TEST COMMENCED AT 0.0 m BELOW SURFACE LEVEL									
	SITE: P5					SITE: P6				
	No. Blows	Np	No. Blows	Np	No. Blows	Np	No. Blows	Np	No. Blows	Np
0.0 -- 0.1	2		2.5 -- 2.6	6		0.0 -- 0.1	1		2.5 -- 2.6	4
0.1 -- 0.2	2		2.6 -- 2.7	5		0.1 -- 0.2	3		2.6 -- 2.7	6
0.2 -- 0.3	3	7	2.7 -- 2.8	4	15	0.2 -- 0.3	2	6	2.7 -- 2.8	5
0.3 -- 0.4	3		2.8 -- 2.9	4		0.3 -- 0.4	3		2.8 -- 2.9	7
0.4 -- 0.5	2		2.9 -- 3.0	7		0.4 -- 0.5	2		2.9 -- 3.0	8
0.5 -- 0.6	2	7	3.0 -- 3.1	8	19	0.5 -- 0.6	2	7	3.0 -- 3.1	8
0.6 -- 0.7	3		3.1 -- 3.2	11		0.6 -- 0.7	2		3.1 -- 3.2	12
0.7 -- 0.8	3		3.2 -- 3.3	10		0.7 -- 0.8	3		3.2 -- 3.3	11
0.8 -- 0.9	4	10	3.3 -- 3.4	8	29	0.8 -- 0.9	4	9	3.3 -- 3.4	8
0.9 -- 1.0	4		3.4 -- 3.5	5		0.9 -- 1.0	3		3.4 -- 3.5	7
1.0 -- 1.1	4		3.5 -- 3.6	9		1.0 -- 1.1	3		3.5 -- 3.6	12
1.1 -- 1.2	5	13	3.6 -- 3.7	15	29	1.1 -- 1.2	3	9	3.6 -- 3.7	12
1.2 -- 1.3	5		3.7 -- 3.8	12		1.2 -- 1.3	4		3.7 -- 3.8	12
1.3 -- 1.4	7		3.8 -- 3.9	18		1.3 -- 1.4	4		3.8 -- 3.9	15
1.4 -- 1.5	4	16			30	1.4 -- 1.5	4	12	3.9 -- 4.0	18
1.5 -- 1.6	3					1.5 -- 1.6	4			
1.6 -- 1.7	3					1.6 -- 1.7	5			
1.7 -- 1.8	3	9				1.7 -- 1.8	6	15		
1.8 -- 1.9	4					1.8 -- 1.9	5			
1.9 -- 2.0	5					1.9 -- 2.0	6			
2.0 -- 2.1	5	14				2.0 -- 2.1	6	17		
2.1 -- 2.2	5					2.1 -- 2.2	5			
2.2 -- 2.3	7					2.2 -- 2.3	5			
2.3 -- 2.4	7	19				2.3 -- 2.4	6	16		
2.4 -- 2.5	5					2.4 -- 2.5	5			

WATER TABLE: 'Not encountered' MOISTURE CONDITION: Moist

(Np) : Penetration Resistance  
= blows per 300 mm



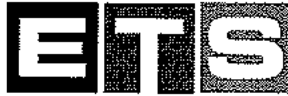
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SIGNATURE: *[Signature]*

SIGNED BY: Darren Koch  
POSITION: Laboratory Manager

DATED: 10-Jan-08

Regional Laboratory: CAIRNS



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Facsimile: 07 4774 4357  
Nata Accred. No: 2694

**DYNAMIC CONE PENETROMETER TEST -- REPORT**

**A.S. 1289 6.3.2**

<b>CLIENT</b> Town & Country Ltd 2 Mill Street MOSSMAN QLD 4873	<b>REPORT NUMBER</b> CL07-1253-01
<b>JOB NO</b> CL07-1253	<b>REPORT DATE</b> 10-Jan-08
<b>PROJECT</b> Proposed Shopping Centre MOSSMAN QLD 4873	<b>TEST DATE</b> 03-Dec-07
<b>SAMPLE LOCATION</b> (See Site Plan)	<b>TECHNICIAN</b> D.K.
<b>SAMPLE DESCRIPTION</b> (Soil Profile)	<b>CLIENT ORDER No.</b> *
	<b>CLIENT JOB No.</b> *

