

heron banks

GOLF AND RIVER ESTATE

**GEOTECHNICAL SURVEY
MARCH 2005**

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GOLF AND RIVER ESTATE

**GEOTECHNICAL SURVEY
MARCH 2005**

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1 DESCRIPTION OF SITE

The site of ± 120 ha is located next to the Vaal River on the Free State side and on the northern side of Vaalpark, all within the municipal area of Sasolburg, as indicated on the locality plan. The property is located on the Farms Grooffontein 328 and De Rust 370.

2 GEOLOGICAL FORMATIONS

The prevailing geological formations in accordance with the geological maps comprise Hekpoort Andesites of the Transvaal Sequence.

3 INVESTIGATION

Thirteen trial holes were dug on the site as indicated on the layout drawing. The trial holes were dug with a TLB to a depth of 3,0 m. The trial hole profiles are indicated in the annexures. No groundwater was encountered at any of the trial holes notwithstanding the recent heavy rainfall period.

4 SOIL TEST RESULTS

The soil test results of the identified trial hole profile layers are indicated in the annexures. The soil profiles at all the holes are similar, except for trial hole A4, which is located within a wetland area. The general profile comprises sand and sandy soil layers with no or limited PI. The soil formations are not expansive, but have a limited potential for collapsing taking into consideration the grading profile. It is also evident that the soil layers are well drained. The average test results are as follows (Hole A4 excluded):

TEST	MIN	MAX
GM	0,81	2,16
PI	NP	6
Liquid Limit	0	46
Linear Shrinkage	0	10
CBR 90	9	19
CBR 95	15	62
CBR 100	24	108

Potential expansiveness : Low
 Collapsing potential : Moderate
 Classification:
 TRH14 : G6
 TRB : A-2 – 4(0)
 NHBRC : C1
 Safe bearing capacity (90 % mod AASHTO)
 density : 140 Kpa

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5 RECOMMENDATIONS

5.1 Foundations for residential stands

- (a) 1000 mm soil raft comprising 60 % insitu material and 40 % Sasol I Ash (G5 material) compacted to 96 % Mod AASHTO density. Raft to extend 1000 mm beyond foundation.
- (b) Lightly reinforced conventional strip foundations.
- (c) Paving around structures to divert water away from foundations.
- (d) Expansion joints at $\pm 10,0$ m distances and between one and two storey sections.
- (e) Brickforce in every second layer in foundation walls and every layer above window level.

5.2 Multi-storey structures

On site detail geotechnical survey.

5.3 Services

- (a) No or very little hard material is expected.
- (b) Insitu material is suitable for bedding material and road construction material in combination with imported material such as Sasol I-ash.
- (c) Excavation side stability measures should be taken at trench excavations deeper than 1,2 m.
- (d) Although no groundwater was encountered the provision of sub-soil drains should be considered at critical areas to accommodate stormwater seepage water.

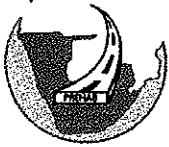
6 ANNEXURES

- 6.1 Locality Plan
- 6.2 Trial hole layout plan
- 6.3 Trial hole profiles
- 6.4 Laboratory test results

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PREHAB TESTING PTY(LTD)

Soil and Gravel Report

Page: 1
Date Printed: 11/04/2005

Customer : VGC Cons Eng (Sasolburg)
Project : Abrahamsrust

Contract Number :
Date : 05/04/2005
Biblio Reference Number : 600259

SAMPLE DESCRIPTION	■	⊙	▲
Sample Number	390: 1	390: 2	390: 3
Sample Position	Hole 1A	Hole 1A	Hole 1A
Sample Depth	0 - 500	500 - 1700	1700 - 3010
Sample Description	Brown Top Soil	Yellow Sandy Soil	Orange Sandy Soil
Treatment			
Sample Date	05/04/2005	05/04/2005	05/04/2005

SCREEN ANALYSIS (%PASS)

Screen Size (mm)	390: 1	390: 2	390: 3
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	100	100	100
37.5 mm	100	100	100
26.5 mm	100	100	98
19.0 mm	100	100	96
13.2 mm	97	99	95
4.750 mm	85	99	93
2.000 mm	76	98	92
0.425 mm	67	85	86
0.075 mm	13	31	34

SOIL MORTAR

Soil Mortar Category	390: 1	390: 2	390: 3
Coarse Sand (2.0-0.425)	11	13	7
Coarse Fine (0.425-0.250)	28	15	17
Medium Fine (0.250-0.150)	31	26	28
Fine Fine (0.150-0.075)	13	15	11
Material (<0.075)	17	31	37

CONSTANTS

Constant	390: 1	390: 2	390: 3
Grading Modules	1.44	0.86	0.87
Liquid Limit	0	16	21
Platicity Index	NP	4	7
Linear Shrinkage %	0.0	2.0	3.8
Sand Equivalent			
TRB Classification	A-2-4(0)	A-2-4(0)	A-2-4(0)
TRH14 Classification		G6	

TYPE OF TEST	390: 1	390: 2	390: 3
		CBR	

MOD. AASHTO

Property	390: 1	390: 2	390: 3
Max Dry Density (kg/m³)			2070
Optimum Moisture Cont (%)			8.6
Moulding Moisture Cont (%)			8.5
Dry Density (kg/m³)			2083
% of Max Dry Density			101
100% Mod CBR/UCS			54
%Swell			0.0

NRB

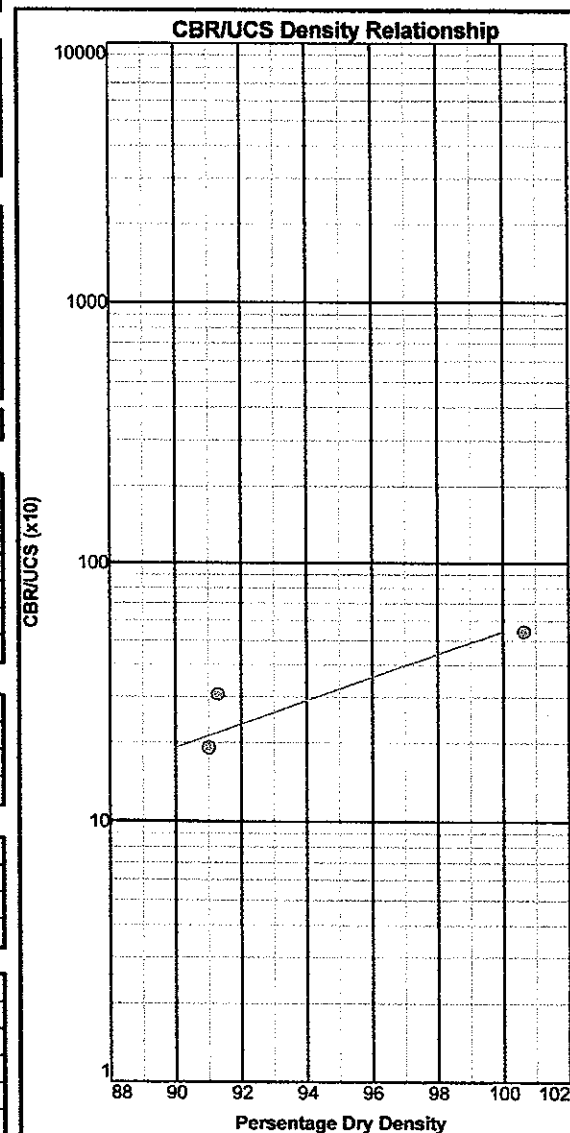
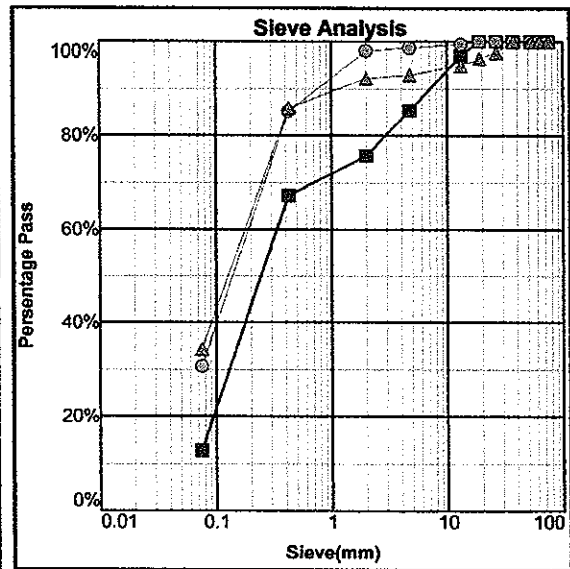
Property	390: 1	390: 2	390: 3
Dry Density (kg/m³)			1890
% of Max Dry Density			91
100% NRB CBR/UCS			31
%Swell			0.1

