

REPORT ON

STATIC AXIAL COMPRESSIVE PILE LOAD TEST ON PHC PILE

TEST PILE ID: P-91

OWNER

SHOPNOSHUR RESIDENT'S SOCIETY

CONSTRUCTION COMPANY

SAMUDA CONSTRUCTION LTD.

PROJECT: PROPOSED (20) TWENTY STORIED RESIDENTIAL BUILDING WITH 02 BASEMENTS SHOPNOSHUR RESIDENTS, PLOT- 2589-2590, ROAD- 22, BLOCK- M, BASHUNDHARA R/A, DHAKA.

JANUARY – 2024

TEST & REPORT PREPARED BY



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1.0 INTRODUCTION

This report presents the test results of monotonic Static Axial Pile Load tests on PHC Pile for the site of **Proposed (20) Twenty Storied Residential Building with 02 Basements ShopnoShur Residents, Plot-2589-2590, Road- 22, Block- M, Bashundhara R/A, Dhaka..** The Contractor for the project Samuda Construction Ltd. installed 500mm diameter having of 23.0m length PHC test pile for the foundation of the structure. Pile designated as P-91 was tested under static axial compressive load to confirm the load capacity of the pile. Pile load testing work was awarded to **“BD Soil & Foundation”** a Geotechnical Engineering firm Located in Dhaka. This tests were carried out with a view to confirm the carrying capacity of single pile under monotonic static load and to know the settlement behavior of this piles under test. This test was carried out on 18th to 19th January 2024

2.0 OBJECTIVE

Pile load test have been carried out to achieve following objectives-

- To determine the settlement under working load
- To confirm the adequacy of design bearing capacity
- As proof of acceptability
- Determine allowable bearing capacity

Maintained load in axial compression test was performed according to ASTM D-1143 to accomplish the objectives

3.0 SCOPE OF WORK

- Scope of work were set as follows -
- Materials and instruments required for the test
- Placement of hydraulic driving machine as loading platform
- Placement of concrete block on platform
- Installation of reference beam
- Finishing of pile top for the test of hydraulic jack, Installation of pile collar, placement of jack & dial gauge reading etc.
- Ensure safety provisions

Recording of time, load & settlement data during loading and unloading.

Submission of report that will include following-

- Preparation of related graph
- Analysis of recorded data
- Interpretation of results

4.0 TEST METHODOLOGY

The general guide line of ASTM 1143 “Standard Method of Testing Piles under Static Axial Compressive Load” was followed.

Static Axial Compressive Load was provided by hydraulic jack acting against hydraulic driving machine platform counter weight Kent ledge as reaction system. Kent ledge was prepared, by hydraulic driving machine with concrete block.

Following equipment were used in the testing scheme:

- | | |
|-------------------|---|
| a. Hydraulic jack | 01 no (Pre-calibrated combined with pressure gauge) |
| b. Pressure gauge | 01 no |
| c. Dial gauge | 02 nos (Pre-calibrated) |
| d. Hydraulic pump | 01 no |

The load on pile was applied by using hydraulic jack seated on bearing plate. Piston pump was used pressure. Calibrated hydraulic jack & pressure gauge was used to monitored load.

10% of proof load was added with counter weight to avoid the tilting of Kentledge. Total load of the Kent ledge was about 500.00 Ton.

Two settlement gauge of accuracy up 0.01 mm and stroke of 50 mm were used to measure settlement with respect to a horizontal reference beam fixed on the ground.

5.0 PHYSICAL DESCRIPTION OF TEST PILE AND EQUIPMENT

Physical description of test pile and equipment use are provided in Table-1 & Table-2 bellow

Table-1
Physical description of test pile (PHC Pile)

Test pile no	Diameter (mm)	Pile Head Type	Embedment Length (m)	PC Bar	Spiral Wire dia	Concrete Grade	Applied Load (kg)
P - 91	500	Cut off head	23.0	10 nos (9mm)	4.3mm	M-70	320,000

Table-2
Description of Equipment used

Test pile no	Ram Dia	Jack calibration combined with pressure gauge			Dial gauge	
		Pressure gauge Range	Calibration Date	Regression equation	Sensitivity	Range
P – 91	35.00 cm	0-1000 Kg/cm ²	12.11.23	Y= 9.2211X – 210.58	0.01 mm	0-50mm

6.0 INTERPRETATION OF TEST RESULT

The load-Settlement–time curves and load-Settlement curve for the test pile is shown respectively. A number of arbitrary or empirical methods are used to serve as criteria for determining the allowable and ultimate load Carrying Capacity from pile load test. Some are based on maximum permissible gross or net Settlement as measured at the pile butt while the others are based on the performance of the pile during the progress of testing (Chellis, 1961; Whitaker, 1976; Poulos and Davis, 1980; Fuller, 1983). Most commonly practiced criteria used for evaluating the ultimate and allowable load Carrying Capacity of pile in Bangladesh are given below.

Definition of Failure Load

The maintained load (ML) test is commonly used to determine the ultimate bearing capacity of the pile. Whenever a well-defined load has not been obtained, following definitions of failure are adopted:

Source: A Short Course in Foundation Engineering, 2nd edition (by Noel Simons & Bruce Menzies).

- I. The failure load is that which causes settlement equal to 10% of the the pile diameter, making allowance for the elastic shortening of the pile itself that may be significant for long piles
- II. The failure load is that at which the rate of settlement continues undiminished without further increment of load , unless of course the rate is so slow as to indicate that it is due to consolidation of soil
- III. The failure load is the load where the load settlement curve has its minimum radius of curvature.
- IV. Drawing tangents to the initial and final points of the load settlement curve and taking the point of intersection as the failure load.