DEPTH (Metres)	*TEST COMMENCED AT 0.0 m BELOW SURFACE LEVEL									
	SITE: P7		P7 Cont'd -Test Date 05.12.07							
	No. Blows	Np	No. Blows	Np		No. Blows	Np		No. Blows	Np
0.0 -- 0.1	2		2.5 --- 2.6	5						
0.1 -- 0.2	2		2.6 --- 2.7	4						
0.2 -- 0.3	2	6	2.7 --- 2.8	5	14					
0.3 -- 0.4	3		2.8 --- 2.9	4						
0.4 -- 0.5	4		2.9 --- 3.0	3						
0.5 -- 0.6	4	11	3.0 --- 3.1	3	10					
0.6 -- 0.7	3		3.1 --- 3.2	4						
0.7 -- 0.8	4		3.2 --- 3.3	5						
0.8 -- 0.9	3	10	3.3 --- 3.4	8	17					
0.9 -- 1.0	4		3.4 --- 3.5	11						
1.0 -- 1.1	4		3.5 --- 3.6	15						
1.1 -- 1.2	5	13	3.6 --- 3.7	10	36					
1.2 -- 1.3	5		3.7 --- 3.8	15						
1.3 -- 1.4	4		3.8 --- 3.9	18						
1.4 -- 1.5	5	14			33					
1.5 -- 1.6	5									
1.6 -- 1.7	6									
1.7 -- 1.8	5	16								
1.8 -- 1.9	5									
1.9 -- 2.0	4									
2.0 -- 2.1	7	16								
2.1 -- 2.2	7									
2.2 -- 2.3	5									
2.3 -- 2.4	8	20								
2.4 -- 2.5	7									

WATER TABLE: 'Not encountered' MOISTURE CONDITION: Moist

(Np) : Penetration Resistance  
= blows per 300 mm



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SIGNATURE:

SIGNED BY: Darren Koch  
POSITION: Laboratory Manager

DATED: 10-Jan-08

Regional Laboratory: CAIRNS



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Nata Accred. No: 2694

**DYNAMIC CONE PENETROMETER TEST -- REPORT**

**A.S. 1289 6.3.2**

<b>CLIENT</b>	Town & Country Ltd 2 Mill Street MOSSMAN QLD 4873	<b>REPORT NUMBER</b>	CL07-1253-01
<b>JOB NO</b>	CL07-1253	<b>REPORT DATE</b>	10-Jan-08
<b>PROJECT</b>	Proposed Shopping Centre MOSSMAN QLD 4873	<b>TEST DATE</b>	03-Dec-07
<b>SAMPLE LOCATION</b> (See Site Plan)		<b>TECHNICIAN</b>	D.K.
<b>SAMPLE DESCRIPTION</b> (Soil Profile)		<b>CLIENT ORDER No.</b>	*
		<b>CLIENT JOB No.</b>	*

