C-44

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

FAKULTAS TEKNIK SIPIL
DAN PERENCANAAN
JURUSAN TEKNIK SIPIL

PENUGASAN

No : 28-01/PM/LM/I/11

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 Uji Plate Bearing Krakatau Posco Project
Lokasi	:	Cilegon, Banten
Pemberi Tugas	:	PT. Tekniko Indonesia

Dengan jadwal pelaksanaan pekerjaan selama 8 hari kerja (64Jam), 3 hari di lapangan dan 5 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, 28 januari 2011
Kaprodi Teknik Sipil

Ir. Ismail Junaedy MT
NIP : 01.88067

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

LEMBAR PENGESAHAN
PENGABDIAN PADA MASYARAKAT

ISTN

PENYELIDIKAN TANAH UJI PLATE BEARING KRAKATAU
POSCO PROJECT
Lokasi : Cilegon, Banten

Oleh :
Idrus Ir, M.Sc

Mengetahui :
Ketua Jurusan Teknik Sipil

Ir. Ismail Djunaedy, M.T

Program Studi Teknik Sipil
Institut Sain dan Teknologi Nasonal

Jakarta 2011

FINAL REPORT

SOIL INVESTIGATION

PROJECT :

PLATE BEARING TEST

KRAKATAU POSCO PROJECT

(CCP LAND FC , SMP LAND CD , SMP LAND AB)

LOCATION : CILEGON , BANTEN

ISTN

UNIT PENGABDIAN PADA MASYARAKAT

ISTN *Soil Mechanics Laboratory*

2011

Jakarta, 2 Februari 2011

No: 02-2/FR/Gi-TI/II/11

To : PT. Tekniko Indonesia
Cirebon PLTU Project
West Java

Subject : Plate Bearing Test Report on Krakatau Posco Project

Dear Sir,

Regarding the request from PT. Tekniko Indonesia to Laboratorium Mekanika Tanah ISTN Jakarta to proceed Plate Bearing Test on Krakatau Posco Project, following are the reports of the project :

1. The Plate bearing test has been done on 30th January 2011 until 31th January 2011
2. The number of the plate bearing test is 3 (three) tests on based compacted layer of compacted crush stone on CCP Land FC (PB-1), SMP Land CD (PB-2) and SMP Land AB (PB-3).
3. The working load designed for all test is 20,0 t/m^2 (2,0 kg/cm^2)
4. The maximum load has been done is 60,0 t/m2, with Safety Factor = 3,00
5. Counter Weight used was Full Loaded Dump Truct, with Total Weight is more than 18 tonf
6. The Testing report as follows :

   CCP Land FC (PB-1)

   On working load , the average total settlement is 0,315 mm

   On maximum load (SF=3) , the average total settlement is 0,923 mm

   SMP Land CD (PB-2)

   On working load , the average total settlement is 0,733 mm

   On maximum load (SF=3) , the average total settlement is 1,393 mm

   SMP Land AB (PB-3)

   On working load , the average total settlement is 0,660 mm

On maximum load (SF=3) , the average total settlement is 5,283 mm

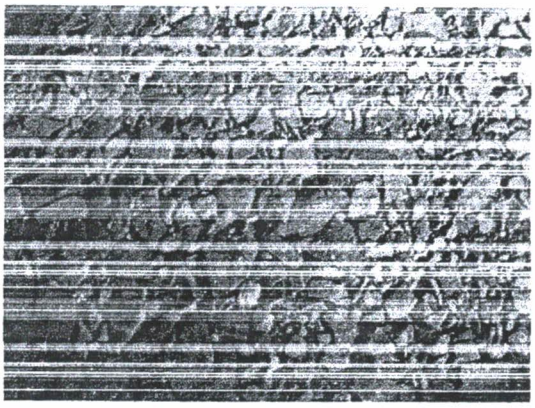
7. The results of the test are attached

From the report of the plate bearing test with maximum load of 60,00 t/m2 (SF= 3,00) in 3 (three) point test (PB-1, PB-2 & PB-3), the average maximum total settlement is 5,283 mm in PB-3, this is smaller than requirement maximum settlement at failure condition for shallow foundation which is 25,4 mm , therefore we conclude the base layer is strong enough to support the existing working load (Save). The total settlement due the existing load must be calculated with consolidation parameter of subsoil below the soil layer (consolidation settlement) and and Elastic Soil Modullus (Es) for Immediately Settlement.