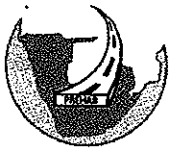
PROCTOR

Property	390: 1	390: 2	390: 3
Dry Density (kg/m³)			1884
% of Max Dry Density			91
100% Proc CBR/UCS			19
%Swell			0.1

CBR / UCS VALUES

Modulus (%)	390: 1	390: 2	390: 3
100% Mod AASHTO			54
98% Mod AASHTO			44
97% Mod AASHTO			40
95% Mod AASHTO			32
93% Mod AASHTO			26
90% Mod AASHTO			19





PREHAB TESTING PTY(LTD)

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SAMPLE DESCRIPTION

	■	⊙	▲
Sample Number	390: 4	390: 5	390: 6
Sample Position	Hole 2A	Hole 3A	Hole 3A
Sample Depth	0 - 3000	0 - 300	300 - 3000
Sample Description	Light Brown Sandy Soil & Sandstone	Light Brown Sandy Soil	Grey Sand
Treatment			
Sample Date	05/04/2005	05/04/2005	05/04/2005

SCREEN ANALYSIS (%PASS)

Sieve Size (mm)	■	⊙	▲
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	84	100	100
37.5 mm	72	100	100
26.5 mm	66	100	100
19.0 mm	59	100	100
13.2 mm	56	99	100
4.750 mm	46	98	100
2.000 mm	41	97	100
0.425 mm	36	85	95
0.075 mm	7	30	17

SOIL MORTAR

Soil Mortar Category	■	⊙	▲
Coarse Sand (2.0-0.425)	14	12	4
Coarse Fine (0.425-0.250)	21	18	37
Medium Fine (0.250-0.150)	33	26	29
Fine Fine (0.150-0.075)	15	13	12
Material (<0.075)	18	31	17

CONSTANTS

Parameter	■	⊙	▲
Grading Modules	2.16	0.89	0.88
Liquid Limit	0	0	0
Platicity Index	NP	NP	NP
Linear Shrinkage %	0.0	0.0	0.0
Sand Equivalent			
TRB Classification	A-1-b(0)	A-2-4(0)	A-2-4(0)
TRH14 Classification	G4		G6

TYPE OF TEST	CBR	CBR

MOD. AASHTO

Parameter	■	▲
Max Dry Density (kg/m³)	2006	2060
Optimum Moisture Cont (%)	7.5	7.0
Moulding Moisture Cont (%)	7.5	7.0
Dry Density (kg/m³)	1991	2011
% of Max Dry Density	99	98
100% Mod CBR/UCS	108	56
%Swell	0.0	0.0

NRB

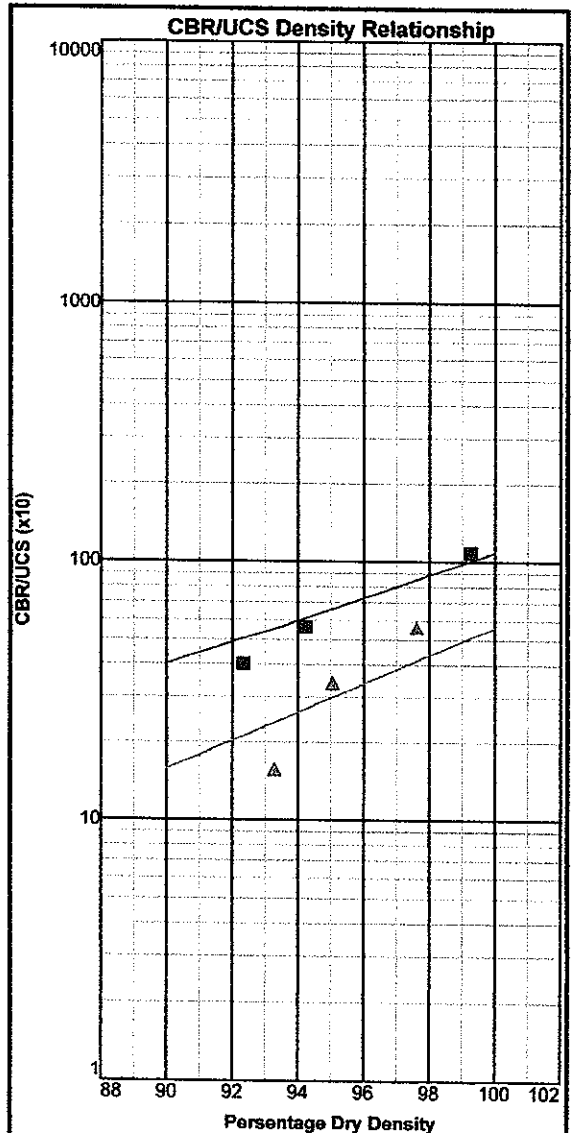
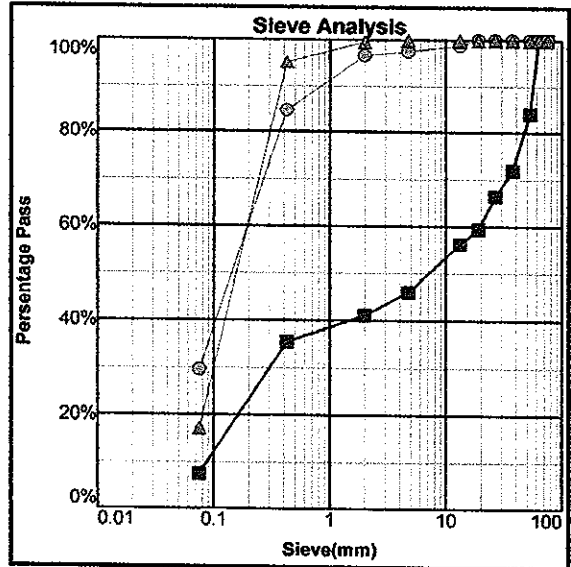
Parameter	■	▲
Dry Density (kg/m³)	1890	1958
% of Max Dry Density	94	95
100% NRB CBR/UCS	56	34
%Swell	0.0	0.1

PROCTOR

Parameter	■	▲
Dry Density (kg/m³)	1852	1922
% of Max Dry Density	92	93
100% Proc CBR/UCS	40	16
%Swell	0.0	0.2

CBR / UCS VALUES

Modulus (%)	■	▲
100% Mod AASHTO	108	56
98% Mod AASHTO	89	44
97% Mod AASHTO	80	38
95% Mod AASHTO	66	30
93% Mod AASHTO	54	23
90% Mod AASHTO	40	16





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SAMPLE DESCRIPTION

	390: 7	390: 8	390: 9
Sample Number	390: 7	390: 8	390: 9
Sample Position	Hole 4A	Hole 4A	Hole 1B
Sample Depth	0 - 1400	1400 - 3000	200 - 1660
Sample Description	Black Sandy Clay	Grey Sandy Clay	Yellow Sandy Soil
Treatment			
Sample Date	05/04/2005	05/04/2005	05/04/2005

SCREEN ANALYSIS (%PASS)

Sieve Size	390: 7	390: 8	390: 9
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	100	100	100
37.5 mm	100	100	100
26.5 mm	100	100	100
19.0 mm	100	100	100
13.2 mm	100	100	99
4.750 mm	100	100	98
2.000 mm	99	99	97
0.425 mm	92	84	85
0.075 mm	42	36	34

SOIL MORTAR

Material	390: 7	390: 8	390: 9
Coarse Sand (2.0-0.425)	8	15	13
Coarse Fine (0.425-0.250)	22	21	14
Medium Fine (0.250-0.150)	18	18	24
Fine Fine (0.150-0.075)	9	9	15
Material (<0.075)	42	36	34

CONSTANTS

Property	390: 7	390: 8	390: 9
Grading Modules	0.67	0.81	0.84
Liquid Limit	46	23	0
Platicity Index	20	6	NP
Linear Shrinkage %	10.0	3.1	0.0
Sand Equivalent			
TRB Classification	A-7-6(20)	A-4(8)	A-2-4(0)
TRH14 Classification			

TYPE OF TEST

MOD. AASHTO

Property	390: 7	390: 8	390: 9
Max Dry Density (kg/m³)			
Optimum Moisture Cont (%)			
Moulding Moisture Cont (%)			
Dry Density (kg/m³)			
% of Max Dry Density			
100% Mod CBR/UCS			
%Swell			