DEPTH (Metres)	*TEST COMMENCED AT 0.0 m BELOW SURFACE LEVEL										
	SITE: P1					SITE: P2					
	No. Blows	Np	No. Blows	Np	No. Blows	Np	No. Blows	Np	No. Blows	Np	
0.0 -- 0.1	4		2.5 --- 2.6	3		0.0 --- 0.1	2		2.5 --- 2.6	5	
0.1 -- 0.2	4		2.6 --- 2.7	3		0.1 --- 0.2	2		2.6 --- 2.7	11	
0.2 -- 0.3	4	12	2.7 --- 2.8	3	9	0.2 --- 0.3	1	5	2.7 --- 2.8	12	28
0.3 -- 0.4	3		2.8 --- 2.9	4		0.3 --- 0.4	1		2.8 --- 2.9	15	
0.4 -- 0.5	2		2.9 --- 3.0	4		0.4 --- 0.5	2		2.9 --- 3.0	10	
0.5 -- 0.6	2	7	3.0 --- 3.1	3	11	0.5 --- 0.6	3	6	3.0 --- 3.1	10	35
0.6 -- 0.7	1		3.1 --- 3.2	3		0.6 --- 0.7	2		3.1 --- 3.2	9	
0.7 -- 0.8	1		3.2 --- 3.3	4		0.7 --- 0.8	3		3.2 --- 3.3	8	
0.8 -- 0.9	1	3	3.3 --- 3.4	5	12	0.8 --- 0.9	4	9	3.3 --- 3.4	7	24
0.9 -- 1.0	1		3.4 --- 3.5	5		0.9 --- 1.0	4		3.4 --- 3.5	12	
1.0 -- 1.1	4					1.0 --- 1.1	5		3.5 --- 3.6	15	
1.1 -- 1.2	4	9			5	1.1 --- 1.2	5	14	3.6 --- 3.7	18	45
1.2 -- 1.3	4					1.2 --- 1.3	5				
1.3 -- 1.4	3					1.3 --- 1.4	7				
1.4 -- 1.5	3	10				1.4 --- 1.5	5	17			
1.5 -- 1.6	3					1.5 --- 1.6	5				
1.6 -- 1.7	3					1.6 --- 1.7	4				
1.7 -- 1.8	5	11				1.7 --- 1.8	4	13			
1.8 -- 1.9	4					1.8 --- 1.9	3				
1.9 -- 2.0	4					1.9 --- 2.0	4				
2.0 -- 2.1	4	12				2.0 --- 2.1	5	12			
2.1 -- 2.2	5					2.1 --- 2.2	5				
2.2 -- 2.3	5					2.2 --- 2.3	7				
2.3 -- 2.4	4	14				2.3 --- 2.4	9	21			
2.4 -- 2.5	3					2.4 --- 2.5	8				

WATER TABLE: 'Not encountered' MOISTURE CONDITION 9 Moist

(Np) : Penetration Resistance  
= blows per 300 mm

Page 1 of 4



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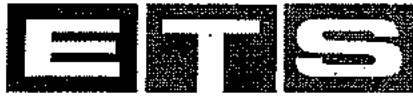
SIGNATURE:

SIGNED BY: Darren Koch  
POSITION: Laboratory Manager

DATED: 10-Jan-08

Regional Laboratory: CAIRNS

**APPENDIX B**  
**LABORATORY TESTING – CLASSIFICATION TESTING**



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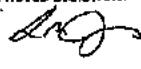
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## Atterberg Limits Report

Client:	Town & Country	Report Number:	CL08-018 ATT
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	-
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 2	
Location:	Mossman , Mossman	Sample Location:	
Lab No:	CL08-018.1	Bore Hole 1	1.5m - 1.95m
Date Sampled:	11/12/2007	Spec Description:	-
Date Tested:	14/01/2008	Lot Number:	-
Sampled By:	DK	Spec Number:	-
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:			

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		31	
Plastic Limit (%)	AS1289.3.2.1		20	
Plastic Index	AS1289.3.3.1		11	
Linear Shrinkage (%)	AS1289.3.4.1		5.5	

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		 Leigh Jones NATA Accred No: 2694	<b>REP QATT-1</b>



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## Atterberg Limits Report

Client:	Town & Country	Report Number:	CLO8-018 ATT
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178		
Location:	Mossman , Mossman	<b>Page 2 of 2</b>	
Lab No:	CLO8-018.2	Sample Location	
Date Sampled:	11/12/2007	Bore Hole 1	
Date Tested:	22/01/2008	6.0m - 6.45m	
Sampled By:	DK	Spec Description: -	
Sample Method:	AS1289.1.2.1	Lot Number: -	
Material Source:	Insitu Material	Spec Number: -	
For Use As:	Insitu		
Remarks:			

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		46	
Plastic Limit (%)	AS1289.3.2.1		22	
Plastic Index	AS1289.3.3.1		24	
Linear Shrinkage (%)	AS1289.3.4.1		10.0	



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## Atterberg Limits Report

Client:	Town & Country	Report Number:	CLO8-024 ATT
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178	Page 2 of 2	
Location:	Mossman , Mossman	Sample Location	
Lab No:	CLO8-024.2	Bore Hole 4	
Date Sampled:	11/12/2007	7.5m - 7.95m	
Date Tested:	14/01/2008	Spec Description: -	
Sampled By:	DK	Lot Number: -	
Sample Method:	AS1289.1.2.1	Spec Number: -	
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		47	
Plastic Limit (%)	AS1289.3.2.1		23	
Plastic Index	AS1289.3.3.1		24	
Linear Shrinkage (%)	AS1289.3.4.1		8.5	



