

LAMPIRAN A

UJI BERAT JENIS

Kalibrasi Piknometer (P1)

No	Uraian	Satuan	1	2	3	4	5
1	Berat piknometer kosong (wp)	g	23.69	23.69	23.69	23.69	23.69
2	Berat piknometer + air (W pw,c)	g	74.42	74.42	74.42	74.42	74.42
3	Temperatur dalam piknometer (T)	°C	30.9	30.9	30.9	30.9	30.9
4	Berat volume air (γ w,c)		0.9954	0.9954	0.9954	0.9954	0.9954
5	Volume piknometer, vp	mL	50.9655	50.9655	50.9655	50.9655	50.9655

Kalibrasi Piknometer (P2)

No	Uraian	Satuan	1	2	3	4	5
1	Berat piknometer kosong (wp)	g	22.68	22.68	22.68	22.68	22.68
2	Berat piknometer + air (W pw,c)	g	74.06	74.06	74.06	74.06	74.06
3	Temperatur dalam piknometer (T)	°C	30.9	30.9	30.9	30.9	30.9
4	Berat volume air (γ w,c)		0.9954	0.9954	0.9954	0.9954	0.9954
5	Volume piknometer, vp	mL	51.6185	51.6185	51.6185	51.6185	51.6185

Perhitungan Berat Jenis

No	Uraian	Satuan	P1	P2
1	Berat piknometer kosong (wp)	g	31.31	28.57
2	Berat piknometer + tanah kering (w ps)	g	41.31	38.59
3	Berat piknometer + tanah kering + air (wpws, t)	g	87.76	85.55
4	Berat piknometer + air (W pw,t)	g	82.04	78.86
5	Temperatur (T)	°C	29.70	28.50
6	Berat jenis, Gs,t		2.34	3.01
7	Berat jenis pada T = 20° C, Gs		2.34	3.01
8	Rata-rata berat jenis		2.67	

BATAS – BATAS ATTEBERG

1. UJI BATAS SUSUT

Kalibrasi Cawan Susut

No	Uraian	Satuan	1	2	3	4	5
1	Berat piknometer kosong (wp)	g	22.68	22.68	22.68	22.68	22.68
2	Berat piknometer + air (W pw,c)	g	74.06	74.06	74.06	74.06	74.06
3	Temperatur dalam piknometer (T)	°C	30.9	30.9	30.9	30.9	30.9
4	Berat volume air (γ w,c)		0.9954	0.9954	0.9954	0.9954	0.9954
5	Volume piknometer, vp	mL	51.6185	51.6185	51.6185	51.6185	51.6185

Kalibrasi Rapat Massa Lilin

No	Uraian	Satuan	Hasil Pengukuran		
			1	2	3
1	diameter silinder lilin, d_{wp}	cm	4.6	4.48	4.46
2	tinggi silinder lilin, h_{wp}	cm	1.33	1.33	1.17
3	volume silinder lilin	cm ³	22.1	20.91	18.28
4	volume silinder lilin rata-rata, V_{wp}	cm ³		20.43	
5	berat silinder lilin, W_{wp}	g		17.32	
6	Rapat massa lilin, $\rho_x = W_{wp}/V_{wp}$	g/cm ³		0.85	

Hasil Pengujian

no	Uraian	satuan	Hasil
1	berat cawan susut, w_{sd}	g	10.22
2	berat cawan susut + pasta tanah, w_{sdw}	g	44.87
3	berat cawan susut + tanah kering, w_{sdd}	g	30.8
4	berat tanah kering, $W_s = W_{sdd} - W_{sd}$	g	20.58
5	kadar air tanah awal, w	%	68.37
6	berat tanah kering + lilin, W_{sxa}	g	22.44
7	berat tanah kering + lilin dalam air, W_{sxw}	g	8.2
8	berat air yang didesak oleh tanah kering + lilin, W_{wsx}	g	14.24
9	volume tanah kering + lilin, V_{dx}	cm ³	14.24
10	berat lapisan lilin pada tanah kering, W_x	g	1.86
11	volume lapisan lilin pada tanah kering, V_x	cm ³	2.19
12	volume tanah kering, V_d	cm ³	12.05
13	batas susut, SL	%	21.34
14	batas susut tanah rata-rata, SL	%	21.34

Faktor – faktor susut tanah:

$$SR = 1.708$$

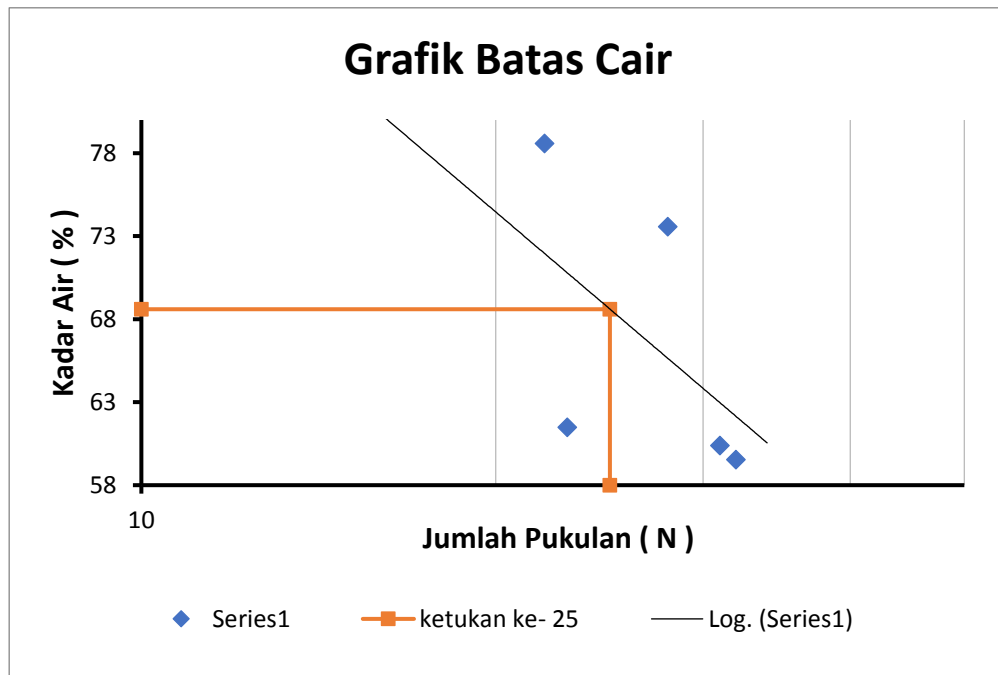
$$VS = 0.8$$

$$LS = 0.27$$

2. UJI BATAS CAIR

Pengujian Batas Cair

No	Percobaan ke -	Satuan	1	2	3	4	5					
1	jumlah pukulan		31	32	28	27	23	22	19	17	15	10
2	nomor cawan											
3	berat cawan kosong (w_1)	g	9.37	11.29	9.84	9.32	9.37	9.84	9.25	9.32	9.87	9.16
4	berat cawan + tanah basah (w_2)	g	29.37	31.44	30.72	29.51	29.91	30.18	29.26	30.3	30.51	29.77
5	berat cawan + tanah kering (w_3)	g	21.84	23.92	21.87	22.32	22.09	21.23	19.89	20.87	19.56	19.77
6	berat air, $w = w_2 - w_3$	g	7.53	7.52	8.85	7.19	7.82	8.95	9.37	9.43	10.95	10.00
7	berat tanah kering, $w_s = w_3 - w_1$	g	12.47	12.63	12.03	13.00	12.72	11.39	10.64	11.55	12.56	11.98
8	kadar air, $w = w_w / w_s$	%	60.38	59.54	73.57	55.31	61.48	78.58	88.06	81.65	87.18	83.47
9	rata - rata kadar air	%	59.96		64.44		70.03		84.85		85.33	
10	batas cair	%					68.6					
11	Flow Index						0.181282254					



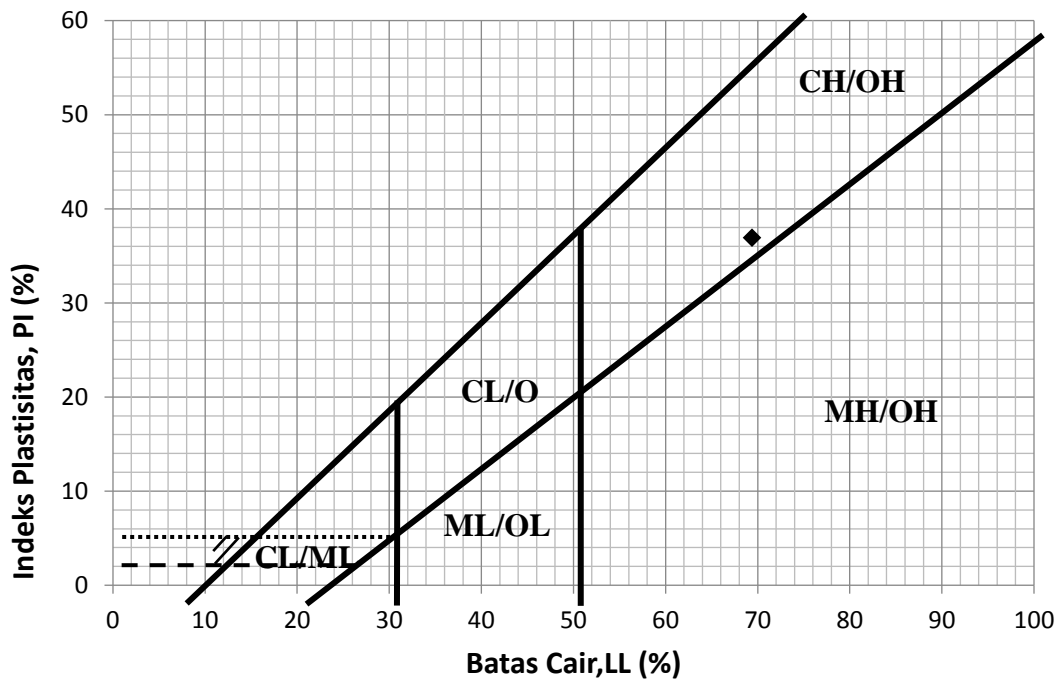
3. Batas Plastis

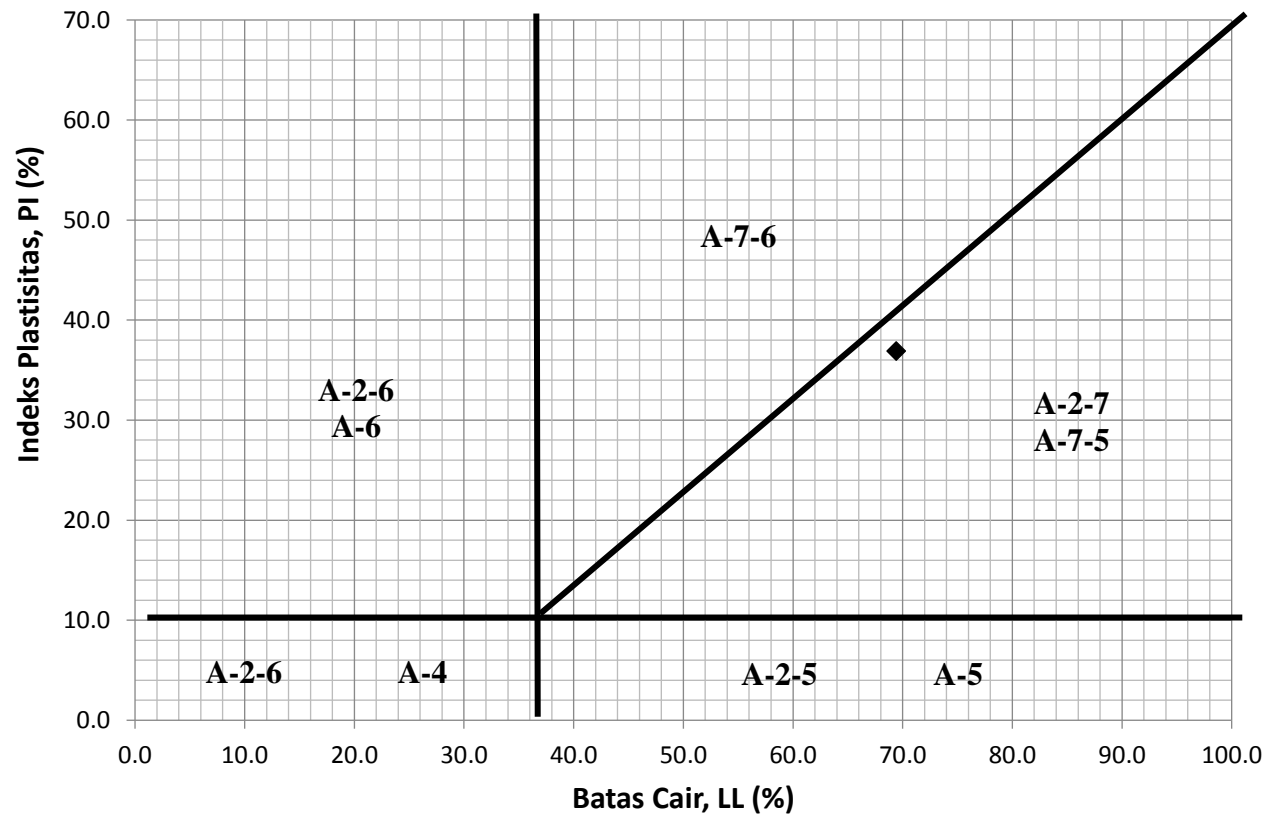
No	Uraian	Satuan	Nomor cawan	
			1	2
1	berat cawan kosong	g	9.22	9.85
2	berat cawan + tanah basah	g	29.3	30.03
3	berat cawan + tanah kering	g	24.38	25.08
4	berat air	g	4.92	4.95
5	berat tanah kering	g	15.16	15.23
6	kadar air	%	32.5	32.5
7.0	kadar air rata-rata	%	32.5	