NRB

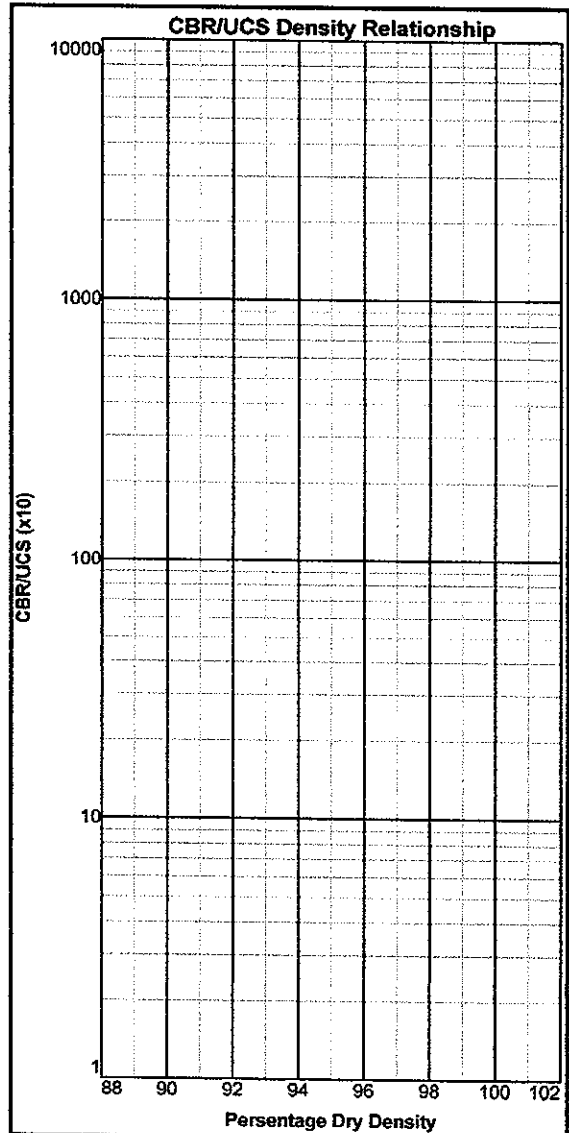
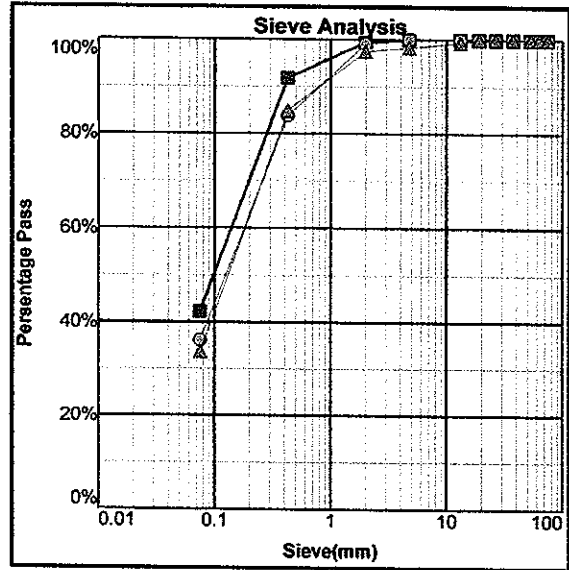
Property	390: 7	390: 8	390: 9
Dry Density (kg/m³)			
% of Max Dry Density			
100% NRB CBR/UCS			
%Swell			

PROCTOR

Property	390: 7	390: 8	390: 9
Dry Density (kg/m³)			
% of Max Dry Density			
100% Proc CBR/UCS			
%Swell			

CBR / UCS VALUES

Modulus	390: 7	390: 8	390: 9
100% Mod AASHTO			
98% Mod AASHTO			
97% Mod AASHTO			
95% Mod AASHTO			
93% Mod AASHTO			
90% Mod AASHTO			





PREHAB TESTING PTY(LTD)

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SAMPLE DESCRIPTION

	390: 10	390: 11	390: 13
Sample Number	390: 10	390: 11	390: 13
Sample Position	Hole 2B	Hole 3B	Hole 3B
Sample Depth	0 - 1300	0 - 400	400 - 1850
Sample Description	Reddish Brown Sandstone	Yellow Sandy Soil	Orange Sandy Soil
Treatment			
Sample Date	05/04/2005	05/04/2005	05/04/2005

SCREEN ANALYSIS (%PASS)

Sieve Size (mm)	390: 10	390: 11	390: 13
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	87	100	100
37.5 mm	76	100	100
26.5 mm	72	100	100
19.0 mm	69	100	96
13.2 mm	66	99	93
4.750 mm	62	98	90
2.000 mm	58	97	88
0.425 mm	45	84	76
0.075 mm	6	28	25

SOIL MORTAR

Soil Mortar Category	390: 10	390: 11	390: 13
Coarse Sand (2.0-0.425)	22	13	13
Coarse Fine (0.425-0.250)	33	16	22
Medium Fine (0.250-0.150)	26	27	26
Fine Fine (0.150-0.075)	8	15	10
Material (<0.075)	10	29	29

CONSTANTS

Constant	390: 10	390: 11	390: 13
Grading Modules	1.90	0.90	1.10
Liquid Limit	0	0	0
Platicity Index	NP	NP	NP
Linear Shrinkage %	0.0	0.0	0.0
Sand Equivalent			
TRB Classification	A-1-b(0)	A-2-4(0)	A-2-4(0)
TRH14 Classification	G5		

TYPE OF TEST	CBR

MOD. AASHTO

Max Dry Density (kg/m³)	2033
Optimum Moisture Cont (%)	8.5
Moulding Moisture Cont (%)	8.5
Dry Density (kg/m³)	1997
% of Max Dry Density	98
100% Mod CBR/UCS	87
%Swell	0.0

NRB

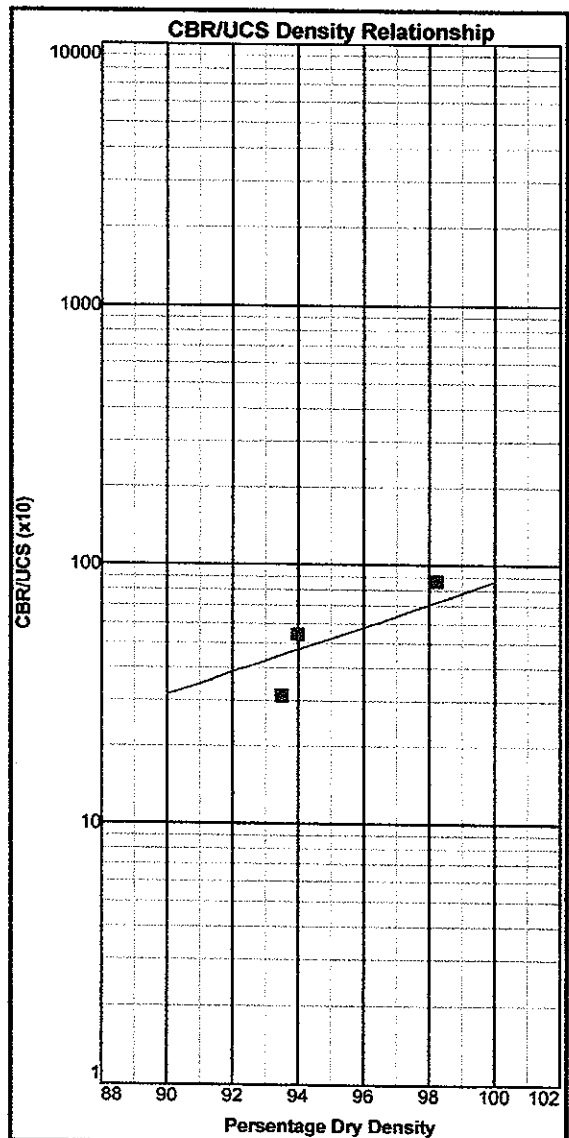
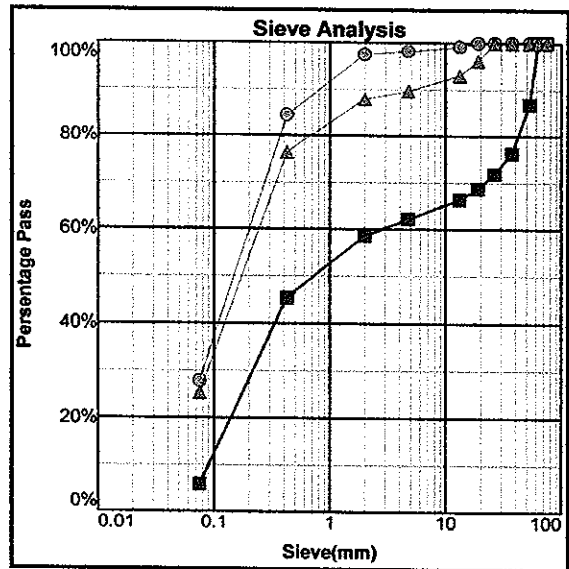
Dry Density (kg/m³)	1911
% of Max Dry Density	94
100% NRB CBR/UCS	54
%Swell	0.1