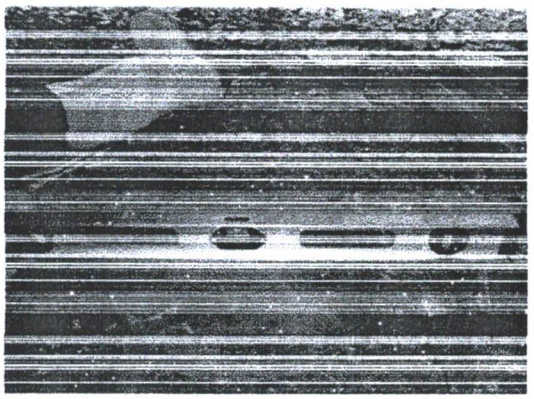
Best regards

(Ir Idrus Muhammad Alatas M.Sc)
Geotechnical Engineer

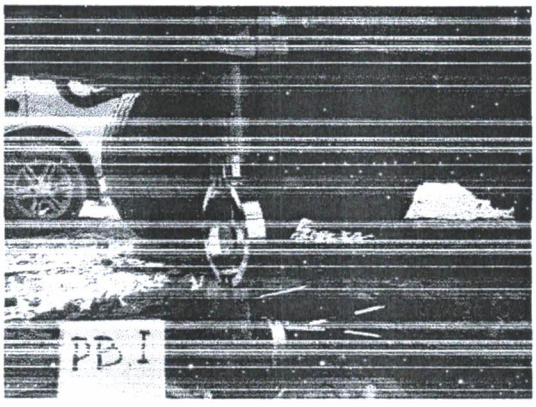
FOTO-FOTO PENGAMATAN PLATE BEARING TEST PB-1, PB-2 & PB-3



Compacted Crush Stone (base layer)



Levelling by Water Pass



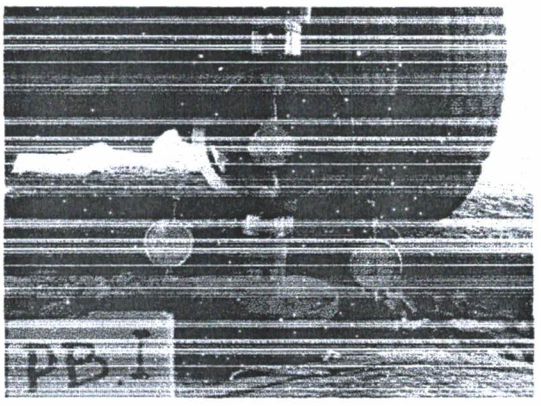


Plate Bearing Test on PB-1 CCP Land FC

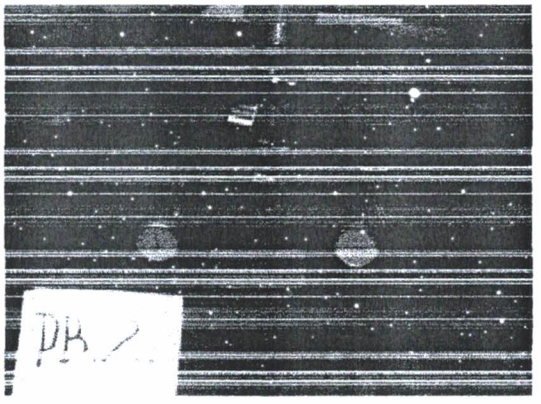
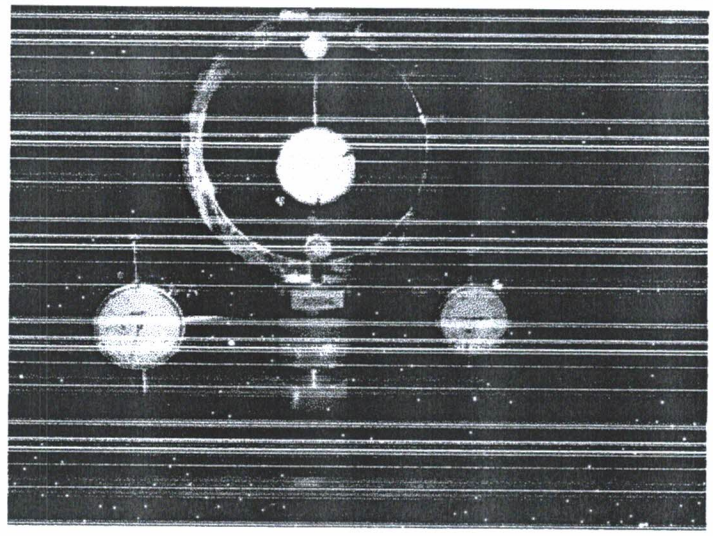


