YAYASAN PERGURUAN "CIKINI"
INSTITUT
SAINS DAN TEKNOLOGI
NASIONAL
I S T N

FAKULTAS TEKNIK SIPIL
DAN PERENCANAAN
JURUSAN TEKNIK SIPIL

PENUGASAN

No : 07-02/M/LM/II/96

Ketua Program Studi Teknik Sipil, Fakultas Teknik Sipil dan Perencanaan Institut Sains dan Teknologi Nasional Jakarta menugaskan kepada :

Ir. Idrus, MSc Staff Jurusan Teknik Sipil

Untuk melakukan pekerjaan Penyelidikan Tanah sebagai bentuk kegiatan :
Pengabdian Pada Masyarakat pada :

Nama Pekerjaan	:	Penyelidikan Tanah T/L 150 KV Polyprima Asahimas
Lokasi	:	Cilegon, Jawa Barat
Pemberi Tugas	:	PT. Pilar Arena Graha

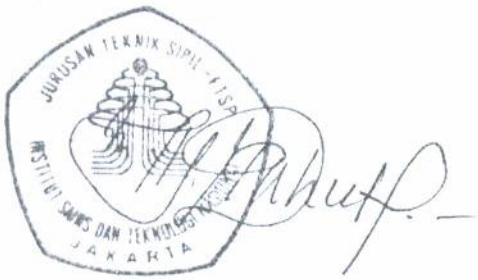
Dengan jadwal pelaksanaan pekerjaan selama 14 hari kerja (112Jam), 2 hari di lapangan dan 12 hari di Laboratorium

Kepada Ir. Idrus MSc diberikan kepercayaan penuh untuk melakukan pekerjaan Pengabdian Pada Masyarakat tersebut dan bertanggung jawab atas segala sesuatu mengenai pekerjaan tersebut

Kepada pelaksana tugas ini akan diberikan honorarium sesuai dengan ketentuan yang berlaku di Laboratorium Mekanika Tanah Institut Sains dan Teknologi Nasional.

Penugasan ini berlaku sejak dikeluarkan sampai dengan berakhirnya jangka waktu penyusunan Laporan Akhir (Final Report) diterima oleh pemberi kerja dengan baik.

Jakarta, 07 Februari 1996
Kaprodi Teknik Sipil



Ir. Ari Mulyo Diah Utami MT
NIP : 01.83332

Tembusan :
1. Dekan FTSP-ISTN (sbg laporan)
2. Ka. Lab. Mekanika Tanah ISTN
3. Arsip

LEMBAR PENGESAHAN
PENGABDIAN PADA MASYARAKAT

ISTN

PENYELIDIKAN TANAH T/L 150 kV Polyprima Asahimas
Lokasi : Cilegon, Jawa Barat

Oleh :
Idrus Ir, M.Sc

Mengetahui :
Ketua Jurusan Teknik Sipil

Ir. Arimulyo Diah Utami, M.T

Program Studi Teknik Sipil
Institut Sain dan Teknologi Nasonal

Jakarta 1996

PILLAR PARTNERS

SURAT PERJANJIAN KERJASAMA
No: 05-02.1/PAG/II/96

Pada hari ini, Senin tanggal Lima bulan Februari tahun Seribu Sembilan Ratus Sembilan Puluh Enam (05-02-1996) yang bertanda tangan dibawah ini :

N a m a : PT. Pilar Arena Graha
Selanjutnya disebut PIHAK PERTAMA.

N a m a : Ir. Idrus MSc
Jabatan : Kepala Laboratorium Mekanika Tanah ISTN
Selanjutnya disebut PIHAK KEDUA.

Kedua belah pihak telah sepakat untuk melakukan kerjasama dalam melakukan pekerjaan Penyelidikan Tanah (Soil Investigation) pada :

Proyek : T/L 150 kV Polyprima-Asahimas
Lokasi : Cilegon, Jawa Barat

Demikian surat perjanjian kerja sama ini kami buat dengan sebenar-benarnya.

Jakarta, 05 Fbruari 1996

PIHAK KEDUA	PIHAK PERTAMA
Laboratorium Mekanika Tanah ISTN	PT. Pilar Arena Graha

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134/96

SOIL INVESTIGATION

FINAL REPORT

PROJECT : T/L 150 KV POLYPRIMA–ASAHIMAS

LOKASI : CILEGON, WEST JAVA

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NASIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY
JL. MOCH.KAHFI II, BHUMI SRENGSENG, JAKARTA SELATAN

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Jakarta.

No :
Attch : 1 (one) document
Subject : Submittal letter of the soil investigation work at Transmision Asahimas Polyprima. Serang. West Java.

To:
PT. PILAR ARENA GRAHA
at
Jakarta.

Dear Sir.
We are pleased to submit herewith our Final Report on Soil Investigation for Transmision Tower at your plant in Polyprima. Serang . West Java.

This soil investigation was performed in accordance with our agreement between PT. PILAR ARENA GRAHA Jakarta and Soil Mechanics Laboratory of ISTN Jakarta..

We appreciated the opportunity to work on this project and please do not hesitate to call us if you have any question regarding this final report.

Thank you for your kind attention and cooperation.

Your sincerelly.
SOIL MECHANICS LABORATORY OF I.S.T.N
Chief Executive

Ir. Idrus M.Sc
Geotechnical Engineer

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C O N T E N T S

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LIST OF TABLE

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LIST OF APPENDIX

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I. INTRODUCTION

This Soil Investigation was meant to fulfil a work agreement between Soil Mechanics Laboratory of ISTN Jakarta and PT. PILAR ARENA GRAHA . to carry out site and laboratory investigation for Transmision Tower project in Polyprima . Serang . West Java.

This soil investigation is to obtain the technical data result of subsurface soil condition especially surrounding the bearing capasity of soil to Foundation design of the Transmision Tower project in that location above.

The soil investigation consisted of CPT Test with 2.50 tons capasity and The shallow boring (Hand boring).

The duties of Soil Mechanics Laboratory of ISTN were to carry out Geotechnical Investigation such as field work. laboratory testing and also evaluate the soil condition and parameter design.

Field investigation activities had be done on

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II. SCOPE OF WORK

The scope of work consist of :

Location : Cengkareng - New Tangerang.
No of CPT Test : 7 tests
No of Hand Boring : 2 holes

and taking undisturbed and disturbed samples for soil description and laboratory test at several place.

2 (two) points of the shallow boring TR Polyprima.

Code	No.C.P.T	Depth (m)	UD Sampling
B-1	S-1	-3.45	2
B-2	S-5	-3.45	2

7 (seven) points of CPT Test at TR Polyprima

Code	The max.depth qc > 100 kg/cm2
S 1	- 6.80 m
S 2	- ground surface is stone (boulders)
S 3	- 6.40 m
S 4	- 8.60 m
S 5	- 5.60 m
S 6	- ground surface is stone (boulders)
S 7	- 3.00 m

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III. METHODE OF TESTING

In generally this investigation were carry out in two stage of work in example : Field work and laboratory testing.

Detail of investigation methode were as follows :

3.1. Field Work.

a. Boring by using the coring system (iwan auger)

The aim of this boring was to obtain the accurate information on the soil condition beneath the surface regarding it's engineering viewpoint either obtained from visual description. and taking undisturbed samples for laboratory testing on an undisturbed samples to find out the visual description.

The mentioned boring was carry out by using rotary boring / manual (hand booring) with iwan auger.

During boring. the following testings were executed :

-. Taking Undisturbed sample.

-. Taking Disturbed sample from auger Iwan

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b. Taking of Undisturbed Samples.

The taking of undisturbed samples were meant to obtain relative original soil samples. samples were taken by using special equipment. passed to the desired soil depth by using the pressure from the manual equipment).

Equipment used was the thin wall tube sample. according to ASTM Standard No: D.1587.

Sealing was immediately effected on obtained soil samples. by applying parafine at both ends of the tube.

c. Cone Penetration Test (CPT).

Dutch Cone Penetration Test had been carried out in accordance with the requirements of ASTM Standard D.3441. of 2.5 tonf capacity. equipped with rod and friction cone. The CPT had been performed continously from the ground surface to the top of hard layer soil with cone penetration resistance (qc) value exceeding 200 kg/cm2 or 30 meters maximum depth.

The recording had been taken every 20 cm penetration rate.

The data obtained from the test had been of cone penetration resistance .total friction and the ratio beetwen local friction / conus resistance as well.

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3.2. Laboratory Test and Analysis

All laboratory test had been performed in Soil Mechanics Laboratory of National Institute of Science and Technology at Jakarta (ISTN). The all test had been conducted in accordance with ASTM requirements.

For Undisturbed sampling, following index properties tests had been carried out :

-. Determination of Natural water content
-. Determination of Specific gravity
-. Determination of Atterberg limits.
-. Determination of Plasticity index
-. Determination of Grained sizes distribution by sieve analysis and Hydrometer analysis.

And also the engineering properties test had been carried out in addition to the test listed above :

-. Determination of wet density and dry density
-. Determination of degree of saturation
-. Determination shear strength by Triaxial UU Test.
-. Determination of Compression Index with Consolidation test

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IV. RECOMMENDATION

With the subsoil condition as described CPT / Sondir curve, where the conus resistance generally not so depth from ground surface, sometimes it's was founded stone / boulders layer in ground surface , it was recomended to use parameter design, specifically the allowable bearing capacity to use the foundation design.

- Using mini bored pile :

  We proposed to used mini bored pile, specifically with the subsoil condition as describe above and it is efficiency to used this foundation.

  The length of the bore pile for each location depend on the depth of hard layer where the conus resistance > 100 kg/cm2.

  The average axial compression if diameter of bored pile 30 cm is 30 - 40 tonf / pile.

  The axial tension of mini bored pile is 4.00 tonf / pile.

  - Using Mini Precast Driven Pile :

  Mini precast driven pile should be used when the site condition has not problem in accordance with transportation for mobilization the equipment and material to site.

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-. The total of pile length is variouslv depend on the hard laver depth. The depth of the hard laver mavbe more and less from the summarv in chapter II in this report. because the CPT test onlv 1 (one) test for each transmision tower location. We proposed to programmed more 1 (one) test for each location to comparison the sub soil condition.

-. Driven to hard laver (final set maximum 1 cm/ last 10 (ten) blows.

-. Dimension of mini pile is :

28 x 28 x 28 cm or 20 x 20 cm

P all 1 (one) pile is = 25.00 tonf.

-. Using. The Shallow Foundation. (onlv in S2. S5. S6. S7)

Alloable bearing capacitv for generallv tower as follows :

- Depth of Foundation 2.00 meter (minimum)
- Width of Foundation 2.00 meter

σ all = 0.80 kg/cm2.

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Chief Executive

Ir. Idrus M.Sc
Geotechnical Engineer

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OF I.S.T.N JAKARTA

GEOLOGICAL BORING LOG

PROJECT	T/L 150 KV POLYPRIMA–ASAHIMAS	Started	Drawn by ABDULRAHMAN	Bore Hole
LOCATION	CILEGON. JAWA BARAT.	Finished	Checked by RAHARDJO S	Number
		Tested by N E A N Mr	Approved by	
TOTAL DEPTH	3.45 M.	Av. GWT	Date	B – 1.
ELEVATION				

Scale	Depth	Elev.	Thickness	Soil Symbol	Soil Classification	Colour	In Place Observation	Density or Consistency	Sample	Standard Penetration Test (N Value) Number of Blows Every 15 cm / 30 Cm	10	20	30	40	50	60
1							Urugan Koral.									
2	0.50	– 0.50														
3																
4	1.00	– 1.00														
5																
6	1.50	– 1.50														
7									UDS							
8	1.95	– 1.95				Coklat kekuningan	Lanau kelempungan	Lembek								
9																
10	2.50	– 2.50														
11																
12	3.00	– 3.00														
13									UDS							
14	3.45	– 3.45														
15																
16	4.00	– 4.00														
17																
18	4.50	– 4.50														
19																

Clay		Gravel	
Silt		Rock	
Sand		Organic	

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GEOLOGICAL BORING LOG

PROJECT	T/L 150 KV POLYPRIMA–ASAHIMAS	Started	Drawn by ABDULRAHMAN	Bore Hole
LOCATION	CILEGON. JAWA BARAT.	Finished	Checked by RAHARDJO S	Number
		Tested by N E A N Mr	Approved by	
TOTAL DEPTH	3.45 M.	Av. GWT	Date	B – 2.
ELEVATION				

Scale	Depth	Elev.	Thickness	Soil Symbol	Soil Classification	Colour	In Place Observation	Density or Consistency	Sample	Standard Penetration Test (N Value) Number of Blows Every 15 cm / 30 Cm	10	20	30	40	50	60
1																
2	0.50	– 0.50														
3																
4	1.00	– 1.00														
5																
6	1.50	– 1.50														
7									UDS							
8	1.95	–1.95				Coklat merah.	Lempung kelanauan	Kaku								
9																
10	2.50	–2.50														
11																
12	3.00	–3.00														
13						Coklat	Lempung kelanauan	Kaku sedang.	UDS							
14	3.45	– 3.45														
15																
16	4.00	– 4.00														
17																
18	4.50	– 4.50														
19																