PROCTOR

Dry Density (kg/m³)	1901
% of Max Dry Density	93
100% Proc CBR/UCS	31
%Swell	0.1

CBR / UCS VALUES

100% Mod AASHTO	87
98% Mod AASHTO	71
97% Mod AASHTO	64
95% Mod AASHTO	52
93% Mod AASHTO	43
90% Mod AASHTO	31





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SAMPLE DESCRIPTION

	■	⊙	▲
Sample Number	390: 14	390: 15	390: 16
Sample Position	Hole 1C	Hole 1C	Hole 2C
Sample Depth	0 - 1100	1100 - 3000	800 - 3000
Sample Description	Light Brown Sand	Light Brown Sand	Yellow Sand
Treatment			
Sample Date	05/04/2005	05/04/2005	05/04/2005

SCREEN ANALYSIS (%PASS)

Sieve Size (mm)	390: 14 (%)	390: 15 (%)	390: 16 (%)
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	100	100	100
37.5 mm	100	100	100
26.5 mm	100	100	100
19.0 mm	100	100	100
13.2 mm	100	100	100
4.75 mm	100	99	98
2.000 mm	99	98	96
0.425 mm	94	93	90
0.075 mm	19	21	17

SOIL MORTAR

Soil Type	390: 14 (%)	390: 15 (%)	390: 16 (%)
Coarse Sand (2.0-0.425)	5	5	6
Coarse Fine (0.425-0.250)	35	33	34
Medium Fine (0.250-0.150)	30	30	32
Fine Fine (0.150-0.075)	10	9	10
Material (<0.075)	19	22	18

CONSTANTS

Property	390: 14	390: 15	390: 16
Grading Modules	0.88	0.88	0.97
Liquid Limit	0	0	0
Platicity Index	NP	NP	NP
Linear Shrinkage %	0.0	0.8	0.0
Sand Equivalent			
TRB Classification	A-2-4(0)	A-2-4(0)	A-2-4(0)
TRH14 Classification	G8		

TYPE OF TEST

TEST TYPE	CBR
-----------	-----

MOD. AASHTO

Max Dry Density (kg/m³)	2155
Optimum Moisture Cont (%)	4.5
Moulding Moisture Cont (%)	4.3
Dry Density (kg/m³)	1654
% of Max Dry Density	77
100% Mod CBR/UCS	22
%Swell	0.0

NRB

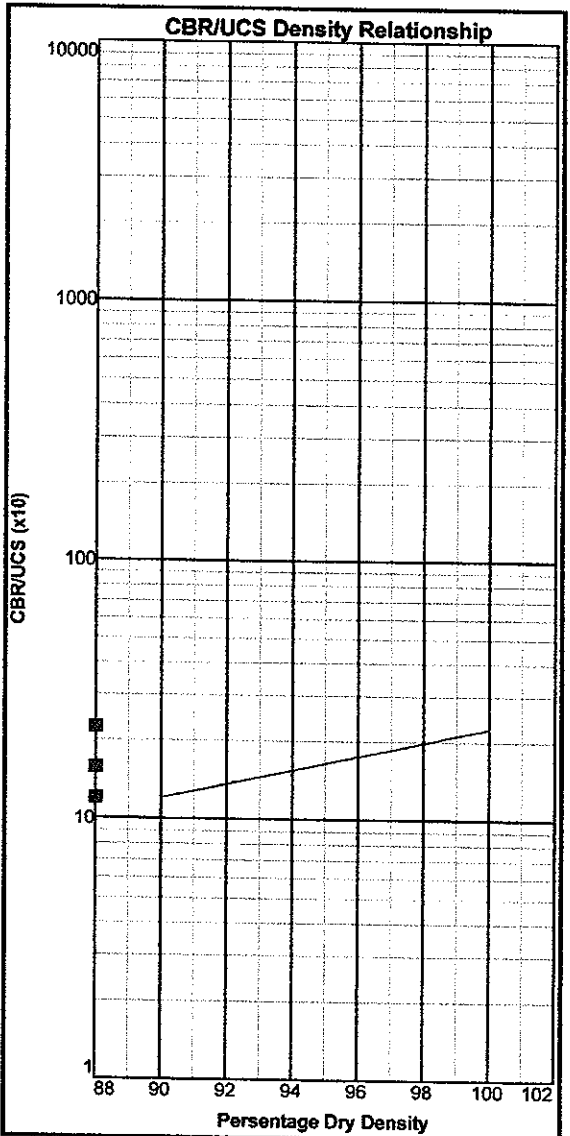
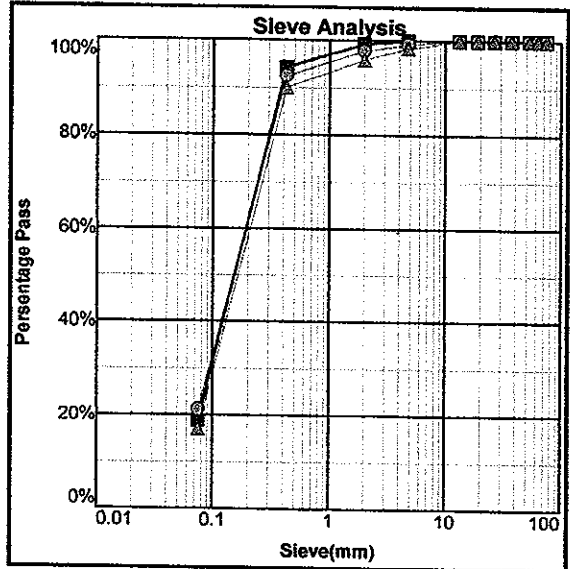
Dry Density (kg/m³)	1644
% of Max Dry Density	76
100% NRB CBR/UCS	16
%Swell	0.1

PROCTOR

Dry Density (kg/m³)	1604
% of Max Dry Density	74
100% Proc CBR/UCS	12
%Swell	0.1

CBR / UCS VALUES

100% Mod AASHTO	22
98% Mod AASHTO	20
97% Mod AASHTO	19
95% Mod AASHTO	16
93% Mod AASHTO	14
90% Mod AASHTO	12





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SAMPLE DESCRIPTION	■	⊙	▲
Sample Number	390: 17	390: 18	390: 19
Sample Position	Hole 3C	Hole3C	Hole 3C
Sample Depth	0 - 250	250 - 1100	1100 - 3200
Sample Description	Dark Brown Top Soil	Yellowish Light Brown Sand	Light Brown Sand
Treatment			
Sample Date	05/04/2005	05/04/2005	11/04/2005

SCREEN ANALYSIS (%PASS)	■	⊙	▲
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	100	100	100
37.5 mm	100	100	100
26.5 mm	100	100	100
19.0 mm	99	100	100
13.2 mm	97	99	100
4.750 mm	87	98	100
2.000 mm	78	98	99
0.425 mm	70	84	94
0.075 mm	12	9	19

SOIL MORTAR	■	⊙	▲
Coarse Sand (2.0-0.425)	10	14	5
Coarse Fine (0.425-0.250)	30	35	35
Medium Fine (0.250-0.150)	34	32	30
Fine Fine (0.150-0.075)	11	9	10
Material (<0.075)	15	9	19

CONSTANTS	■	⊙	▲
Grading Modules	1.41	1.09	0.88
Liquid Limit	0	0	0
Platicity Index	NP	NP	NP
Linear Shrinkage %	0.0	0.0	0.0
Sand Equivalent			
TRB Classification	A-2-4(0)	A-3(0)	A-2-4(0)
TRH14 Classification			