Plate Bearing Test on PB-2 SMP LAND CD



Dial Pressure & Dial Penetration Reading on PB-3

PLATE BEARING TEST

ISTN SOIL MECHANICS LABORATORY

PROJECT : KRAKATAU POSCO
LOCATION : CILEGON, BANTEN
TEST NOMBER / CODE : PBT - 1 / CCP LAND FC
DEPTH : SURFACE BASE LAYER
DESCRIPT. : Compacted Gravel Layer / CRUSH STONE

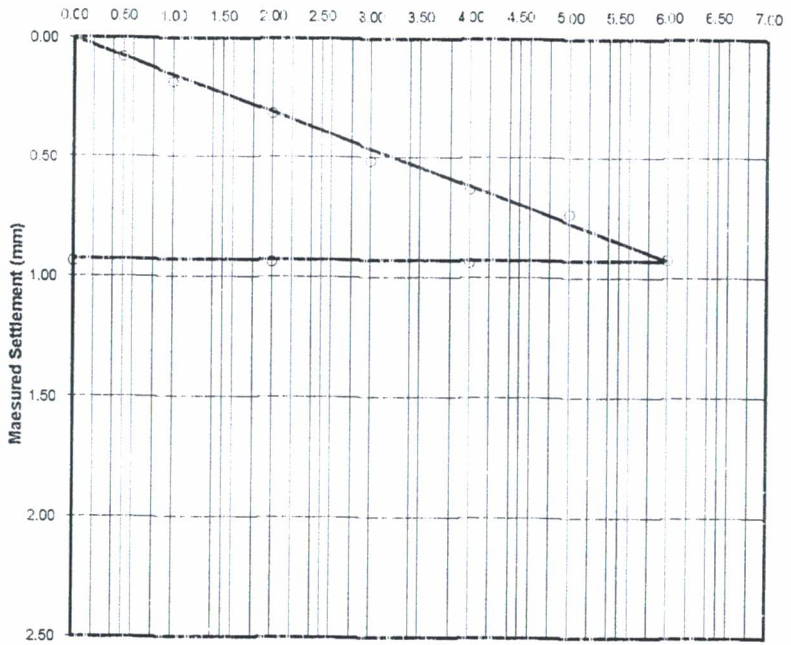
COORDINATE : N =
: E =
ELEVATION

Date : 30-01-2011
Weater
Tested by : Budy CS
Recorected by : Mukhtarorn
Checked by : Ir. Idrus M.Sc

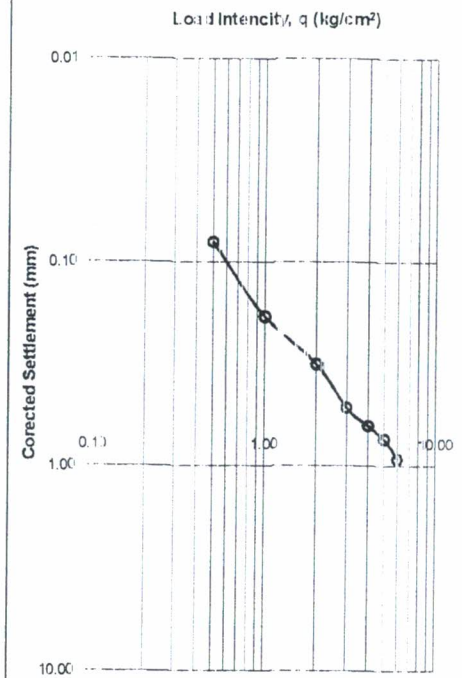
Load	Pressure Load Intencity	Settlement Measure	
(kg)	kg/cm²	d (in)	(mm)
0	0	0	0
353	0.50	0.0031	0.080
707	1.00	0.0073	0.185
1413	2.00	0.0124	0.315
2120	3.00	0.0203	0.515
2827	4.00	0.0249	0.633
3534	5.00	0.0288	0.733
4238	6.00	0.0363	0.923
Rebound			
2827	4.00	0.0369	0.938
1413	2.00	0.0368	0.935
0	0.00	0.0368	0.935