Clay		Gravel	
Silt		Rock	
Sand		Organic	

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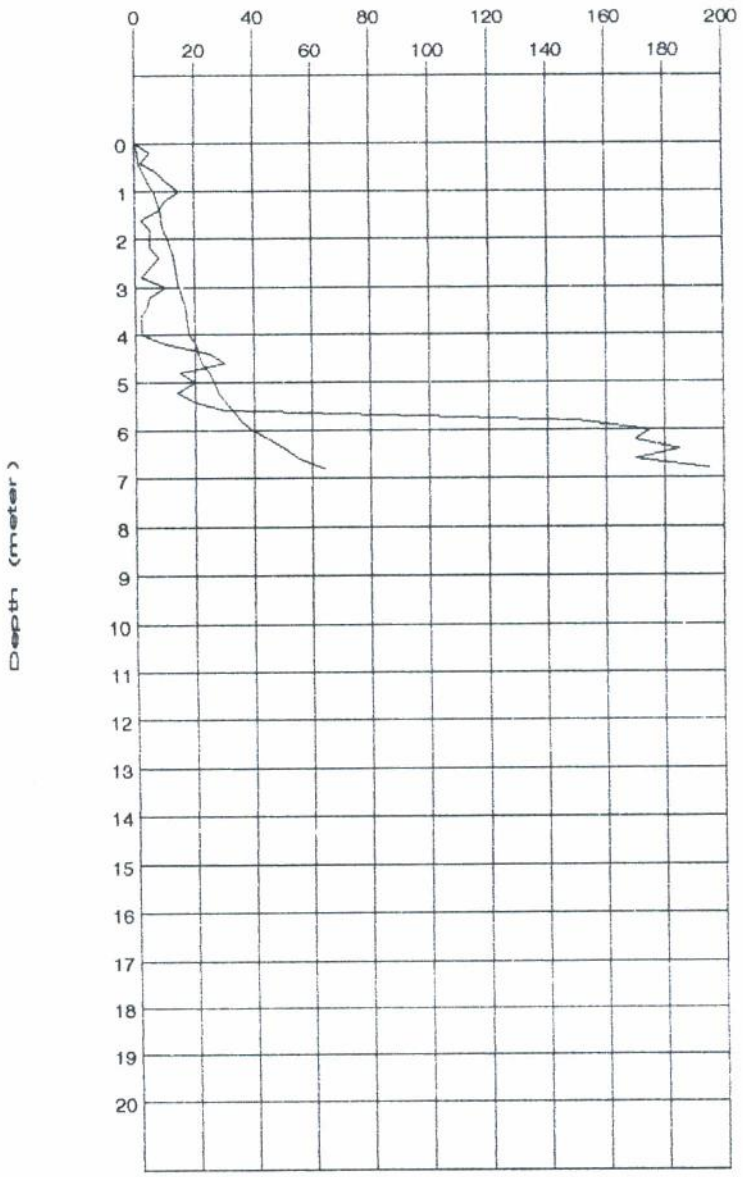
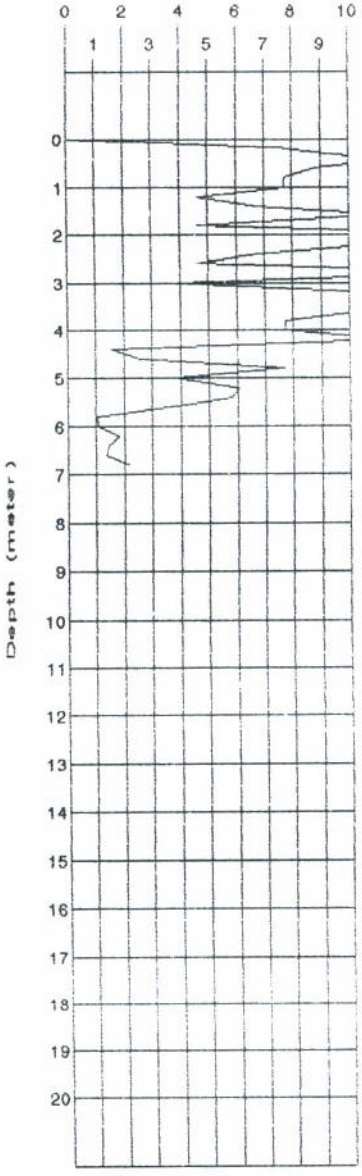
CONE PENETRATION TEST

SONDIR No	: S 1.	D1. qonus	3.45	DATE OF TESTED :	
		D2. jacket	3.80		
PROJECT	: T/L ASAHIMAS – POLYPRIMA	H. jacket	15.00	TESTED BY	: NEAN Mr
		Ratio (R)	18.15		
LOCATION	: CILEGON JAWA BARAT	Elevation (– meter)		CHEKED BY	: MA.ONTOWIRYO
		G.W.L (– meter)			

Qc (Kg/cm^2) and Tf (Kg/cm'x10)



Qc (Kg/cm^2) and Tf (Kg/cm'x10)



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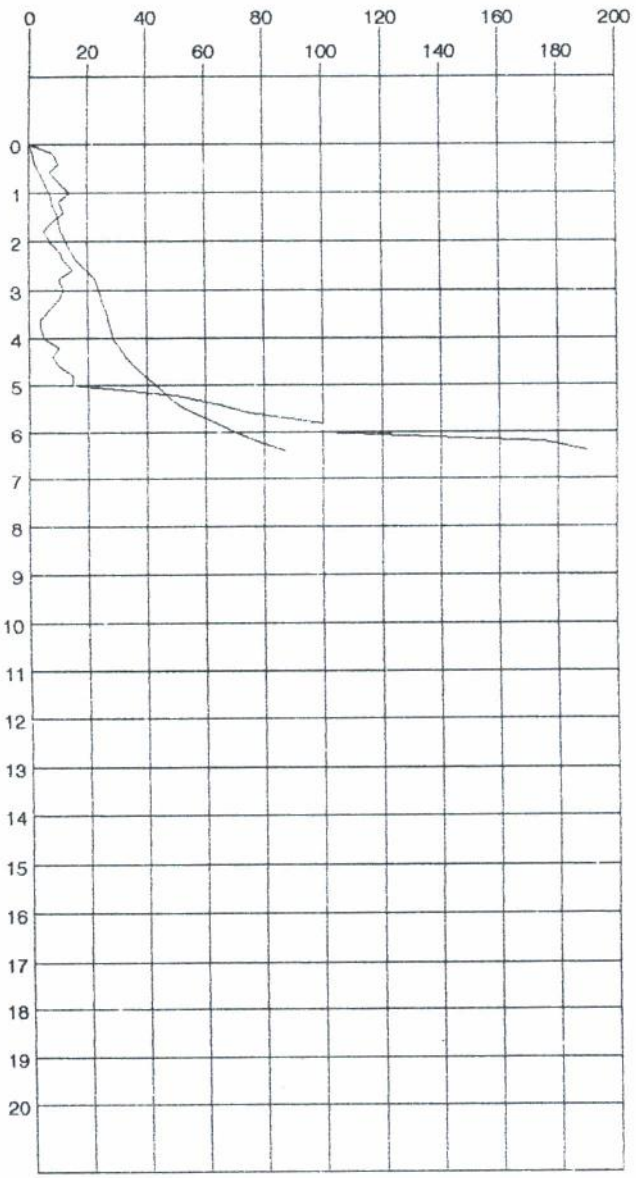
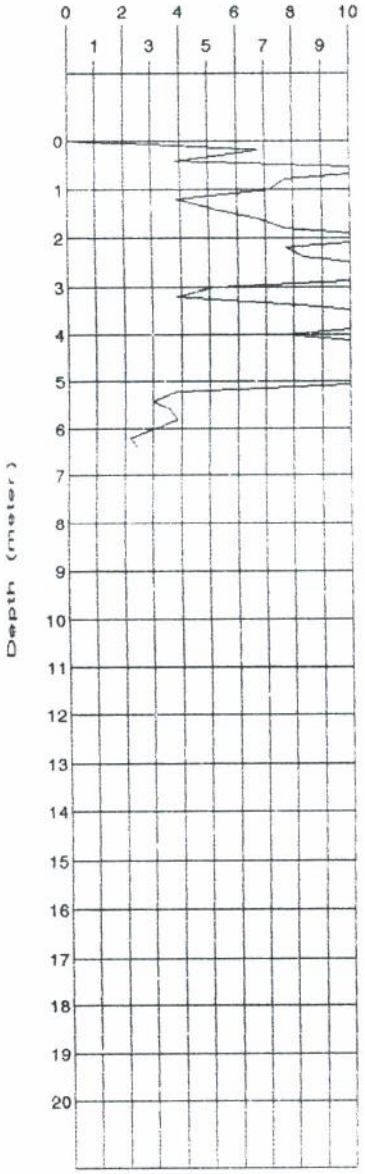
CONE PENETRATION TEST

SONDIR No	: S 3.	D1. qonus	3.45	DATE OF TESTED :	
		D2. jacket	3.60		
PROJECT	: T/L ASAHIMAS – POLYPRIMA	H. jacket	15.00	TESTED BY	: NEAN Mr
		Ratio (R)	18.15		
LOCATION	: CILEGON JAWA BARAT	Elevation (– meter)		CHEKED BY	: MA.ONTOWIRYO
		G.W.L (– meter)			

Qc (Kg/cm^2) and Tf (Kg/cm'x10)



Qo (Kg/cm^2) and Tf (Kg/cm'x10)



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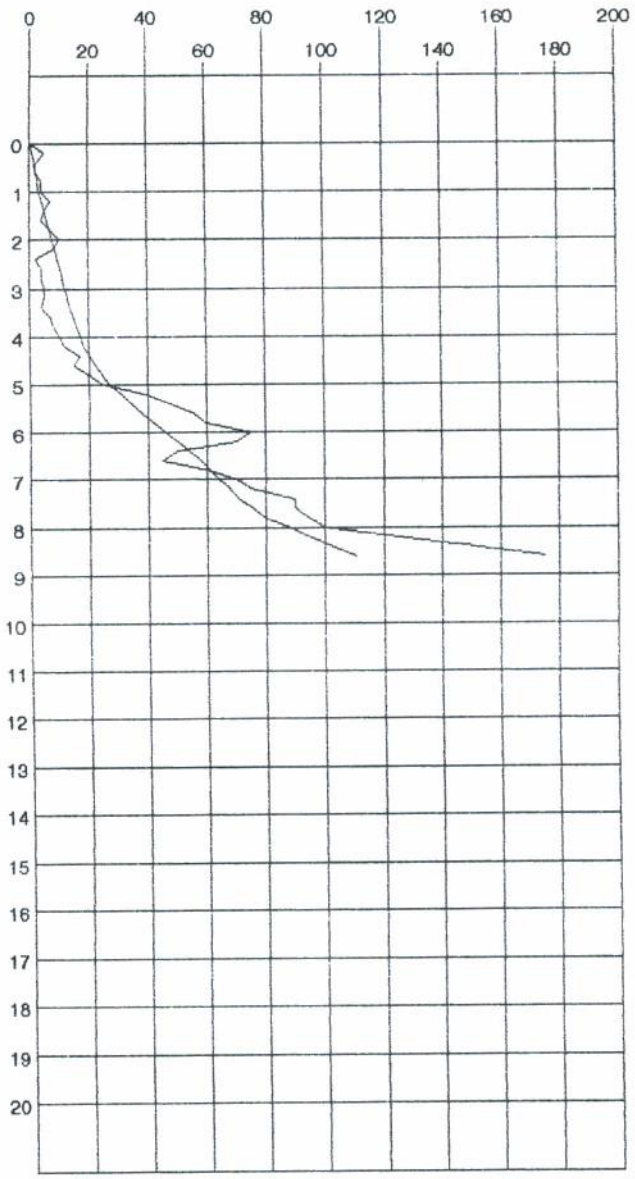
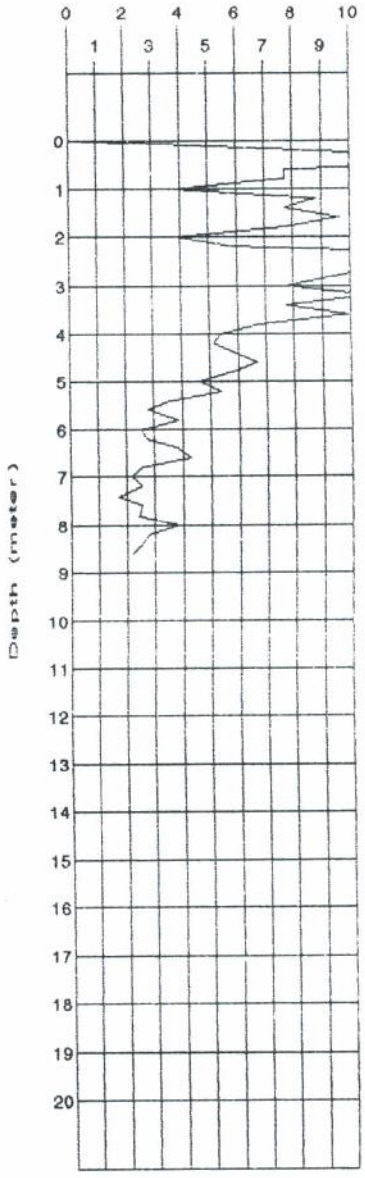
CONE PENETRATION TEST

