CBR DENSITY TEST

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

Client:	Hay Shire Council
Origin of Sample:	Pit1 & Pit 2 MR501
Description of soil:	Prior stream material
Test No:	90007

Sample No.:	1
Date sampled:	25/06/2016
Date of test:	8/02/2019
Notes:	Treated - 20g/litre of Polychlor Omega

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 =	9627
Mass of mould = g	4956
Mass of compacted soil =	4671
Mass after stove drying	4291

Moisture content	Initial soil W1		Mixed soil W2	
Can No.	1			
Mass can + wet soil (g)	361			
Mass can + dry soil (g)	356			
Mass of moisture (g)	5		380	
Mass of container (g)	124			
Mass of dry soil (g)	232			
Moisture content (%)	2.2%		8.9%	
Bulk density (unsoaked)			2142.7	
Dry density (kg/m3)			1968.3	

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	#VALUE!
% water absorbed	#VALUE!

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 =	

Dose rate (g/m3)	2,638

Operator	Date	Signed
Frank Dyrssen	12/2/19	

Notes:

CBR PENETRATION TEST

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

Job:	Hay Shire Council
Origin of Sample:	Pit 1 & Pit 2 MR501
Description of soil:	Prior stream material
Load ring:	50kN
Surcharge Weight:	0

Test No.:	130007
CBR density test No.	90007
Date of test:	8/02/2019
Notes:	48h soak

Penetration test			
Penetration of plunger (mm)	Load ring deflection (mm)	Force (kN)	CBR
0.0	0.000	0.0	0.0
0.5	0.045		
1.0	0.080		
1.5	0.105		
2.0	0.125		
2.5	0.150		
3.0	0.165		
4.0	0.200		
5.0	0.235		
6.0	0.270		
7.0	0.290		
8.0	0.310	8.8	38.0
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
38

Operator	Date	Signed
Frank Dyrssen	12/2/19	

Notes: Treated specimen dosed with 20g/litre solution (calculated dose rate of 1599g/m3). Specimen was dried prior to immersion in soaking bath.

CBR PENETRATION TEST

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

Job:	Hay Shire Council
Origin of Sample:	Pit 1 & Pit 2 MR501
Description of soil:	Prior stream material
Load ring:	50kN
Surcharge Weight:	0

Test No.:	130005
CBR density test No.	90005
Date of test:	8/02/2019
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	0.010		
1.0	0.020		
1.5	0.030		
2.0	0.033		
2.5	0.035		
3.0	0.038		
4.0	0.040		
5.0	0.050		
6.0	0.070		
7.0	0.080		
8.0	0.083	2.5	10
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
10

Operator	Date	Signed
Frank Dyrssen	12/2/19	

Notes: Control sample. Specimen dried prior to soaking.

CBR DENSITY TEST

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

Client:	Hay Shire Council
Origin of Sample:	Pit1 & Pit 2 MR501
Description of soil:	Prior stream material
Test No:	90005

Sample No.:	1
Date sampled:	25/06/2016
Date of test:	8/02/2019
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 =	9804
Mass of mould = g	4911
Mass of compacted soil =	4893

Moisture content	Initial soil W1		Mixed soil W2	
Can No.	1		2	
Mass can + wet soil (g)	361		151	
Mass can + dry soil (g)	356		138	
Mass of moisture (g)	5		13	
Mass of container (g)	124		18	
Mass of dry soil (g)	232		120	
Moisture content (%)	2.2%		10.8%	
Bulk density (unsoaked)			2244.5	
Dry density (kg/m3)			2001.3	

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	9856
Mass water absorbed	52
% water absorbed	1.06%

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	12/2/19	

Notes: Control sample.