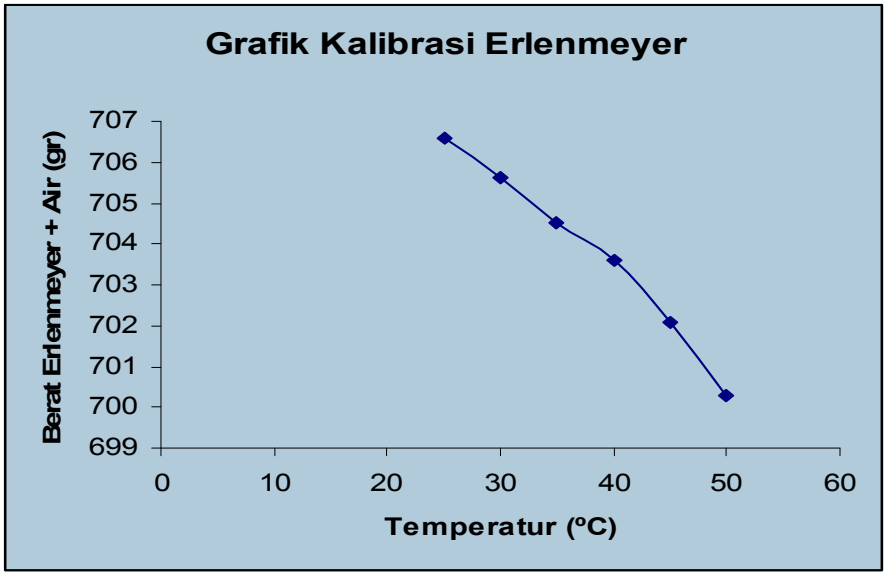
Lampiran 1

Kalibrasi Erlenmeyer

Nama Instansi : Universitas Kristen Maranatha
Nama Proyek : Praktikum Tugas Akhir
Nama Operator : Elkana MP

Tanggal : 30/10/06
Deskripsi Marerial : Slag Baja

No	Temperatur (ºC)	Berat Erlenmeyer + Air, W_{bw} (gr)
1	50	700,3
2	45	702,1
3	40	703,6
4	35	704,5
5	30	705,6
6	25	706,6



Lampiran 2

Berat Jenis Material

Nama Instansi : Universitas Kristen Maranatha
Nama Proyek : Praktikum Tugas Akhir
Nama Operator : Elkana MP

Tanggal : 30/10/06
Deskripsi Marerial : Slag Baja

No. Uji	1	2	3	4	5	6
Berat Erlenmeyer + larutan tanah, W_{bws} (gr)	775.2	776.1	777.2	778.3	779.4	780.3
Temperatur (ºC)	50	45	40	35	30	25
Faktor koreksi berat jenis air, G_t	0.9881	0.9902	0.9922	0.9941	0.9957	0.9971
Berat Erlenmeyer + air, W_{bw} (gr)	700.3	702.1	703.6	704.5	705.6	706.6
Berat dish, W_d (gr)	98.6	98.6	98.6	98.6	98.6	98.6
Berat dish + tanah kering, W_{ds} (gr)	197.6	197.6	197.6	197.6	197.6	197.6
Berat tanah kering, W_s (gr)	99	99	99	99	99	99
Berat air, $W_w = W_s + W_{bw} - W_{bws}$ (gr)	24.1	25	25.4	25.2	25.2	25.3
$G_s = G_t \times \frac{W_s}{W_w}$	4.059	3.921	3.867	3.905	3.912	3.902
G_s rata-rata	3.928					

Lampiran 3

Ilustrasi Uji Berat Jenis Material

Nama Instansi	: Universitas Kristen Maranatha	Tanggal	: 30/10/06
Nama Proyek	: Praktikum Tugas Akhir	Deskripsi Marerial	: Slag Baja
Nama Operator	: Elkana MP		

Gbr.1. Foto Botol Erlenmeyer

Gbr.2. Foto Persiapan Uji Berat Jenis Material

Lampiran 4

Berat Isi Material

Nama Instansi	: Universitas Kristen Maranatha	Tanggal	: 30/10/06
Nama Proyek	: Praktikum Tugas Akhir	Deskripsi Marerial	: Slag Baja
Nama Operator	: Elkana MP		

No. Mold	1
Tinggi Mold, t (cm)	11.7
Diameter Mold, d (cm)	10.125
Volume Mold, V (cm^3)	942.032
Berat Mold, W_1 (gr)	4065.1
Berat tanah kering + mold, W_2 (gr)	6383.6
Berat tanah kering, $W_s = W_2 - W_1$ (gr)	2318.5
Berat isi tanah maks, $\gamma_{maks} = \frac{W_s}{V}(gr/cm^3)$	2.461

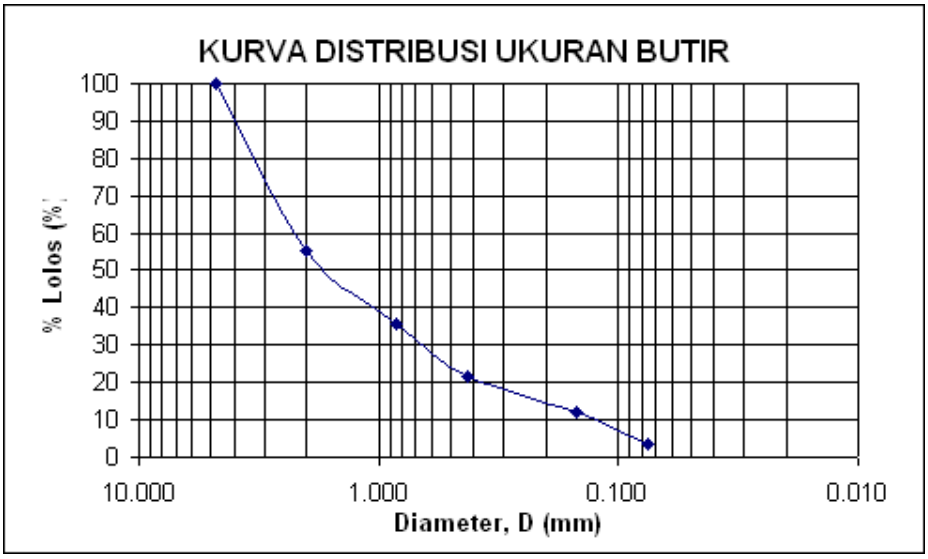
No. Mold	2
Tinggi Mold, t (cm)	11.7
Diameter Mold, d (cm)	10.125
Volume Mold, V (cm^3)	942.032
Berat Mold, W_1 (gr)	4065.1
Berat tanah kering + mold, W_2 (gr)	6066.52
Berat tanah kering, $W_s = W_2 - W_1$ (gr)	2001.42
Berat isi tanah min, $\gamma_{\min} = \frac{W_s}{V}(gr/cm^3)$	2.125

Uji Saringan (Lampiran 5)

Sampel : 100% Slag
Location : Lab. Mektan UKM

Date : 11 November 2006
Tested by : Elkana M Pakpahan

No. Saringan	Diameter Saringan (mm)	Berat Saringan (gr)	Berat Slag dan Saringan (gr)	Berat Tertahan (gr)	% Tertahan	% Lolos
4	4.750	513.1	513.1	0	0	100
10	2.000	437.8	704.5	266.7	44.509	55.491
20	0.850	387.0	504.3	117.3	19.576	35.915
40	0.425	284.0	369.2	85.2	14.219	21.696
100	0.150	280.0	336.3	56.3	9.396	12.300
200	0.075	266.9	319.7	52.8	8.812	3.488
Pan		302.9	323.8	20.9	3.488	0
			Jumlah	599.2	100	



D_{10}	0.13
D_{60}	2.25
D_{30}	0.65
$C_u = D_{60} / D_{10}$	17.308
$C_c = D_{30}^2 / (D_{60} \times D_{10})$	1.444

Uji Saringan (Lampiran 6)

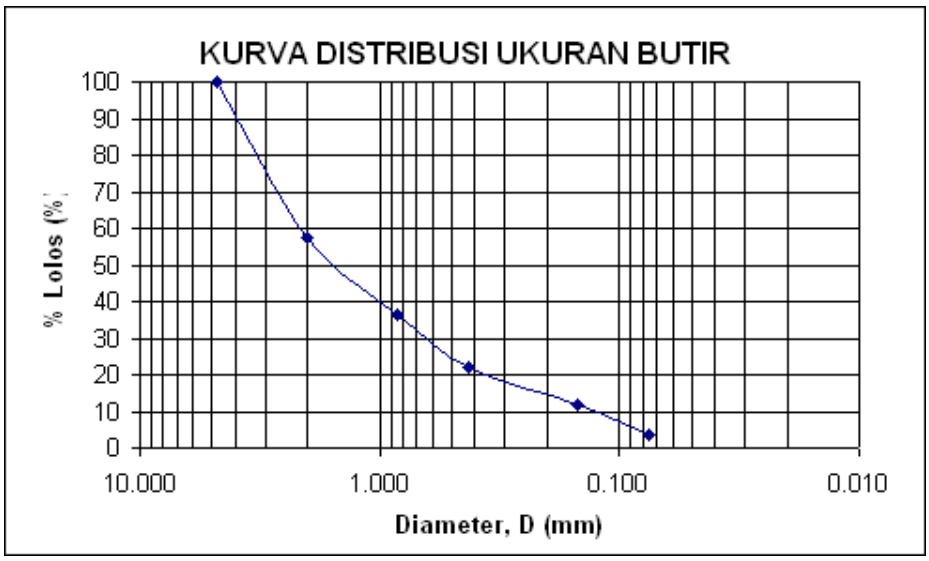
Sampel : 90% Slag + 10% Sirtu

Location : Lab. Mektan UKM

Date : 11 November2006

Tested by : Elkana M Pakpahan

No. Saringan	Diameter Saringan (mm)	Berat Saringan (gr)	Berat Slag dan Saringan (gr)	Berat Tertahan (gr)	% Tertahan	% Lolos
4	4.750	513.1	513.1	0	0	100
10	2.000	437.8	694.04	256.24	42.764	57.236
20	0.850	387.0	512.55	125.55	20.953	36.283
40	0.425	284.0	370.45	86.45	14.428	21.856
100	0.150	280.0	340.28	60.28	10.060	11.796
200	0.075	266.9	316.55	49.65	8.286	3.510
Pan		302.9	323.93	21.03	3.510	0
			Jumlah	599.2	100	



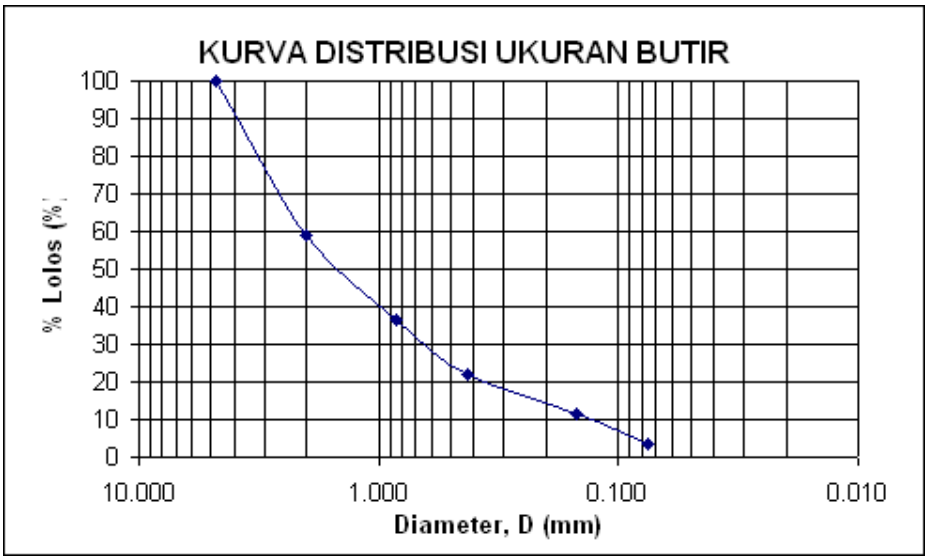
D_{10}	0.12
D_{60}	2.15
D_{30}	0.63
$C_u = D_{60} / D_{10}$	17.917
$C_c = D_{302} / (D_{60} \times D_{10})$	1.538

Uji Saringan (Lampiran 7)

Sampel : 80% Slag + 20% Sirtu
Location : Lab. Mektan UKM

Date : 11 November 2006
Tested by : Elkana M Pakpahan

No. Saringan	Diameter Saringan (mm)	Berat Saringan (gr)	Berat Slag dan Saringan (gr)	Berat Tertahan (gr)	% Tertahan	% Lolos
4	4.750	513.1	513.1	0	0	100
10	2.000	437.8	683.58	245.78	41.018	58.982
20	0.850	387.0	520.8	133.8	22.330	36.652
40	0.425	284.0	371.7	87.7	14.636	22.016
100	0.150	280.0	344.26	64.26	10.724	11.292
200	0.075	266.9	313.4	46.5	7.760	3.531
Pan		302.9	324.06	21.16	3.531	0
			Jumlah	599.2	100	