SONDIR No	: S 4.	D1. qonus	3.45	DATE OF TESTED :	
		D2. jacket	3.60		
PROJECT	: T/L ASAHIMAS – POLYPRIMA	H. jacket	15.00	TESTED BY	: NEAN Mr
		Ratio (R)	18.15		
LOCATION	: CILEGON JAWA BARAT	Elevation (– meter)		CHEKED BY	: MA.ONTOWIRYO
		G.W.L (– meter)			

Qo (Kg/cm^2) and Tf (Kg/cm'x10)



Qo (Kg/cm^2) and Tf (Kg/cm'x10)



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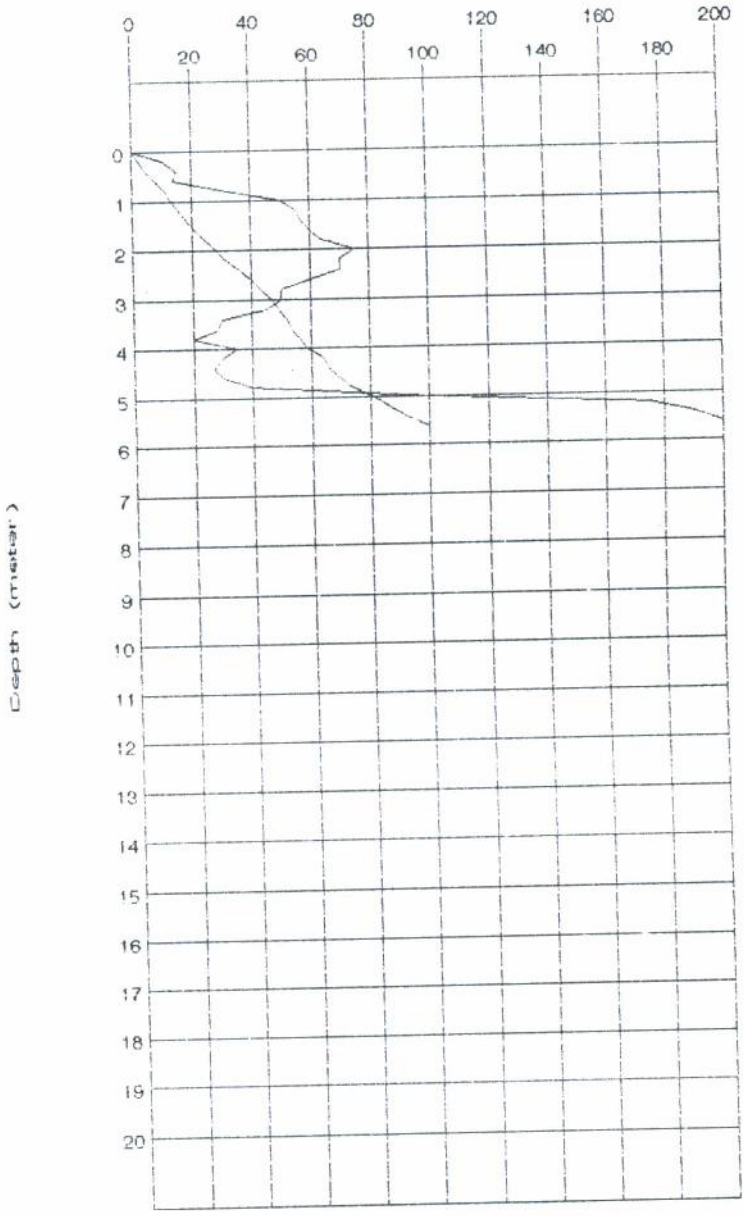
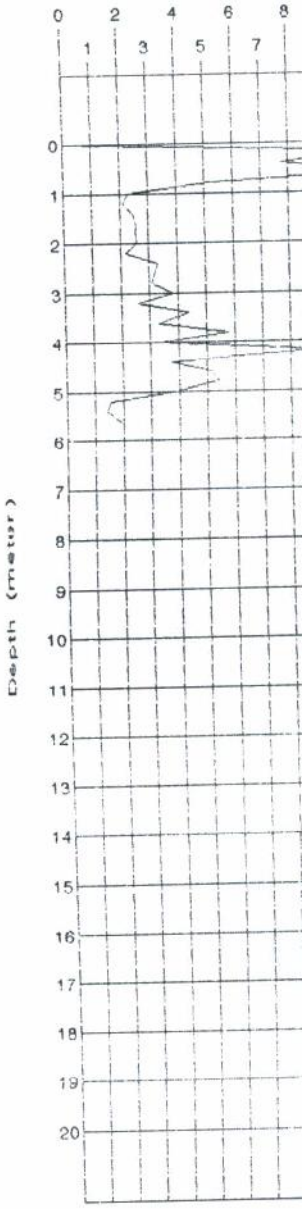
CONE PENETRATION TEST

SONDIR No.	: S 5.	D1. qonus	3.45	DATE OF TESTED :	
PROJECT	: T/L 150 KV ASAHIMAS – POLYPRIMA	D2. jacket	2.60	TESTED BY	: NEAN Mr.
LOCATION	: CILEGON JAWA BARAT.	H. jacket	15.00	CHECKED BY	: MA.ONTOWIRY
		Ratio (R)	18.15		
		Elevation (– meter)			
		G.W.L (– meter)			

Qc (Kg/cm ^ 2) and Tf (Kg/cm' x 10)



Friction / Qonus Resistance



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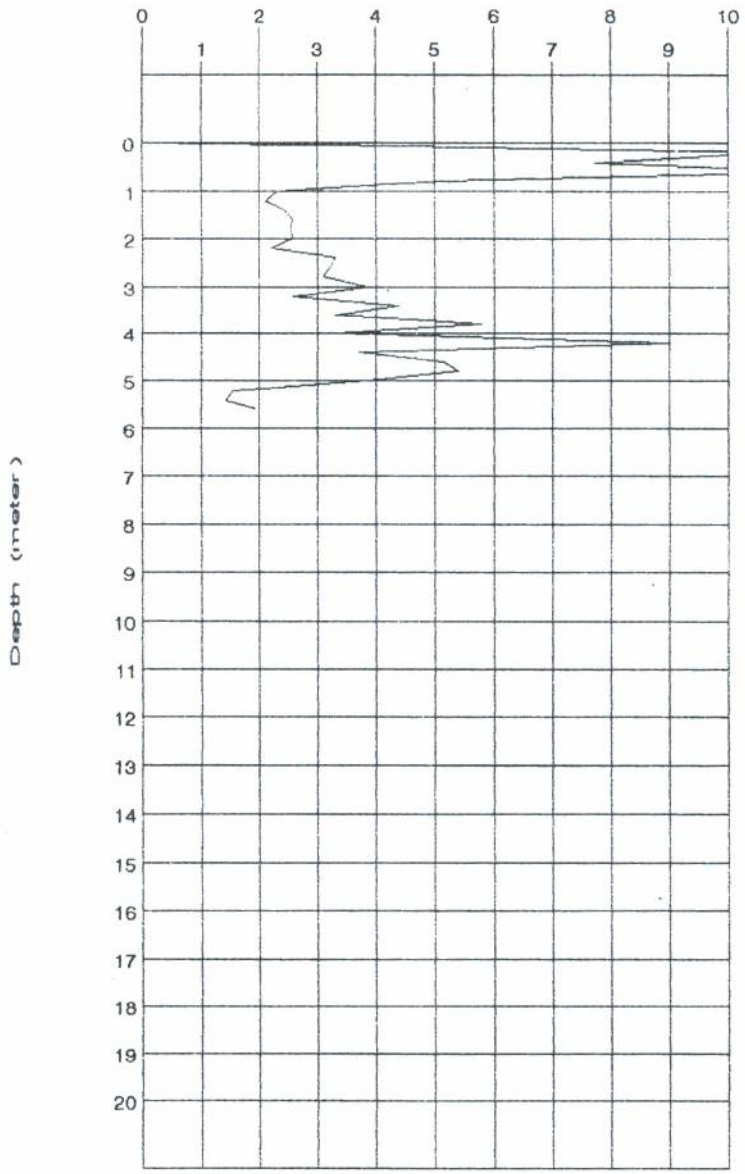
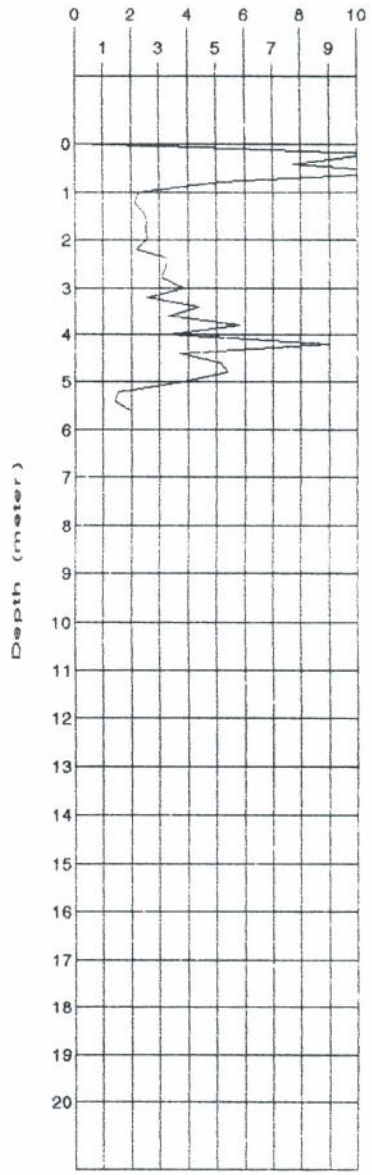
CONE PENETRATION TEST

SONDIR No	: S 5.	D1. conus	3.45	DATE OF TESTED : FEBRUARY 08th 1996	
PROJECT	: T/L ASAHIMAS – POLYPRIMA	D2. jacket	3.80	TESTED BY	: NEAN Mr
LOCATION	: CILEGON JAWA BARAT	H. jacket	15.00	CHEKED BY	: MA.ONTOWIRYO
		Ratio (R)	18.15		
		Elevation (– meter)			
		G.W.L (– meter)			

Qc (Kg/cm^2) and Tf (Kg/cm'x10)



Qc (Kg/cm^2) and Tf (Kg/cm'x10)



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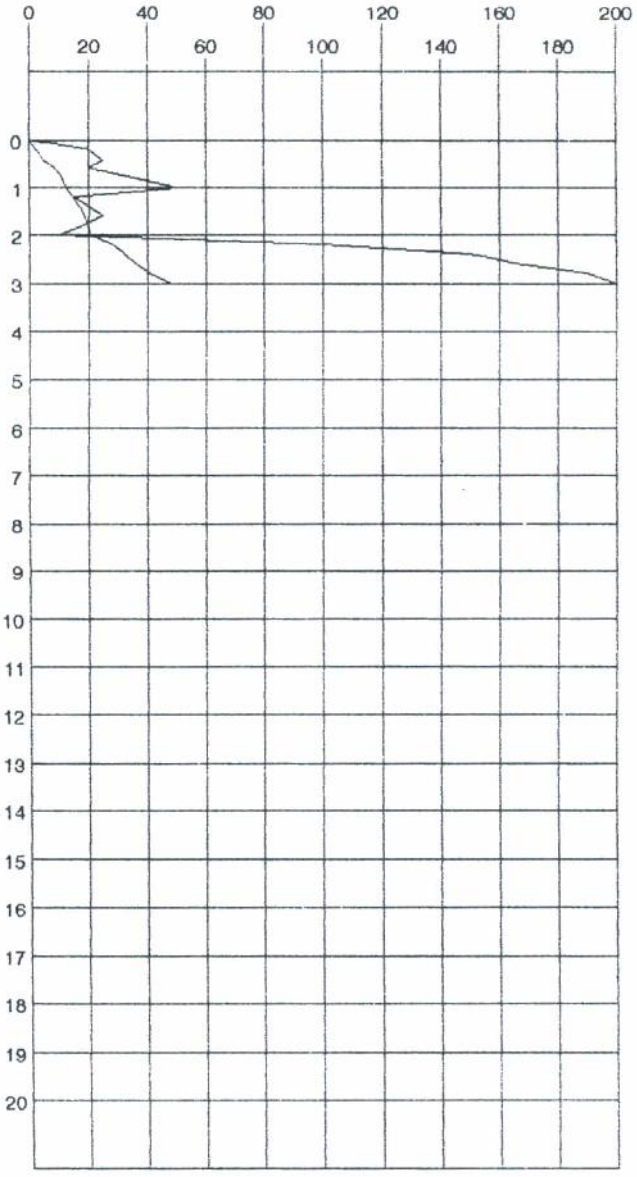
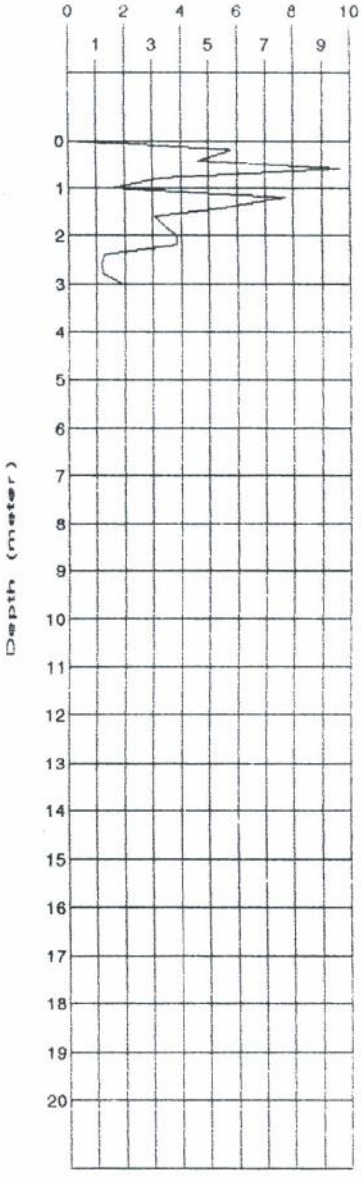
CONE PENETRATION TEST