Batas Plastis (PL) = 32.5%

Indeks Plastisitas = 36.9%

Batas Cair = 69.4%





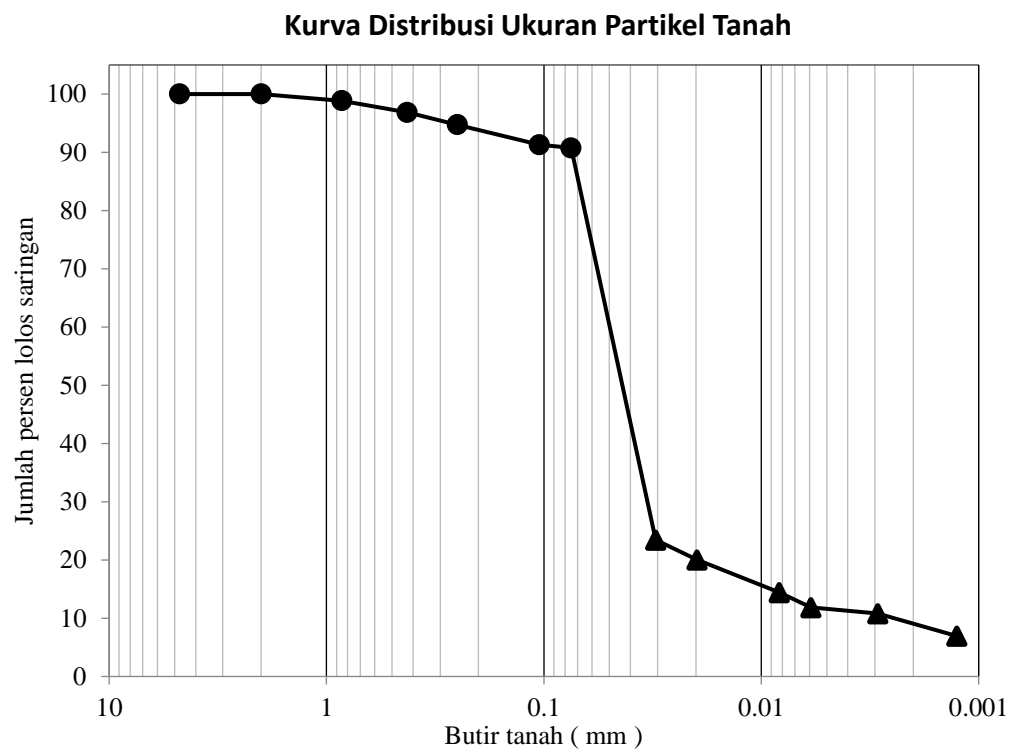
UJI DISTRIBUSI TANAH

URAIAN	Satuan	1	2
berat Cawan timbang, WC	g	9.8	9.59
Berat cawan + tanah basah, Wcb	g	29.86	29.63
Berat cawan + tanah kering, Wcd	g	29.86	29.63
Kadar air	%	0.00	0.00
kadar air rata-rata		0.0	

URAIAN	Satuan	hasil
berat total contoh tanah basah	g	65
berat total contoh tanah kering, w	g	65.00
berat tanah berdiameter <0.075 mm, B2	g	58.99
berat tanah berdiameter >0.075 mm, B1	%	6.01

t menit	Larutan tanah R1	Larutan reagen R2	Temperatur T°	Skala Hidrometer Terkalibrasi Meniskus R _(aksen)	Kedalaman L	Konstanta K	Diameter D	Skala Hidrometer Terkalibrasi R	Persen Berat P	Persen Adjust
2	15	-5	27.8	16	12.1080	0.01245	0.030632	23.40	36.07	23.45
5	13	-4	27.0	14	12.3956	0.01257	0.019789	20.00	30.83	20.04
30	7	-4	27.8	8	13.2584	0.01245	0.008276	14.40	22.20	14.43
60	3	-5	28.6	4	13.8336	0.01233	0.005921	11.83	18.24	11.85
250	2	-5	28.5	3	13.9774	0.01235	0.002919	10.78	16.61	10.80
1440	-2	-5	28.8	-1	15.2433	0.01227	0.001263	6.94	10.70	6.95