Definition of Ultimate Load/ Allowed Load:

According to BNBC (2020, Part 6 , Chapter -3, Article -3.10.1.17, Page : 6-181):

(II) Safe Load for Single Pile :

- (a). Two thirds of the final load at which the load displacement attains a value of 12 mm unless otherwise required in a given case on the basis of nature and type of structure in which case, the safe load should be corresponding to the stated total displacement permissible.
- (b). Fifty (50) percent of the final load at which the total displacement equals to 10 percent of piles diameter case of uniform diameter piles and 7.5 percent of bulb diameter in case of under-reamed piles.

(III) According to Indian Standard Code of practice (IS: 2911 1985), allowable pile capacity is smaller of the following

- (a) The safe load is Two-thirds of the final load at which the total displacement attains a value of 12 mm unless otherwise required in a given case on the basis of nature and type of structure in which case, the safe load should be corresponding to the stated total displacement permissible.
- (b). 50 percent of the final load at which the total displacement equal 10 percent of the pile diameter in case of uniform diameter piles and 7.5 percent of bulb diameter in case of under-reamed piles.

Davisson Rule

I. This method was proposed by Davisson (1973) as the load corresponding to movement that exceeds the elastic compression of the pile (PL/AE) by a value of 0.15inch plus the diameter divided by 120. Where d is the pile diameter in inches. The slope of elastic shortening line is approximately 20 degree or drawn to initial straight portion of load-settlement curve. Davisson line though provides most conservative results especially in the case of bored piles where the result becomes impractically conservative.

7.0 OBSERVATION

The result of the test is shown in the figures and tables enclosed, summary of the test result are as follows:

Test result is provided in Table-3 bellow; also load test curves of Appendix are referred.

Table-3
Test Pile and Test Results, Ref. Load Settlement Curves & Field Data

Test pile no	length of Pile	Dia of Pile	Test Result		
			Max ^m applied load	Gross Settlement	Net Settlement
P-91	23.0m	500mm	320,000kg	17.750mm	4.955mm

Ultimate & allowable load capacities by different methods are presented in Table-4 & 5

Table-4
Ultimate Load Capacity of the Test Pile

Test Pile No.	Max ^m applied load	Gross Settlement (mm)	Ultimate Load Capacity in kg	
			BNBC 2020 & IS: 2911	Davisson (1973)
P-91	320,000kg	17.750mm	280,000kg	>320,000

Table-5
Allowable Load Capacity of the Test Pile

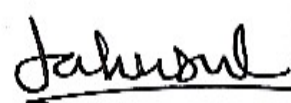
Test Pile No.	Max ^m applied load	Gross Settlement (mm)	Allowable Load Capacity in kg	
			BNBC 2020 & IS: 2911	Davisson (F.S=2.0)
P-91	320,000kg	17.750mm	186,666kg	>160,000kg

8.0 CONCLUSION:

- Thus, we can say that the allowable load carrying capacity of the piles have been fulfilled of BNBC, IS & Davisson under static axial compressive pile load test
- Present Situation the allowable load of the tested pile P-91 is greater than the design load of 160,000kg according to BNBC, IS: 2911 & Davisson .
- So design engineer specific criteria for this particular project will supersede the allowable & safe capacity of the tested pile
- Produced load – settlement curve excerpts very consistent shape as for a regular pile.

9.0 CLOSURE

We appreciate the opportunity to perform this test for you and have pleasure in submitting this report. Please contact us when we can be further service to you.



Engr. Jahurul Islam
CEO & Geotechnical Engineer
Bd Soil & Foundation
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APPENDIX A1

LOAD TEST CURVES
(Ultimate Load as Per BNBC, IS, Davisson Rule)