SONDIR No	: S 7.	D1. qonus	3.45	DATE OF TESTED :	
		D2. jacket	3.60		
PROJECT	: T/L ASAHIMAS – POLYPRIMA	H. jacket	15.00	TESTED BY	: NEAN Mr
		Ratio (R)	18.15		
LOCATION	: CILEGON JAWA BARAT	Elevation (– meter)		CHLKED BY	: MA.ONTOWIRYO
		G.W.L (– meter)			

Qo (Kg/cm^2) and Tf (Kg/cm'x10)



Qo (Kg/cm^2) and Tf (Kg/cm'x10)



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Weight–Volume Relationship of Unsaturated Soil

Boring No: T/L 150 Kv POLYPRIMA–ASAHIMAS Date of Tested :
Depth : 150–195 (B2) Checked By : MA ONTOWIRYO

Input Data

Unit Weight	1.75	gr/cm3
Water Content	31.91	%
Specific Gravity	2.55	
Unit Weight of Water	1.00	gr/cm3

Volume (Cm3)				Weight (Grm)		
Vt= 1.92	Vv= 0.92	Va= 0.10	Air	Wa= 0.00	Wt= 3.36	
		Vw= 0.81	Water	Ww= 0.81		
	Vs= 1.00		Solid	Ws= 2.55		

Void ratio (e)	0.92	
Degree of saturation (Sr)	88.64	%
Porosity	0.48	
Dry unit weight	1.33	gr/cm3
Saturated unit weight	1.81	gr/cm3

Weight–Volume Relationship of Unsaturated Soil

Boring No: T/L 150 Kv POLYPRIMA–ASAHIMAS Date of Tested :
Depth : 300 – 345 (B2) Checked By : MA ONTOWIRYO

Input Data

Unit Weight	1.72	gr/cm3
Water Content	34.27	%
Specific Gravity	2.54	
Unit Weight of Water	1.00	gr/cm3

Volume (Cm3)				Weight (Grm)		
Vt= 1.98	Vv= 0.98	Va= 0.11	Air	Wa= 0.00	Wt= 3.41	
		Vw= 0.87	Water	Ww= 0.87		
	Vs= 1.00		Solid	Ws= 2.54		

Void ratio (e)	0.98	
Degree of saturation (Sr)	88.63	%
Porosity	0.50	
Dry unit weight	1.28	gr/cm3
Saturated unit weight	1.78	gr/cm3

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Weight–Volume Relationship of Unsaturated Soil

Boring No: T/L 150 Kv POLYPRIMA–ASAHIMAS Date of Tested : I
Depth : 150–195 (B1) Checked By : MA ONTOWIRYO

Input Data

Unit Weight	1.76	gr/cm3
Water Content	32.79	%
Specific Gravity	2.53	
Unit Weight of Water	1.00	gr/cm3

Volume (Cm3)				Weight (Grm)		
Vt= 1.91	Vv= 0.91	Va= 0.08	Air	Wa= 0.00	Wt= 3.36	
		Vw= 0.83	Water	Ww= 0.83		
	Vs= 1.00		Solid	Ws= 2.53		

Void ratio (e)	0.91	
Degree of saturation (Sr)	91.30	%
Porosity	0.48	
Dry unit weight	1.33	gr/cm3
Saturated unit weight	1.80	gr/cm3

Weight–Volume Relationship of Unsaturated Soil

Boring No: T/L 150 Kv POLYPRIMA–ASAHIMAS Date of Tested
Depth : 300 – 345 (B1) Checked By : MA ONTOWIRYO

Input Data

Unit Weight	1.69	gr/cm3
Water Content	42.76	%
Specific Gravity	2.52	
Unit Weight of Water	1.00	gr/cm3

Volume (Cm3)				Weight (Grm)		
Vt= 2.13	Vv= 1.13	Va= 0.05	Air	Wa= 0.00	Wt= 3.59	
		Vw= 1.08	Water	Ww= 1.08		
	Vs= 1.00		Solid	Ws= 2.52		

Void ratio (e)	1.13	
Degree of saturation (Sr)	95.43	%
Porosity	0.53	
Dry unit weight	1.18	gr/cm3
Saturated unit weight	1.71	gr/cm3

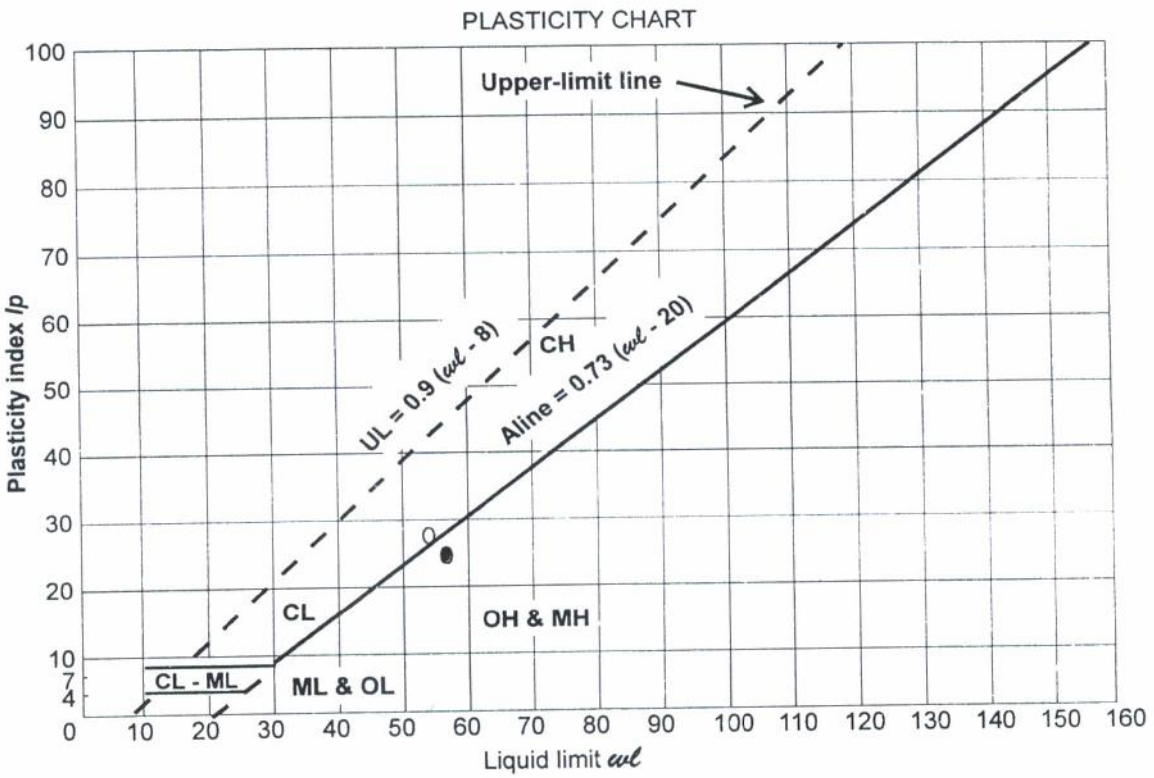
SOIL CLASSIFICATION

Project : T/L Poly Prima

Location : Serang, Jabar .

Test By : Ir/ S Hanny E .

Date of Test :



Boring No.	Depth (M)	Symbol	WL (%)	WP (%)	iP (%)	Unified Classification
B - 1	150 - 195	○	54,68	27,54	27,14	CH
	300 - 345	●	56,47	31,28	25,19	OH & MH

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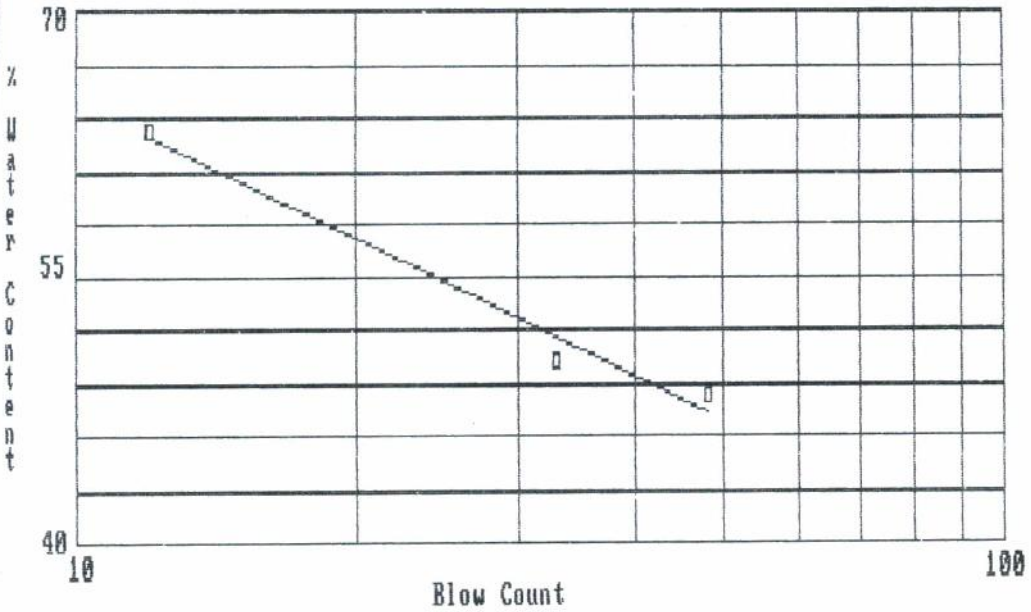
Boring No. = B 1	Depth = 150-195	Number = T/L POLYPRIMA



Sample no.	1	2	3						
% Water content	48.28	50.30	63.27						
Blow count	48	33	12						

Regression equation	Coefficient of determination
W =-25.8612 * logN + 90.8326	R^2 = .9806 ** Excellent Test
Liquid limit = 54.68	Flow index =-25.86
Input plastic limit = 27.54	Toughness index = -1.05
Plasticity index = 27.14	Shrinkage limit = 18.5
Input natural water content = 32.79	Liquidity index = .19

Boring No. = B 1	Depth = 150-195	Number = T/L POLYPRIMA

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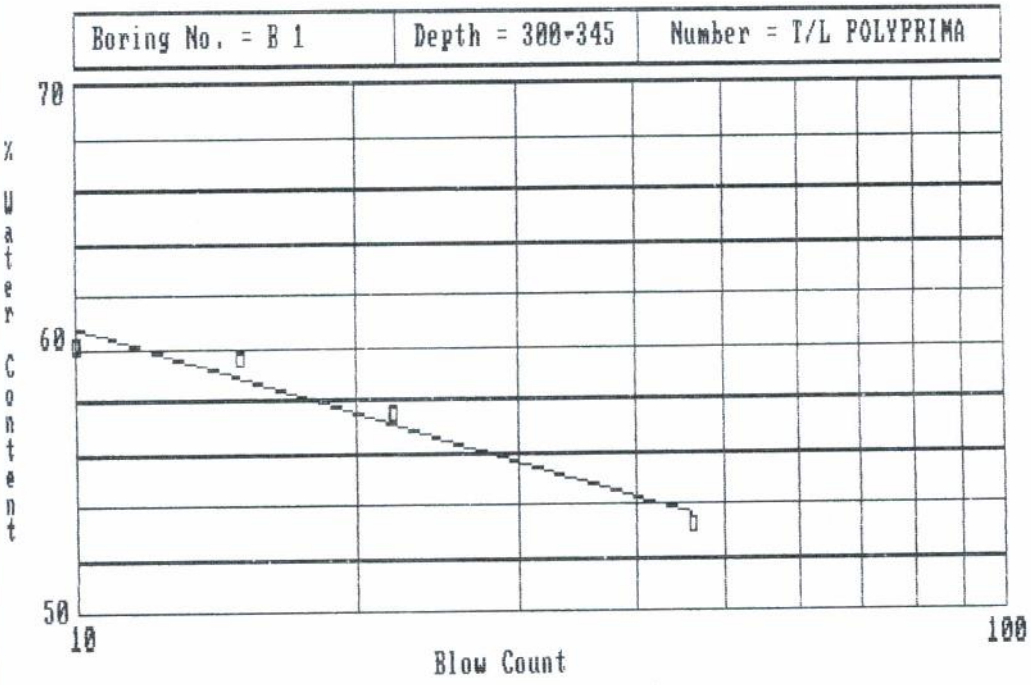