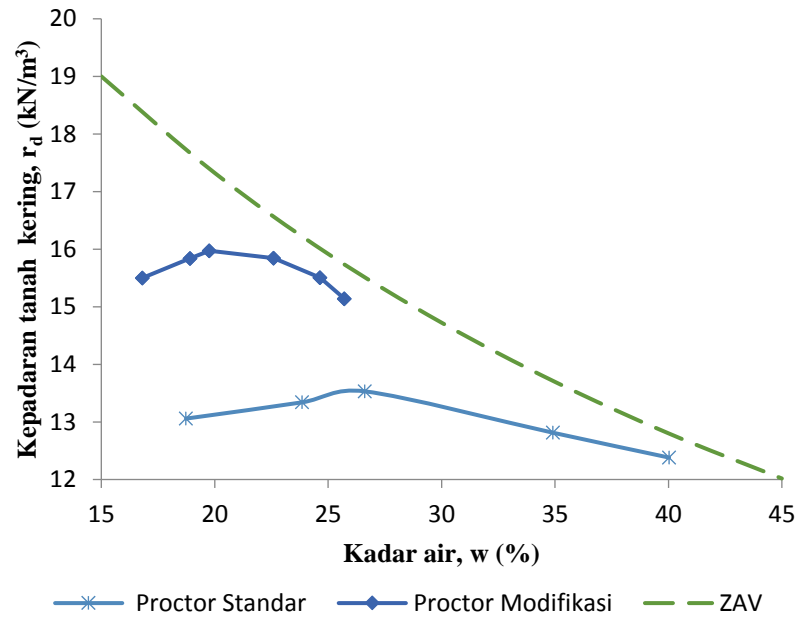
Nomor saringan ASTM	Ukuran butir (mm)	Berat tertahan pada saringan (g)	Persen berat tertahan pada saringan (%)	Persen lolos saringan (%)
#4	4.47	0	0	100
10	2	0	0	100
20	0.85	0.74	1.14	98.86
40	0.425	1.3	2.00	96.86
60	0.25	1.38	2.12	94.74
140	0.105	2.24	3.45	91.29
200	0.075	0.35	0.54	90.75
pan	<0,075	0	0.00	90.75
Jumlah		6.01		



UJI PEMADATAN TANAH

No	Uraian	1	2	3	4					
1	W_1	1953.00	1953.00	1953.00	1954.00					
2	W_2	3684.00	3662.00	3572.00	3478.00					
3	W_m	1731.00	1709.00	1619.00	1524.00					
4	D	10.11	10.11	10.11	10.20					
5	h	12.08	12.08	12.08	12.08					
6	V	969.72	969.72	969.72	987.06					
7	$Y = K (W_m/V)$	17.51	17.29	16.38	15.15					
8	Pemeriksaan W									
a		a	t	b	a	t	b	a	t	b
b	W_o	9.28	9.44	9.26	9.38	12.48	9.93	10.05	12.61	
c	W_b	35.39	37.52	35.21	31.89	37.58	37.64	34.27	38.89	
d	W_d	28.49	30.16	27.77	25.44	33.73	31.58	31.76	35.05	
e	$W_w = W_b - W_d$	6.90	7.36	7.44	6.45	3.85	6.06	2.51	3.84	
f	$W_s = W_d - W_o$	19.21	20.72	18.51	16.06	21.25	21.65	21.71	22.44	
g	W	35.9	35.5	40.2	40.2	18.1	28.0	11.6	17.1	
h	W rata-rata	35.7		40.2		23.1		14.3		
9	Berat V kering	12.90		12.33		13.31		13.25		
10	Berat Jenis	2.67		2.67		2.67		2.67		
11	γ_{zav}	13.41		12.64		16.21		18.94		

Kurva Pemadatan Tanah



LAMPIRAN B

Data – data Pengujian Tekan Bebas

1. Non siklus A

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
0	0	0	0	21.24	0	0	0.00	
30	30	0.03	0.28	21.24	5	2.4125	1.11	
60	60	0.06	0.56	21.24	10	4.825	2.23	
90	90	0.09	0.84	21.24	15	7.2375	3.34	
120	120	0.12	1.12	21.24	21	10.1325	4.68	
150	150	0.15	1.41	21.24	25	12.0625	5.57	
180	180	0.18	1.69	21.24	31	14.9575	6.91	
210	210	0.21	1.97	21.24	41	19.7825	9.14	
240	240	0.24	2.25	21.24	52	25.09	11.59	
270	270	0.27	2.53	21.24	65	31.3625	14.49	
300	300	0.3	2.81	21.24	81	39.0825	18.05	
330	330	0.33	3.09	21.24	99	47.7675	22.06	
360	360	0.36	3.37	21.24	116	55.97	25.85	
390	390	0.39	3.66	21.24	135	65.1375	30.08	
420	420	0.42	3.94	21.24	155	74.7875	34.54	
450	450	0.45	4.22	21.24	175	84.4375	39.00	
480	480	0.48	4.50	21.24	197	95.0525	43.90	
510	510	0.51	4.78	21.24	216	104.22	48.14	
540	540	0.54	5.06	21.24	237	114.3525	52.82	
570	570	0.57	5.34	21.24	258	124.485	57.50	
600	600	0.6	5.62	21.24	278	134.135	61.95	
630	630	0.63	5.90	21.24	297	143.3025	66.19	
660	660	0.66	6.19	21.24	315	151.9875	70.20	
690	690	0.69	6.47	21.24	333	160.6725	74.21	
720	720	0.72	6.75	21.24	350	168.875	78.00	
750	750	0.75	7.03	21.24	365	176.1125	81.34	
780	780	0.78	7.31	21.24	379	182.8675	84.46	
810	810	0.81	7.59	21.24	392	189.14	87.36	
840	840	0.84	7.87	21.24	402	193.965	89.59	
870	870	0.87	8.15	21.24	408	196.86	90.92	
900	900	0.9	8.43	21.24	407.5	196.6188	90.81	

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
930	930	0.93	8.72	21.24	237	114.3525	52.82	
960	960	0.96	9.00	21.24	194	93.605	43.23	
990	990	0.99	9.28	21.24	167	80.5775	37.22	
1020	1020	1.02	9.56	21.24	156	75.27	34.76	
1050	1050	1.05	9.84	21.24	147	70.9275	32.76	
1080	1080	1.08	10.12	21.24	148	71.41	32.98	
1110	1110	1.11	10.40	21.24	138	66.585	30.75	
1140	1140	1.14	10.68	21.24	134	64.655	29.86	

C = 0.4825
 qu = 90.9226
 Ho = 10.67 cm
 Do = 5.2 cm
 A = 21.24 cm²

2. Non Sikus B

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
0	0	0	0	20.99	0	0	0	
30	30	0.03	0.28	20.99	12	5.79	2.71	
60	60	0.06	0.56	20.99	23	11.0975	5.19	
90	90	0.09	0.85	20.99	37	17.8525	8.34	
120	120	0.12	1.13	20.99	57	27.5025	12.85	
150	150	0.15	1.41	20.99	82	39.565	18.49	
180	180	0.18	1.69	20.99	112	54.04	25.26	
210	210	0.21	1.97	20.99	148	71.41	33.37	
240	240	0.24	2.26	20.99	181	87.3325	40.82	
270	270	0.27	2.54	20.99	218	105.185	49.16	
300	300	0.3	2.82	20.99	251	121.1075	56.60	
330	330	0.33	3.10	20.99	280	135.1	63.14	
360	360	0.36	3.38	20.99	310	149.575	69.91	
390	390	0.39	3.67	20.99	338	163.085	76.22	
420	420	0.42	3.95	20.99	360	173.7	81.18	