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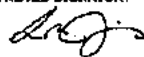
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## Atterberg Limits Report

Client:	Town & Country	Report Number:	CL08-024 ATT
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	-
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 2	
Location:	Mossman , Mossman	Sample Location	
Lab No:	CL08-024.1	Bore Hole 4	
Date Sampled:	11/12/2007	4.5m - 4.95m	
Date Tested:	14/01/2008	Spec Description: -	
Sampled By:	DK	Lot Number: -	
Sample Method:	AS1289.1.2.1	Spec Number: -	
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		27	
Plastic Limit (%)	AS1289.3.2.1		19	
Plastic Index	AS1289.3.3.1		8	
Linear Shrinkage (%)	AS1289.3.4.1			

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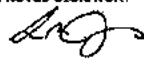
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## Atterberg Limits Report

Client:	Town & Country	Report Number:	CL08-022 ATT
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 1	
Location:	Mossman , Mossman	Sample Location	
Lab No:	CL08-022.1	Bore Hole 3	
Date Sampled:	11/12/2007	7.5m - 7.95m	
Date Tested:	14/01/2008	Spec Description: -	
Sampled By:	DK	Lot Number: -	
Sample Method:	AS1289.1.2.1	Spec Number: -	
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:			

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		47	
Plastic Limit (%)	AS1289.3.2.1		22	
Plastic Index	AS1289.3.3.1		25	
Linear Shrinkage (%)	AS1289.3.4.1		5.5	

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## Atterberg Limits Report

Client:	Town & Country	Report Number:	CL08-017 ATT
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	-
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 1	
Location:	Mossman, Mossman	Sample Location	
Lab No:	CL08-017.1	Test Pit 7	
Date Sampled:	05/12/2007	0.2m - 1.5m	
Date Tested:	22/01/2008	Spec Description:	-
Sampled By:	DK	Lot Number:	-
Sample Method:	AS1289.1.2.1	Spec Number:	-
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		43	
Plastic Limit (%)	AS1289.3.2.1		26	
Plastic Index	AS1289.3.3.1		15	
Linear Shrinkage (%)	AS1289.3.4.1		7.5	



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## Atterberg Limits Report

<b>Client:</b>	Town & Country	<b>Report Number:</b>	CL08-016 ATT
<b>Client Address:</b>	P O Box 100 Mossman QLD 4873	<b>Report Date:</b>	24/01/2008
<b>Job Number:</b>	CL07-1253	<b>Order Number:</b>	-
<b>Project:</b>	Town & Country Shopping Centre - TE07-178	<b>Page 1 of 1</b>	
<b>Location</b>	Mossman , Mossman	Sample Location	
<b>Lab No:</b>	CL08-016.1	<b>Test Pit 4</b>	
<b>Date Sampled:</b>	05/12/2007	<b>0.2m - 1.5m</b>	
<b>Date Tested:</b>	16/01/2008	<b>Spec Description:</b>	--
<b>Sampled By:</b>	DK	<b>Lot Number:</b>	-
<b>Sample Method:</b>	AS1289.1.2.1	<b>Spec Number:</b>	-
<b>Material Source:</b>	Insitu Material		
<b>For Use As:</b>	Insitu		
<b>Remarks:</b>	-		

Plasticity Tests	Test Method	Specification Minimum	Result	Specification Maximum
Liquid Limit (%)	AS1289.3.1.2		39	
Plastic Limit (%)	AS1289.3.2.1		18	
Plastic Index	AS1289.3.3.1		21	
Linear Shrinkage (%)	AS1289.3.4.1		10.0	



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## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-019 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178		Page 1 of 3
Location:	Mossman, Mossman		
Lab No:	CL08-019.1	Sample Location:	Bore Hole 1
Date Sampled:	11/12/2007		3.0m - 3.45m
Date Tested:	14/01/2008	Lot Number:	-
Sampled By:	DK	Spec Number:	-
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:			

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	AS1289.3.6.1			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		100	
	6.7mm		-	
	4.75mm		95	
	2.36mm		71	
	1.18mm		-	
	0.600mm		-	
	0.425mm		19	
0.300mm		-		
0.150mm		-		
0.075mm		7		
Flakiness Index (%)				