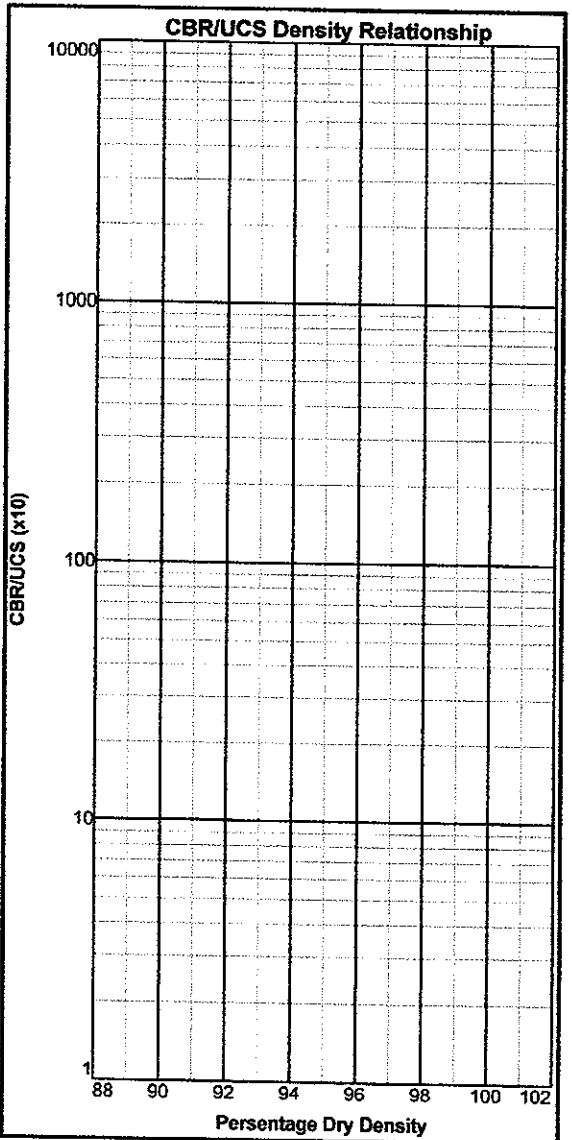
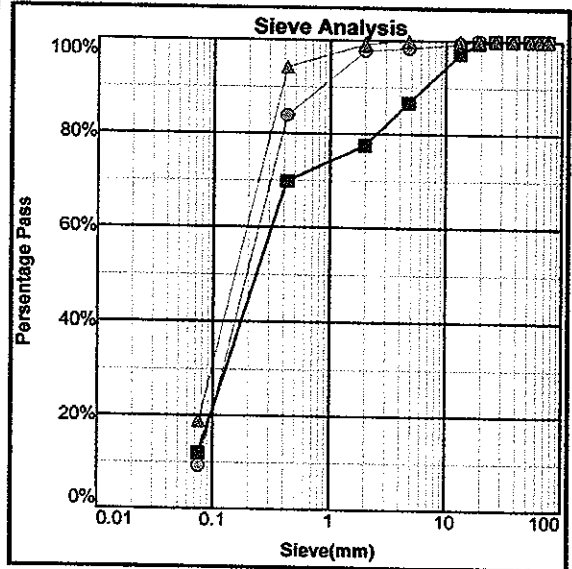
TYPE OF TEST	■	⊙	▲

MOD. AASHTO	■	⊙	▲
Max Dry Density (kg/m³)			
Optimum Moisture Cont (%)			
Moulding Moisture Cont (%)			
Dry Density (kg/m³)			
% of Max Dry Density			
100% Mod CBR/UCS			
%Swell			

NRB	■	⊙	▲
Dry Density (kg/m³)			
% of Max Dry Density			
100% NRB CBR/UCS			
%Swell			

PROCTOR	■	⊙	▲
Dry Density (kg/m³)			
% of Max Dry Density			
100% Proc CBR/UCS			
%Swell			

CBR / UCS VALUES	■	⊙	▲
100% Mod AASHTO			
98% Mod AASHTO			
97% Mod AASHTO			
95% Mod AASHTO			
93% Mod AASHTO			
90% Mod AASHTO			





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SAMPLE DESCRIPTION	■	⊙	▲
Sample Number	390: 20	390: 21	390: 22
Sample Position	Hole 1D	Hole 2D	Hole 3D
Sample Depth	0 - 3000	210 - 3000	
Sample Description	Yellow Sand	Yellow Sand	Dark Brown Sand
Treatment			
Sample Date	05/04/2005	05/04/2005	05/04/2005

SCREEN ANALYSIS (%PASS)			
75.0 mm	100	100	100
63.0 mm	100	100	100
53.0 mm	100	100	100
37.5 mm	100	100	100
26.5 mm	100	100	100
19.0 mm	100	100	100
13.2 mm	100	100	100
4.750 mm	99	99	100
2.000 mm	98	97	99
0.425 mm	93	91	94
0.075 mm	21	17	11

SOIL MORTAR			
Coarse Sand (2.0-0.425)	5	7	6
Coarse Fine (0.425-0.250)	33	34	38
Medium Fine (0.250-0.150)	30	31	36
Fine Fine (0.150-0.075)	9	11	9
Material (<0.075)	22	18	11

CONSTANTS			
Grading Modules	0.88	0.95	0.96
Liquid Limit	0	0	0
Platicity Index	NP	NP	NP
Linear Shrinkage %	0.8	0.0	0.0
Sand Equivalent			
TRB Classification	A-2-4(0)	A-2-4(0)	A-2-4(0)
TRH14 Classification	G8		

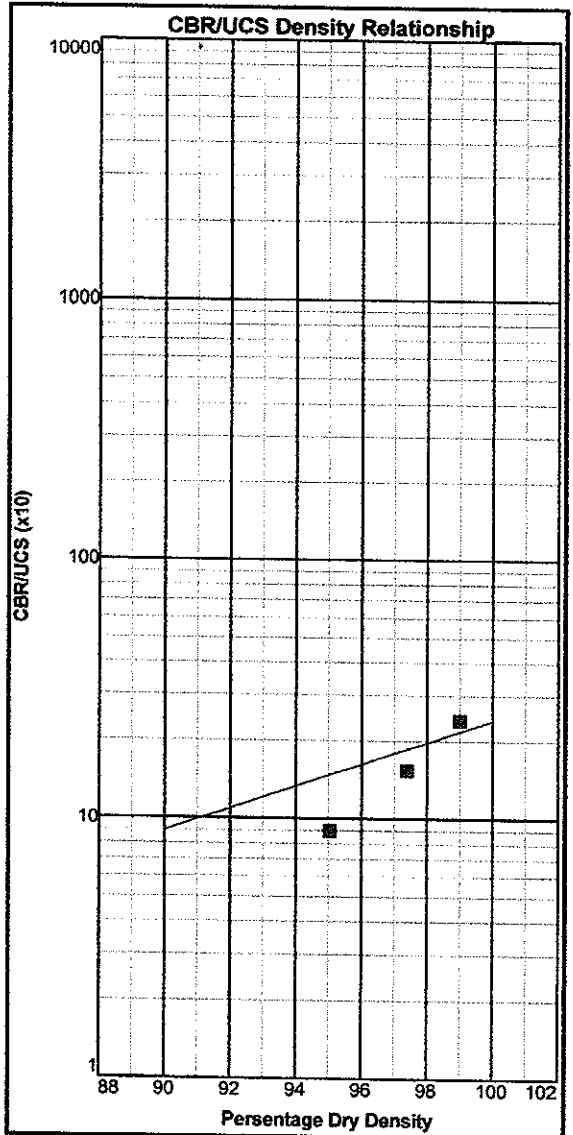
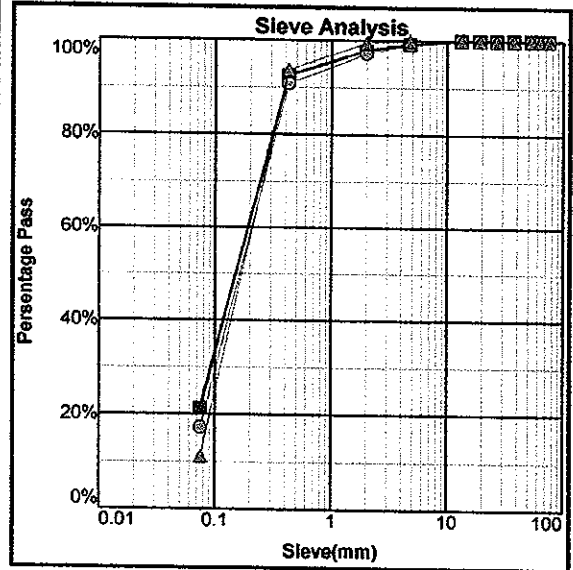
TYPE OF TEST	CBR

MOD. AASHTO	
Max Dry Density (kg/m³)	1742
Optimum Moisture Cont (%)	4.1
Moulding Moisture Cont (%)	4.1
Dry Density (kg/m³)	1724
% of Max Dry Density	99
100% Mod CBR/UCS	24
%Swell	0.0