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_o$ (%)		arloji Ukur	Beban (P) (kg)		
450	450	0.45	4.23	20.99	376	181.42	84.79	
480	480	0.48	4.51	20.99	385	185.7625	86.82	
510	510	0.51	4.79	20.99	384	185.28	86.59	
540	540	0.54	5.08	20.99	365	176.1125	82.31	
570	570	0.57	5.36	20.99	312	150.54	70.36	
600	600	0.6	5.64	20.99	267	128.8275	60.21	
630	630	0.63	5.92	20.99	245	118.2125	55.25	
660	660	0.66	6.20	20.99	325	156.8125	73.29	
690	690	0.69	6.48	20.99	301	145.2325	67.88	
720	720	0.72	6.77	20.99	272	131.24	61.34	
750	750	0.75	7.05	20.99	213	102.7725	48.03	
780	780	0.78	7.33	20.99	157	75.7525	35.40	
810	810	0.81	7.61	20.99	143	68.9975	32.25	
840	840	0.84	7.89	20.99	137	66.1025	30.89	
870	870	0.87	8.18	20.99	135	65.1375	30.44	
900	900	0.9	8.46	20.99	133	64.1725	29.99	
930	930	0.93	8.74	20.99	129	62.2425	29.09	
960	960	0.96	9.02	20.99	120	57.9	27.06	
990	990	0.99	9.30	20.99	117	56.4525	26.38	
1020	1020	1.02	9.59	20.99	115	55.4875	25.93	
1050	1050	1.05	9.87	20.99	108	52.11	24.35	
1080	1080	1.08	10.15	20.99	109.5	52.83375	24.69	
1110	1110	1.11	10.43	20.99	108	52.11	24.35	
1140	1140	1.14	10.71	20.99	108	52.11	24.35	

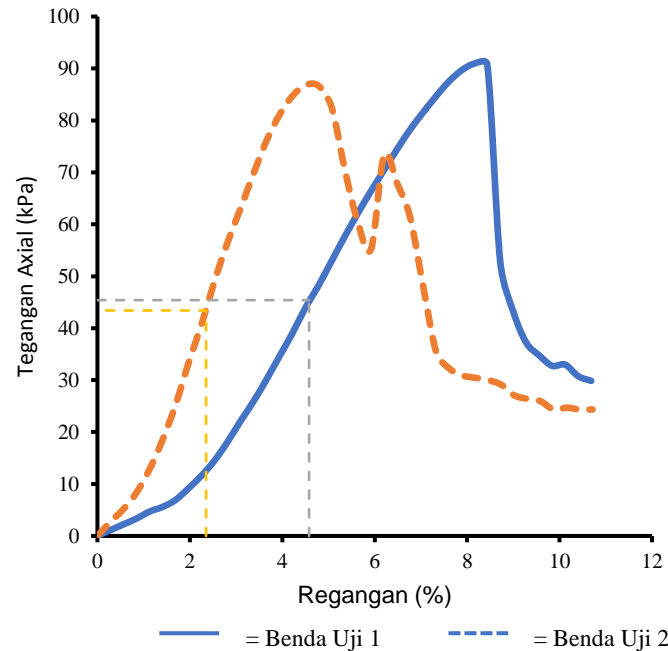
C = 0.4825

qu = 86.8190

Ho = 10.64 cm

Do = 5.17 cm

A = 2.99 cm²



Gambar 1 Kurva hubungan tegangan aksial dan regangan benda uji non siklus.

3. Satu Siklus A

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1-(ϵ /100)
	arloji ukur (a)	$\Delta H = a \times 10^{(-3)}$	regangan $\epsilon = \frac{\Delta H}{H_0}$ (%)		Arloji Ukur	Beban (P) (kg)		
0	0	0	0	23.33	0	0	0	
30	30	0.03	0.29	23.33	19	9.1675	3.85	
60	60	0.06	0.58	23.33	37	17.8525	7.51	
90	90	0.09	0.87	23.33	56	27.02	11.36	
120	120	0.12	1.16	23.33	73	35.2225	14.81	
150	150	0.15	1.45	23.33	93	44.8725	18.87	
180	180	0.18	1.74	23.33	110	53.075	22.32	
210	210	0.21	2.03	23.33	127	61.2775	25.77	
240	240	0.24	2.32	23.33	141	68.0325	28.61	
270	270	0.27	2.61	23.33	152	73.34	30.84	
300	300	0.3	2.90	23.33	159.5	76.95875	32.36	
330	330	0.33	3.19	23.33	164	79.13	33.27	
360	360	0.36	3.48	23.33	166	80.095	33.68	

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1-(ϵ /100)
	arloji ukur (a)	$\Delta H = a \times$ $10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		Arloji Ukur	Beban (P) (kg)		
390	390	0.39	3.77	23.33	164.5	79.37125	33.37	
420	420	0.42	4.06	23.33	159	76.7175	32.26	
450	450	0.45	4.35	23.33	152	73.34	30.84	
480	480	0.48	4.64	23.33	147	70.9275	29.82	
510	510	0.51	4.93	23.33	142	68.515	28.81	
540	540	0.54	5.22	23.33	137.5	66.34375	27.90	
570	570	0.57	5.51	23.33	134	64.655	27.19	
600	600	0.6	5.80	23.33	130	62.725	26.38	
630	630	0.63	6.09	23.33	124	59.83	25.16	
660	660	0.66	6.38	23.33	122	58.865	24.75	
690	690	0.69	6.67	23.33	119	57.4175	24.14	
720	720	0.72	6.96	23.33	117	56.4525	23.74	
750	750	0.75	7.25	23.33	113	54.5225	22.93	
780	780	0.78	7.54	23.33	110	53.075	22.32	
810	810	0.81	7.83	23.33	109	52.5925	22.11	
840	840	0.84	8.12	23.33	107	51.6275	21.71	
870	870	0.87	8.41	23.33	105.5	50.90375	21.40	
900	900	0.9	8.70	23.33	103.5	49.93875	21.00	
930	930	0.93	8.99	23.33	102.5	49.45625	20.80	
960	960	0.96	9.28	23.33	99.5	48.00875	20.19	
990	990	0.99	9.57	23.33	97	46.8025	19.68	
1020	1020	1.02	9.86	23.33	96	46.32	19.48	
1050	1050	1.05	10.15	23.33	95.5	46.07875	19.38	
1080	1080	1.08	10.44	23.33	95	45.8375	19.27	
1110	1110	1.11	10.74	23.33	91.5	44.14875	18.56	
1140	1140	1.14	11.03	23.33	91	43.9075	18.46	