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ABN: 88 119 263 366  
Telephone: 07 4774 4135  
Facsimile: 07 4774 4357  
Nata Accred. No: 2694

<mailto:info@engineeringtesting.com.au>

## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-019 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178		Page 2 of 3
Location:	Mossman, Mossman	Sample Location:	Bore Hole 1
Lab No:	CL08-019.2		11.5m - 11.95m
Date Sampled:	11/12/2007	Lot Number:	-
Date Tested:	14/01/2008	Spec Number:	-
Sampled By:	DK		
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	AS1289.3.6.1			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		98	
	6.7mm		-	
	4.75mm		90	
	2.36mm		52	
	1.18mm		-	
	0.600mm		-	
	0.425mm		31	
0.300mm		-		
0.150mm		-		
0.075mm		22		
Flakiness Index (%)				



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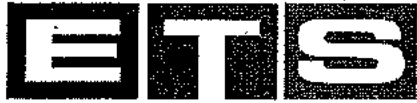
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## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-019 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	Page 3 of 3
Project:	Town & Country Shopping Centre - TE07-178		
Location:	Mossman, Mossman		
Lab No:	CL08-019.3	Sample Location:	Bore Hole 1
Date Sampled:	11/12/2007		13.0m - 13.45m
Date Tested:	14/01/2008	Lot Number:	-
Sampled By:	DK	Spec Number:	-
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm		100	
	16.0mm		-	
	13.2mm		-	
	9.5mm		97	
	6.7mm		-	
	4.75mm		92	
	2.36mm		60	
	1.18mm		-	
	0.600mm		-	
	0.425mm		25	
	0.300mm		-	
0.150mm		-		
0.075mm		10		
Flakiness Index (%)				

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## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-020 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	Page 3 of 3
Project:	Town & Country Shopping Centre - TE07-178		
Location:	Mossman , Mossman		
Lab No:	CL08-020.3	Sample Location:	Bore Hole 2
Date Sampled:	11/12/2007		10.0m - 10.45m
Date Tested:	14/01/2008	Lot Number:	-
Sampled By:	DK	Spec Number:	-
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		100	
	6.7mm		-	
	4.75mm		99	
	2.36mm		89	
	1.18mm		-	
	0.600mm		-	
	0.425mm		35	
	0.300mm		-	
0.150mm		-		
0.075mm		12		
Flakiness Index (%)				



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**Aggregate Grading Report**

Client:	Town & Country	Report Number:	CL08-020 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178	Page 2 of 3	
Location:	Mossman, Mossman	Sample Location:	Bore Hole 2 7.0m - 7.45m
Lab No:	CL08-020.2	Lot Number:	-
Date Sampled:	11/12/2007	Spec Number:	-
Date Tested:	14/01/2008		
Sampled By:	DK		
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	AS1289.3.6.1			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		100	
	6.7mm		-	
	4.75mm		100	
	2.36mm		97	
	1.18mm		-	
	0.600mm		-	
0.425mm		34		
0.300mm		-		
0.150mm		-		
0.075mm		9		
Flakiness Index (%)				

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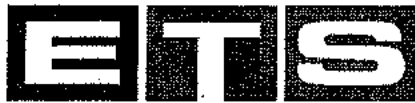
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**Aggregate Grading Report**

Client:	Town & Country	Report Number:	CL08-020 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	Page 1 of 3
Project:	Town & Country Shopping Centre - TE07-178	Sample Location:	Bore Hole 2
Location:	Mossman, Mossman		1.5m - 1.95m
Lab No:	CL08-020.1	Lot Number:	-
Date Sampled:	11/12/2007	Spec Number:	-
Date Tested:	14/01/2008		
Sampled By:	DK		
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	AS1289.3.6.1			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm			
	6.7mm			
	4.75mm			
	2.36mm		100	
	1.18mm		-	
	0.600mm		-	
	0.425mm		99	
0.300mm		-		
0.150mm		-		
0.075mm		88		
Flakiness Index (%)				

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**Aggregate Grading Report**