NRB	
Dry Density (kg/m³)	1696
% of Max Dry Density	97
100% NRB CBR/UCS	15
%Swell	0.0

PROCTOR	
Dry Density (kg/m³)	1655
% of Max Dry Density	95
100% Proc CBR/UCS	9
%Swell	0.0

CBR / UCS VALUES	
100% Mod AASHTO	24
98% Mod AASHTO	20
97% Mod AASHTO	18
95% Mod AASHTO	15
93% Mod AASHTO	12
90% Mod AASHTO	9





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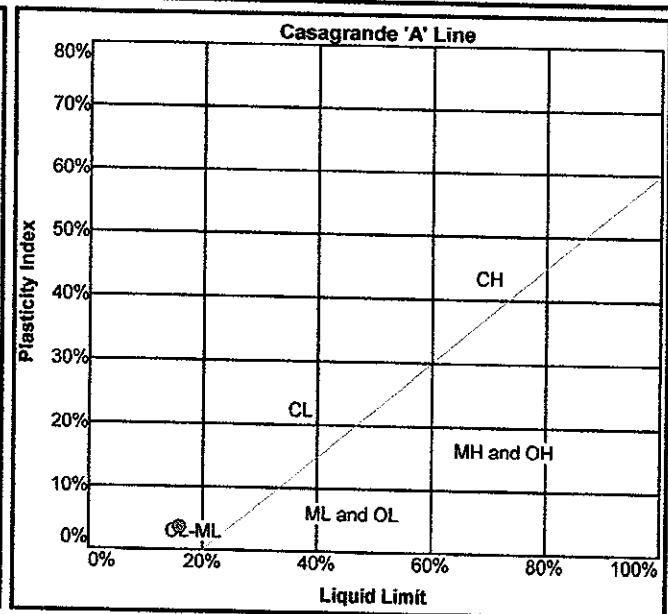
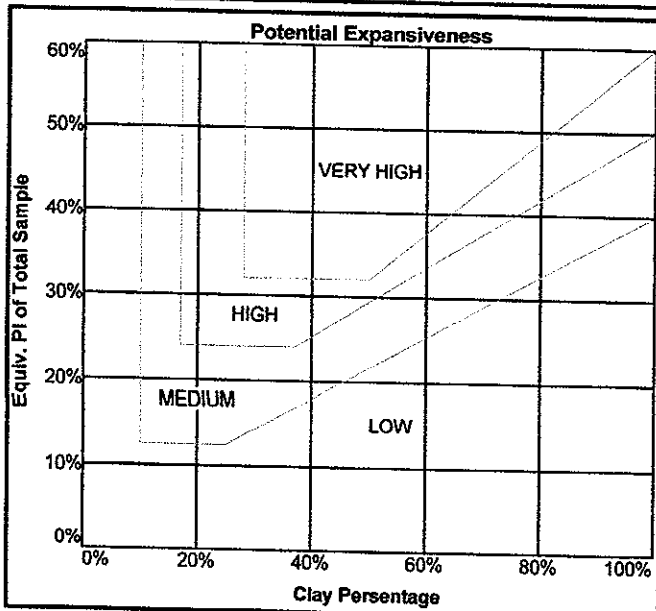
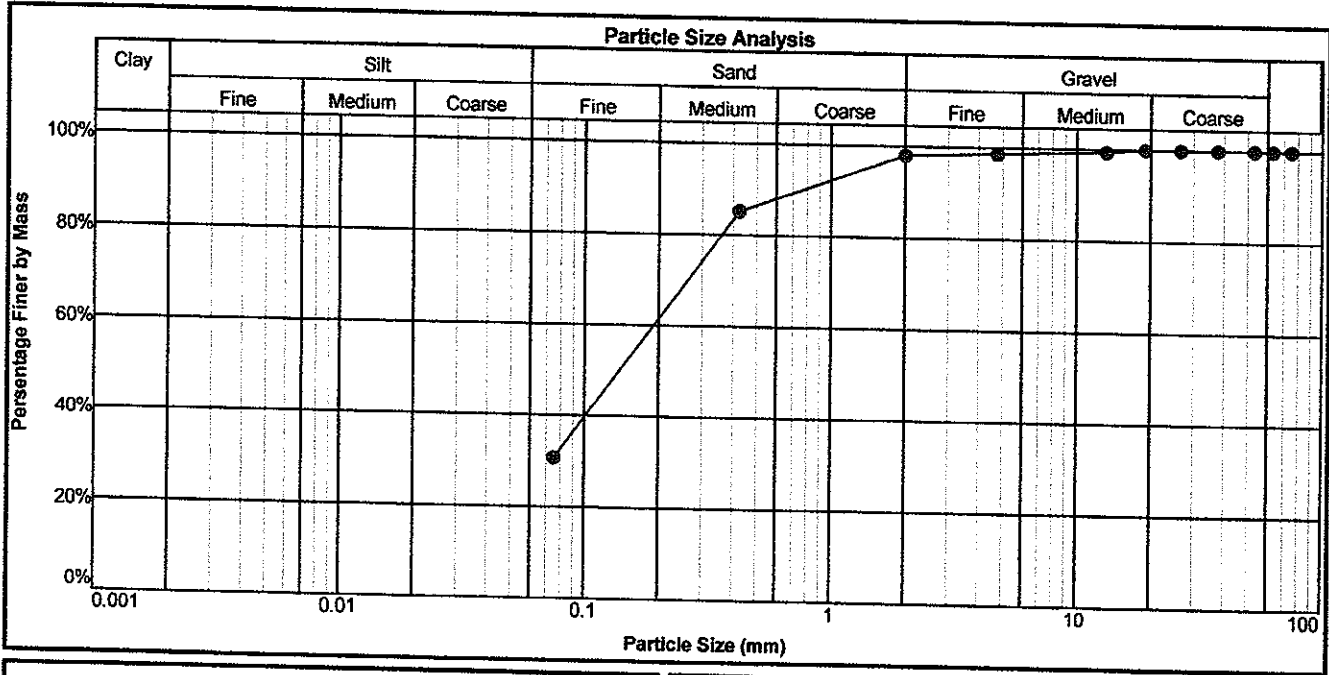
Sample Number	390: 2	Sample Description	Yellow Sandy Soil
Sample Depth	500 - 1700	Sample Position	Hole 1A
Sample Date	05/04/2005	Sample Treatment	

Sieve Analysis

Sieve(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	99
4.750	99
2.000	98
0.425	85
0.075	31

Atterberg Limits

	Test 1	Test 2	Average	PRA Classification	A-2-4(0)
Liquid Limit	17.0	15.4	15.9	PI of whole sample	3.6
Plastic Limit	12.3	12.2	12.3	% Gravel	
Plasticity Index (PI)			3.6	% Sand	
Linear Shrinkage			2.0	% Silt	
Grading Modules			0.86	% Clay	