Sample no.	1	2	3	4					
% Water content	60.03	59.58	57.44	53.25					
Blow count	10	15	22	46					

Regression equation	Coefficient of determination
W =-10.7322 * logN + 71.4767	R^2 = .9542 ** Excellent Test
Liquid limit = 56.47	Flow index =-10.73
Input plastic limit = 31.28	Toughness index = -2.35
Plasticity index = 25.19	Shrinkage limit = 21.35
Input natural water content = 42.76	Liquidity index = .46
Boring No. = B 1	Depth = 300-345 Number = T/L POLYPRIMA

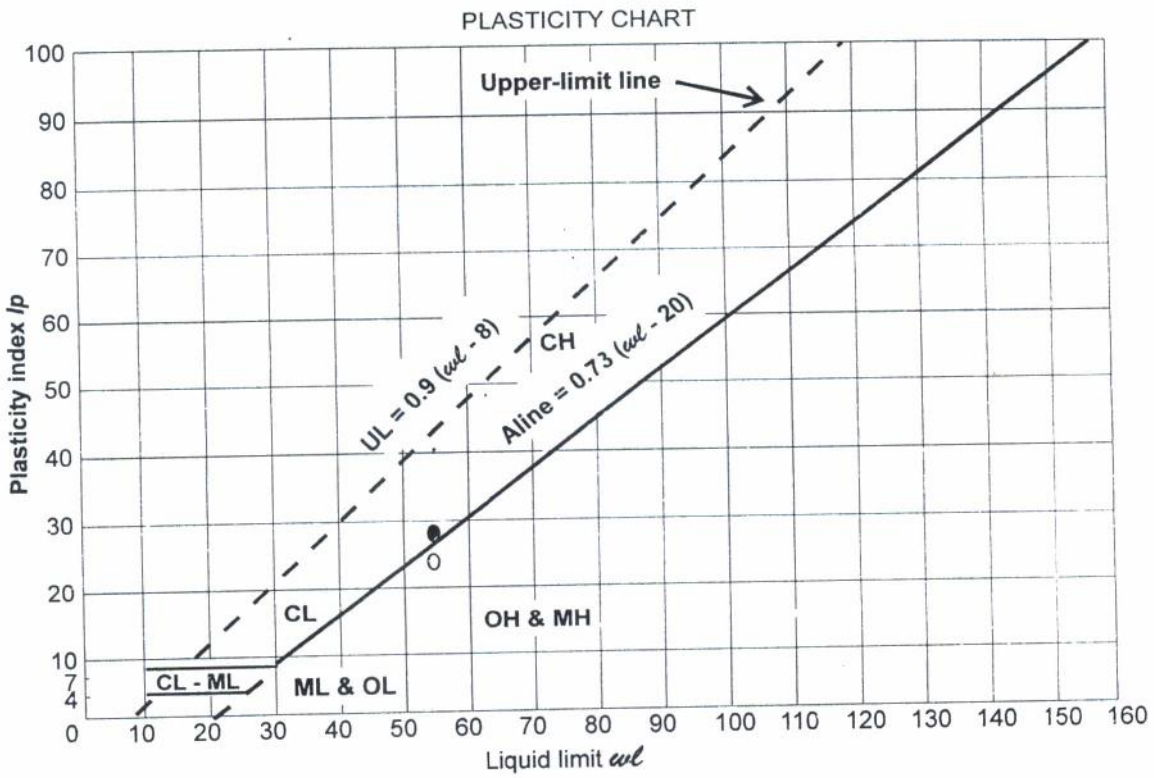
SOIL CLASSIFICATION

Project : T/L Poly Prima

Location : Serang, Jabar

Test By : Ir. SHanny E

Date of Test :



Boring No.	Depth (M)	Symbol	WL (%)	WP (%)	IP (%)	Unified Classification
B - 2	150 - 195	●	54,13	26,85	27,28	CH
	300 - 345	O	54,54	27,79	26,75	OH & MH

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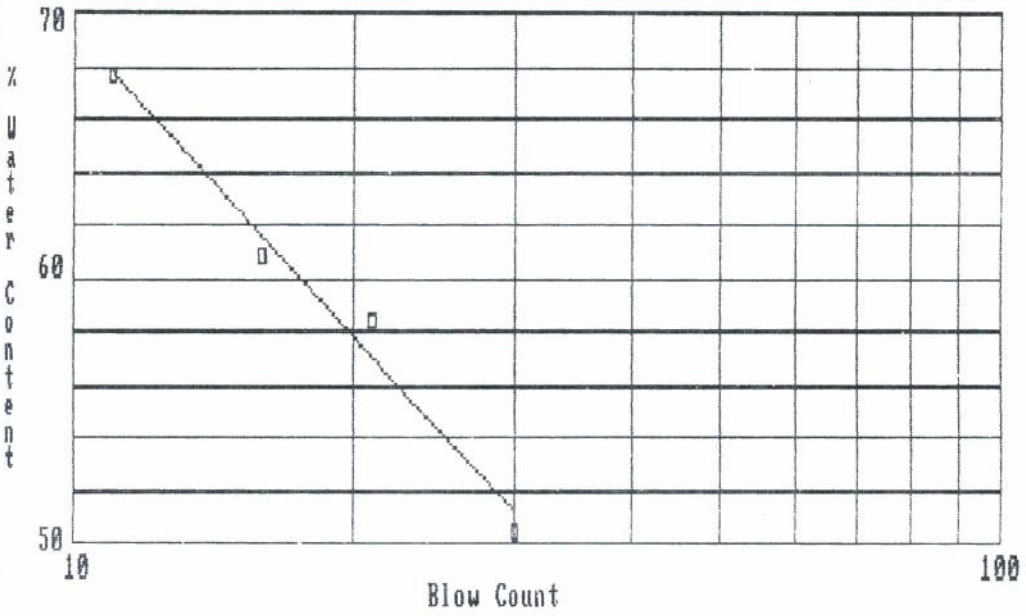
Boring No. = B 2	Depth = 150-195	Number = T/L POLYPRIMA



Sample no.	1	2	3	4					
% Water content	67.66	60.87	58.44	50.44					
Blow count	11	16	21	30					

Regression equation	Coefficient of determination
W =-38.1901 * logN + 107.5169	R^2 = .9808 ** Excellent Test
Liquid limit = 54.13	Flow index =-38.19
Input plastic limit = 26.85	Toughness index = -.71
Plasticity index = 27.28	Shrinkage limit = 18.03
Input natural water content = 31.91	Liquidity index = .19

Boring No. = B 2	Depth = 150-195	Number = T/L POLYPRIMA

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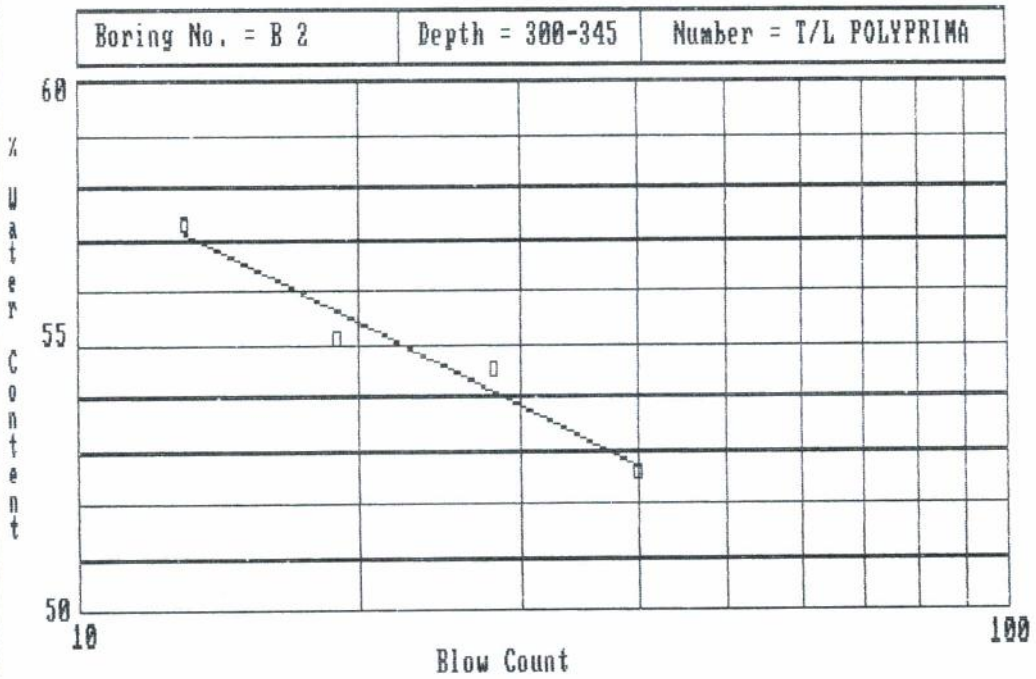

Sample no.	1	2	3	4					
% Water content	52.59	54.50	55.09	57.32					
Blow count	40	28	19	13					

Regression equation	Coefficient of determination
W =-9.0314 * logN + 67.1611	R^2 = .9561 ** Excellent Test
Liquid limit = 54.54	Flow index =-9.03
Input plastic limit = 27.79	Toughness index = -2.96
Plasticity index = 26.75	Shrinkage limit = 18.73
Input natural water content = 34.27	Liquidity index = .24

Boring No. = B 2	Depth = 300-345	Number = T/L POLYPRIMA

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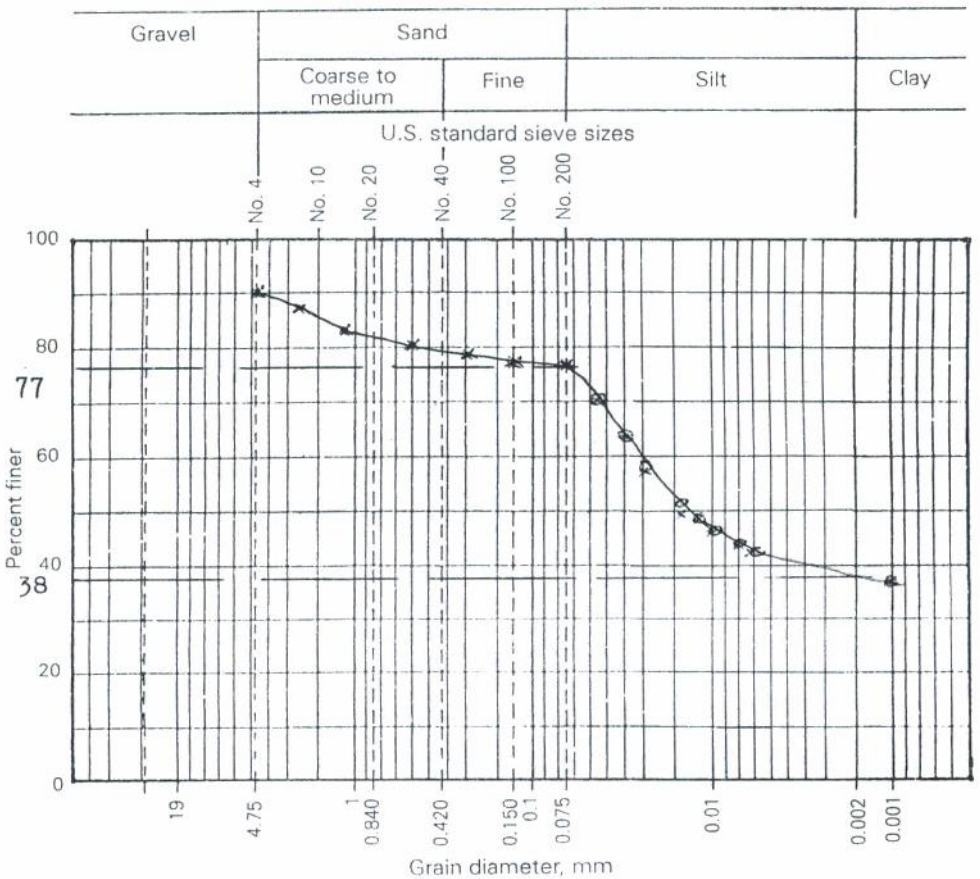
GRAIN SIZE DISTRIBUTION

Project T/L Poly Prima — Job No. ____

Location of Project Serang, Jabar — Boring No. B-1 — Sample No. 1

Description of Soil ____ — Depth of Sample 150 - 195

Tested By Ir. Rahardjo. S — Date of Testing ____



Visual soil description ____

Soil classification

____ System Hydrometer and sieve analysis

Gravel = 10 %.
Sand = 13 %.
Silt = 39 %.
Clay = 38 %.