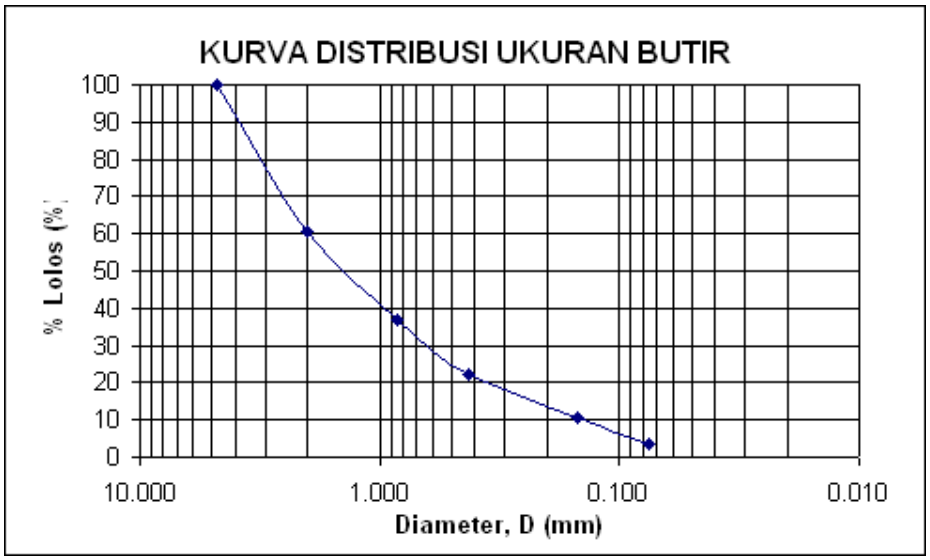
D_{10}	0.15
D_{60}	2.05
D_{30}	0.66
$C_u = D_{60} / D_{10}$	13.667
$C_c = D_{30}^2 / (D_{60} \times D_{10})$	1.417

Uji Saringan (Lampiran 8)

Sampel : 70% Slag + 30% Sirtu
Location : Lab. Mektan UKM

Date : 11 November 2006
Tested by : Elkana M Pakpahan

No. Saringan	Diameter Saringan (mm)	Berat Saringan (gr)	Berat Slag dan Saringan (gr)	Berat Tertahan (gr)	% Tertahan	% Lolos
4	4.750	513.1	513.1	0	0	100
10	2.000	437.8	673.12	235.32	39.272	60.728
20	0.850	387.0	529.05	142.05	23.707	37.021
40	0.425	284.0	372.95	88.95	14.845	22.176
100	0.150	280.0	348.24	68.24	11.389	10.788
200	0.075	266.9	310.25	43.35	7.235	3.553
Pan		302.9	324.19	21.29	3.553	0
			Jumlah	599.2	100	



D_{10}	0.16
D_{60}	2
D_{30}	0.62
$C_u = D_{60} / D_{10}$	12.500
$C_c = D_{30}^2 / (D_{60} \times D_{10})$	1.201

Uji Saringan (Lampiran 9)

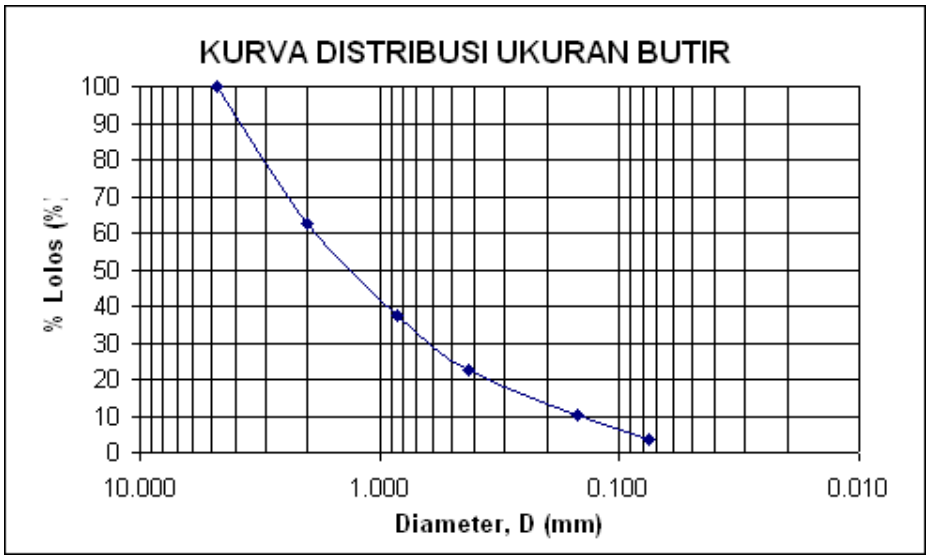
Sampel : 60% Slag + 40% Sirtu

Location : Lab. Mektan UKM

Date : 11 November 2006

Tested by : Elkana M Pakpahan

No. Saringan	Diameter Saringan (mm)	Berat Saringan (gr)	Berat Slag dan Saringan (gr)	Berat Tertahan (gr)	% Tertahan	% Lolos
4	4.750	513.1	513.1	0	0	100
10	2.000	437.8	662.66	224.86	37.527	62.473
20	0.850	387.0	537.3	150.3	25.083	37.390
40	0.425	284.0	374.2	90.2	15.053	22.336
100	0.150	280.0	352.22	72.22	12.053	10.284
200	0.075	266.9	307.1	40.2	6.709	3.575
Pan		302.9	324.32	21.42	3.575	0
			Jumlah	599.2	100	



D_{10}	0.17
D_{60}	1.95
D_{30}	0.61
$C_u = D_{60} / D_{10}$	11.471
$C_c = D_{30}^2 / (D_{60} \times D_{10})$	1.122

Lampiran 10

Ilustrasi Uji Gradasi

Nama Instansi	: Universitas Kristen Maranatha	Tanggal	: 11/11/06
Nama Proyek	: Praktikum Tugas Akhir	Deskripsi Marerial	: Slag Baja
Nama Operator	: Elkana MP		

Gbr. 3 Foto Saringan

Gbr. 4 Alat uji saringan

COMPACTION TEST (Lampiran 11)

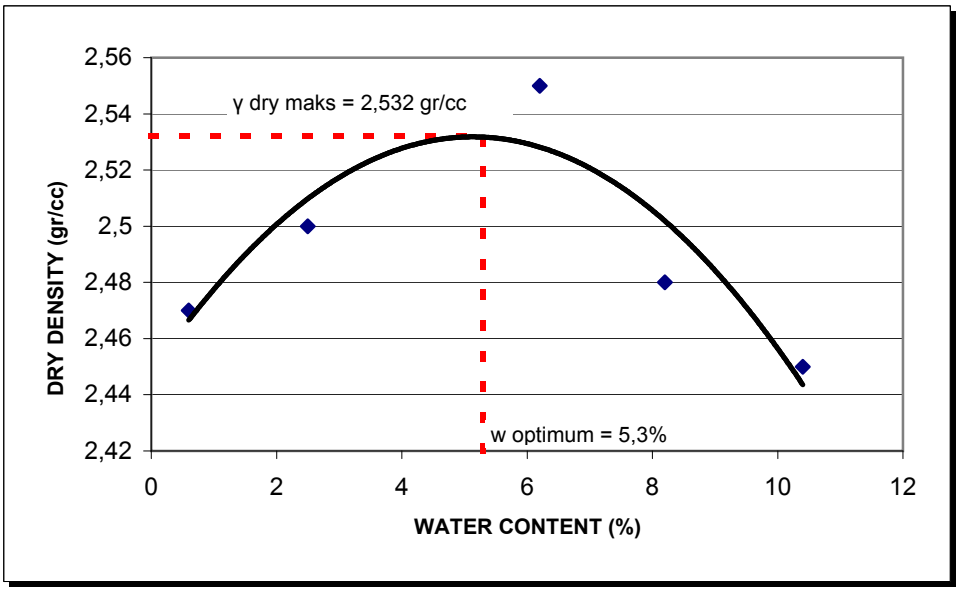
Sample	:	100% Slag	Test No.	: Standar AASHTO
Location	:	Lab. Mektan UKM	Tested by	: Elkana Pakpahan
Boring No.	:		Date	: 20 November 2006
Sample No.	:	1		

TYPE OF TEST MOLD

Diam	:	15,19	HAMMER	:
Ht	:	17,7		
Volume	:	3208,880	Ht.	30,6
Wt.	:	6980	Wt	2373,6
No. of blows	:	55		
Energy	:		Gs	3,928

DENSITY DETERMINATION		1	2	3	4	5
Assumed water content	%	1	3	6	9	12
Wt. Mold + Compacted soil	(gr)	14950,00	15190,00	15677,00	15585,00	15650,00
Wt. of Compacted soil	(gr)	7970,00	8210,00	8697,00	8605,00	8670,00
Wet density wet	(gr/cc)	2,48	2,56	2,71	2,68	2,70
Dry density dry	(gr/cc)	2,47	2,50	2,55	2,48	2,45
Void ratio, e		0,59	0,57	0,54	0,59	0,60
Poroity , n		0,37	0,36	0,35	0,37	0,38

WATER CONTENT DETERMINATION		1	2	3	4	5
Container No.	(gr)	A	B	C	D	E
Wt. Cont + wet soil	(gr)	172,4	163,8	161,5	165,7	173,2
Wt. Cont + dry soil	(gr)	171,8	161,4	155,7	158,1	163,8
Wt. of water	(gr)	0,6	2,4	5,8	7,6	9,4
Wt. of container	(gr)	72,4	63,8	61,5	65,7	73,2
Wt. of dry soil	(gr)	99,4	97,6	94,2	92,4	90,6
WATER CONTENT	(%)	0,6	2,5	6,2	8,2	10,4



COMPACTION TEST (Lampiran 12)

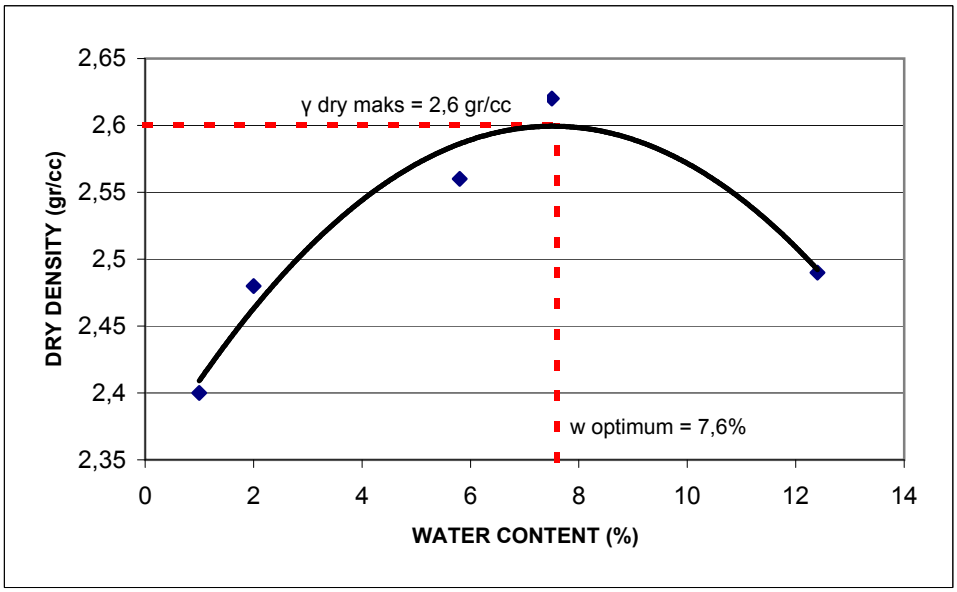
Sample	:	90% Slag dan 10% Sirtu	Test No.	: Standar AASHTO
Location	:	Lab. Mektan UKM	Tested by	: Elkana Pakpahan
Boring No.	:		Date	: 21 November 2006
Sample No.	:	2		

TYPE OF TEST MOLD

Diam	:	15,19	HAMMER	:
Ht	:	17,7		
Volume	:	3208,880	Ht.	30,6
Wt.	:	6980	Wt	2373,6
No. of blows	:	55		
Energy	:		Gs	3,928

DENSITY DETERMINATION		1	2	3	4	5
Assumed water content	%	1	3	6	9	12
Wt. Mold + Compacted soil	(gr)	14775,00	15095,00	15660,00	16025,00	15950,00
Wt. of Compacted soil	(gr)	7795,00	8115,00	8680,00	9045,00	8970,00
Wet density wet	(gr/cc)	2,43	2,53	2,70	2,82	2,80
Dry density dry	(gr/cc)	2,40	2,48	2,56	2,62	2,49
Void ratio, e		0,63	0,58	0,54	0,50	0,58
Poroity , n		0,39	0,37	0,35	0,33	0,37

WATER CONTENT DETERMINATION		1	2	3	4	5
Container No.	(gr)	A	B	C	D	E
Wt. Cont + wet soil	(gr)	166,0	161,6	170,4	163,7	161,4
Wt. Cont + dry soil	(gr)	165,0	159,6	164,9	156,7	150,4
Wt. of water	(gr)	1,0	2,0	5,5	7,0	11,0
Wt. of container	(gr)	66,0	61,6	70,4	63,7	61,4
Wt. of dry soil	(gr)	99,0	98,0	94,5	93,0	89,0
WATER CONTENT	(%)	1,0	2,0	5,8	7,5	12,4



COMPACTION TEST (Lampiran 13)