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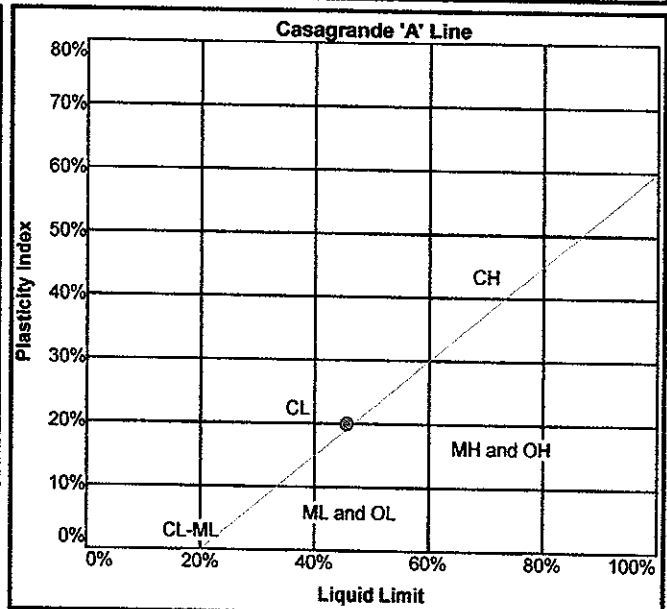
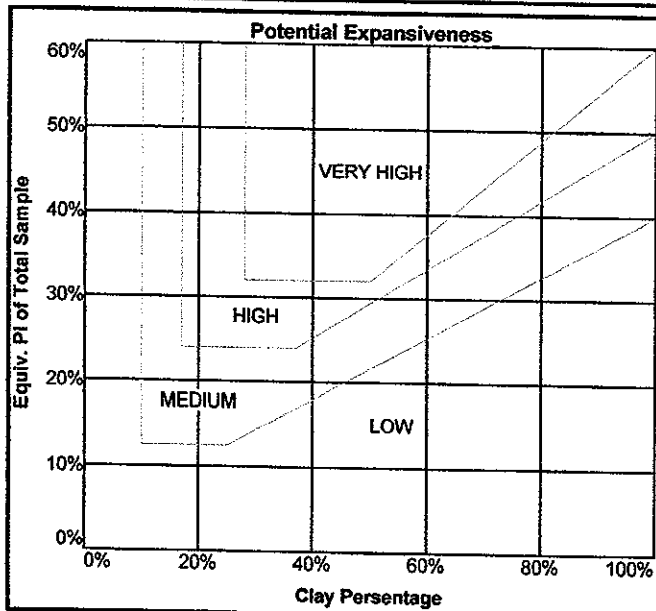
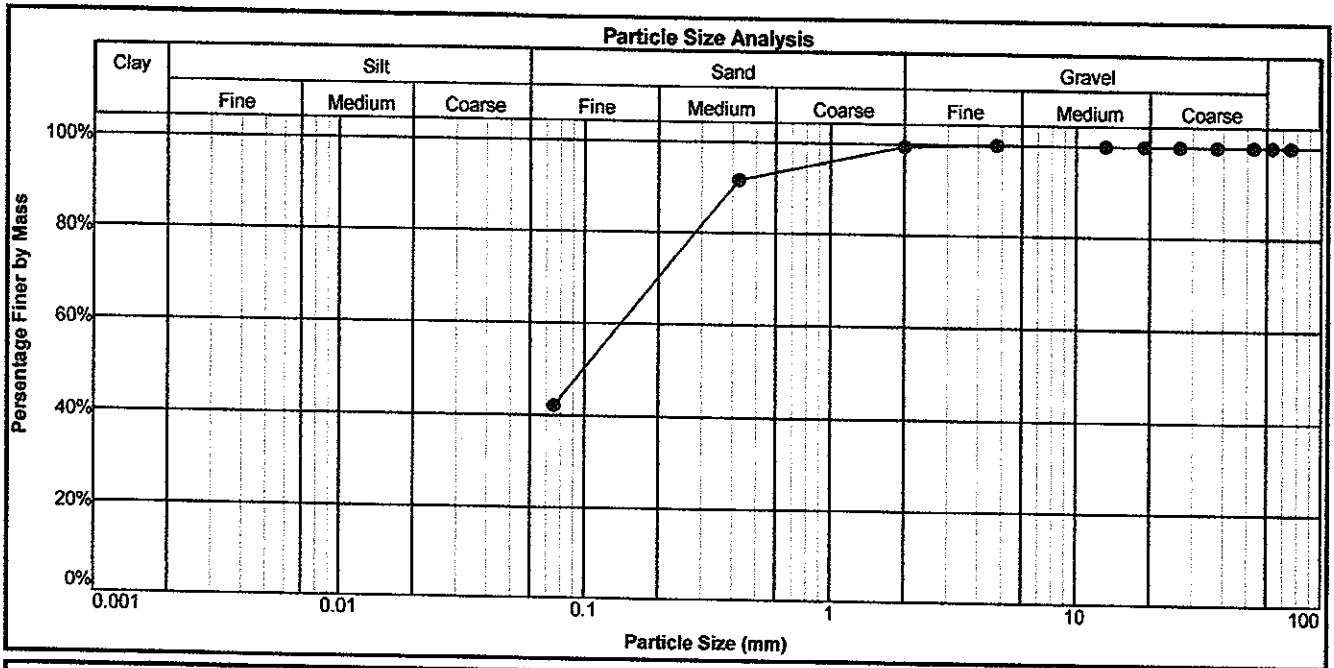
Sample Number	390: 7	Sample Description	Black Sandy Clay
Sample Depth	0 - 1400	Sample Position	Hole 4A
Sample Date	05/04/2005	Sample Treatment	

Sieve Analysis

Sieve(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
4.750	100
2.000	99
0.425	92
0.075	42

Atterberg Limits

	Test 1	Test 2	Average	PRA Classification	A-7-6(20)
Liquid Limit	46.7	44.4	45.5	PI of whole sample	20.0
Plastic Limit	25.6	25.5	25.6	% Gravel	
Plasticity Index (PI)			20.0	% Sand	
Linear Shrinkage			10.0	% Silt	
Grading Modules			0.67	% Clay	





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Sample Number	390: 8	Sample Description	Grey Sandy Clay
Sample Depth	1400 - 2800	Sample Position	Hole 4A
Sample Date	05/04/2005	Sample Treatment	

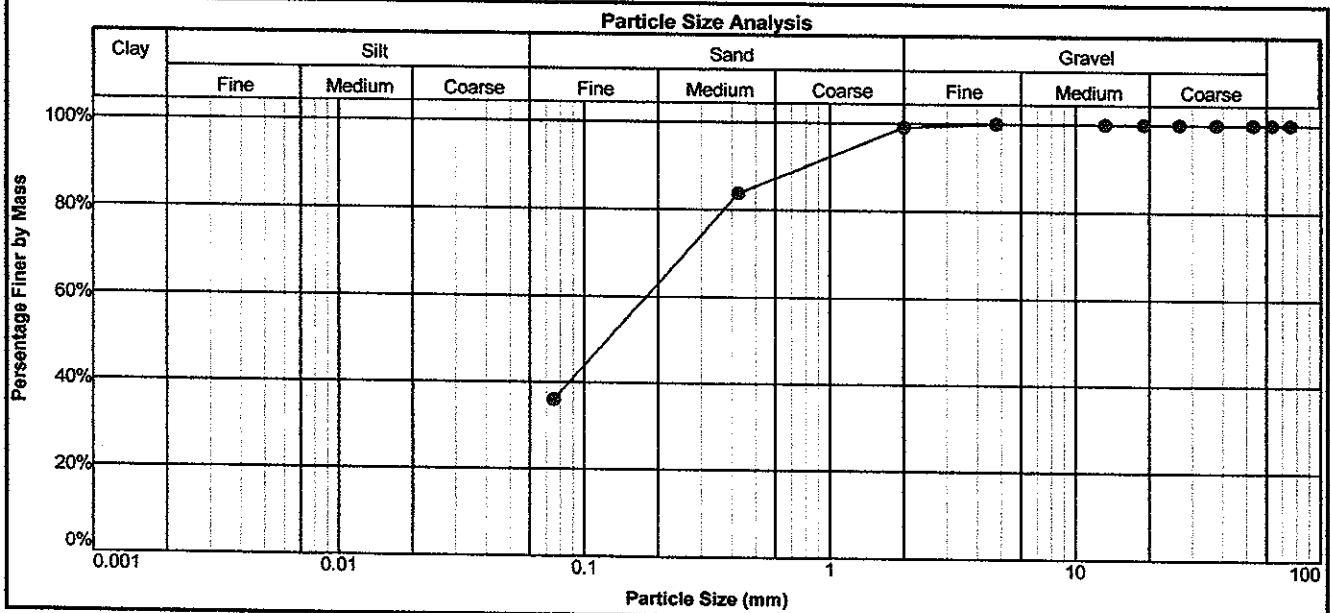
Sieve Analysis

Sieve(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
4.750	100
2.000	99
0.425	84
0.075	36

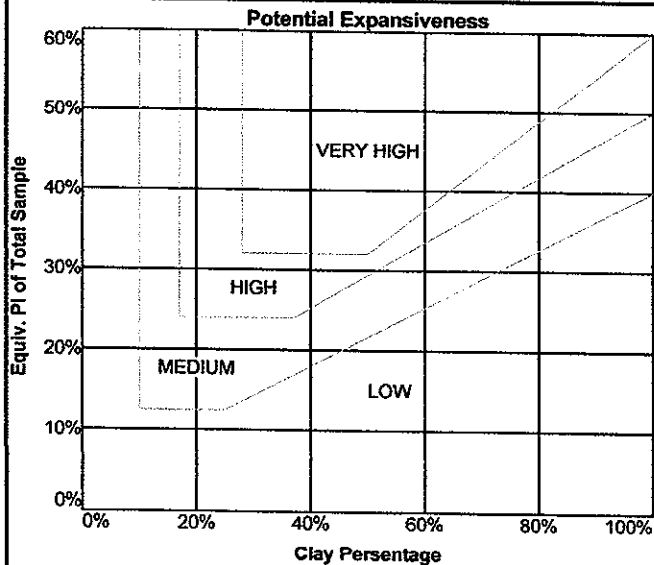
Atterberg Limits

	Test 1	Test 2	Average	PRA Classification	A-4(8)
Liquid Limit	24.4	22.6	23.5	PI of whole sample	6.2
Plastic Limit	17.3	17.3	17.3	% Gravel	
Plasticity Index (PI)			6.2	% Sand	
Linear Shrinkage			3.1	% Silt	
Grading Modules			0.81	% Clay	