PRESSURE CALCULATION & LOADING SEQUENCE

CALIBRATION CHART

FIELD DATA RECORD COMPUTER SHEET

RAW FIELD DATA RECORDS

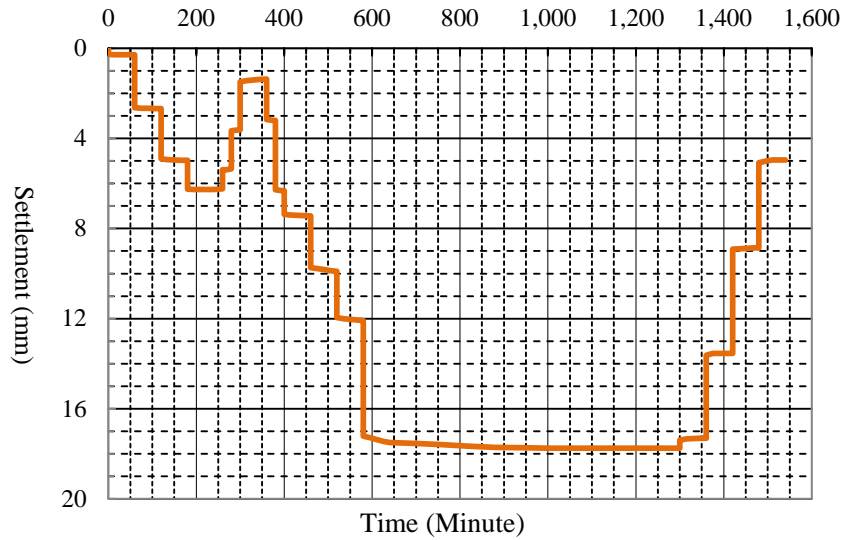
PHOTOGRAPHS

LOAD TEST PLOTS

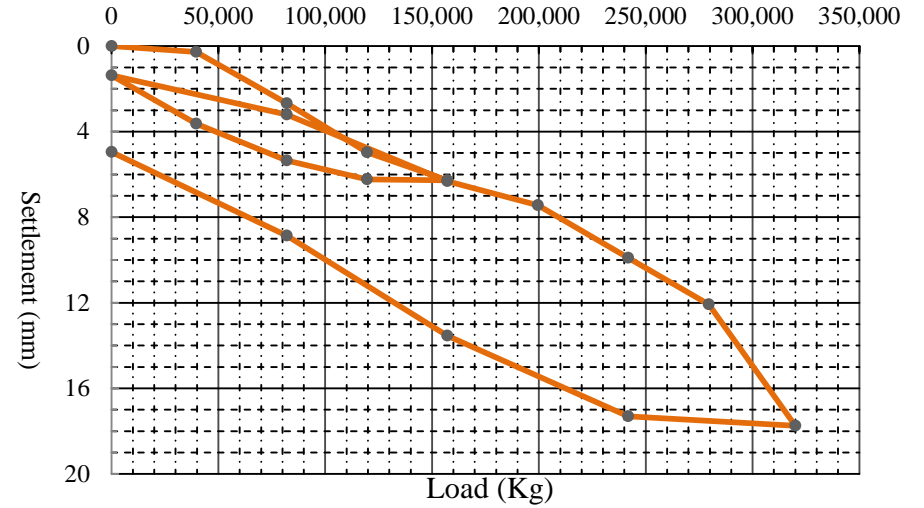
Project: Proposed (20) Twenty Storied Residential Building with 02 Basements ShopnoShur Residents, Plot-2589-2590, Road- 22, Block- M, Bashundhara R/A, Dhaka.

Pile ID: P-91

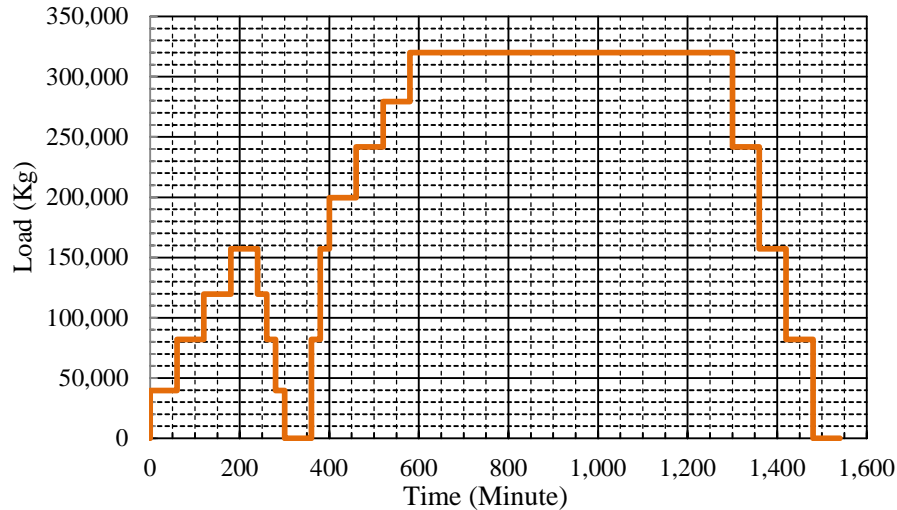
Time Vs Settlement Plot



Load Vs Settlement Plot



Time Vs Load Plot



Test Pile No: : P-91
 Pile Diameter: : 500mm
 Length of Pile: : 23.0m

Design Load (Kg): : 160,000
 Max. App. Load (Kg) : 320,000
 Maximum Settlement: : 17.75mm
 Net Settlement: : 4.955mm

LOAD TEST PLOTS

Project: Proposed (20) Twenty Storied Residential Building with 02 Basements ShopnoShur Residents, Plot-2589-2590, Road- 22, Block- M, Bashundhara R/A, Dhaka.