Client: <b>Town &amp; Country</b>	Report Number: <b>CL08-021 PSD</b>
Client Address: <b>P O Box 100 Mossman QLD 4873</b>	Report Date: <b>24/01/2008</b>
Job Number: <b>CL07-1253</b>	Order Number:
Project: <b>Town &amp; Country Shopping Centre - TE07-178</b>	<b>Page 1 of 2</b>
Location: <b>Mossman , Mossman</b>	
Lab No: <b>CL08-021.1</b>	Sample Location
Date Sampled: <b>11/12/2007</b>	Bore Hole 3
Date Tested: <b>14/01/2008</b>	3.0m - 3.45m
Sampled By: <b>DK</b>	Lot Number: -
Sample Method: <b>AS1289.1.2.1</b>	Spec Number: -
Material Source: <b>Insitu Material</b>	
For Use As: <b>Insitu</b>	
Remarks: -	

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	<b>AS1289.3.6.1</b>			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		<b>100</b>	
	6.7mm		-	
	4.75mm		<b>100</b>	
	2.36mm		<b>87</b>	
	1.18mm		-	
	0.600mm		-	
	0.425mm		<b>28</b>	
0.300mm		-		
0.150mm		-		
0.075mm		<b>13</b>		
Flakiness Index (%)				

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Nata Accred. No: 2694

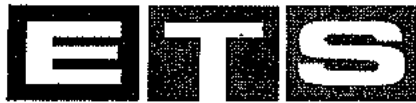
mailto:info@engineeringtesting.com.au

## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-021 PSD
Client Address:	P O Box 100 Mossman Qld 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	Page 2 of 2
Project:	Town & Country Shopping Centre - TE07-178	Sample Location:	Bore Hole 3 9.0m - 9.45m
Location:	Mossman, Mossman	Lot Number:	-
Lab No:	CL08-021.2	Spec Number:	-
Date Sampled:	11/12/2007	Remarks:	-
Date Tested:	14/01/2008		
Sampled By:	DK		
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	AS1289.3.6.1			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		100	
	6.7mm		-	
	4.75mm		92	
	2.36mm		85	
	1.18mm		-	
	0.600mm		-	
	0.425mm		51	
0.300mm		-		
0.150mm		-		
0.075mm		14		
Flakiness Index (%)				

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## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-023 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 2	
Location:	Mossman , Mossman	Sample Location:	Bore Hole 4
Lab No:	CL08-023.1		1.5m - 1.95m
Date Sampled:	11/12/2007	Lot Number:	-
Date Tested:	14/01/2008	Spec Number:	-
Sampled By:	DK		
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	AS1289.3.6.1			
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm			
	16.0mm			
	13.2mm			
	9.5mm		100	
	6.7mm		-	
	4.75mm		99	
	2.36mm		90	
	1.18mm		-	
	0.600mm		-	
	0.425mm		40	
0.300mm		-		
0.150mm		-		
0.075mm		22		
Flakiness Index (%)				

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Nata Accred. No: 2694

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## Aggregate Grading Report

Client:	Town & Country	Report Number:	CL08-023 PSD
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	24/01/2008
Job Number:	CL07-1253	Order Number:	Page 2 of 2
Project:	Town & Country Shopping Centre - TE07-178		
Location:	Mossman , Mossman		
Lab No:	CL08-023.2	Sample Location:	Bore Hole 4
Date Sampled:	11/12/2007		9.0m - 9.45m
Date Tested:	14/01/2008	Lot Number:	-
Sampled By:	DK	Spec Number:	-
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

Test Method:	A.S. Sieve Sizes	Specification Minimum	Percent Retained	Specification Maximum
	75.0mm			
	53.0mm			
	37.5mm			
	26.5mm			
	19.0mm		100	
	16.0mm		-	
	13.2mm		-	
	9.5mm		98	
	6.7mm		-	
	4.75mm		93	
	2.36mm		85	
	1.18mm		-	
	0.600mm		-	
	0.425mm		54	
	0.300mm		-	
0.150mm		-		
0.075mm		24		
Flakiness Index (%)				



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Form Number

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**APPENDIX C**

**IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL  
ENGINEERING REPORT**

## Important Information About Your

# Geotechnical Engineering Report

*Structural problems are a primary cause of construction delays, cost overruns, claims, and disputes.*

*The following information is provided to help you manage your risks.*

### Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you* – should apply the report for any purpose or project except the one originally contemplated.