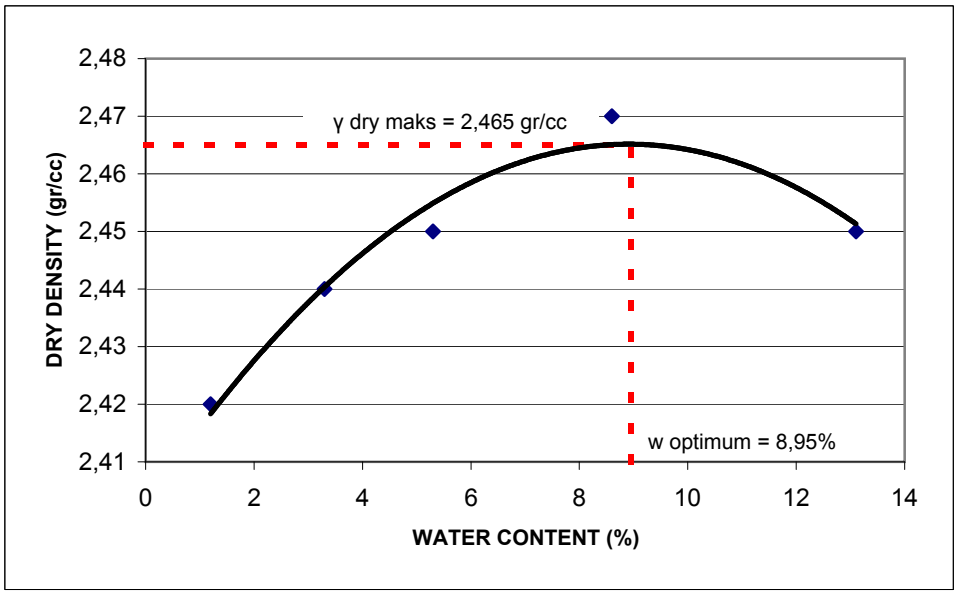
Sample	:	80% Slag dan 20% Sirtu	Test No.	: Standar AASHTO
Location	:	Lab. Mektan UKM	Tested by	: Elkana Pakpahan
Boring No.	:		Date	: 23 November 2006
Sample No.	:	3		

TYPE OF TEST MOLD

Diam	:	15,19	HAMMER	:
Ht	:	17,7		
Volume	:	3208,880	Ht.	30,6
Wt.	:	6980	Wt	2373,6
No. of blows	:	55		
Energy	:		Gs	3,928

DENSITY DETERMINATION		1	2	3	4	5
Assumed water content	%	1	3	6	9	12
Wt. Mold + Compacted soil	(gr)	14850,00	15085,00	15270,00	15580,00	15890,00
Wt. of Compacted soil	(gr)	7870,00	8105,00	8290,00	8600,00	8910,00
Wet density wet	(gr/cc)	2,45	2,53	2,58	2,68	2,78
Dry density dry	(gr/cc)	2,42	2,44	2,45	2,47	2,45
Void ratio, e		0,62	0,61	0,60	0,59	0,60
Poroity , n		0,38	0,38	0,38	0,37	0,38

WATER CONTENT DETERMINATION		1	2	3	4	5
Container No.	(gr)	A	B	C	D	E
Wt. Cont + wet soil	(gr)	163,8	161,6	170,2	161,4	166,0
Wt. Cont + dry soil	(gr)	162,6	158,4	165,2	153,5	154,4
Wt. of water	(gr)	1,2	3,2	5,0	7,9	11,6
Wt. of container	(gr)	63,8	61,6	70,2	61,4	66,0
Wt. of dry soil	(gr)	98,8	96,8	95,0	92,1	88,4
WATER CONTENT	(%)	1,2	3,3	5,3	8,6	13,1



COMPACTION TEST (Lampiran 14)

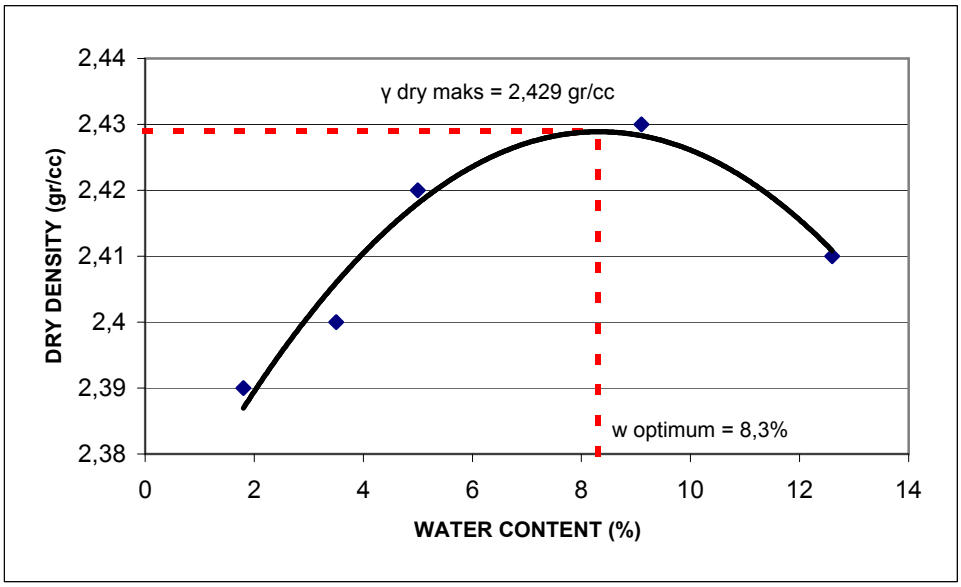
Sample	:	70% Slag dan 30% Sirtu	Test No.	: Standar AASHTO
Location	:	Lab. Mektan UKM	Tested by	: Elkana Pakpahan
Boring No.	:		Date	: 24 November 2006
Sample No.	:	4		

TYPE OF TEST MOLD

Diam	:	15,19	HAMMER	:
Ht	:	17,7		
Volume	:	3208,880	Ht.	30,6
Wt.	:	6980	Wt	2373,6
No. of blows	:	55		
Energy	:		Gs	3,928

DENSITY DETERMINATION		1	2	3	4	5
Assumed water content	%	1	3	6	9	12
Wt. Mold + Compacted soil	(gr)	14780,00	14950,00	15150,00	15470,00	15690,00
Wt. of Compacted soil	(gr)	7800,00	7970,00	8170,00	8490,00	8710,00
Wet density wet	(gr/cc)	2,43	2,48	2,55	2,65	2,71
Dry density dry	(gr/cc)	2,39	2,40	2,42	2,43	2,41
Void ratio, e		0,65	0,64	0,62	0,62	0,63
Poroity , n		0,39	0,39	0,38	0,38	0,39

WATER CONTENT DETERMINATION		1	2	3	4	5
Container No.	(gr)	A	B	C	D	E
Wt. Cont + wet soil	(gr)	161,5	161,5	163,8	170,2	166,1
Wt. Cont + dry soil	(gr)	159,7	158,1	159,0	161,9	154,9
Wt. of water	(gr)	1,8	3,4	4,8	8,3	11,2
Wt. of container	(gr)	61,5	61,5	63,8	70,2	66,1
Wt. of dry soil	(gr)	98,2	96,6	95,2	91,7	88,8
WATER CONTENT	(%)	1,8	3,5	5,0	9,1	12,6



COMPACTION TEST (Lampiran 15)

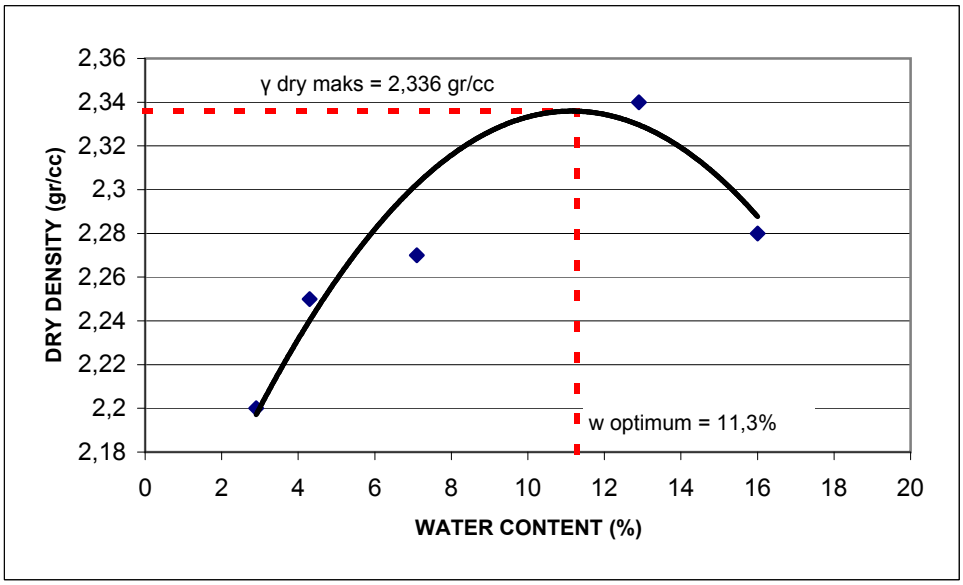
Sample	:	60% Slag dan 40% Sirtu	Test No.	: Standar AASHTO
Location	:	Lab. Mektan UKM	Tested by	: Elkana Pakpahan
Boring No.	:		Date	: 25 November 2006
Sample No.	:	5		

TYPE OF TEST MOLD

Diam	:	15,19	HAMMER	:
Ht	:	17,7		
Volume	:	3208,880	Ht.	30,6
Wt.	:	6980	Wt	2373,6
No. of blows	:	55		
Energy	:		Gs	3,928

DENSITY DETERMINATION		1	2	3	4	5	6
Assumed water content	%	1	3	6	9	12	15
Wt. Mold + Compacted soil	(gr)	14240,00	14495,00	14780,00	15258,00	15470,00	15455,00
Wt. of Compacted soil	(gr)	7260,00	7515,00	7800,00	8278,00	8490,00	8475,00
Wet density wet	(gr/cc)	2,26	2,34	2,43	2,58	2,65	2,64
Dry density dry	(gr/cc)	2,20	2,25	2,27	2,35	2,34	2,28
Void ratio, e		0,79	0,75	0,73	0,67	0,68	0,73
Poroity , n		0,44	0,43	0,42	0,40	0,40	0,42

WATER CONTENT DETERMINATION		1	2	3	4	5	6
Container No.	(gr)	A	B	C	D	E	F
Wt. Cont + wet soil	(gr)	161,4	163,6	160,3	167,0	162,7	160,3
Wt. Cont + dry soil	(gr)	158,6	159,5	153,7	158,0	151,3	146,5
Wt. of water	(gr)	2,8	4,1	6,6	9,0	11,4	13,8
Wt. of container	(gr)	61,4	63,6	60,3	67,0	62,7	60,3
Wt. of dry soil	(gr)	97,2	95,9	93,4	91,0	88,6	86,2
WATER CONTENT	(%)	2,9	4,3	7,1	9,9	12,9	16,0



Lampiran 16

Ilustrasi Uji Pemadatan

Nama Instansi	: Universitas Kristen Maranatha	Tanggal	: 20/11/06
Nama Proyek	: Praktikum Tugas Akhir	Deskripsi Marerial	: Slag Baja
Nama Operator	: Elkana MP		

Gbr. 5 Foto alat pemadatan

Gbr. 6 Foto pencampuran material

Gbr. 7 Foto pemadatan material

Gbr. 8 Foto penimbangan material

CBR TEST (Lampiran 17)

Material : 100% Slag
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 1 (10 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 11 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

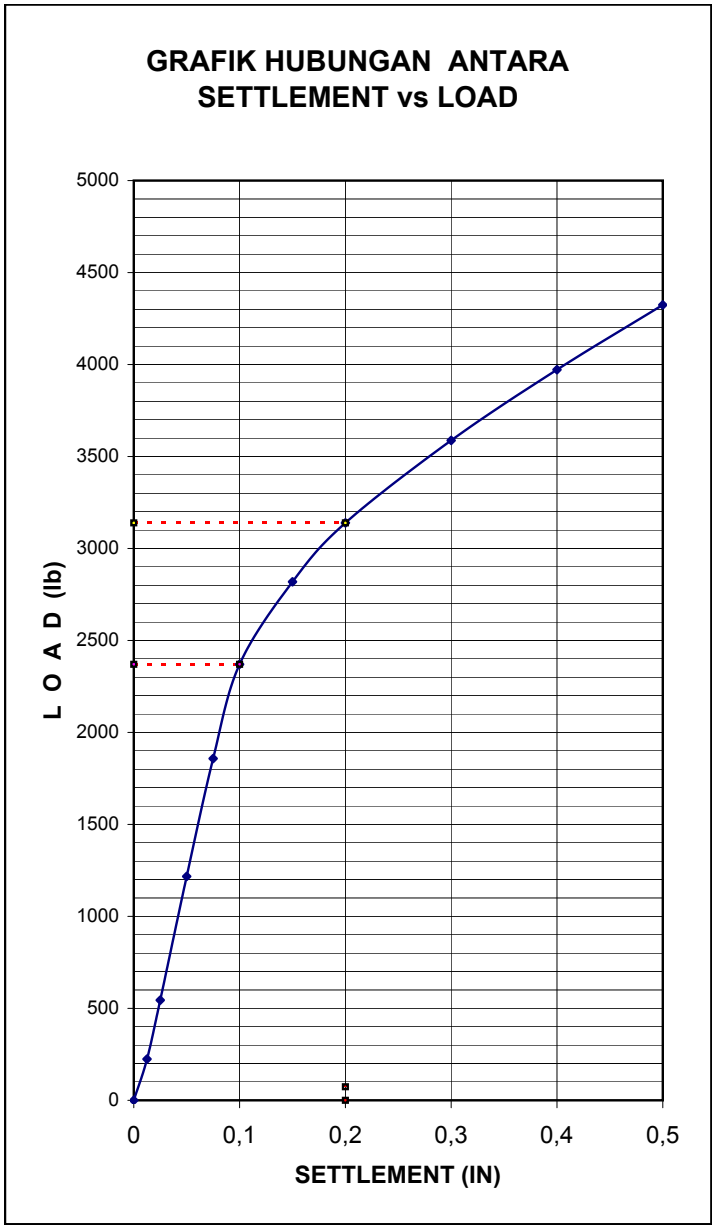
Weight of soil + mold	12375,3
Weight of mold	6980
Weight of soil	5395,3
Volume of soil	2283,38
Wet density	2,36
Dry density	2,23