C = 0.4825

qu = 33.6790

Ho = 10.34 cm

Do = 5.45 cm

A = 23.33 cm²

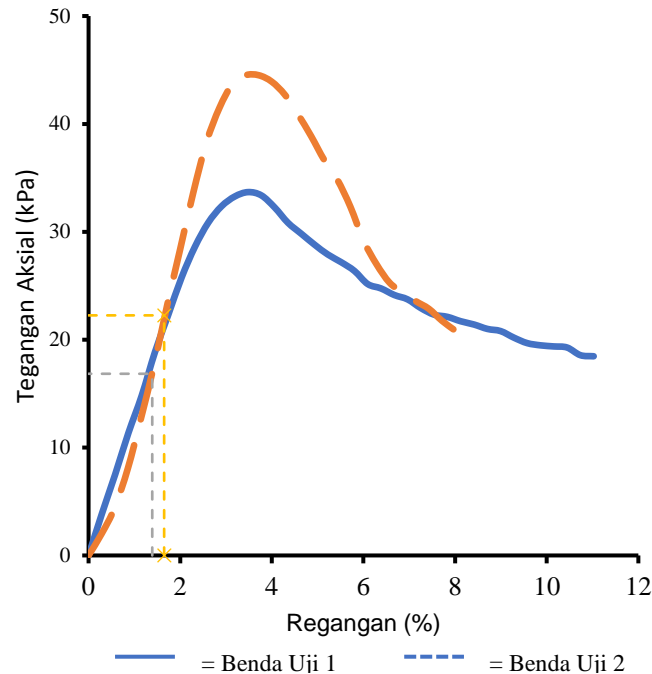
4. Satu Siklus B

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
0	0	0	0	23.5	0	0	0	
30	30	0.03	0.29	23.5	10	4.825	2.01	
60	60	0.06	0.57	23.5	22	10.615	4.43	
90	90	0.09	0.86	23.5	40	19.3	8.06	
120	120	0.12	1.14	23.5	63	30.3975	12.69	
150	150	0.15	1.43	23.5	87.5	42.21875	17.62	
180	180	0.18	1.71	23.5	115	55.4875	23.16	
210	210	0.21	2	23.5	141	68.0325	28.40	
240	240	0.24	2.29	23.5	167	80.5775	33.64	
270	270	0.27	2.57	23.5	190	91.675	38.27	
300	300	0.3	2.86	23.5	206	99.395	41.49	
330	330	0.33	3.14	23.5	217	104.7025	43.71	
360	360	0.36	3.43	23.5	221	106.6325	44.51	
390	390	0.39	3.71	23.5	221	106.6325	44.51	
420	420	0.42	4	23.5	218	105.185	43.91	
450	450	0.45	4.29	23.5	212	102.29	42.70	
480	480	0.48	4.57	23.5	203	97.9475	40.89	
510	510	0.51	4.86	23.5	193	93.1225	38.87	
540	540	0.54	5.14	23.5	182	87.815	36.66	
570	570	0.57	5.43	23.5	173	83.4725	34.85	
600	600	0.6	5.71	23.5	160.5	77.44125	32.33	
630	630	0.63	6	23.5	145	69.9625	29.21	
660	660	0.66	6.29	23.5	134	64.655	26.99	
690	690	0.69	6.57	23.5	125.5	60.55375	25.28	
720	720	0.72	6.86	23.5	121	58.3825	24.37	
750	750	0.75	7.14	23.5	117	56.4525	23.57	
780	780	0.78	7.43	23.5	113.5	54.76375	22.86	
810	810	0.81	7.71	23.5	108	52.11	21.75	
840	840	0.84	8	23.5	103.5	49.93875	20.85	

$$C = 0.4825$$

$$q_u = 44.5134$$

$H_o = 10.5 \text{ cm}$
 $D_o = 5.47 \text{ cm}$
 $A = 23.5 \text{ cm}^2$



Gambar 2 Kurva hubungan tegangan aksial dan regangan benda uji satu siklus.

5. Dua Siklus A

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_o$ (%)		arloji Ukur	Beban (P) (kg)		
0	0	0	0	24.11	0	0	0	1
30	30	0.03	0.29	24.17915	16	7.72	3.13	0.99714
60	60	0.06	0.57	24.2487	34.5	16.64625	6.73	0.99428
90	90	0.09	0.86	24.31864	58	27.985	11.29	0.99142
120	120	0.12	1.14	24.389	83	40.0475	16.11	0.988561
150	150	0.15	1.43	24.45976	113	54.5225	21.87	0.985701
180	180	0.18	1.72	24.53093	144	69.48	27.79	0.982841
210	210	0.21	2.00	24.60252	173.5	83.71375	33.38	0.979981
240	240	0.24	2.29	24.67453	203	97.9475	38.94	0.977121
270	270	0.27	2.57	24.74696	230	110.975	43.99	0.974261
300	300	0.3	2.86	24.81981	255	123.0375	48.63	0.971401

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
330	330	0.33	3.15	24.8931	273	131.7225	51.91	0.968541
360	360	0.36	3.43	24.96682	283	136.5475	53.65	0.965682
390	390	0.39	3.72	25.04098	266	128.345	50.28	0.962822
420	420	0.42	4.00	25.11558	189	91.1925	35.62	0.959962
450	450	0.45	4.29	25.19063	152.5	73.58125	28.65	0.957102
480	480	0.48	4.58	25.26612	130	62.725	24.35	0.954242
510	510	0.51	4.86	25.34207	100	48.25	18.68	0.951382
540	540	0.54	5.15	25.41848	74.5	35.94625	13.87	0.948522
570	570	0.57	5.43	25.49535	58	27.985	10.77	0.945663
600	600	0.6	5.72	25.57269	48.5	23.40125	8.98	0.942803