Pile ID: P-91

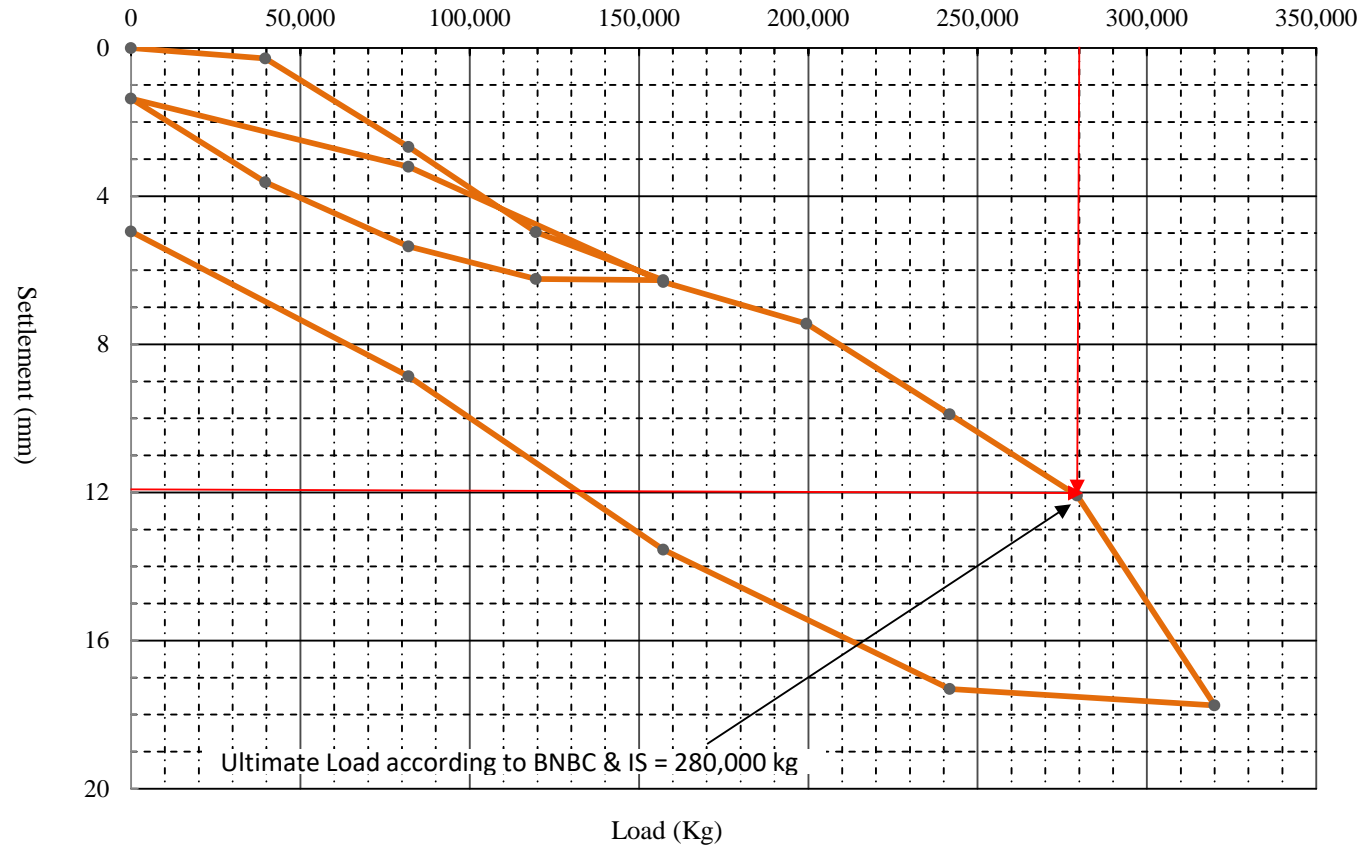
Design Load (Kg): 160,000

Maximum Settlement: 17.750mm

Max. App. Load (Kg): 320,000

Net Settlement: 4.955mm

Load Vs Settlement Plot



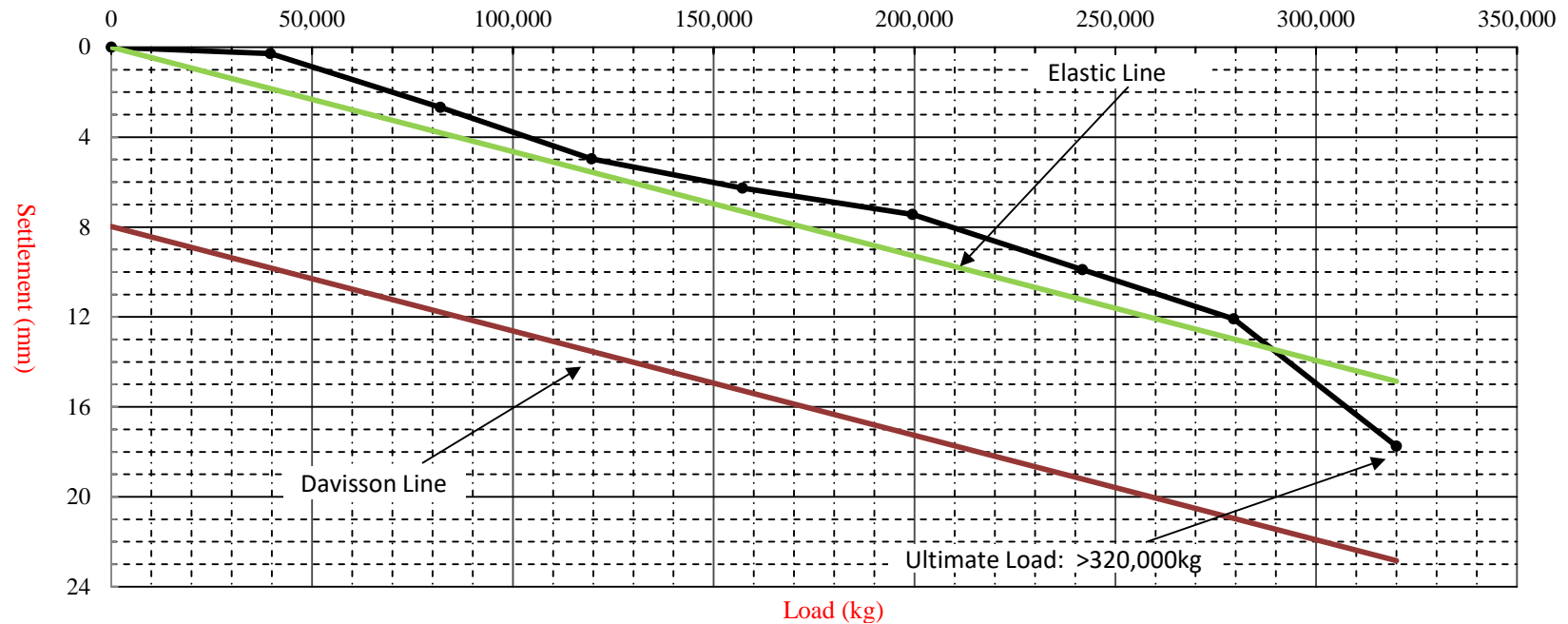
DAVISSON RULES CURVE OF PILE LOAD TEST

Project: Proposed (20) Twenty Storied Residential Building with 02 Basements ShopnoShur Residents, Plot-2589-2590, Road- 22, Block- M, Bashundhara R/A, Dhaka.