PLATE DIAMETER : 11.8110 inchi
AREA : 109.5077 sc/in
: 706.5 sc/cm

ARITHMETIC LOAD SETTLEMENT DIAGRAM



LOGARITHMIC LOAD SETTLEMENT DIAGRAM



		YIELD POINT		WORKING LOAD		MAXIMUM LOAD	
Pressure (Load Intencity)	q	-	kg/cm²	2.000	kg/cm²	6.000	kg/cm²
Settlement	δ1	-	mm	0.315	mm	0.923	mm
Zero Corection	δ2	-	mm	0.000	mm	0.000	mm
Corected Setlement	δ = δ1 - δ2	-	mm	0.315	mm	0.923	mm
modulus Subgrade Reaction		-	kg/cm³	63.492	kg/cm³	65.041	kg/cm³
Kv = q / δ		-	kg/ft³	1797892.063	kg/ft³	1841743.089	kg/ft³
K v1 =((16 R2 / (2R + 1)2) K v R in ft		-	kg/ft³	1797892.063	kg/ft³	1841743.089	kg/ft³
MODULUS ELASTICITY		-	kg/ft²	1498767.771	kg/ft²	1535623.083	kg/ft²
Es = 0.95 K v1 (1 - μ2)		-	kg/cm²	1613.270	kg/cm²	1652.618	kg/cm²

REMARK :

Using average settlement from 2 (two) dial measurement

PLATE BEARING TEST

ISTN SOIL MECHANICS LABORATORY

PROJECT : KRAKATAU POSCO
LOCATION : CILEGON, BANTEN
TEST NOMBER / CODE : PBT - 2 / SMP LAND CD
DEPTH : SURFACE BASE LAYER
DESCRIPT. : Compacted Gravel Layer/ CRUSH STONE

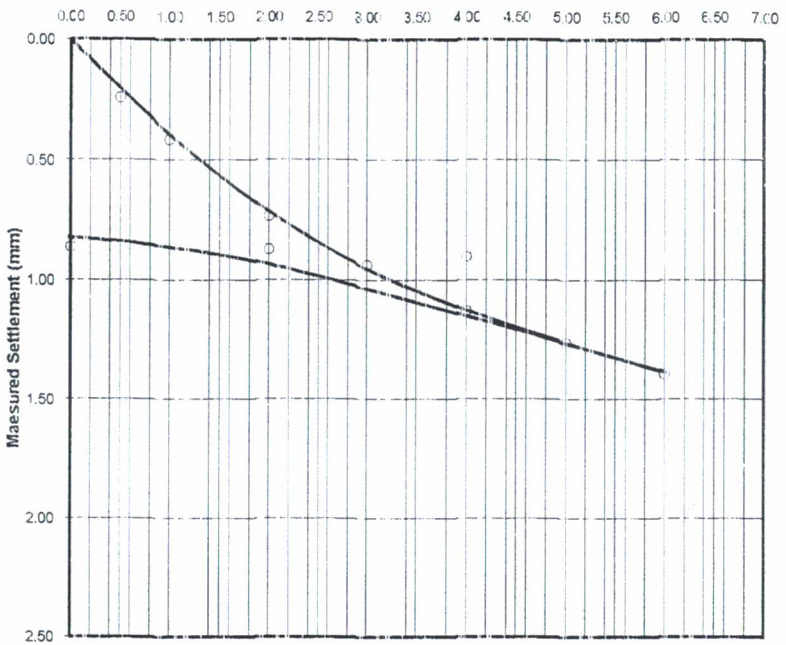
COORDINATE : N =
: E =
ELEVATION

Date : 30-01-2011
Weater
Tested by : Budy CS
Recorected by : Mukhtarom
Checked by : Ir. Idrus M.Sc