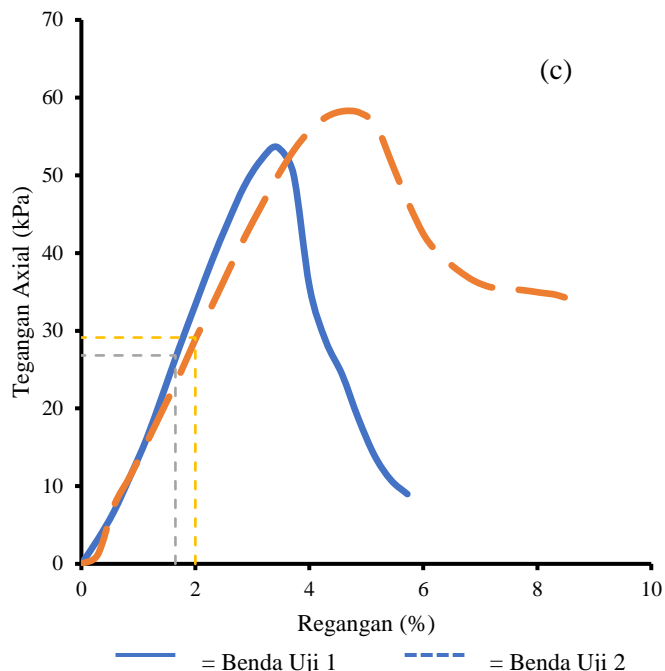
C = 0.4825
 qu = 53.6524
 Ho = 10.49 cm
 Do = 5.54 cm
 A = 24.11 cm²

6. Dua Siklus B

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
0	0	0	0	23.93	0	0	0	
30	30	0.03	0.29	23.93	6	2.90	1.19	
60	60	0.06	0.57	23.93	38	18.34	7.52	
90	90	0.09	0.86	23.93	57.5	27.74	11.37	
120	120	0.12	1.15	23.93	79	38.12	15.63	
150	150	0.15	1.44	23.93	101	48.73	19.98	
180	180	0.18	1.72	23.93	123	59.35	24.33	
210	210	0.21	2.01	23.93	147	70.93	29.08	
240	240	0.24	2.30	23.93	168.5	81.30	33.33	
270	270	0.27	2.59	23.93	191	92.16	37.78	
300	300	0.3	2.87	23.93	213	102.77	42.13	

330	330	0.33	3.16	23.93	233	112.42	46.09
360	360	0.36	3.45	23.93	252.5	121.83	49.94
390	390	0.39	3.74	23.93	269.5	130.03	53.31
420	420	0.42	4.02	23.93	282.5	136.31	55.88
450	450	0.45	4.31	23.93	291	140.41	57.56
480	480	0.48	4.60	23.93	294.5	142.10	58.25
510	510	0.51	4.89	23.93	293.5	141.61	58.05
540	540	0.54	5.17	23.93	285	137.51	56.37
570	570	0.57	5.46	23.93	259.5	125.21	51.33
600	600	0.6	5.75	23.93	234	112.91	46.28
630	630	0.63	6.03	23.93	212.5	102.53	42.03
660	660	0.66	6.32	23.93	200	96.5	39.56
690	690	0.69	6.61	23.93	191	92.16	37.78
720	720	0.72	6.90	23.93	184	88.78	36.39
750	750	0.75	7.18	23.93	180	86.85	35.60
780	780	0.78	7.47	23.93	179	86.37	35.41
810	810	0.81	7.76	23.93	178	85.89	35.21
840	840	0.84	8.05	23.93	176.5	85.16	34.91
870	870	0.87	8.33	23.93	175	84.44	34.61
900	900	0.9	8.62	23.93	171.5	82.75	33.92

C = 0.4825
qu = 58.2517
Ho = 10.44 cm
Do = 5.52 cm
A = 23.93 cm²



Gambar 3 Kurva hubungan tegangan aksial dan regangan benda uji dua siklus

7. Tiga Siklus A

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial			koreksi 1-(ϵ /100)
	arloji ukur (a)	$\Delta H = a \times 10^{-3}$	regangan $\epsilon = \frac{\Delta H}{H_0}$ (%)		arloji Ukur	Beban (P) (kg)	tegangan P/A (kPa)	
0	0	0	0	24.1	0	0	0	1
30	30	0.03	0.28	24.16651	12	5.79	2.35	0.997248
60	60	0.06	0.55	24.23339	22	10.615	4.30	0.994495
90	90	0.09	0.83	24.30065	31.5	15.19875	6.14	0.991743
120	120	0.12	1.10	24.36827	42.5	20.50625	8.26	0.988991
150	150	0.15	1.38	24.43628	55	26.5375	10.65	0.986239
180	180	0.18	1.65	24.50466	67.5	32.56875	13.04	0.983486
210	210	0.21	1.93	24.57343	82	39.565	15.79	0.980734
240	240	0.24	2.20	24.64259	97.5	47.04375	18.73	0.977982
270	270	0.27	2.48	24.71214	115	55.4875	22.03	0.975229
300	300	0.3	2.75	24.78208	133	64.1725	25.40	0.972477
330	330	0.33	3.03	24.85241	152	73.34	28.95	0.969725
360	360	0.36	3.30	24.92315	170	82.025	32.29	0.966972
390	390	0.39	3.58	24.99429	190	91.675	35.98	0.96422

Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial			koreksi 1-(ϵ /100)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{-3}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)	tegangan P/A (kPa)	
420	420	0.42	3.85	25.06584	207	99.8775	39.09	0.961468
450	450	0.45	4.13	25.1378	225	108.5625	42.37	0.958716
480	480	0.48	4.40	25.21017	241.5	116.5238	45.34	0.955963
510	510	0.51	4.68	25.28296	257	124.0025	48.11	0.953211
540	540	0.54	4.95	25.35618	273	131.7225	50.96	0.950459
570	570	0.57	5.23	25.42982	285.5	137.7538	53.14	0.947706
600	600	0.6	5.50	25.50388	296.5	143.0613	55.03	0.944954
630	630	0.63	5.78	25.57838	304.5	146.9213	56.35	0.942202
660	660	0.66	6.06	25.65332	312	150.54	57.57	0.93945
690	690	0.69	6.33	25.7287	316	152.47	58.13	0.936697
720	720	0.72	6.61	25.80452	313.5	151.2638	57.51	0.933945
750	750	0.75	6.88	25.88079	300.5	144.9913	54.96	0.931193
780	780	0.78	7.16	25.95751	267	128.8275	48.69	0.92844
810	810	0.81	7.43	26.03469	233	112.4225	42.36	0.925688
840	840	0.84	7.71	26.11233	203	97.9475	36.80	0.922936
870	870	0.87	7.98	26.19043	183	88.2975	33.07	0.920183
900	900	0.9	8.26	26.269	167	80.5775	30.09	0.917431
930	930	0.93	8.53	26.34804	158.5	76.47625	28.47	0.914679
960	960	0.96	8.81	26.42757	150.5	72.61625	26.96	0.911927
990	990	0.99	9.08	26.50757	135	65.1375	24.11	0.909174
1020	1020	1.02	9.36	26.58806	115	55.4875	20.47	0.906422