Pile ID: P-91

Test Pile No:	P-91	Pile Concrete Grade:	70.00
Pile Diameter:	500mm	Modulus of Elasticity of Concrete:	4690kg/mm ²
Length of Pile:	23.0m	Elastic Shortening for Test Load:	14.86
Design Load (Kg):	160,000	Offset Limit Load Settlement:	7.977
Max. App. Load (Kg):	320,000	Davisson's Offset Limit Method:	N.A
Maximum Settlement:	17.7500mm	Soil Settlement by Test Load:	N.A
Net Settlement:	4.9550mm	Soil Rebound/	N.A

Load Vs Settlement & Davisson's Offset Limit Method Curve





STRENGTH OF MATERIALS LABORATORY

Calibration of Hydraulic Jack

BRTC No.: 1103-05146/CE/23-24
Reference : Letter
Sent By: M. R. Foundation

Date: 07/11/2023
Date: 07/11/2023

Project: Construction of Two Lane RCC Box Girder Flyover at New Bilshimla Railway Crossing

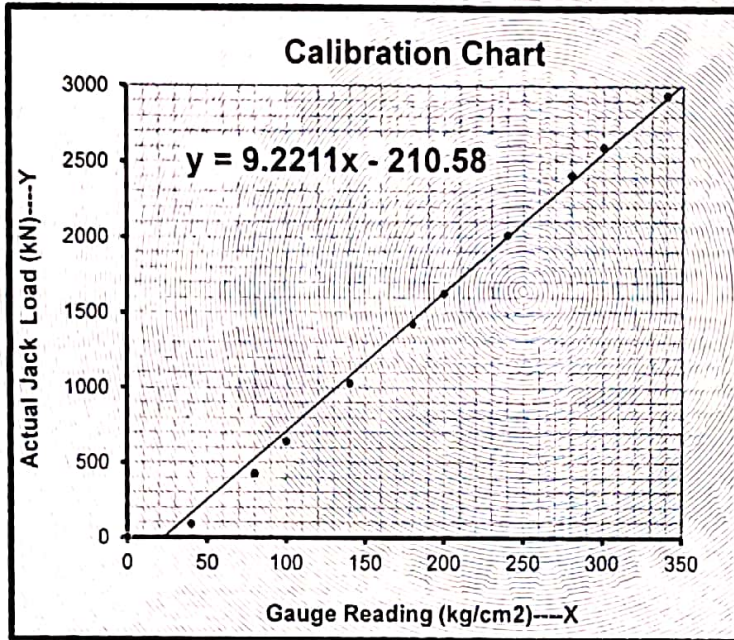
Machine: Hydraulic Jack ID: BD-01 (Capacity: 750 Ton) **Pump ID:** MRF-01, Motorized

Jack Information: Piston Dia: 350 mm; Body Dia: 445 mm; Body Height: 438 mm

Pressure Gauge: Range: 0-1000 kg/cm2 **Gauge ID:** WIKA; MR-01 (Black)

Calibration Device: Load Column: ELE 1052-10-6096 (3000 kN)

Date of Calibration: 12.11.2023



Gauge Reading (kg/cm2)	Actual Jack Load (kN)	Calibrated Jack Load (kN)
0.0	0.0	-210.58
40.0	88.7	158.27
80.0	429.5	527.11
100.0	642.8	711.53
140.0	1033.3	1080.37
180.0	1427.2	1449.22
200.0	1628.0	1633.64
240.0	2014.0	2002.48
280.0	2407.9	2371.32
300.0	2594.1	2555.75
340.0	2938.3	2924.59

Note: 1 Metric-Ton = 9.806 kN

Warning: Calibration is valid only when the above mentioned Jack and Pressure Gauge pair are used together as they are calibrated. Re-calibration shall be needed if any of the above Jack or Pressure Gauge is changed/replaced or repaired.

Countersigned by :

Prof. Dr. Hasib Mohammed Ahsan
 Test-in-Charge
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh



Calibrated by :

Dr. Munaz Ahmed Noor
 Professor
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh



STRENGTH OF MATERIALS LABORATORY

Calibration of Pressure Gauge

BRTC No.: 1103-05146/CE/23-24

Reference : Letter

Sent by: M. R. Foundation

Date: 07/11/2023

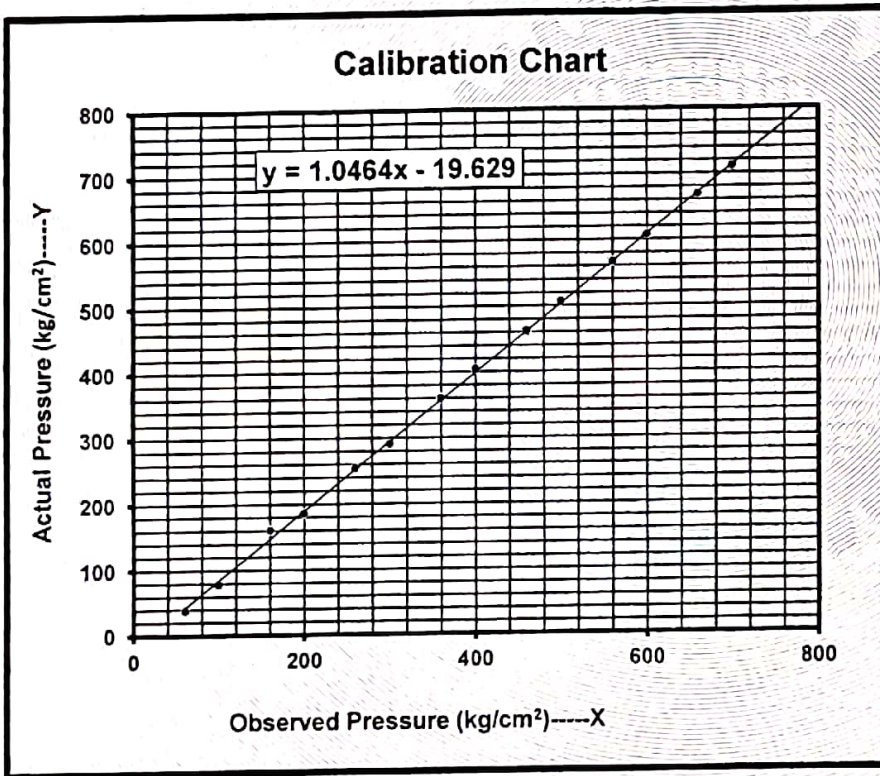
Date: 07/11/2023

Project: Construction of Two Lane RCC Box Girder Flyover at New Bilshimla Railway Crossing