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	7,00	224,2
½	0,025	17,00	544,5
1	0,050	38,00	1217,2
1½	0,075	58,00	1857,8
2	0,100	74,00	2370,3
3	0,150	88,00	2818,7
4	0,200	98,00	3139,0
6	0,300	112,00	3587,5
8	0,400	124,00	3971,8
10	0,500	135,00	4324,2

Water content

Wt. of wet soil + dish	164,10
Wt. of dry soil + dish	158,30
Wt. of dish	64,10
Wt. of water	5,80
Wt. of dry soil	94,20
Water content	6,16

CBR VALUE	
01"	02"
$\frac{2370,287}{3000}$ x 100 %	$\frac{3139,0}{4500}$ x 100 %
79,01 %	69,76 %
79,01 %	



CBR TEST (Lampiran 18)

Material : 100% Slag
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 2 (25 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 11 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

Weight of soil + mold	12595,3
Weight of mold	6980
Weight of soil	5615,3
Volume of soil	2283,38
Wet density	2,46
Dry density	2,32

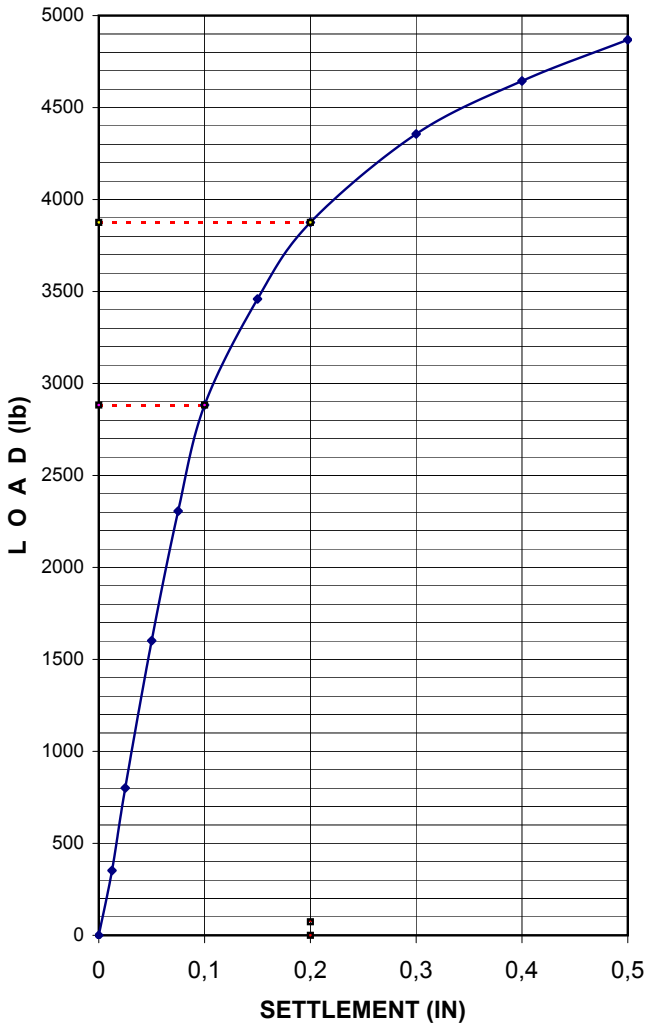
Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	11,00	352,3
½	0,025	25,00	800,8
1	0,050	50,00	1601,5
1½	0,075	72,00	2306,2
2	0,100	90,00	2882,8
3	0,150	108,00	3459,3
4	0,200	121,00	3875,7
6	0,300	136,00	4356,2
8	0,400	145,00	4644,5
10	0,500	152,00	4868,7

Water content

Wt. of wet soil + dish	161,60
Wt. of dry soil + dish	155,90
Wt. of dish	61,60
Wt. of water	5,70
Wt. of dry soil	94,30
Water content	6,04

CBR VALUE	
01"	02"
$\frac{2882,781}{3000}$ x 100 %	$\frac{3875,7}{4500}$ x 100 %
96,09 %	86,13 %
96,09 %	

GRAFIK HUBUNGAN ANTARA SETTLEMENT vs LOAD



CBR TEST (Lampiran 19)

Material : 100% Slag
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 3 (55 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 11 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

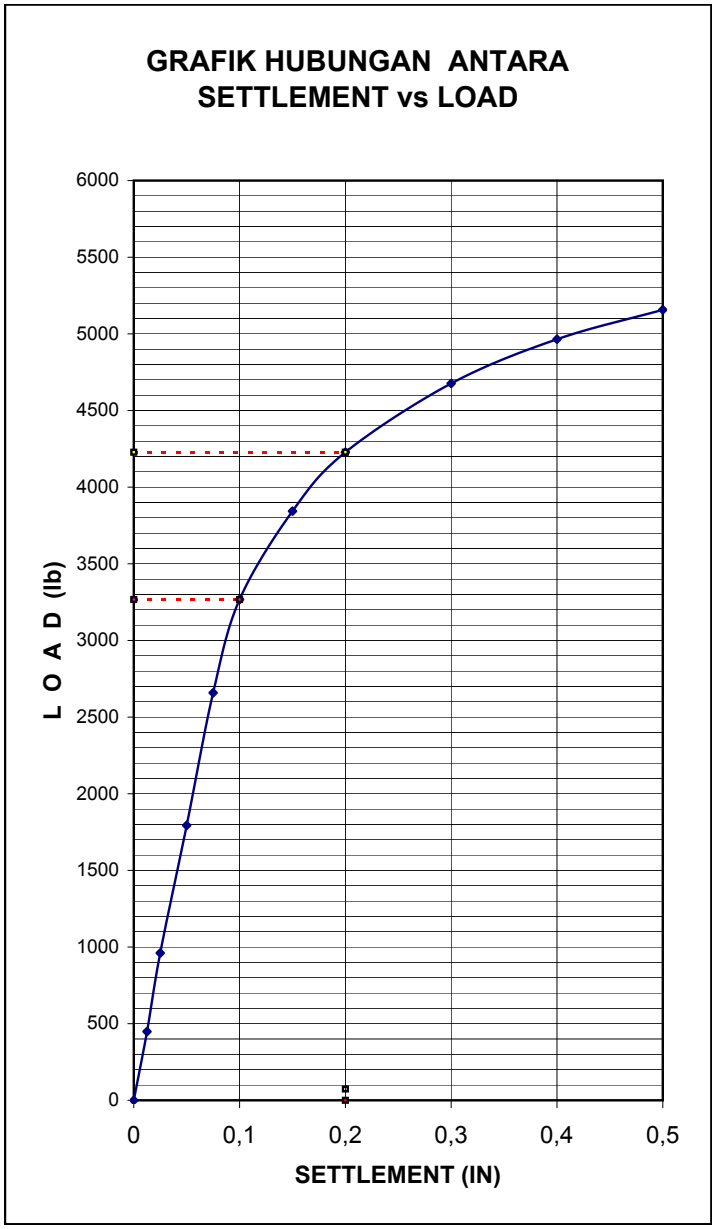
Weight of soil + mold	13095,3
Weight of mold	6980
Weight of soil	6115,3
Volume of soil	2283,38
Wet density	2,68
Dry density	2,53

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	14,00	448,4
½	0,025	30,00	960,9
1	0,050	56,00	1793,7
1½	0,075	83,00	2658,6
2	0,100	102,00	3267,2
3	0,150	120,00	3843,7
4	0,200	132,00	4228,1
6	0,300	146,00	4676,5
8	0,400	155,00	4964,8
10	0,500	161,00	5157,0

Water content

Wt. of wet soil + dish	163,60
Wt. of dry soil + dish	158,10
Wt. of dish	63,60
Wt. of water	5,50
Wt. of dry soil	94,50
Water content	5,82

CBR VALUE	
01"	02"
$\frac{3267,152}{3000}$ x 100 %	$\frac{4228,1}{4500}$ x 100 %
108,91 %	93,96 %
108,91 %	



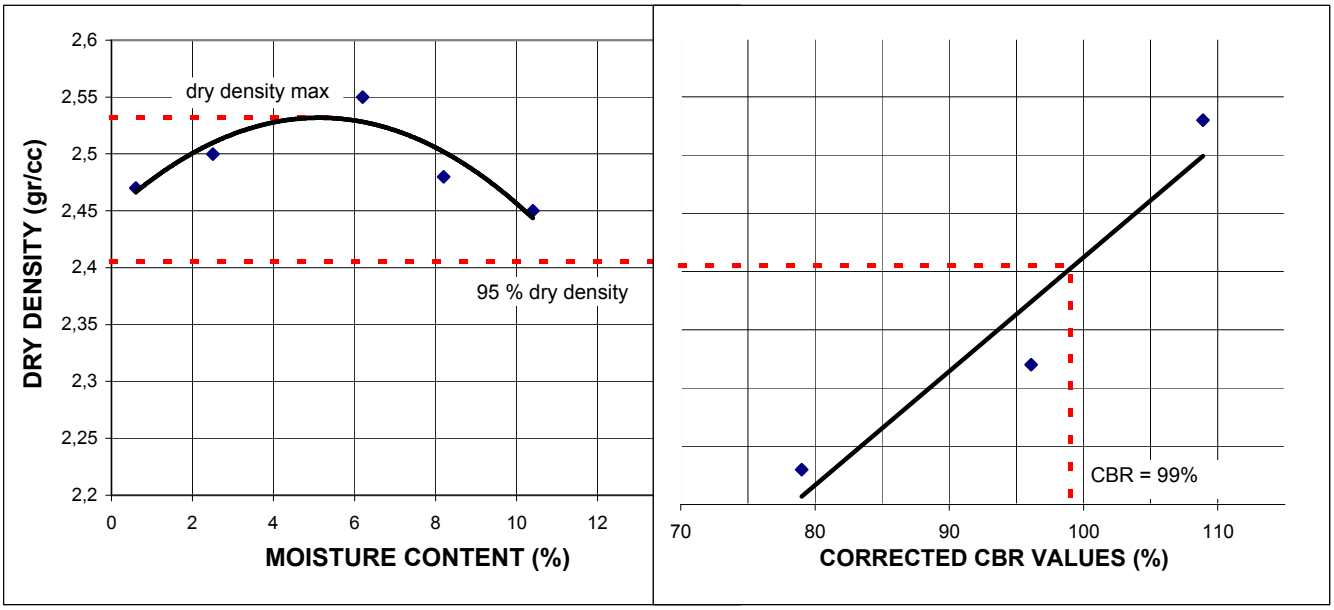
CBR TEST (Lampiran 20)

COMPACTION

DRY DENSITY	(gr/cc)	2,47	2,5	2,55	2,48	2,45
Moisture content	(%)	0,6	2,5	6,2	8,2	10,4

CORRECTED CBR VALUES (%)

MOULDED PER LAYER		56	25	10
DRY DENSITY	(gr/cc)	2,53	2,32	2,23
CORRECTED CBR VALUES	(%)	108,91	96,09	79,01



CBR TEST (Lampiran 21)

Material : 90% Slag + 10% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 4 (10 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 11 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

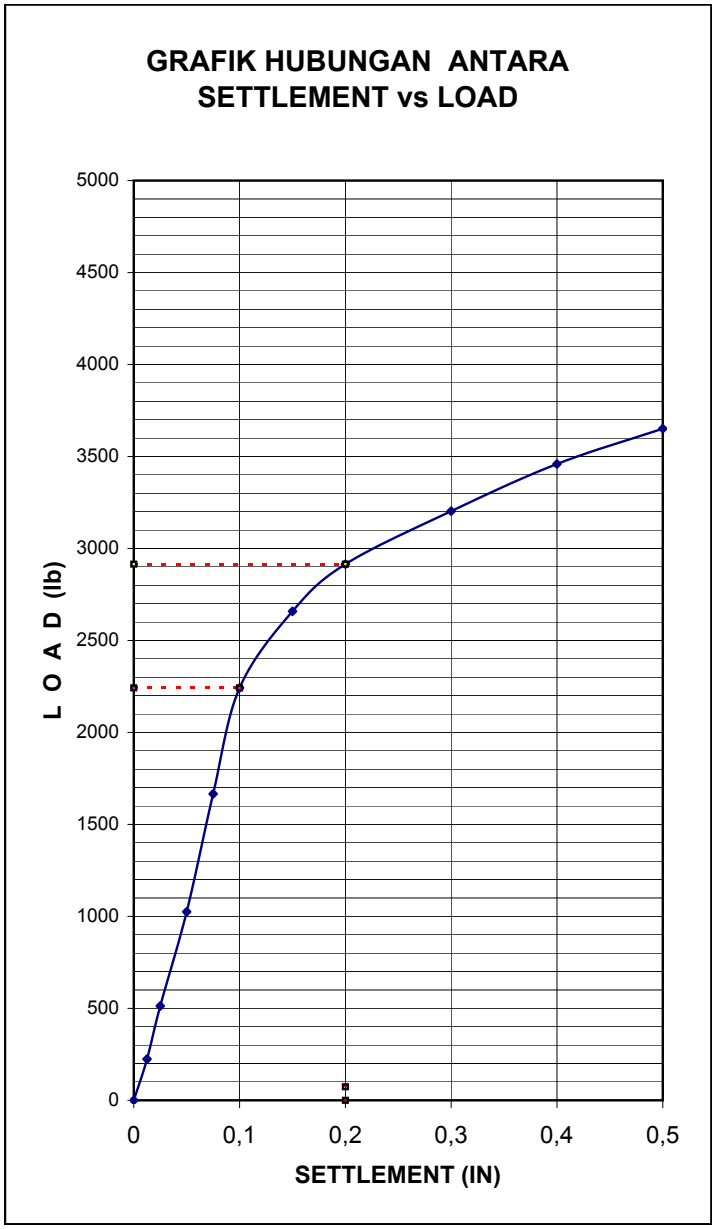
Weight of soil + mold	12735,3
Weight of mold	6980
Weight of soil	5755,3
Volume of soil	2283,38
Wet density	2,52
Dry density	2,35