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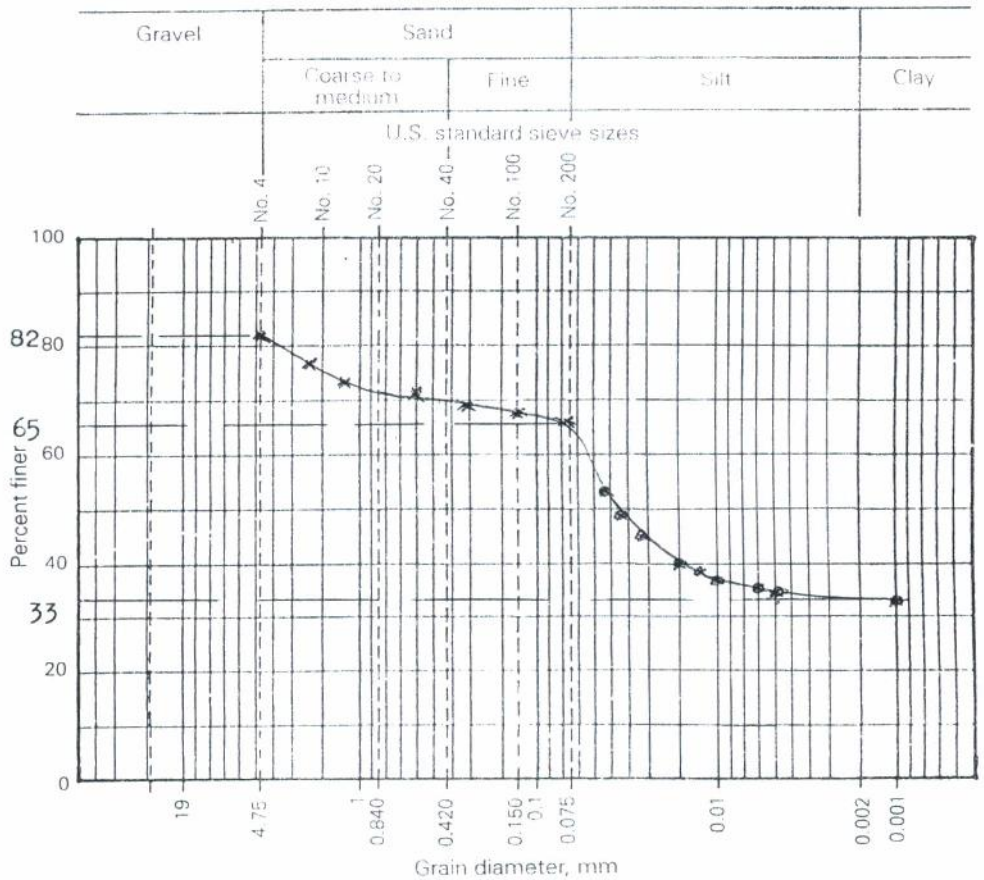
GRAIN SIZE DISTRIBUTION

Project T/L Poly Prima — Job No. —

Location of Project Serang, Jabar — Boring No. B-1 — Sample No. 2

Description of Soil — — Depth of Sample 300 - 345

Tested By Ir. Rahardjo. S — Date of Testing —



Visual soil description —

Soil classification

— System Hydrometer and sieve analysis

Gravel = 18 %.

Sand = 17 %.

Silt = 32 %.

Clay = 33 %.

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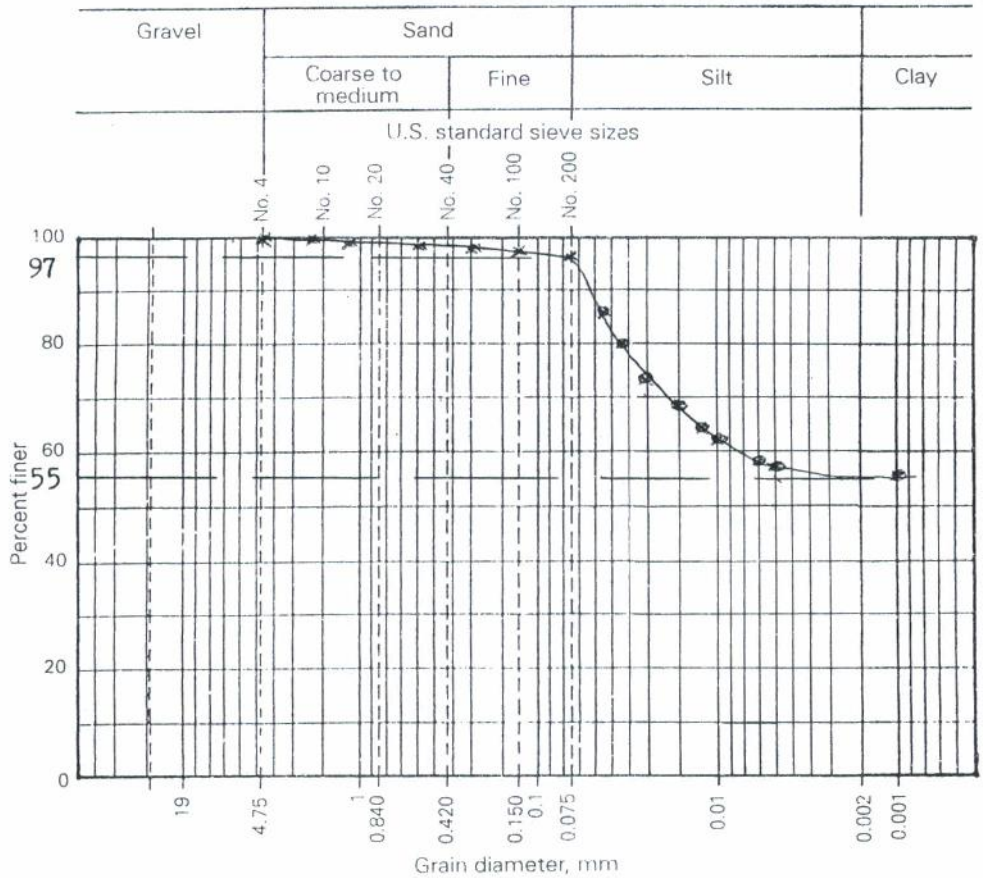
GRAIN SIZE DISTRIBUTION

Project T/L Poly Prima Job No. _____

Location of Project Serang, Jabar Boring No. B-2 Sample No. 1

Description of Soil _____ Depth of Sample 150 - 195 .

Tested By Ir. Rahardjo. S Date of Testing _____



Visual soil description _____

Soil classification _____ System Hydrometer and sieve analysis

Sand = 3 %. Clay = 55 %.

Silt = 42 %.

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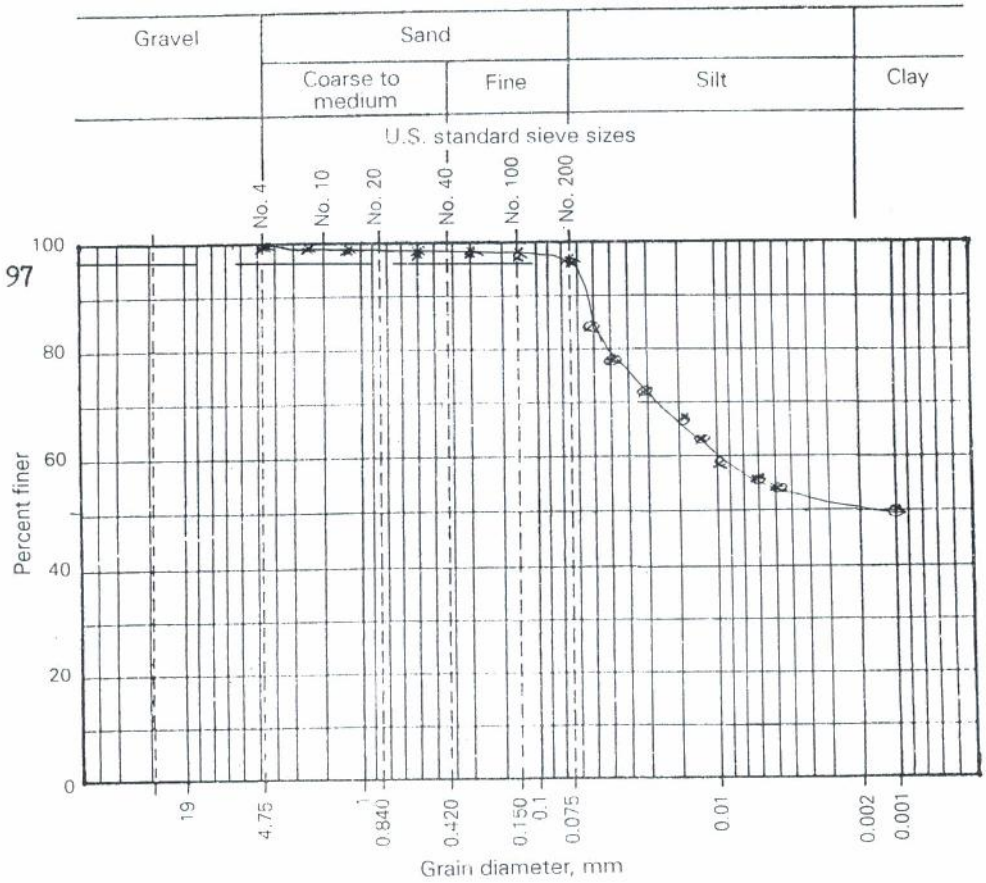
GRAIN SIZE DISTRIBUTION

Project T/L Poly Prima Job No.

Location of Project Serang, Jabar Boring No. B-2 Sample No. 2

Description of Soil Depth of Sample 300 - 345

Tested By Ir. Rahardjo. S Date of Testing



Visual soil description

Soil classification

System Hydrometer and sieve analysis

Sand = 3 %.

Silt = 47 %.

Clay = 50 %.

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TRIAXIAL U.U TEST

Project	T/L ASAHIMAS – POLYPRIMA	Date of test	
Location	CILEGON. WEST JAVA	Tested by	Amin Mr
Boring no	B 1	Checked by	NANA S
Depth	150 – 195 Cm	Approved by	

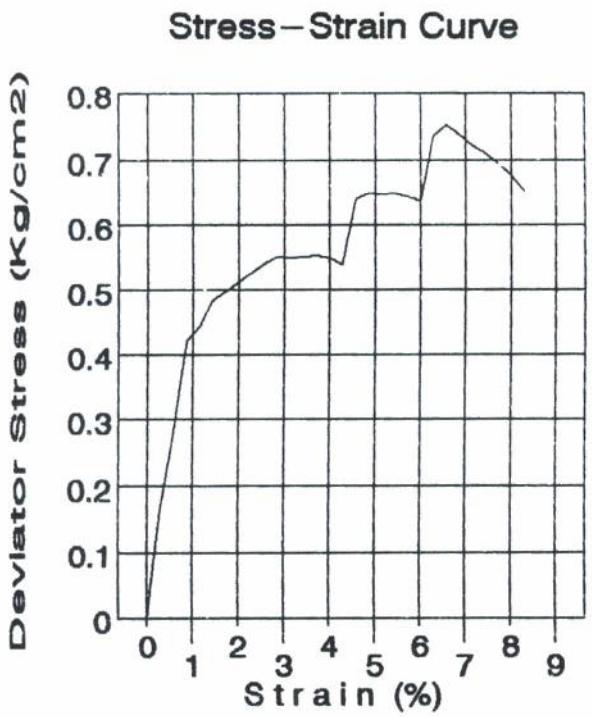
Sample Data

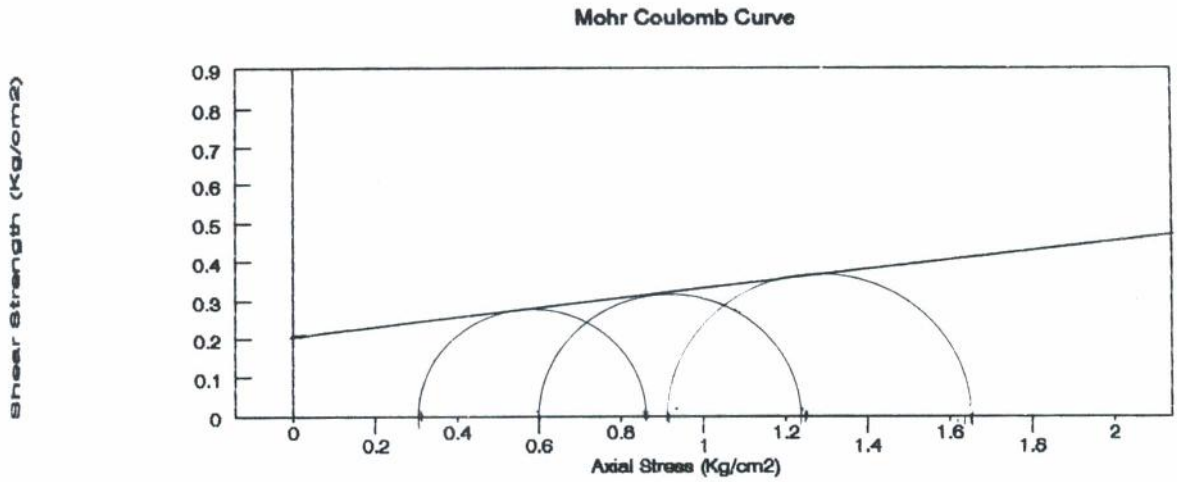
Diameter (cm)	3.50
Height (cm)	7.00
Wet density (gr/cm3)	1.65
Water content (%)	34.36
Dry density (gr/cm3)	1.23