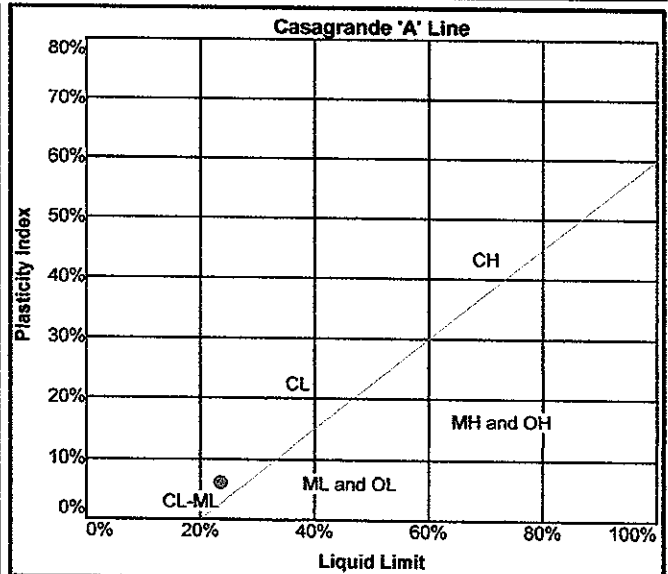
Particle Size Analysis



Potential Expansiveness



Casagrande 'A' Line





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Sample Number	390: 13	Sample Description	Orange Sandy Soil
Sample Depth	1400 - 1850	Sample Position	Hole 3B
Sample Date	05/04/2005	Sample Treatment	

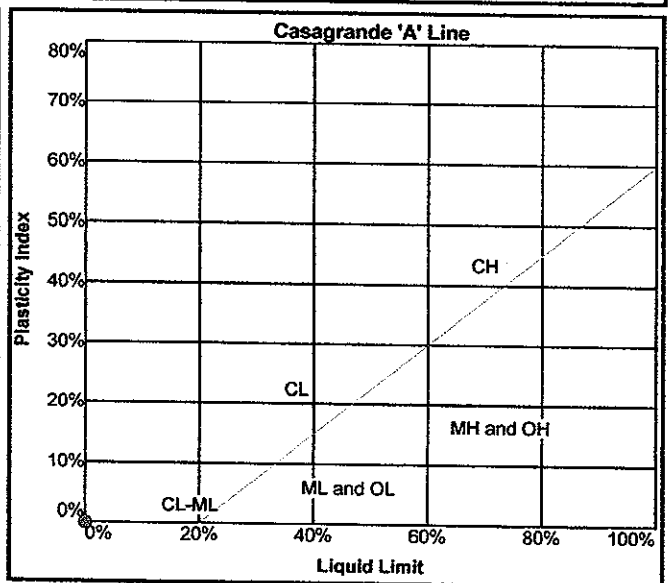
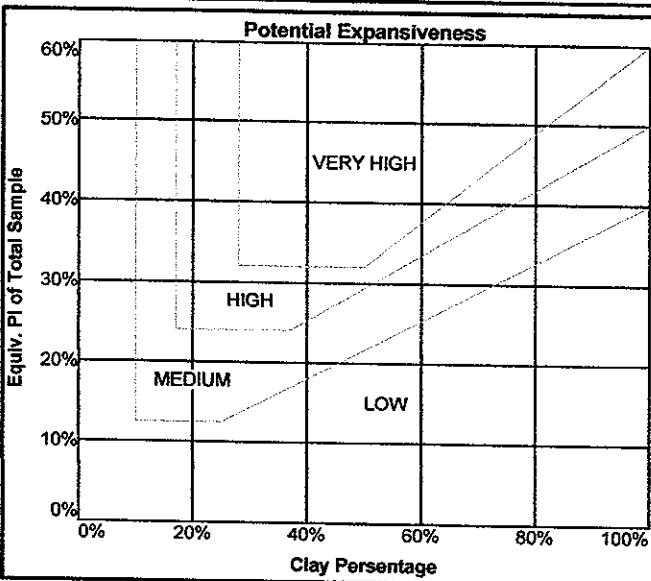
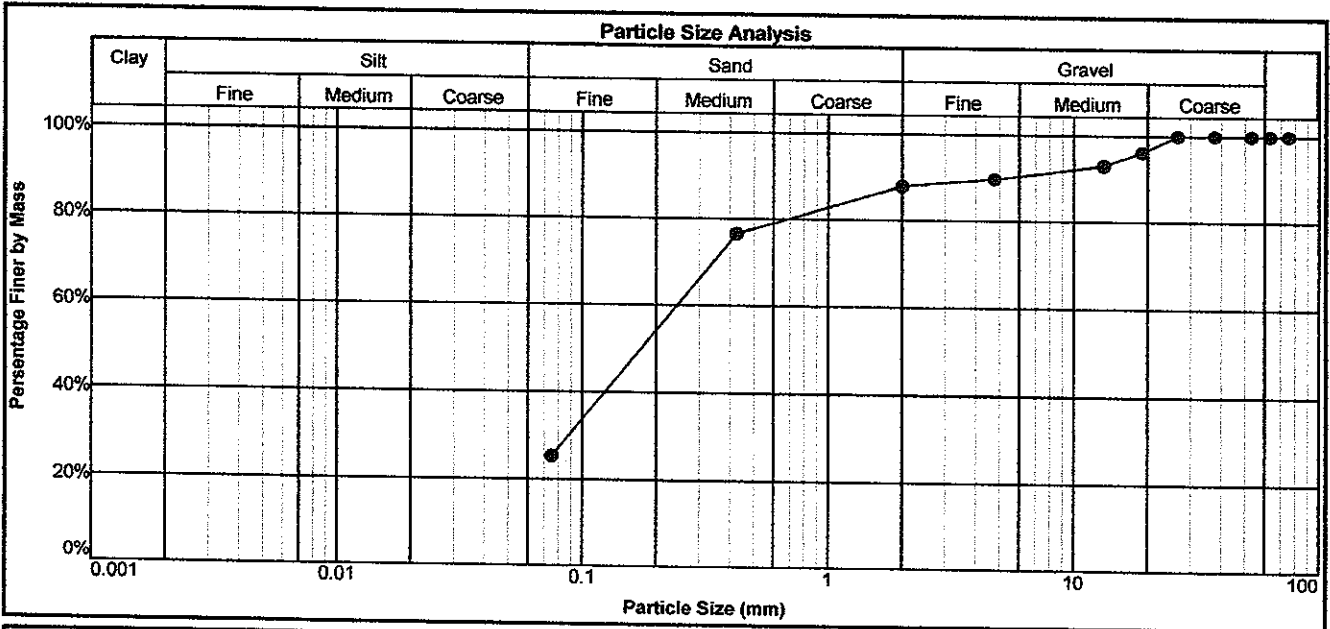
Sieve Analysis

Sieve(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	96
13.2	93
4.750	90
2.000	88
0.425	76
0.075	25

Atterberg Limits

	Test 1	Test 2	Average
Liquid Limit	0.0	0.0	0.0
Plastic Limit	0.0	0.0	0.0
Plasticity Index (PI)			0.0
Linear Shrinkage			0.0
Grading Modules			1.10

PRA Classification	A-2-4(0)
PI of whole sample	0.0
% Gravel	
% Sand	
% Silt	
% Clay	





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Sample Number	390: 20	Sample Description	Yellow Sand
Sample Depth	0 - 3000	Sample Position	Hole 1D
Sample Date	05/04/2005	Sample Treatment	

Sieve Analysis

Sieve(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
4.750	99
2.000	98
0.425	93
0.075	21

Atterberg Limits

	Test 1	Test 2	Average	PRA Classification	A-2-4(0)
Liquid Limit	0.0	0.0	0.0	PI of whole sample	0.0
Plastic Limit	0.0	0.0	0.0	% Gravel	
Plasticity Index (PI)			0.0	% Sand	
Linear Shrinkage			0.8	% Silt	
Grading Modules			0.88	% Clay	