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	7,00	224,2
½	0,025	16,00	512,5
1	0,050	32,00	1025,0
1½	0,075	52,00	1665,6
2	0,100	70,00	2242,2
3	0,150	83,00	2658,6
4	0,200	91,00	2914,8
6	0,300	100,00	3203,1
8	0,400	108,00	3459,3
10	0,500	114,00	3651,5

Water content

Wt. of wet soil + dish	160,30
Wt. of dry soil + dish	153,40
Wt. of dish	60,30
Wt. of water	6,90
Wt. of dry soil	93,10
Water content	7,41

CBR VALUE	
01"	02"
$\frac{2242,163}{3000}$ x 100 %	$\frac{2914,8}{4500}$ x 100 %
74,74 %	64,77 %
74,74 %	



CBR TEST (Lampiran 22)

Material : 90% Slag + 10% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 5 (25 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 11 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

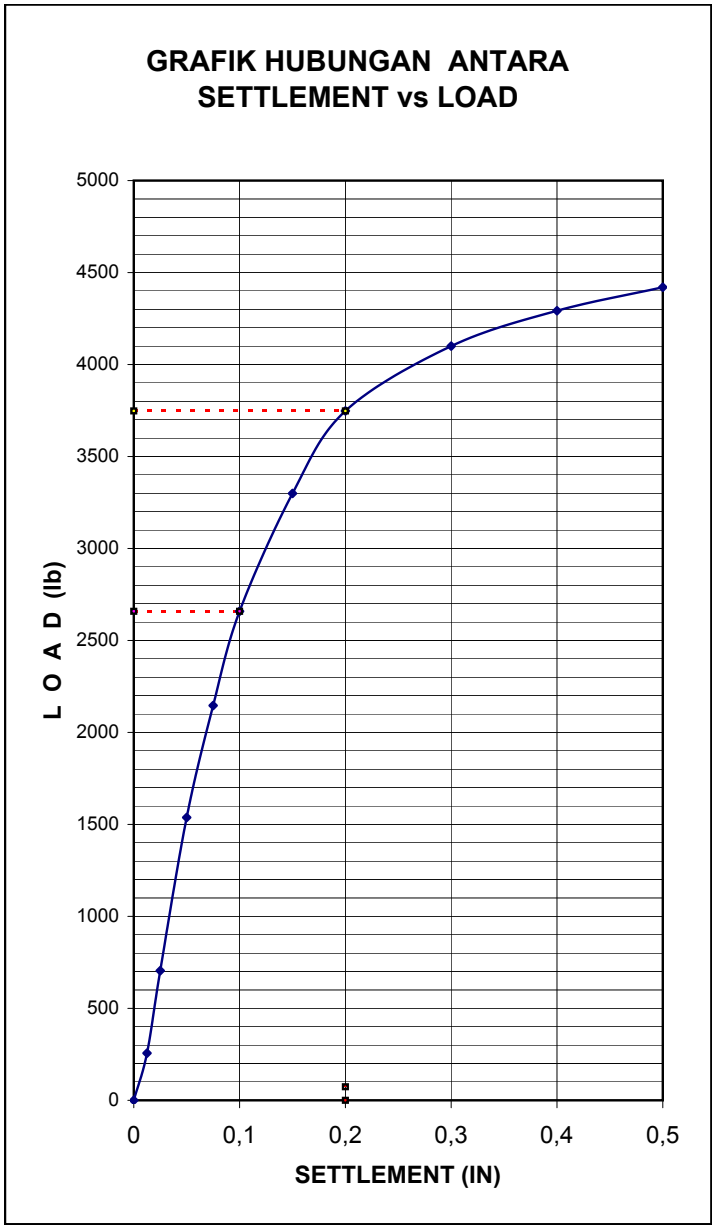
Weight of soil + mold	12945,3
Weight of mold	6980
Weight of soil	5965,3
Volume of soil	2283,38
Wet density	2,61
Dry density	2,43

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	8,00	256,2
½	0,025	22,00	704,7
1	0,050	48,00	1537,5
1½	0,075	67,00	2146,1
2	0,100	83,00	2658,6
3	0,150	103,00	3299,2
4	0,200	117,00	3747,6
6	0,300	128,00	4100,0
8	0,400	134,00	4292,1
10	0,500	138,00	4420,3

Water content

Wt. of wet soil + dish	171,00
Wt. of dry soil + dish	164,20
Wt. of dish	71,00
Wt. of water	6,80
Wt. of dry soil	93,20
Water content	7,30

CBR VALUE	
01"	02"
$\frac{2658,565}{3000}$ x 100 %	$\frac{3747,6}{4500}$ x 100 %
88,62 %	83,28 %
88,62 %	



CBR TEST (Lampiran 23)

Material : 90% Slag + 10% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 6 (55 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 11 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

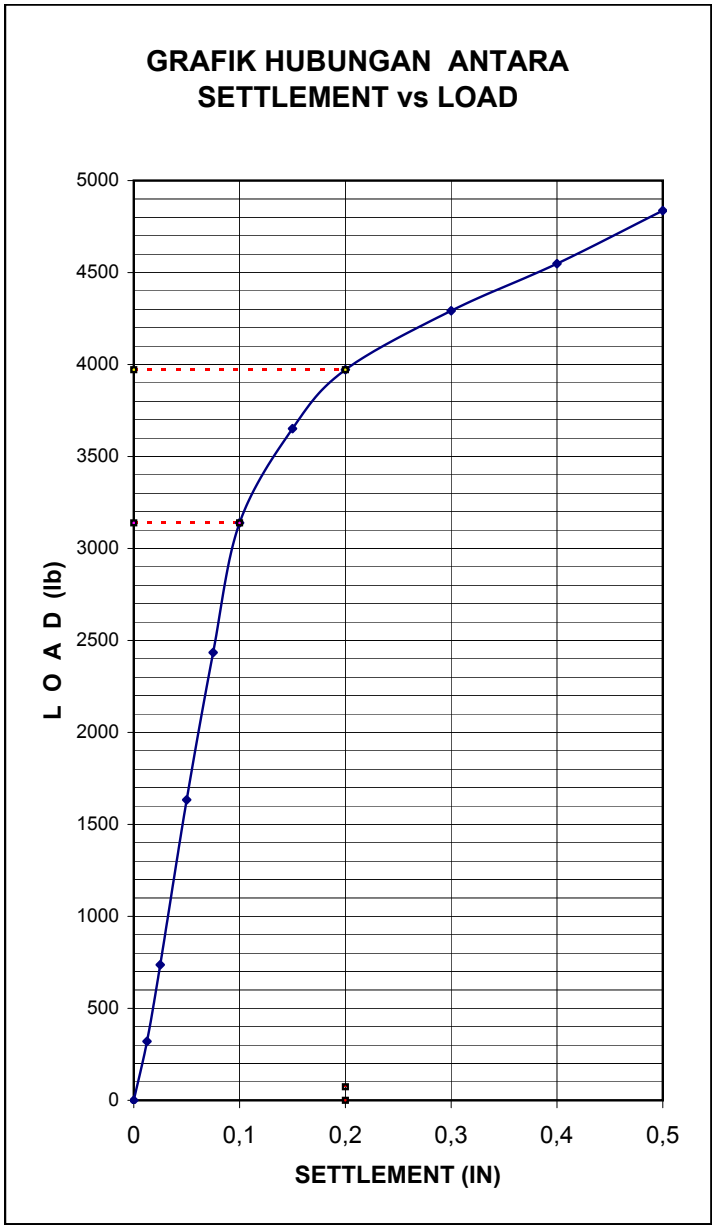
Weight of soil + mold	13275,3
Weight of mold	6980
Weight of soil	6295,3
Volume of soil	2283,38
Wet density	2,76
Dry density	2,57

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	10,00	320,3
½	0,025	23,00	736,7
1	0,050	51,00	1633,6
1½	0,075	76,00	2434,3
2	0,100	98,00	3139,0
3	0,150	114,00	3651,5
4	0,200	124,00	3971,8
6	0,300	134,00	4292,1
8	0,400	142,00	4548,4
10	0,500	151,00	4836,7

Water content

Wt. of wet soil + dish	165,40
Wt. of dry soil + dish	158,70
Wt. of dish	65,40
Wt. of water	6,70
Wt. of dry soil	93,30
Water content	7,18

CBR VALUE	
01"	02"
$\frac{3139,028}{3000}$ x 100 %	$\frac{3971,8}{4500}$ x 100 %
104,63 %	88,26 %
104,63 %	



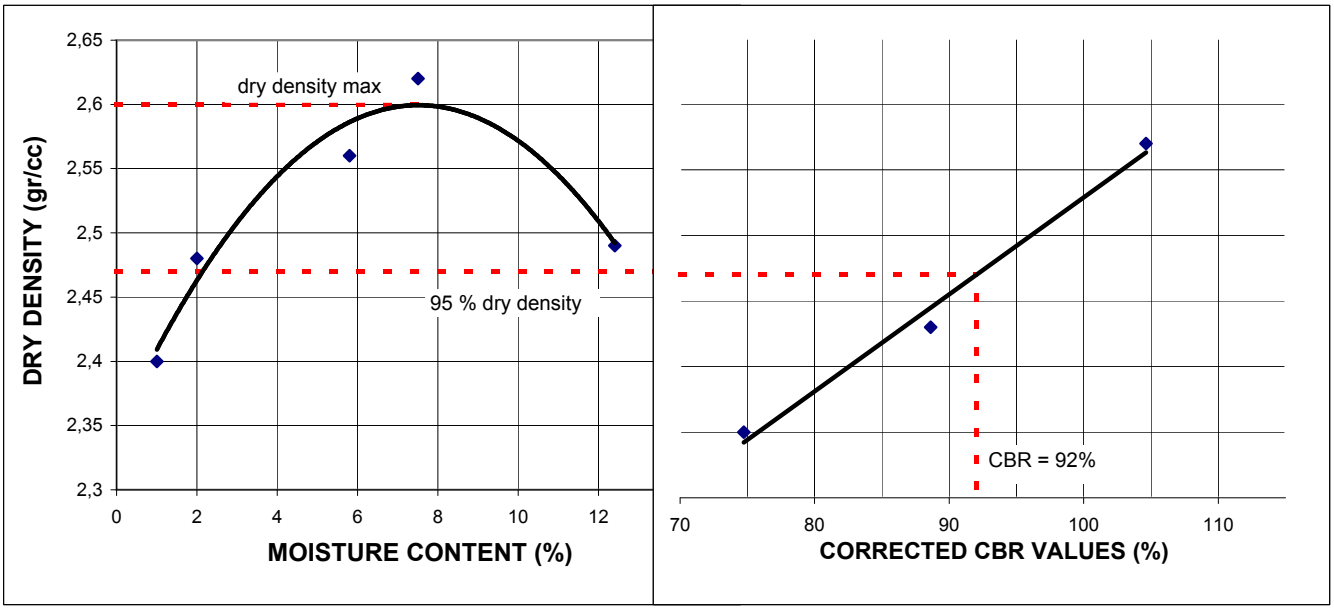
CBR TEST (Lampiran 24)

COMPACTION

DRY DENSITY	(gr/cc)	2,4	2,48	2,56	2,62	2,49
Moisture content	(%)	1	2	5,8	7,5	12,4

CORRECTED CBR VALUES (%)

MOULDED PER LAYER	56	25	10
DRY DENSITY (gr/cc)	2,57	2,43	2,35
CORRECTED CBR VALUES (%)	104,63	88,62	74,74



CBR TEST (Lampiran 25)

Material : 80% Slag + 20% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 7 (10 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 12 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

Weight of soil + mold	12435,3
Weight of mold	6980
Weight of soil	5455,3
Volume of soil	2283,38
Wet density	2,39
Dry density	2,20