Equipment: Pressure Gauge: WIKA; Gauge ID: MR-01

Capacity: 0-1000 kg/cm²

Date of Calibration: 09/11/2023



Observed Pressure (kg/cm ²)	Actual Pressure (kg/cm ²)	±% Error
60	37.7	59.03%
100	78.5	27.36%
160	160.6	-0.38%
200	186.1	7.47%
260	254.4	2.2%
300	290.6	3.23%
360	360.0	0.01%
400	404.3	-1.07%
460	461.9	-0.42%
500	506.3	-1.24%
560	565.9	-1.05%
600	606.7	-1.11%
660	668.4	-1.26%
700	710.7	-1.51%

Note: Pressure Gauge was received in unsealed condition.

1 kg/cm² = 14.223 psi



Countersigned by :

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BUET, Dhaka-1000, Bangladesh

Calibrated by :

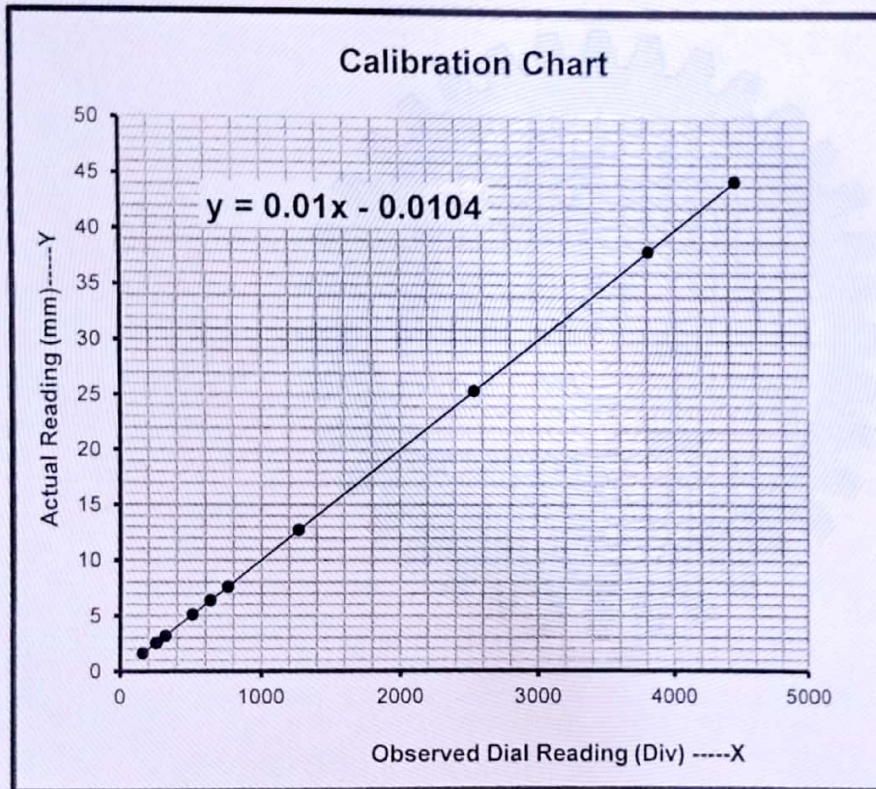
Dr. Munaz Ahmed Noor
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh





Calibration of Dial Gauge (ASTM E4 - 16)

BRTC No.: 1102-85173/22-23/CE dated 4.3.23
 Reference : Letter dated 4.3.23
 Sent by: Sub Assistant Engineer, BD Soil & Foundation, Block-C, Mirpur, Dhaka
 Project: Mohtoshin Ali High School , Kulaura, Moulvibazar
 Dial Gauge: Gauge ID - Mitutoyo; 9MM437 (on side)
 Range: 0-50 mm (1 Div=0.01 mm)
 Date of Calibration: 5.3.23



Observed Dial Reading (Div)	Actual Reading (mm)	±% Error
160.8	1.5875	1.26%
255.3	2.5400	0.49%
319.0	3.1750	0.47%
509.0	5.0800	0.2%
635.5	6.3500	0.08%
762.3	7.6200	0.03%
1271.0	12.7000	0.08%
2540.5	25.4000	0.02%
3811.5	38.1000	0.04%
4446.5	44.4500	0.03%



Countersigned by :

Dr. Hasib Mohammed Ahsan
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 BUET, Dhaka-1000, Bangladesh



Calibrated by :