### A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report that was:*

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical change that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *Geotechnical Engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

### Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

### Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions *only* at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an *opinion* about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

### A Report's Recommendations Are Not Final

*Do not overrely on the construction recommendations included in your report. Those recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion. Geotechnical engineers can finalise their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for*



*the report's recommendations if that engineer does not perform construction observation.*

### **A Geotechnical Engineering Report Is Subject to Misinterpretation**

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

### **Do Not Redraw the Engineer's Logs**

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognise that separating logs from the report can elevate risk.*

### **Give Contractors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study. Only then might you be in a position to*

give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

### **Read Responsibility Provisions Closely**

Some clients, design professionals, and contractors do not recognise that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labelled "limitations", many of these provisions indicate where geotechnical engineers responsibilities begin and end, to help others recognise their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### **Geoenvironmental Concerns Are Not Covered**

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

### **Rely on Your Geotechnical Engineer for Additional Assistance**

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE member geotechnical engineer for more information.



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**California Bearing Ratio Report (1 Point)**

Client:	Town & Country	Report Number:	CL08-016 CBR
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	29/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 1	
Location:	Mossman, Mossman	Sample Location:	Test Pit 4
Lab No:	CL08-016.1		0.2m - 1.5m
Date Sampled:	05/12/2007	Test Method:	AS1289.6.1.1
Date Tested:	05/12/2007	Lot Number:	-
Sampled By:	DK	Item Number:	-
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:			

	Maximum Dry Density - MDD (t/m <sup>3</sup> ) :	1.758
	Optimum Moisture Content OMC (%) :	16.2
	Compactive Effort :	Standard
	Nominated % Maximum Dry Density Compaction :	95
	Nominated % Optimum Moisture Content Compaction :	100
	Achieved Dry Density before Soak (t/m <sup>3</sup> ) :	1.607
	Achieved Percentage of Maximum Dry Density (%) :	91
	Achieved Moisture Content (%) :	15.6
	Achieved Percentage of Optimum Moisture Content (%) :	96
	Test Condition (Soaked/Unsoaked) / Soaking Period (Days) :	Soaked / 4 days
	Swell (%) / Surcharge (kg) :	0.6 / 4.5 kg
	Dry Density after Soak (t/m <sup>3</sup> ) :	1.597
	Moisture Content after Soak (%) :	13.9
	Density Ratio after Soak (%) :	91
	Field Moisture Content (%) :	17.4
	Moisture Content (Top) after Penetration (%) :	24.5
	Moisture Content (Total) after Penetration (%) :	25.4
	CBR 2.5mm (%) :	1
	CBR 5.0mm (%) :	1
	Minimum Specified CBR Value (%) :	-
CBR Value (%) :	1	

Soil Description :

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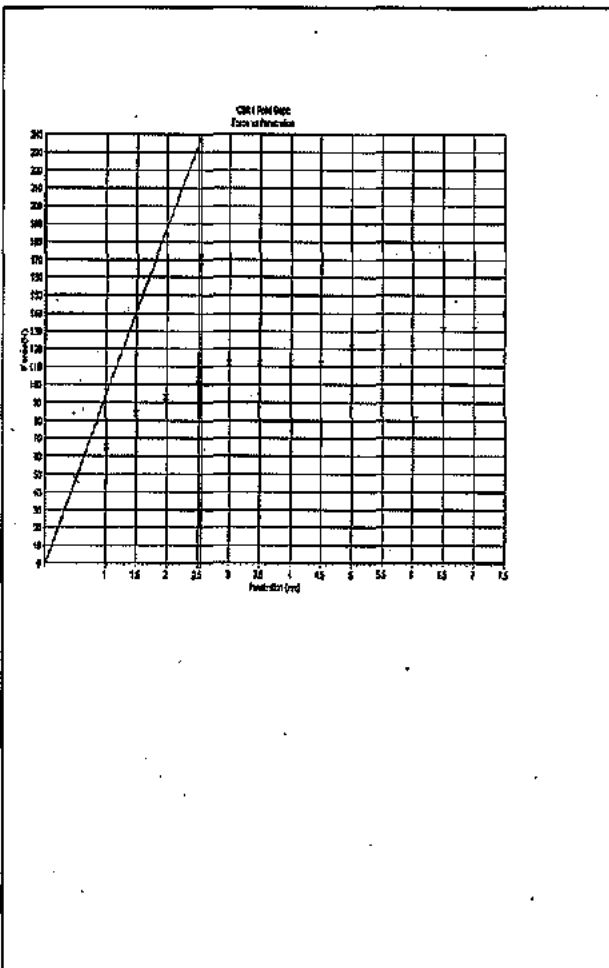
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**California Bearing Ratio Report (1 Point)**