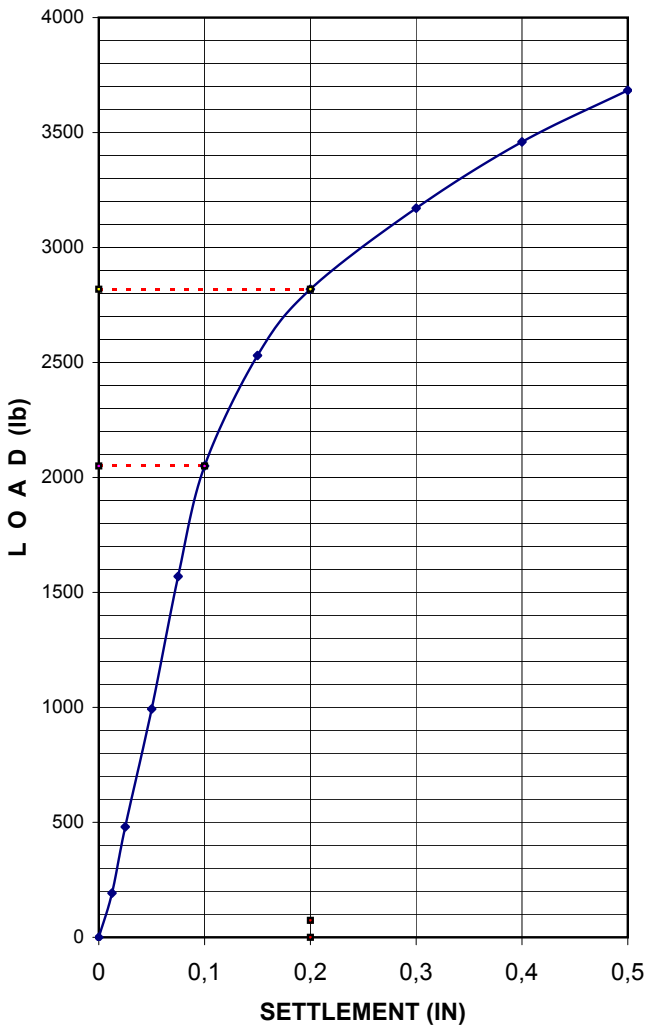
Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	6,00	192,2
½	0,025	15,00	480,5
1	0,050	31,00	993,0
1½	0,075	49,00	1569,5
2	0,100	64,00	2050,0
3	0,150	79,00	2530,4
4	0,200	88,00	2818,7
6	0,300	99,00	3171,1
8	0,400	108,00	3459,3
10	0,500	115,00	3683,6

Water content

Wt. of wet soil + dish		172,40
Wt. of dry soil + dish		164,50
Wt. of dish		72,40
Wt. of water		7,90
Wt. of dry soil		92,10
Water content		8,58

CBR VALUE	
01"	02"
$\frac{2049,978}{3000}$ x 100 %	$\frac{2818,7}{4500}$ x 100 %
68,33 %	62,64 %
68,33 %	

GRAFIK HUBUNGAN ANTARA SETTLEMENT vs LOAD



CBR TEST (Lampiran 26)

Material : 80% Slag + 20% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 8 (25 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 12 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

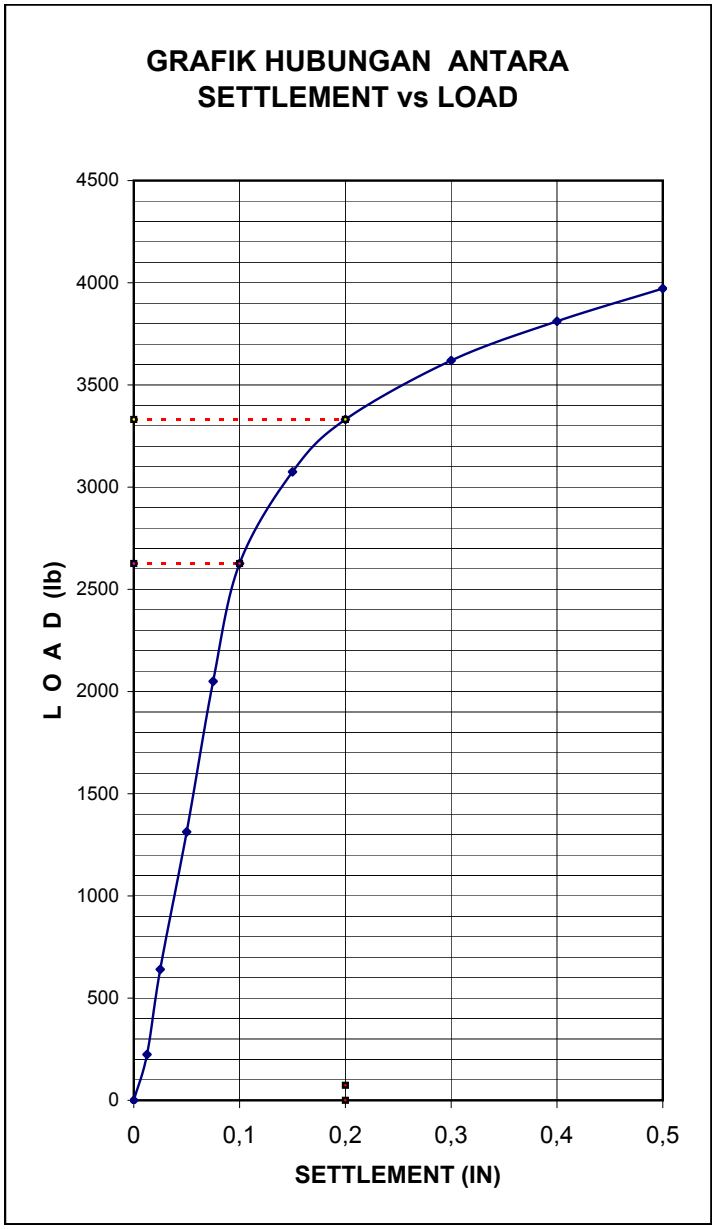
Weight of soil + mold	12714,3
Weight of mold	6980
Weight of soil	5734,3
Volume of soil	2283,38
Wet density	2,51
Dry density	2,32

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	7,00	224,2
½	0,025	20,00	640,6
1	0,050	41,00	1313,3
1½	0,075	64,00	2050,0
2	0,100	82,00	2626,5
3	0,150	96,00	3075,0
4	0,200	104,00	3331,2
6	0,300	113,00	3619,5
8	0,400	119,00	3811,7
10	0,500	124,00	3971,8

Water content

Wt. of wet soil + dish	161,60
Wt. of dry soil + dish	154,00
Wt. of dish	61,60
Wt. of water	7,60
Wt. of dry soil	92,40
Water content	8,23

CBR VALUE	
01"	02"
$\frac{2626,534}{3000}$ x 100 %	$\frac{3331,2}{4500}$ x 100 %
87,55 %	74,03 %
87,55 %	



CBR TEST (Lampiran 27)

Material : 80% Slag + 20% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 9 (55 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 12 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

Weight of soil + mold	12935,3
Weight of mold	6980
Weight of soil	5955,3
Volume of soil	2283,38
Wet density	2,61
Dry density	2,41

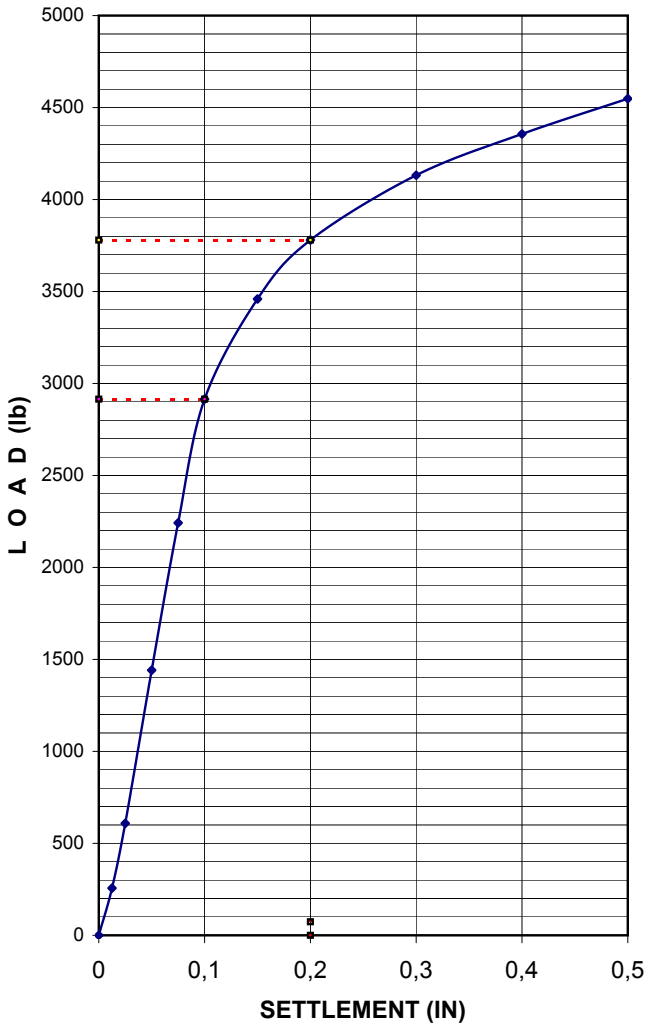
Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	8,00	256,2
½	0,025	19,00	608,6
1	0,050	45,00	1441,4
1½	0,075	70,00	2242,2
2	0,100	91,00	2914,8
3	0,150	108,00	3459,3
4	0,200	118,00	3779,6
6	0,300	129,00	4132,0
8	0,400	136,00	4356,2
10	0,500	142,00	4548,4

Water content

Wt. of wet soil + dish	163,80
Wt. of dry soil + dish	156,30
Wt. of dish	63,80
Wt. of water	7,50
Wt. of dry soil	92,50
Water content	8,11

CBR VALUE	
01"	02"
$\frac{2914,812}{3000}$ x 100 %	$\frac{3779,6}{4500}$ x 100 %
97,16 %	83,99 %
97,16 %	

GRAFIK HUBUNGAN ANTARA SETTLEMENT vs LOAD



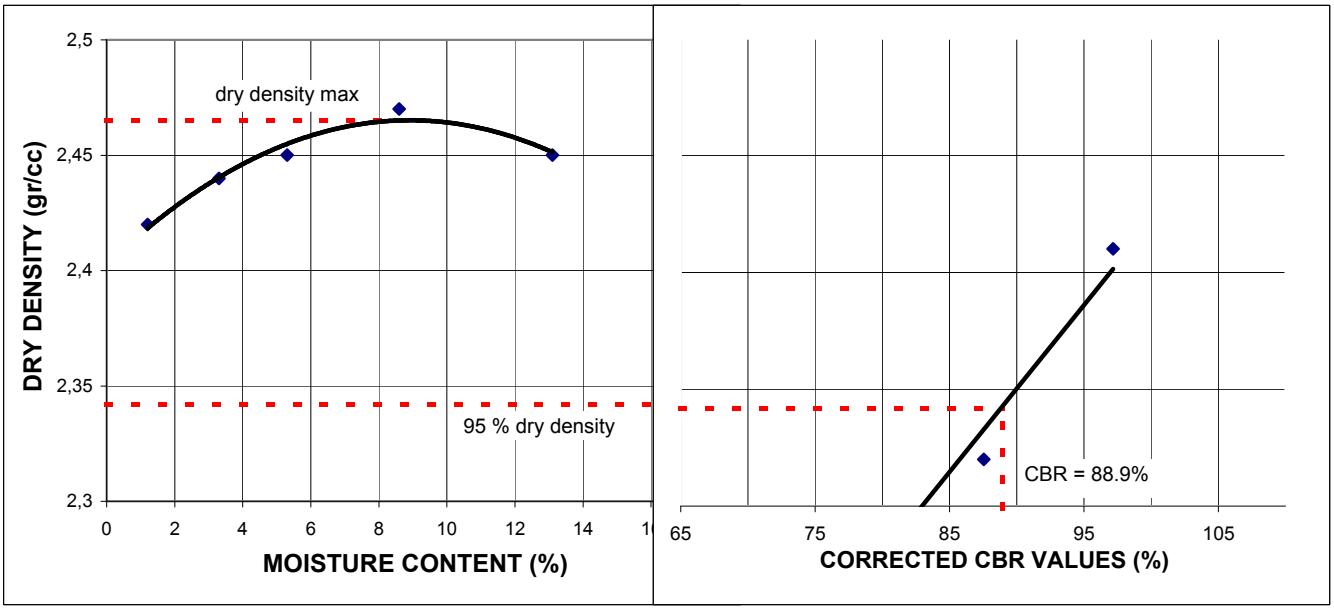
CBR TEST (Lampiran 28)

COMPACTION

DRY DENSITY	(gr/cc)	2,42	2,44	2,45	2,47	2,45
Moisture content	(%)	1,2	3,3	5,3	8,6	13,1

CORRECTED CBR VALUES (%)

MOULDED PER LAYER		56	25	10
DRY DENSITY	(gr/cc)	2,41	2,32	2,2
CORRECTED CBR VALUES	(%)	97,16	87,55	68,33



CBR TEST (Lampiran 29)

Material : 70% Slag + 30% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 10 (10 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 12 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

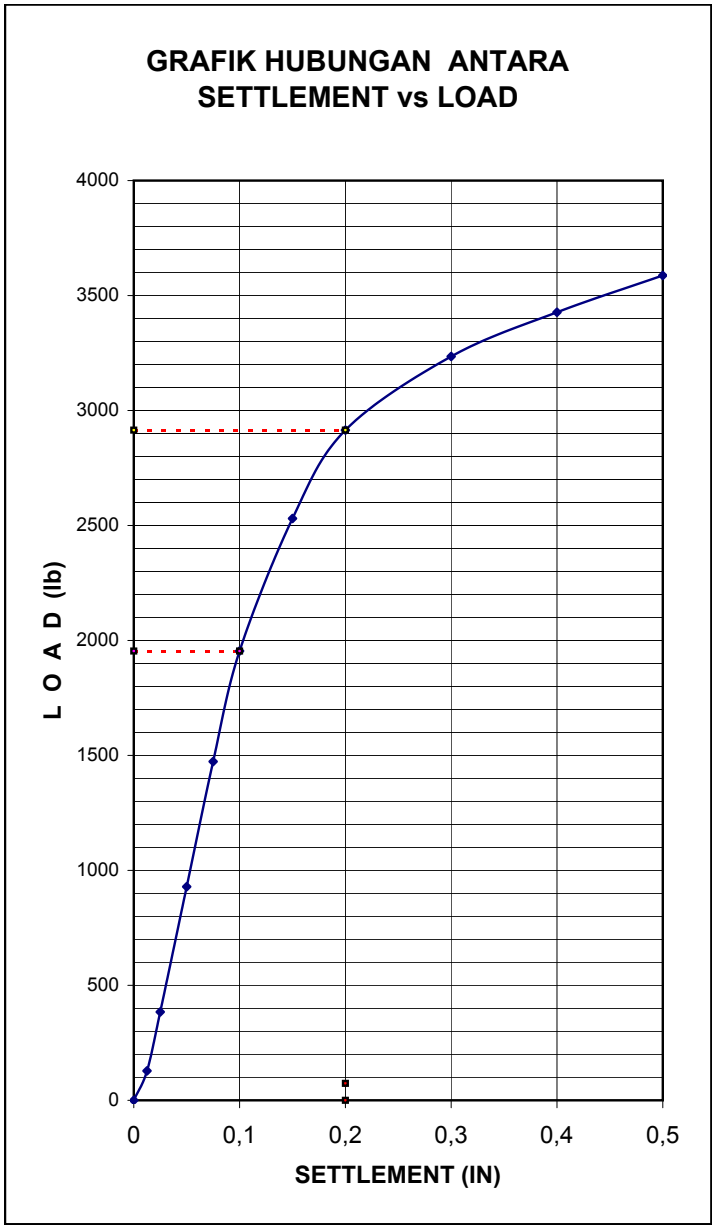
Weight of soil + mold	12516,3
Weight of mold	6980
Weight of soil	5536,3
Volume of soil	2283,38
Wet density	2,42
Dry density	2,22