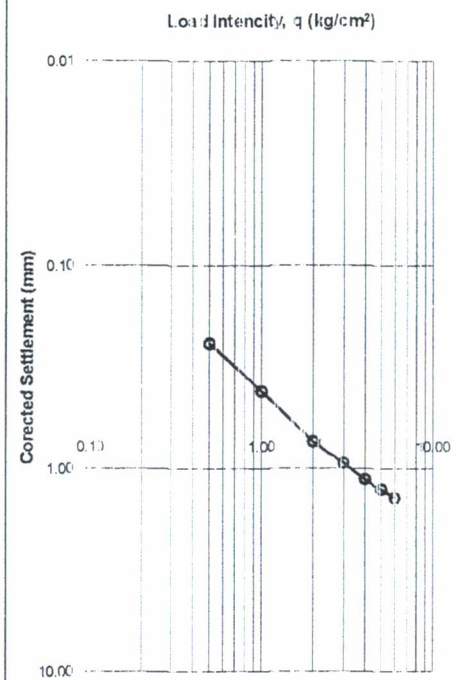
Load (kg)	Pressure Load Intencity kg/cm²	Settlement Measure d (in)	(mm)
0	0	0	0
353	0.50	0.0094	0.240
707	1.00	0.0162	0.413
1413	2.00	0.0288	0.733
2120	3.00	0.0368	0.935
2827	4.00	0.0444	1.127
3534	5.00	0.0496	1.260
4238	6.00	0.0548	1.393
Rebound			
2827	4.00	0.0355	0.903
1413	2.00	0.0344	0.873
0	0.00	0.0340	0.863

PLATE DIAMETER : 11.8110 inchi
AREA : 109.5077 sc/in
: 706.5 sc/cm

ARITHMETIC LOAD SETTLEMENT DIAGRAM



LOGARITHMIC LOAD SETTLEMENT DIAGRAM



		YIELD POINT		WORKING LOAD		MAXIMUM LOAD	
Pressure (Load Intencity)	q	-	kg/cm²	2.000	kg/cm²	6.000	kg/cm²
Settlement	δ1	-	mm	0.733	mm	1.393	mm
Zero Corection	δ2	-	mm	0.000	mm	0.000	mm
Corected Setlement	δ = δ1 - δ2	-	mm	0.733	mm	1.393	mm
modulus Subgrade Reaction		-	kg/cm³	27.304	kg/cm³	43.088	kg/cm³
Kv = q / δ		-	kg/ft³	773154.949	kg/ft³	1220113.465	kg/ft³
K v1 =((16 R2 / (2R + 1)2) K v ; R in ft		-	kg/ft³	773154.949	kg/ft³	1220113.465	kg/ft³
MODULUS ELASTICITY		-	kg/ft²	644521.294	kg/ft²	1017117.087	kg/ft²
Es = 0.95 K v1 (1- μ2)		-	kg/cm²	693.761	kg/cm²	1094.623	kg/cm²

REMARK :

Using average settlement from 2 (two) dial measurement

PLATE BEARING TEST

ISTN SOIL MECHANICS LABORATORY

PROJECT : KRAKATAU POSCO
LOCATION : CILEGON, BANTEN
TEST NOMBER / CODE : PBT - 3 / SMP LAND AB
DEPTH : SURFACE BASE LAYER
DESCRIPT. : Compacted Gravel Layer/ CRUSH STONE