Client:	Town & Country	Report Number:	CL08-017 CBR
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	29/01/2008
Job Number:	CL07-1253	Order Number:	
Project:	Town & Country Shopping Centre - TE07-178	Page 1 of 1	
Location:	Mossman, Mossman	Sample Location:	
Lab No:	CL08-017.1	Test Pit 7	
Date Sampled:	05/12/2007	0.2m - 1.5m	
Date Tested:	05/12/2007	Test Method :	AS1289.6.1.1
Sampled By:	DK	Lot Number:	-
Sample Method:	AS1289.1.2.1	Item Number :	-
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:			



Maximum Dry Density - MDD (t/m³) :	1.653
Optimum Moisture Content OMC (%) :	19.1
Compactive Effort :	Standard
Nominated % Maximum Dry Density Compaction :	95
Nominated % Optimum Moisture Content Compaction :	100
Achieved Dry Density before Soak (t/m³) :	1.571
Achieved Percentage of Maximum Dry Density (%) :	95
Achieved Moisture Content (%) :	19.1
Achieved Percentage of Optimum Moisture Content (%) :	100
Test Condition (Soaked/Unsoaked) / Soaking Period (Days) :	Soaked / 4 days
Swell (%) / Surcharge (kg):	1.1 / 4.5 kg
Dry Density after Soak (t/m³) :	1.554
Moisture Content after Soak (%) :	23.3
Density Ratio after Soak (%) :	94
Field Moisture Content (%) :	23.3
Moisture Content (Top) after Penetration (%) :	30.4
Moisture Content (Total) after Penetration (%) :	31.6
CBR 2.5mm (%) :	1
CBR 5.0mm (%) :	0.5
Minimum Specified CBR Value (%) :	-
CBR Value (%) :	

Soil Description :

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## California Bearing Ratio Report (1 Point)

Client:	Town & Country	Report Number:	CL08-015 CBR
Client Address:	P O Box 100 Mossman QLD 4873	Report Date:	29/01/2008
Job Number:	CL07-1253	Order Number:	Page 1 of 1
Project:	Town & Country Shopping Centre - TE07-178	Sample Location:	Test Pit 1
Location:	Mossman, Mossman	0.9m - 2.5m	
Lab No:	CL08-015.1	Test Method:	AS1289.6.1.1
Date Sampled:	05/12/2007	Lot Number:	-
Date Tested:	05/12/2007	Item Number:	-
Sampled By:	DK		
Sample Method:	AS1289.1.2.1		
Material Source:	Insitu Material		
For Use As:	Insitu		
Remarks:	-		

	Maximum Dry Density - MDD (t/m <sup>3</sup> ) :	1.793
	Optimum Moisture Content OMC (%) :	15.9
	Compactive Effort :	Standard
	Nominated % Maximum Dry Density Compaction :	95
	Nominated % Optimum Moisture Content Compaction :	100
	Achieved Dry Density before Soak (t/m <sup>3</sup> ) :	1.707
	Achieved Percentage of Maximum Dry Density (%) :	95
	Achieved Moisture Content (%) :	15.4
	Achieved Percentage of Optimum Moisture Content (%) :	97
	Test Condition (Spiked/Unsoaked) / Soaking Period (Days) :	Soaked / 4 days
	Swell (%) / Surcharge (kg):	0.1 / 4.5 kg
	Dry Density after Soak (t/m <sup>3</sup> ) :	1.705
	Moisture Content after Soak (%) :	18.4
	Density Ratio after Soak (%) :	95
	Field Moisture Content (%) :	0.0
	Moisture Content (Top) after Penetration (%) :	18.1
	Moisture Content (Total) after Penetration (%) :	18.6
	CBR 2.5mm (%) :	8
	CBR 5.0mm (%) :	7
	Minimum Specified CBR Value (%) :	-
CBR Value (%) :	5	

Soil Description :

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