CBR DENSITY TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Client:	N/A
Origin of Sample:	Braeside rural blend
Description of soil:	Crushed rock
Test No:	90004

Sample No.:	1
Date sampled:	10-Nov-18
Date of test:	25/01/2019
Notes:	Treated

Sample		
Dry density required ρd =		Kg/m3
Moisture content required w2 =		%
Mass of soil M1 =		g
Mass of water to be added =		g

Testing	
Mass of mould + compacted soil =	g
Mass of mould =	g
Mass of compacted soil =	g

Moisture content				
	Initial soil W1		Mixed soil W2	
Can No.	1			
Mass can + wet soil (g)	284			
Mass can + dry soil (g)	281			
Mass of moisture (g)	3			
Mass of container (g)	14			
Mass of dry soil (g)	267			
Moisture content (%)	1.1%			
Bulk density (unsoaked)				
Dry density				

Compaction	
No. of layers	5
No. of blows	25
Mass of rammer	4.5kg

Surcharge weights	
Soaking	0

After soaking mass data	
Soak duration (d)	2
Mass mould & soil	
Mass water absorbed	
& water absorbed	

Swell data		
Time soaking (hrs)	Swell gauge reading (mm)	% Swell
0		
24		
48		
72		
96		
120		
144		

Dry density of soaked soil	
ρds = ρd/(1-(Ax/1000Vm))	
Where:	
ρd = initial dry density	
A = area of the mold	
x = increase in sample height	
Vm = volume of mould in cm3	
ρds =	

Operator	Date	Signed
Frank Dyrssen	1/2/19	

Notes: Treated with 20g/litre Polychlor Omega solution until judged to be optimum. No density or mass recorded, no precision balance available.

CBR PENETRATION TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Job:	Southern Downs
Origin of Sample:	Braeside rural blend
Description of soil:	Crushed rock TMRTS05 Type 2 Grading C
Load ring:	50kN
Surcharge Weight:	0

Test No.:	130004
CBR density test No.	90004
Date of test:	31/01/2019
Notes:	48h soak

Penetration test			
Penetration of plunger (mm)	Load ring deflection (mm)	Force (kN)	CBR
0.0	0.000	0.0	0
0.5	0.060	2.0	
1.0	0.110	3.0	
1.5	0.160	4.5	
2.0	0.210	6.0	
2.5	0.240	6.8	
3.0	0.280	8.0	
4.0	0.360	10.0	
5.0	0.430	12.0	
6.0	0.520	14.8	
7.0	0.590	16.8	
8.0	0.650	18.5	70
9.0			
10.0			
11.0			
12.0			
13.0			

Moisture content		
	CBR Sample	
Can No.		
Mass can + wet soil (g)		
Mass can + dry soil (g)		
Mass of moisture (g)		
Mass of container (g)		
Mass of dry soil (g)		
Moisture content (%)		

Accepted CBR
70

Operator	Date	Signed
Frank Dyrssen	1/2/19	

Notes: Treated with 20g/l of Polychlor Omega solution until judged to be optimum. Both the control and treated specimen have been dried prior to soaking.

CBR DENSITY TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Client:	N/A
Origin of Sample:	Braeside rural blend
Description of soil:	Crushed rock
Test No:	90003

Sample No.:	1
Date sampled:	10-Nov-18
Date of test:	25/01/2019
Notes:	Control

Sample		
Dry density required ρd =		Kg/m3
Moisture content required w2 =		%
Mass of soil M1 =		g
Mass of water to be added =		g

Testing	
Mass of mould + compacted soil =	g
Mass of mould =	g
Mass of compacted soil =	g

Moisture content				
	Initial soil W1		Mixed soil W2	
Can No.	1			
Mass can + wet soil (g)	284			
Mass can + dry soil (g)	281			
Mass of moisture (g)	3			
Mass of container (g)	14			
Mass of dry soil (g)	267			
Moisture content (%)	1.1%		?	
Bulk density (unsoaked)				
Dry density				

Compaction	
No. of layers	5
No. of blows	25
Mass of rammer	4.5kg

Surcharge weights	
Soaking	0

After soaking mass data	
Soak duration (d)	2
Mass mould & soil	
Mass water absorbed	
% water absorbed	

Swell data		
Time soaking (hrs)	Swell gauge reading (mm)	% Swell
0		
24		
48		
72		
96		
120		
144		

Dry density of soaked soil	
ρds = ρd/(1-(Ax/1000Vm))	
Where:	
ρd = initial dry density	
A = area of the mold	
x = increase in sample height	
Vm = volume of mould in cm3	
ρds =	

Operator	Date	Signed
Frank Dyrssen	1/2/19	

Notes: Control sample. No density or mass recorded, no precision balance available.

CBR PENETRATION TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Job:	Southern Downs
Origin of Sample:	Braeside rural blend
Description of soil:	Crushed rock MRTS05 Type 2 Grading C
Load ring:	50kN
Surcharge Weight:	0

Test No.:	130003
CBR density test No.	90003
Date of test:	31/01/2019
Notes:	48h soak

Penetration test			
Penetration of plunger (mm)	Load ring deflection (mm)	Force (kN)	CBR
0.0	0.000	0.0	0
0.5	0.045	1.0	
1.0	0.070	2.0	
1.5	0.100	2.8	
2.0	0.125	3.5	
2.5	0.150	4.0	
3.0	0.170	4.5	
4.0	0.210	6.0	
5.0	0.250	7.0	
6.0	0.300	8.5	
7.0	0.340	9.8	
8.0	0.380	10.8	40
9.0			
10.0			
11.0			
12.0			
13.0			

Moisture content		
	CBR Sample	
Can No.		
Mass can + wet soil (g)		
Mass can + dry soil (g)		
Mass of moisture (g)		
Mass of container (g)		
Mass of dry soil (g)		
Moisture content (%)		

Accepted CBR
40

Operator	Date	Signed
Frank Dyrssen	1/2/19	

Notes: Control sample.