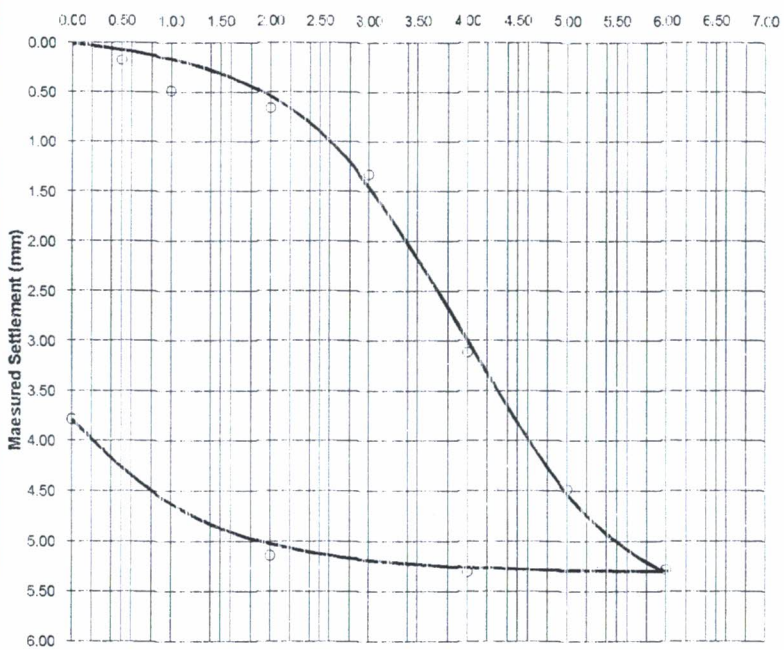
COORDINATE : N =
: E =
ELEVATION

Date : 31-01-2011
Weater
Tested by : Budy CS
Recorected by : Mukhtarom
Checked by : Ir. Idrus M.Sc

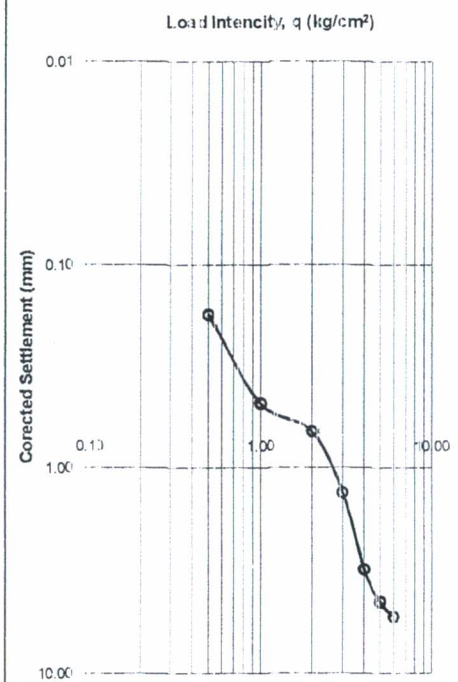
Load (kg)	Pressure Load Intencity kg/cm²	Settlement Measure d (in)	(mm)
0	0	0	0
353	0.50	0.0069	0.175
707	1.00	0.0189	0.480
1413	2.00	0.0260	0.660
2120	3.00	0.0522	1.325
2827	4.00	0.1224	3.110
3534	5.00	0.1764	4.480
4238	6.00	0.2030	5.283
Rebound			
2827	4.00	0.2089	5.305
1413	2.00	0.2024	5.140
0	0.00	0.1489	3.783

PLATE DIAMETER : 11.8110 inchi
AREA : 109.5077 sc/in
: 706.5 sc/cm

ARITHMETIC LOAD SETTLEMENT DIAGRAM



LOGARITHMIC LOAD SETTLEMENT DIAGRAM



		YIELD POINT		WORKING LOAD		MAXIMUM LOAD	
Pressure (Load Intencity)	q	kg/cm²		2.000	kg/cm²	6.000	kg/cm²
Settlement	δ1	mm		0.660	mm	5.283	mm
Zero Corection	δ2	mm		0.000	mm	0.000	mm
Corected Setlement	δ = δ1 - δ2	mm		0.660	mm	5.283	mm
modulus Subgrade Reaction		kg/cm³		30.303	kg/cm³	11.358	kg/cm³
Kv = q / δ		kg/ft³		858084.848	kg/ft³	321629.531	kg/ft³
K v1 =((16 R2 / (2R + 1)2) K v R in ft		kg/ft³		858084.848	kg/ft³	321629.531	kg/ft³
MODULUS ELASTICITY		kg/ft²		715320.982	kg/ft²	268118.418	kg/ft²
Es = 0.95 K v1 (1 - μ2)		kg/cm²		769.970	kg/cm²	288.602	kg/cm²

REMARK :

Using average settlement from 2 (two) dial measurement