Stress (kg/cm2)	Sample I	II	III
3	0.30	0.60	0.90
Deviator	0.55	0.65	0.75
1	0.85	1.25	1.65
Pore water pressure	0.00	0.00	0.00

Shear Strength Parameters

Cohesion Undrained (Cu), kg/cm2	0,21
Internal Angle Friction (Degree)	7°





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TRIAXIAL U.U TEST

Project	T/L ASAHIMAS – POLYPRIMA	Date of test	
Location	CILEGON. WEST JAVA	Tested by	Amin Mr
Boring no	B 1	Checked by	NANA S
Depth	300 – 345 Cm	Approved by	

Sample Data

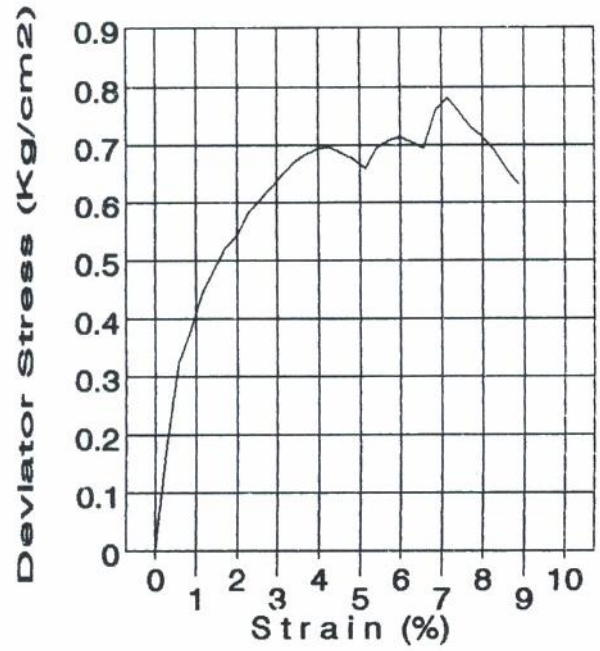
Diameter (cm)	3.50
Height (cm)	7.00
Wet density (gr/cm3)	1.72
Water content (%)	33.95
Dry density (gr/cm3)	1.29

Stress (kg/cm2)	Sample I	II	III
3	0.40	0.80	1.20
Deviator	0.70	0.71	0.78
1	1.10	1.51	1.98
Pore water pressure	0.00	0.00	0.00

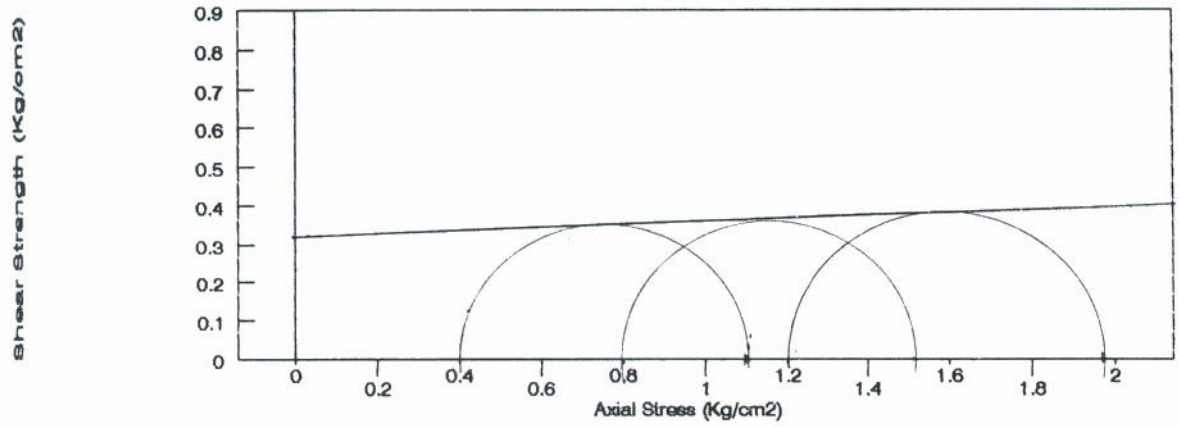
Shear Strength Parameters

Cohesion Undrained (Cu), kg/cm2	0,32
Internal Angle Friction (Degree)	2°

Stress – Strain Curve



Mohr Coulomb Curve



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TRIAXIAL U.U TEST

Project	T/L ASAHIMAS – POLYPRIMA	Date of test	
Location	CILEGON. WEST JAVA	Tested by	Amin Mr
Boring no	B 2	Checked by	NANA S
Depth	150 – 195 Cm	Approved by	

Sample Data

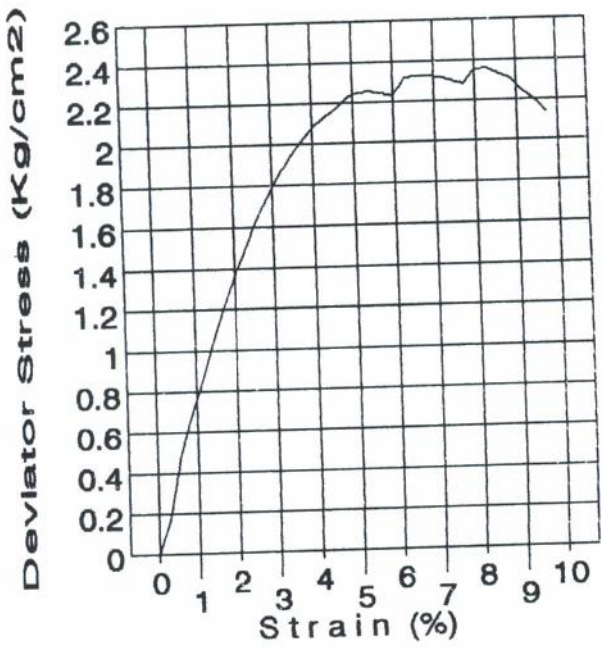
Diameter (cm)	3.50
Height (cm)	7.00
Wet density (gr/cm3)	1.81
Water content (%)	23.83
Dry density (gr/cm3)	1.46

Stress (kg/cm2)	Sample		
	I	II	III
3	0.30	0.60	0.90
Deviator	2.25	2.32	2.36
1	2.55	2.92	3.26
Pore water pressure	0.00	0.00	0.00

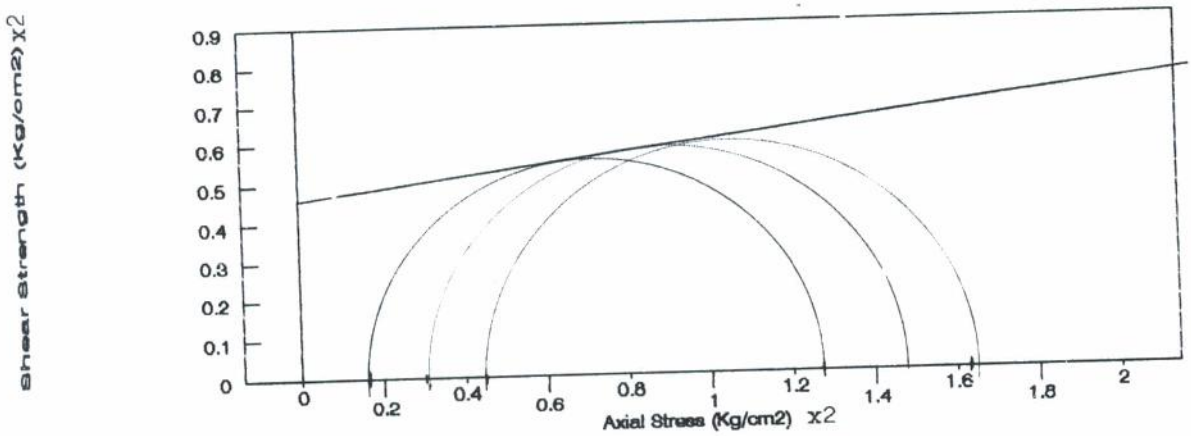
Shear Strength Parameters

Cohesion Undrained (Cu), kg/cm2	0,82
Internal Angle Friction (Degree)	8^{o}

Stress – Strain Curve



Mohr Coulomb Curve



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TRIAXIAL U.U TEST

Project	T/L ASAHIMAS – POLYPRIMA	Date of test	
Location	CILEGON. WEST JAVA	Tested by	Amin Mr
Boring no	B 2	Checked by	NANA S
Depth	300 – 345 Cm	Approved by	

Sample Data

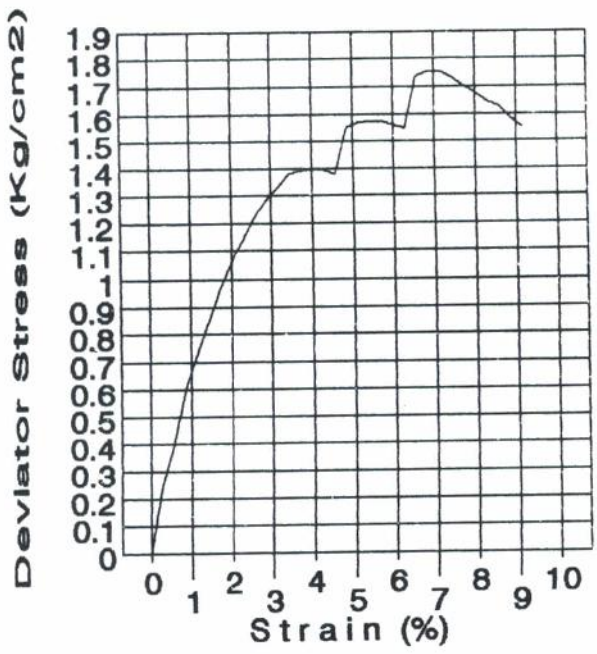
Diameter (cm)	3.50
Height (cm)	7.00
Wet density (gr/cm3)	1.78
Water content (%)	28.48
Dry density (gr/cm3)	1.39

Stress (kg/cm2)	Sample		
	I	II	III
3	0.40	0.80	1.20
Deviator	1.40	1.58	1.76
1	1.80	2.38	2.96
Pore water pressure	0.00	0.00	0.00