C = 0.4825

qu = 58.1347

Ho = 10.9 cm

Do = 5.54 cm

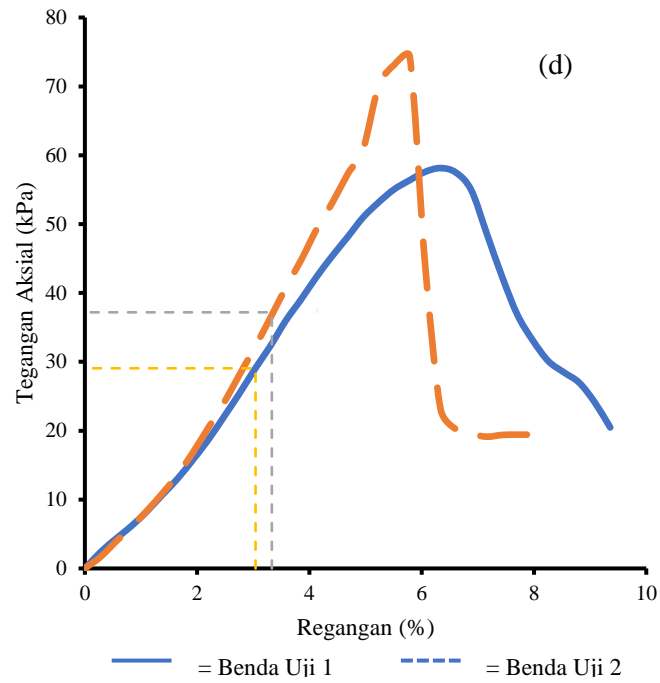
A = 24.1 cm²

8. Tiga Siklus B

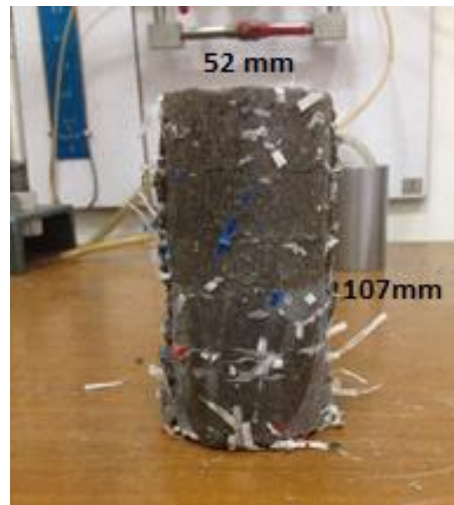
Waktu (detik)	deformasi			luas terkoreksi A (cm ²)	Beban Aksial		tegangan P/A (kPa)	koreksi 1- ($\epsilon/100$)
	arloji ukur (a)	$\Delta H = a$ $\times 10^{(-3)}$	regangan $\epsilon =$ $\Delta H/H_0$ (%)		arloji Ukur	Beban (P) (kg)		
0	0	0	0	24.37	0	0	0	
30	30	0.03	0.28	24.37	8.5	4.10125	1.65	
60	60	0.06	0.55	24.37	20	9.65	3.88	
90	90	0.09	0.83	24.37	31	14.9575	6.02	
120	120	0.12	1.10	24.37	43	20.7475	8.35	
150	150	0.15	1.38	24.37	56	27.02	10.88	
180	180	0.18	1.65	24.37	70	33.775	13.60	
210	210	0.21	1.93	24.37	87	41.9775	16.90	
240	240	0.24	2.20	24.37	105.5	50.90375	20.49	
270	270	0.27	2.48	24.37	124	59.83	24.08	
300	300	0.3	2.75	24.37	145	69.9625	28.16	
330	330	0.33	3.03	24.37	165.5	79.85375	32.14	
360	360	0.36	3.31	24.37	187.5	90.46875	36.42	
390	390	0.39	3.58	24.37	210	101.325	40.79	
420	420	0.42	3.86	24.37	231	111.4575	44.87	
450	450	0.45	4.13	24.37	254	122.555	49.33	
480	480	0.48	4.41	24.37	273.5	131.9638	53.12	
510	510	0.51	4.68	24.37	295	142.3375	57.30	
540	540	0.54	4.96	24.37	314	151.505	60.99	
570	570	0.57	5.23	24.37	361	174.1825	70.12	
600	600	0.6	5.51	24.37	376.5	181.6613	73.13	
630	630	0.63	5.79	24.37	383	184.7975	74.39	
660	660	0.66	6.06	24.37	227	109.5275	44.09	
690	690	0.69	6.34	24.37	119	57.4175	23.11	
720	720	0.72	6.61	24.37	104	50.18	20.20	
750	750	0.75	6.89	24.37	100.5	48.49125	19.52	
780	780	0.78	7.16	24.37	98.5	47.52625	19.13	
810	810	0.81	7.44	24.37	99.8	48.1535	19.38	
840	840	0.84	7.71	24.37	100	48.25	19.42	
870	870	0.87	7.99	24.37	100	48.25	19.42	
900	900	0.9	8.26	24.37	100	48.25	19.42	

C = 0.4825

$q_u = 74.3891$
 $H_o = 10.89 \text{ cm}$
 $D_o = 5.57 \text{ cm}$
 $A = 24.37 \text{ cm}^2$



Gambar 4 Kurva hubungan tegangan aksial dan regangan benda uji tiga siklus.



Gambar 5 Tanah stabilisasi kapur-abu sekam padi yang siap diuji.



Gambar 6 Benda uji mengalami keruntuhan setelah pengujian tekan bebas.