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	4,00	128,1
½	0,025	12,00	384,4
1	0,050	29,00	928,9
1½	0,075	46,00	1473,4
2	0,100	61,00	1953,9
3	0,150	79,00	2530,4
4	0,200	91,00	2914,8
6	0,300	101,00	3235,1
8	0,400	107,00	3427,3
10	0,500	112,00	3587,5

Water content

Wt. of wet soil + dish	164,70
Wt. of dry soil + dish	156,40
Wt. of dish	64,70
Wt. of water	8,30
Wt. of dry soil	91,70
Water content	9,05

CBR VALUE	
01"	02"
$\frac{1953,885}{3000}$ x 100 %	$\frac{2914,8}{4500}$ x 100 %
65,13 %	64,77 %
65,13 %	



CBR TEST (Lampiran 30)

Material : 70% Slag + 30% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 11 (25 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 12 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

Weight of soil + mold	12645,3
Weight of mold	6980
Weight of soil	5665,3
Volume of soil	2283,38
Wet density	2,48
Dry density	2,28

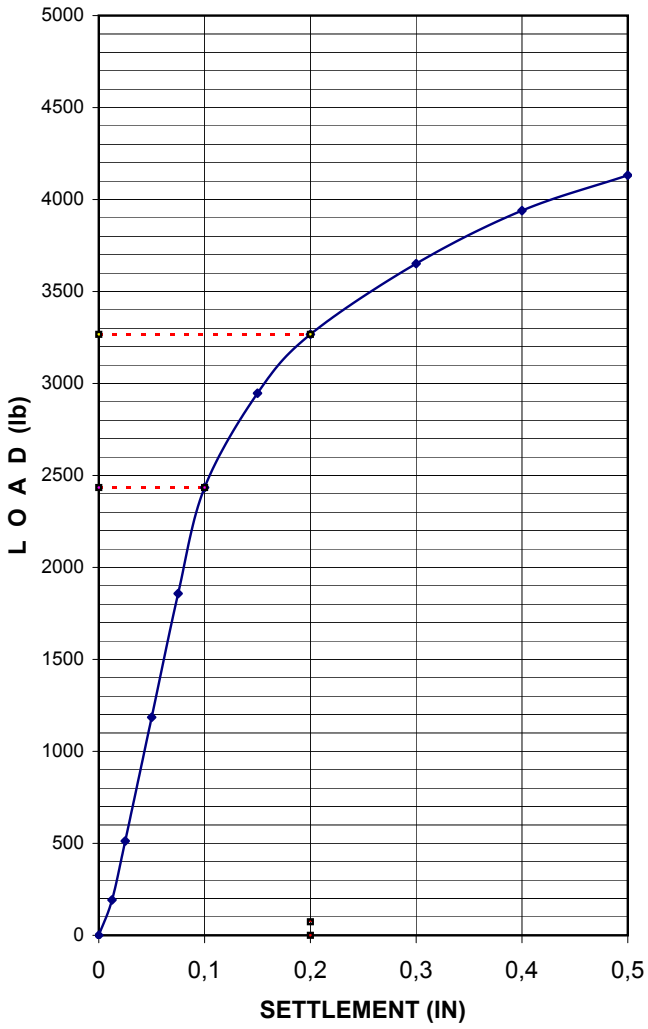
Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	6,00	192,2
½	0,025	16,00	512,5
1	0,050	37,00	1185,1
1½	0,075	58,00	1857,8
2	0,100	76,00	2434,3
3	0,150	92,00	2946,8
4	0,200	102,00	3267,2
6	0,300	114,00	3651,5
8	0,400	123,00	3939,8
10	0,500	129,00	4132,0

Water content

Wt. of wet soil + dish	163,80
Wt. of dry soil + dish	155,70
Wt. of dish	63,80
Wt. of water	8,10
Wt. of dry soil	91,90
Water content	8,81

CBR VALUE	
01"	02"
$\frac{2434,348}{3000}$ x 100 %	$\frac{3267,2}{4500}$ x 100 %
81,14 %	72,60 %
81,14 %	

GRAFIK HUBUNGAN ANTARA SETTLEMENT vs LOAD



CBR TEST (Lampiran 31)

Material : 70% Slag + 30% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 12 (55 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 12 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

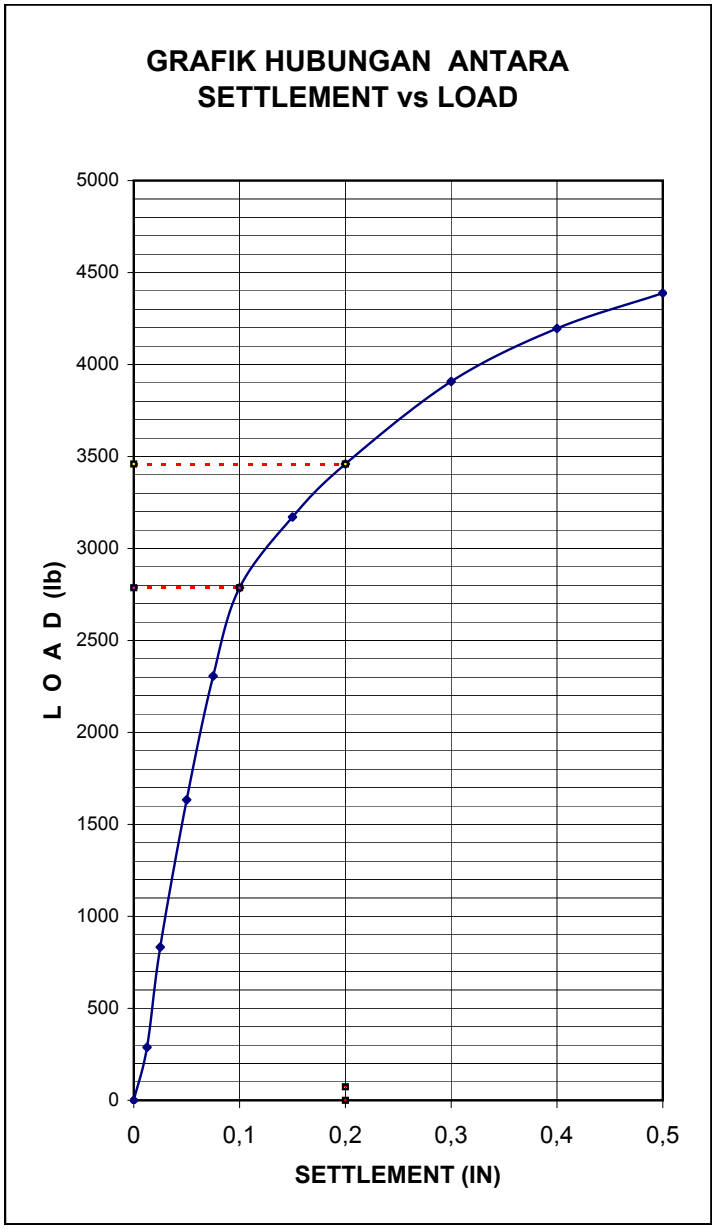
Weight of soil + mold	12813,3
Weight of mold	6980
Weight of soil	5833,3
Volume of soil	2283,38
Wet density	2,55
Dry density	2,36

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	9,00	288,3
½	0,025	26,00	832,8
1	0,050	51,00	1633,6
1½	0,075	72,00	2306,2
2	0,100	87,00	2786,7
3	0,150	99,00	3171,1
4	0,200	108,00	3459,3
6	0,300	122,00	3907,8
8	0,400	131,00	4196,0
10	0,500	137,00	4388,2

Water content

Wt. of wet soil + dish	108,70
Wt. of dry soil + dish	101,10
Wt. of dish	8,70
Wt. of water	7,60
Wt. of dry soil	92,40
Water content	8,23

CBR VALUE	
01"	02"
$\frac{2786,688}{3000}$ x 100 %	$\frac{3459,3}{4500}$ x 100 %
92,89 %	76,87 %
92,89 %	



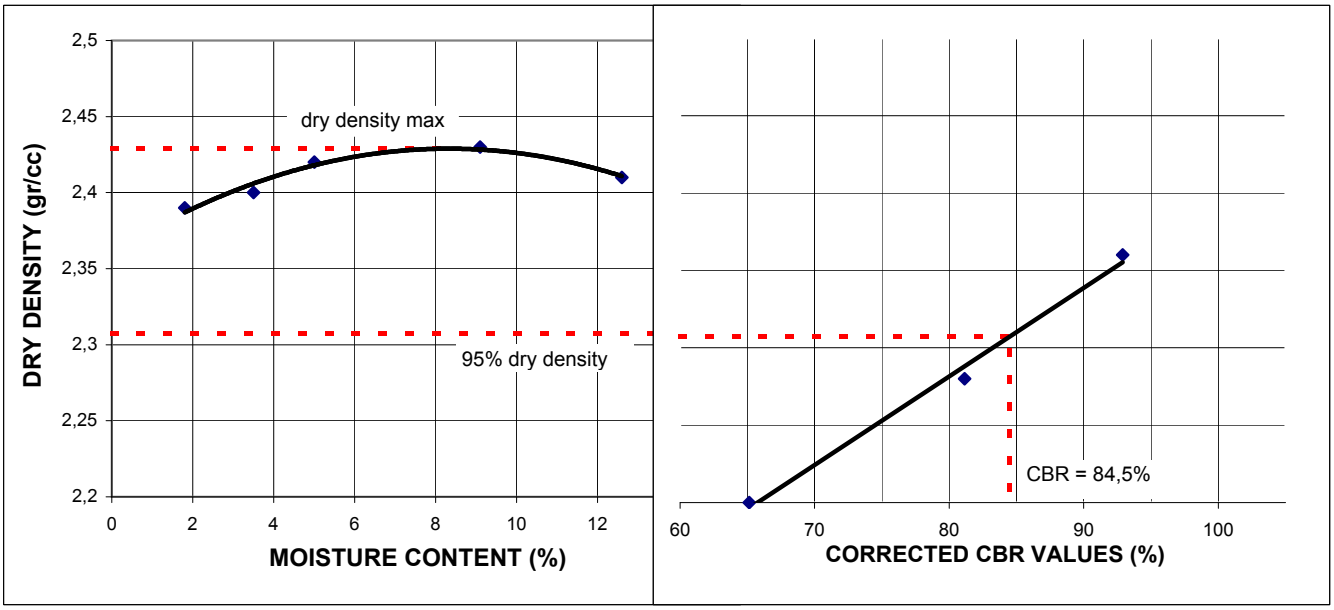
CBR TEST (Lampiran 32)

COMPACTION

DRY DENSITY	(gr/cc)	2,39	2,4	2,42	2,43	2,41
Moisture content	(%)	1,8	3,5	5	9,1	12,6

CORRECTED CBR VALUES (%)

MOULDED PER LAYER		56	25	10
DRY DENSITY	(gr/cc)	2,36	2,28	2,2
CORRECTED CBR VALUES	(%)	92,89	81,14	65,13



CBR TEST (Lampiran 33)

Material : 60% Slag + 40% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 13 (10 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 13 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

Weight of soil + mold	12278,3
Weight of mold	6980
Weight of soil	5298,3
Volume of soil	2283,38
Wet density	2,32
Dry density	2,11