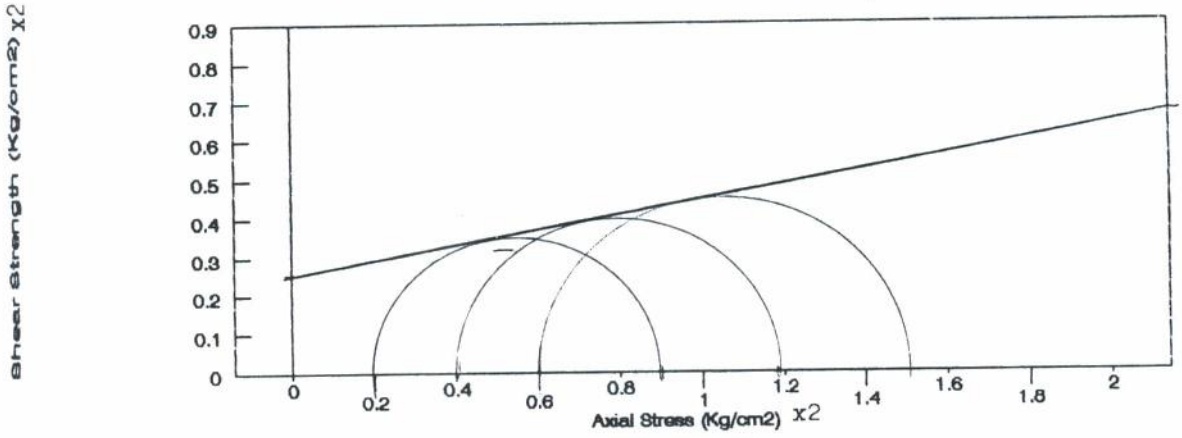
Shear Strength Parameters

Cohession Undrained (Cu), kg/cm2	0,52
Internal Angle Friction (Degree)	11°

Stress – Strain Curve



Mohr Coulomb Curve



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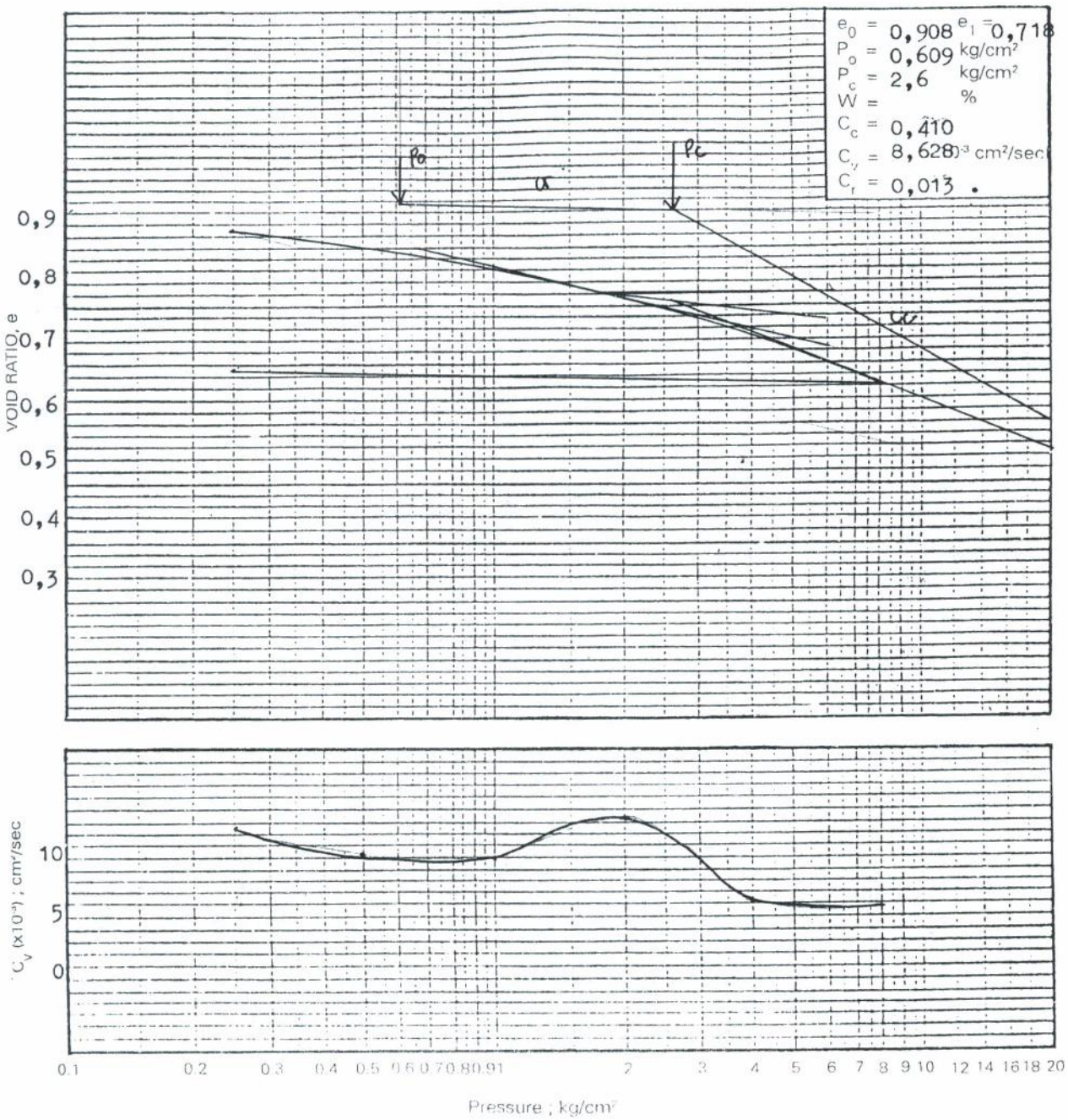
CONSOLIDATION TEST

Project : T/L Poly Prima
Location : Serang, Jabar
Boring no. : B-2

Depth of Sample : 300 - 345 .
Date of test :
Test by : Rr Prihadini N

e_0 = 0,908 e_1 = 0,718
P_o = 0,609 kg/cm²
P_c = 2,6 kg/cm²
W = %
C_c = 0,410
C_v = 8,628 10^{-3} cm²/sec
C_r = 0,013 .



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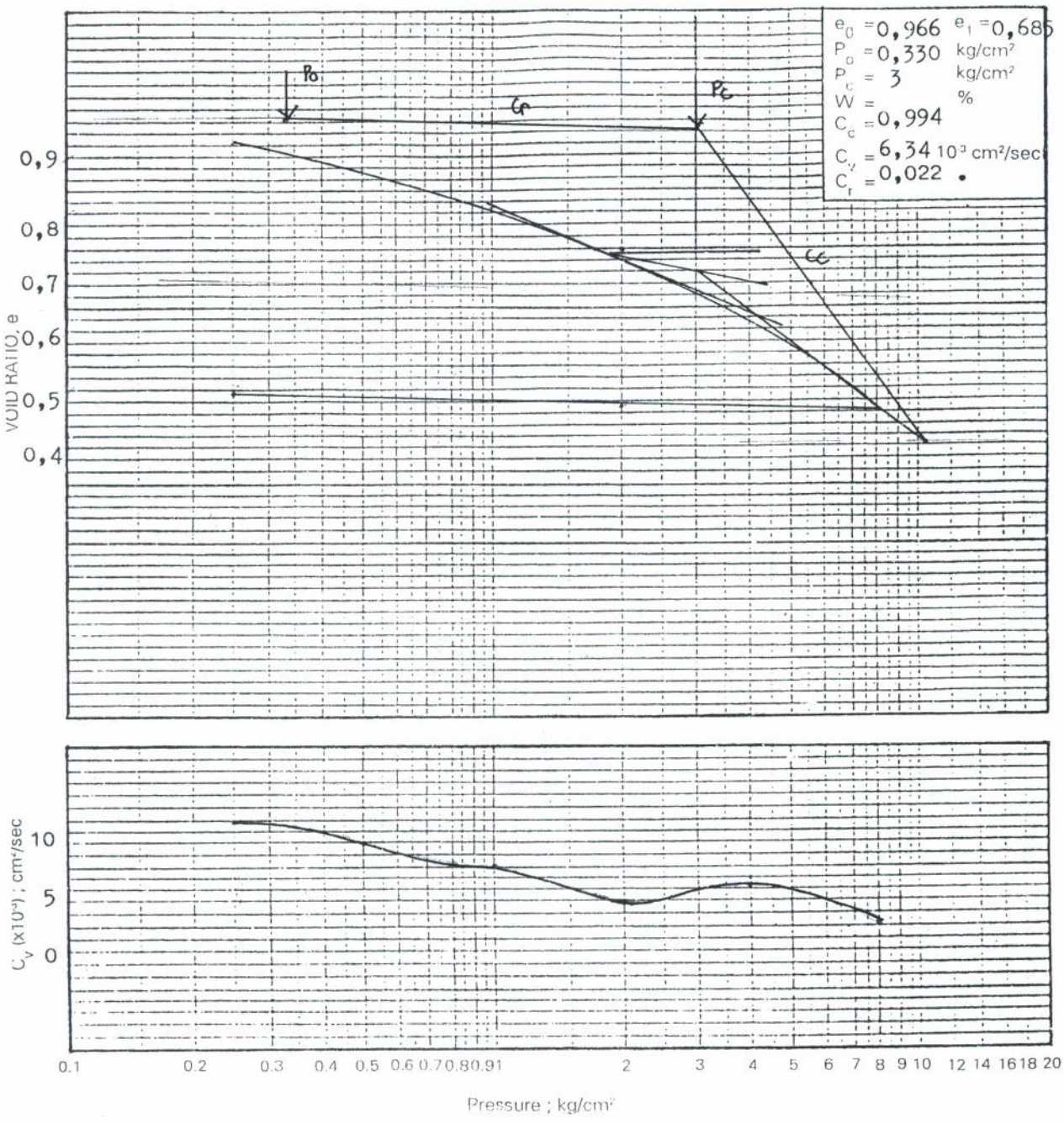
CONSOLIDATION TEST

Project : T/L Poly Prima
Location : Serang, Jabar.
Boring no. : B - 2 .

Depth of Sample : 150 - 195 .
Date of test : :
Test by : Rr Prihadini N

e_0 = 0,966 e_1 = 0,685
P_o = 0,330 kg/cm²
P_c = 3 kg/cm²
W = %
C_c = 0,994
C_v = 6,34 10^{-3} cm²/sec
C_r = 0,022 .



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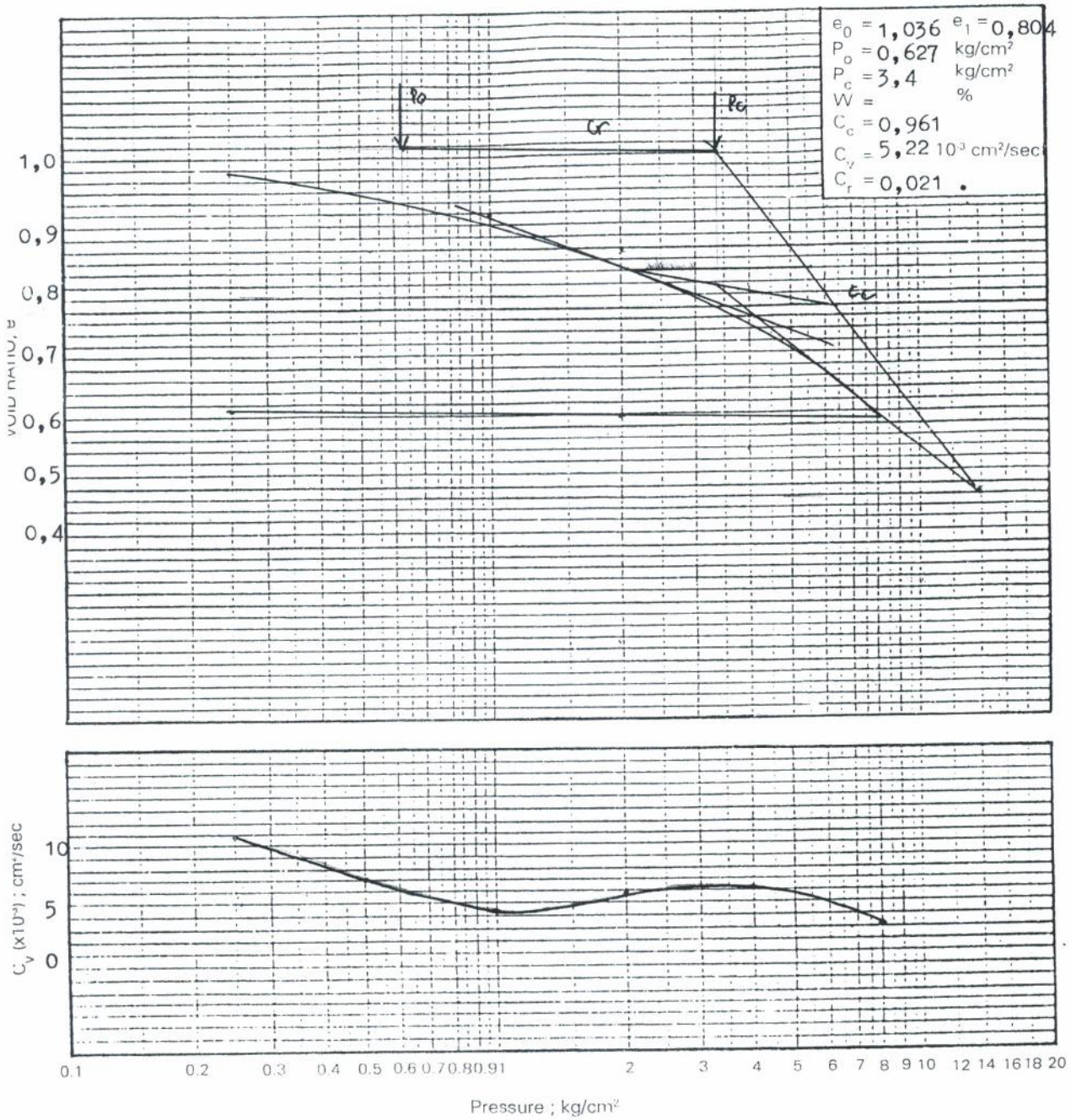
CONSOLIDATION TEST

Project : T/L Poly Prima
Location : Serang , Jabar .
Boring no. : B - 1 .

Depth of Sample : 300-345 .
Date of test :
Test by : Rr Prihadini N

e_0 = 1,036 e_1 = 0,804
P_o = 0,627 kg/cm²
P_c = 3,4 kg/cm²
W = %
C_c = 0,961
C_v = 5,22 10^{-3} cm²/sec
C_r = 0,021 .



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CONSOLIDATION TEST

Project : T/L Poly Prima
Location : Serang, Jabar .
Boring no. : B-1 .

Depth of Sample : 150 - 195 .
Date of test :
Test by : Rr Prihadini N

e_0 = 1,406 e_1 = 0,866
P_o = 0,328 kg/cm²
P_c = 3,5 kg/cm²
W = %
C_c = 2,86
C_v = 3,454 10^{-3} cm²/sec
C_r = 0,035 .