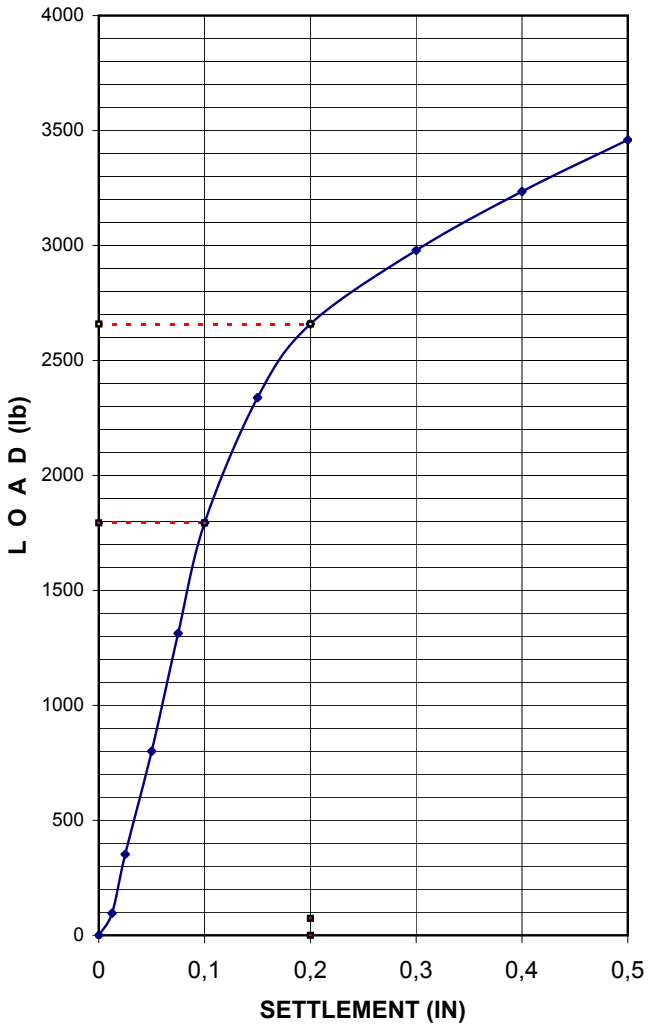
Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	3,00	96,1
½	0,025	11,00	352,3
1	0,050	25,00	800,8
1½	0,075	41,00	1313,3
2	0,100	56,00	1793,7
3	0,150	73,00	2338,3
4	0,200	83,00	2658,6
6	0,300	93,00	2978,9
8	0,400	101,00	3235,1
10	0,500	108,00	3459,3

Water content

Wt. of wet soil + dish	164,90
Wt. of dry soil + dish	156,00
Wt. of dish	64,90
Wt. of water	8,90
Wt. of dry soil	91,10
Water content	9,77

CBR VALUE	
01"	02"
$\frac{1793,730}{3000}$ x 100 %	$\frac{2658,6}{4500}$ x 100 %
59,79 %	59,08 %
59,79 %	

GRAFIK HUBUNGAN ANTARA SETTLEMENT vs LOAD



CBR TEST (Lampiran 34)

Material : 60% Slag + 40% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 14 (25 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 13 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

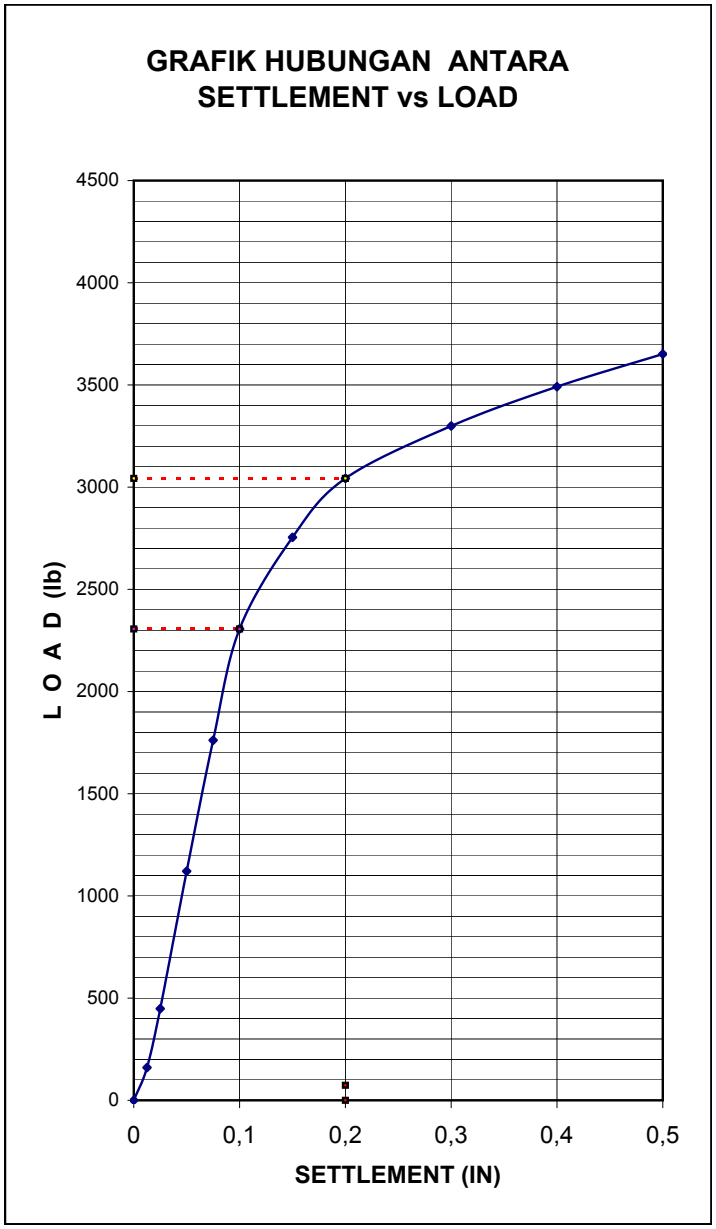
Weight of soil + mold	12479,3
Weight of mold	6980
Weight of soil	5499,3
Volume of soil	2283,38
Wet density	2,41
Dry density	2,20

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	5,00	160,2
½	0,025	14,00	448,4
1	0,050	35,00	1121,1
1½	0,075	55,00	1761,7
2	0,100	72,00	2306,2
3	0,150	86,00	2754,7
4	0,200	95,00	3042,9
6	0,300	103,00	3299,2
8	0,400	109,00	3491,4
10	0,500	114,00	3651,5

Water content

Wt. of wet soil + dish	161,50
Wt. of dry soil + dish	152,80
Wt. of dish	61,50
Wt. of water	8,70
Wt. of dry soil	91,30
Water content	9,53

CBR VALUE	
01"	02"
$\frac{2306,225}{3000}$ x 100 %	$\frac{3042,9}{4500}$ x 100 %
76,87 %	67,62 %
76,87 %	



CBR TEST (Lampiran 35)

Material : 60% Slag + 40% Sirtu
:
Location : Lab. Mektan UKM
Depth :
Sample No. : 15 (55 tumbukan)

Form No. : I/6
Test type : Standar AASHTO
Date : 13 Desember 2006
Tested by : Elkana M Pakpahan

Number of Mold	**A**

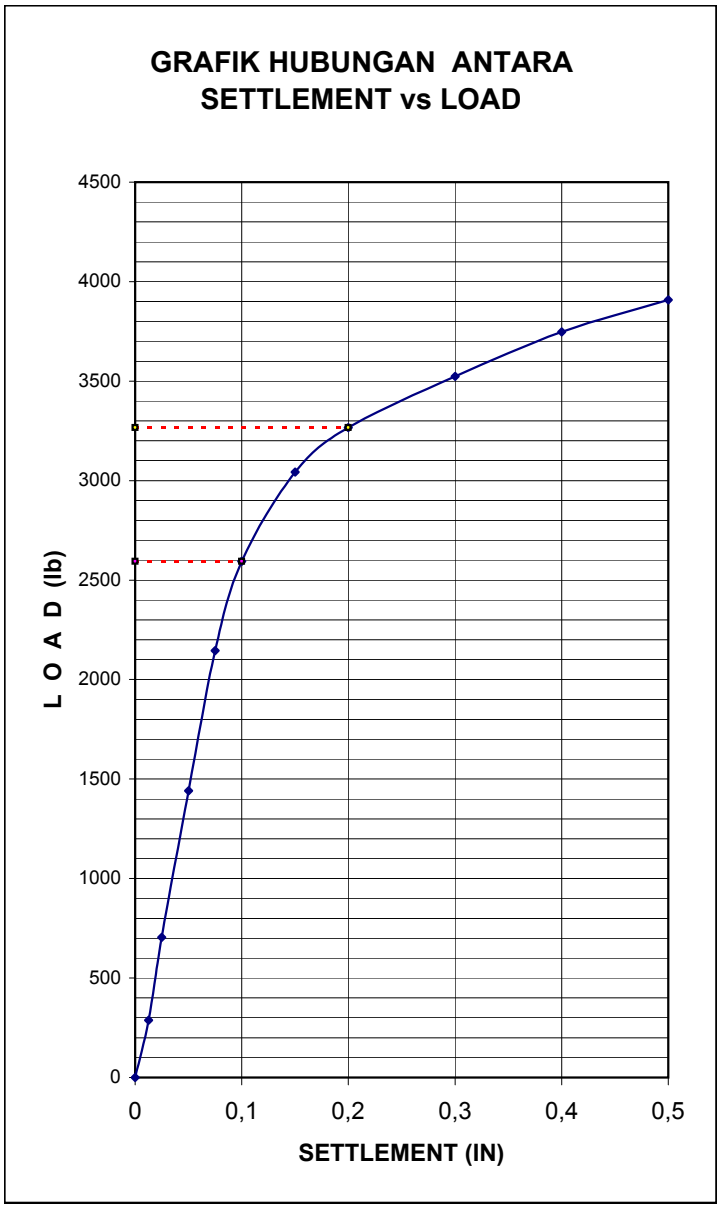
Weight of soil + mold	12712,3
Weight of mold	6980
Weight of soil	5732,3
Volume of soil	2283,38
Wet density	2,51
Dry density	2,30

Time (min)	Settl. (in)	Dial reading (cal. 32.0309)	Load (lb)
¼	0,0125	9,00	288,3
½	0,025	22,00	704,7
1	0,050	45,00	1441,4
1½	0,075	67,00	2146,1
2	0,100	81,00	2594,5
3	0,150	95,00	3042,9
4	0,200	102,00	3267,2
6	0,300	110,00	3523,4
8	0,400	117,00	3747,6
10	0,500	122,00	3907,8

Water content

Wt. of wet soil + dish	161,50
Wt. of dry soil + dish	153,20
Wt. of dish	61,50
Wt. of water	8,30
Wt. of dry soil	91,70
Water content	9,05

CBR VALUE	
01"	02"
$\frac{2594,503}{3000}$ x 100 %	$\frac{3267,2}{4500}$ x 100 %
86,48 %	72,60 %
86,48 %	



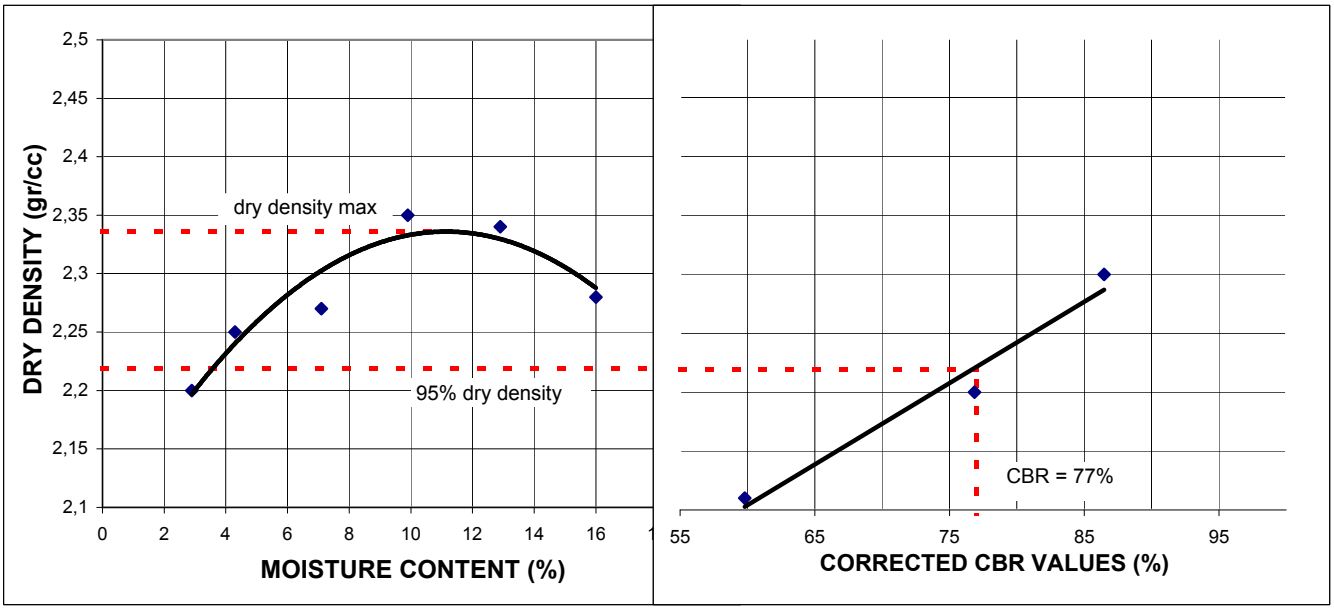
CBR TEST (Lampiran 36)

COMPACTION

DRY DENSITY	(gr/cc)	2,2	2,25	2,27	2,35	2,34	2,28
Moisture content	(%)	2,9	4,3	7,1	9,9	12,9	16

CORRECTED CBR VALUES (%)

MOULDED PER LAYER		56	25	10
DRY DENSITY	(gr/cc)	2,3	2,2	2,11
CORRECTED CBR VALUES	(%)	86,48	76,87	59,79



Lampiran 37

Ilustrasi Uji CBR

Nama Instansi	: Universitas Kristen Maranatha	Tanggal	: 11/12/06
Nama Proyek	: Praktikum Tugas Akhir	Deskripsi Marerial	: Slag Baja
Nama Operator	: Elkana MP		

Gbr. 9 Foto pemadatan material

Gbr. 10 Foto pelaksanaan praktikum CBR

Gbr. 11 Alat uji CBR

Gbr.12 Foto pembacaan alat CBR