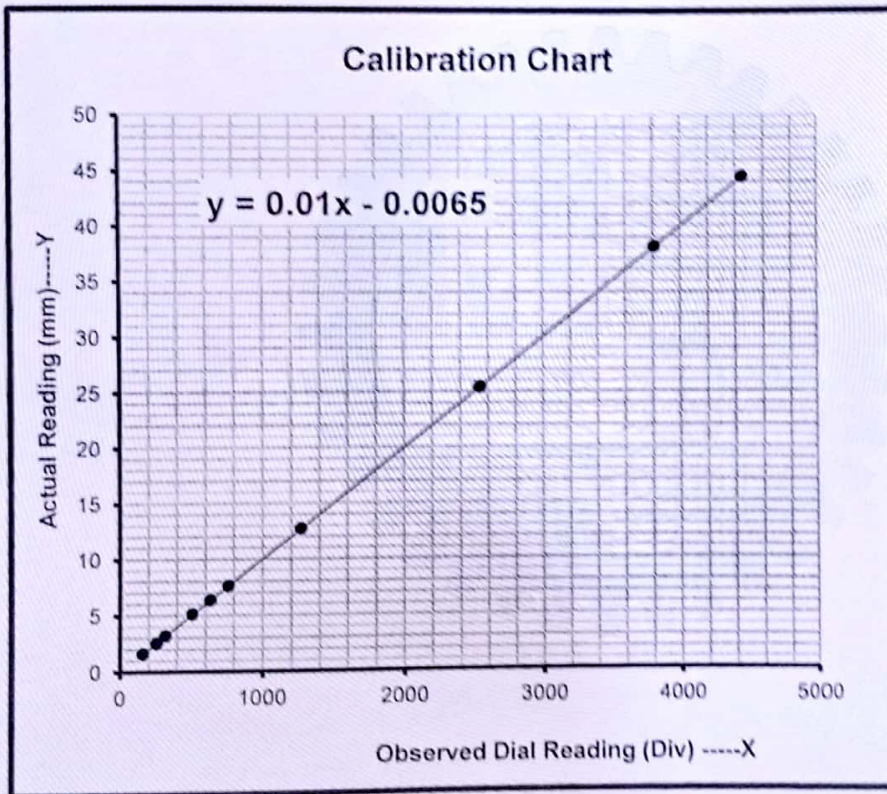
5.3.23

Dr. Tahmeed M. Al-Hussaini
 Professor
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh



Calibration of Dial Gauge (ASTM E4 - 16)

BRTC No.: 1102-85173/22-23/CE dated 4.3.23
 Reference : Letter dated 4.3.23
 Sent by: Sub Assistant Engineer, BD Soil & Foundation, Block-C, Mirpur, Dhaka
 Project: Mohtoshin Ali High School , Kulaura, Moulvibazar
 Dial Gauge: Gauge ID - Mitutoyo; AHU489 (on dial)
 Range: 0-50 mm (1 Div=0.01 mm)
 Date of Calibration: 5.3.23



Observed Dial Reading (Div)	Actual Reading (mm)	±% Error
159.8	1.5875	0.63%
255.0	2.5400	0.39%
318.3	3.1750	0.24%
508.5	5.0800	0.1%
636.5	6.3500	0.24%
762.8	7.6200	0.1%
1271.8	12.7000	0.14%
2542.0	25.4000	0.08%
3813.5	38.1000	0.09%
4448.5	44.4500	0.08%

Countersigned by :

Dr. Hasib Mohammed Ahsan
 Test-in-Charge
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 BUET, Dhaka-1000, Bangladesh



Calibrated by :

5.3.23

Dr. Tahmeed M. Al-Hussaini
 Professor
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh



Project: Proposed (20) Twenty Storied Residential Building with 02 Basements ShopnoShur Residents, Plot-2589-2590, Road- 22, Block-M, Bashundhara R/A, Dhaka.

Individual Pile Under Static Axial Compressive Load (ASTM-D-1143)

Pressure Calculation for Pile: P-91

Desing Load (Kg)=	160,000	Dia of Ram(cm)=	35.00
Maxm Test Load (Kg)=	320,000	Area of Ram(cm ²)=	962.12
(2×design load)		Regression Equal, Y(kN) =	9.2211X(kg/cm ²) - 210.58
		Pressure Gauge Capacity	1000 Kg/cm ²
		Calibration Date:	12.11.2023 from BUET

LOADING STEPS	Theoretical			As Planned				
	% of 160,000 (Kg)Load	LOAD (Kg)	Observed Pressure (kg/cm ²)	Observed Pressure (kg/cm ²)	LOAD (Kg)	% of 160,000 (Kg)Load	Holding Time (Minute)	Reading Interval (Minute)
1 st Increment	25	40,000	65.37	65	39,648	24.78	60	15
2 nd Increment	50	80,000	107.91	110	81,964	51.23	60	15
3 rd Increment	75	120,000	150.45	150	119,578	74.74	60	15
4 th Increment	100	160,000	192.99	190	157,192	98.25	60	15
1 st Decrement	75	120,000	150.45	150	119,578	74.74	20	10
2 nd Decrement	50	80,000	107.91	110	81,964	51.23	20	10
3 rd Decrement	25	40,000	65.37	65	39,648	24.78	20	10
4 th Decrement	0	0	0.00	0	0	0.00	60	15
5 th Increment	50	80,000	107.91	110	81,964	51.23	20	10
6 th Increment	100	160,000	192.99	190	157,192	98.25	20	10
7 th Increment	125	200,000	235.52	235	199,508	124.69	60	15
8 th Increment	150	240,000	278.06	280	241,824	151.14	60	15
9 th Increment	175	280,000	320.60	320	279,438	174.65	60	15
10 th Increment	200	320,000	363.13	363	320,000	200.00	C	D
5 th Decrement	150	240,000	278.06	280	241,824	151.14	60	15
6 th Decrement	100	160,000	192.99	190	157,192	98.25	60	15
7 th Decrement	50	80,000	107.91	110	81,964	51.23	60	15
8 th Decrement	0	0	0.00	0	0	0.00	60	15

Notes

Holding Time :

A = Any time, if the rate of settlement is less than 0.25 mm/h

B = Max 2 h, if the rate of settlement is greater than 0.25 mm/h

C = Any time after 12 h, if the butt settlement is not greater than 0.25 mm/h in 1 h but otherwise 24 h

Reading Time:

D = At interval 15 min for for 1st 1 h then, 1 h for next 11 h, then 2h.

STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Sheet 1 of 3

Project: Proposed (20) Twenty Storied Residential Building with 02 Basements ShopnoShur Residents, Plot-2589-2590, Road- 22, Block- M, Bashundhara R/A, Dhaka.			
Name of the Client:	ShopnoShur Resident's Society	Test Method:	ASTM D-1143-81
Construction Company:	Samuda Construction Ltd	Dia of Ram (cm):	35.00
Test Pile No:	P-91	Area of Ram (cm ²):	962.12
Pile Diameter:	500mm	Design Load (Kg):	160,000
Length of Pile:	23.0m	Max. App. Load (Kg):	320,000
Pile Type:	PHC	Date of driving:	16.01.2024
Pile Details:	Thickness: 80mm, PC Bar: 10nos(9mm), Spiral wire: 4.3mm, Concrete Grade: M-70	Date of Calibration:	12.11.2023
		Regression Equal, $Y_{(kN)} = 9.2211X_{(kg/cm^2)} - 210.58$	
Maximum Settlement:	17.750mm	Test Starting Date:	18-Jan-24
Net Settlement:	4.955mm	Test Complet Date:	19-Jan-24

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-10	Col-11
18-Jan-24									
10:50 AM	0.00	0.00	0	0	0	0	0	0.000	Starting
10:50 AM	39,648	24.78	65	0	0	0.30	0.24	0.270	Load
11:05 AM	"	"	"	15	15	0.32	0.24	0.280	
11:20 AM	"	"	"	15	30	0.32	0.24	0.280	
11:35 AM	"	"	"	15	45	0.32	0.24	0.280	
11:50 AM	"	"	"	15	60	0.32	0.24	0.280	
11:50 AM	81,964	51.23	110	0	60	2.54	2.72	2.630	Load
12:05 PM	"	"	"	15	75	2.56	2.76	2.660	
12:20 PM	"	"	"	15	90	2.56	2.77	2.665	
12:35 PM	"	"	"	15	105	2.57	2.78	2.675	
12:50 PM	"	"	"	15	120	2.57	2.78	2.675	
12:50 PM	119,578	74.74	150	0	120	4.94	4.86	4.900	Load
1:05 PM	"	"	"	15	135	4.99	4.89	4.940	
1:20 PM	"	"	"	15	150	5.01	4.91	4.960	
1:35 PM	"	"	"	15	165	5.02	4.92	4.970	
1:50 PM	"	"	"	15	180	5.03	4.92	4.975	
1:50 PM	157,192	98.25	190	0	180	6.29	6.21	6.250	Load
2:05 PM	"	"	"	15	195	6.30	6.23	6.265	
2:20 PM	"	"	"	15	210	6.30	6.24	6.270	
2:35 PM	"	"	"	15	225	6.30	6.24	6.270	
2:50 PM	"	"	"	15	240	6.30	6.24	6.270	
2:50 PM	119,578	74.74	150	0	240	6.30	6.23	6.265	Un-Load
3:00 PM	"	"	"	10	250	6.28	6.22	6.250	
3:10 PM	"	"	"	10	260	6.27	6.20	6.235	
3:10 PM	81,964	51.23	110	0	260	5.34	5.43	5.385	Un-Load
3:20 PM	"	"	"	10	270	5.34	5.43	5.385	
3:30 PM	"	"	"	10	280	5.31	5.40	5.355	
3:30 PM	39,648	24.78	65	0	280	3.60	3.71	3.655	Un-Load
3:40 PM	"	"	"	10	290	3.56	3.71	3.635	
3:50 PM	"	"	"	10	300	3.55	3.70	3.625	
3:50 PM	0	0.00	0	0	300	1.31	1.67	1.490	Un-Load

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STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Sheet 2 of 3

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-10	Col-11
4:05 PM	"	"	"	15	315	1.25	1.62	1.435	
4:20 PM	"	"	"	15	330	1.22	1.59	1.405	
4:35 PM	"	"	"	15	345	1.19	1.58	1.385	
4:50 PM	"	"	"	15	360	1.17	1.57	1.370	
4:50 PM	81,964	51.23	110	0	360	3.18	3.15	3.165	Load
5:00 PM	"	"	"	10	370	3.20	3.18	3.190	
5:10 PM	"	"	"	10	380	3.21	3.20	3.205	
5:10 PM	157,192	98.25	190	0	380	6.42	6.15	6.285	Load
5:20 PM	"	"	"	10	390	6.45	6.16	6.305	
5:30 PM	"	"	"	10	400	6.46	6.18	6.320	
5:30 PM	199,508	124.69	235	0	400	7.70	7.06	7.380	Load
5:45 PM	"	"	"	15	415	7.72	7.08	7.400	
6:00 PM	"	"	"	15	430	7.73	7.10	7.415	
6:15 PM	"	"	"	15	445	7.74	7.12	7.430	
6:30 PM	"	"	"	15	460	7.74	7.14	7.440	
6:30 PM	241,824	151.14	280	0	460	9.90	9.57	9.735	Load
6:45 PM	"	"	"	15	475	9.95	9.60	9.775	
7:00 PM	"	"	"	15	490	9.99	9.64	9.815	
7:15 PM	"	"	"	15	505	10.04	9.70	9.870	
7:30 PM	"	"	"	15	520	10.07	9.72	9.895	
7:30 PM	279,438	174.65	320	0	520	12.06	11.83	11.945	Load
7:45 PM	"	"	"	15	535	12.10	11.90	12.000	
8:00 PM	"	"	"	15	550	12.14	11.93	12.035	
8:15 PM	"	"	"	15	565	12.17	11.96	12.065	
8:30 PM	"	"	"	15	580	12.18	11.98	12.080	
8:30 PM	320,000	200.00	363	0	580	16.48	17.94	17.210	Load
8:45 PM	"	"	"	15	595	16.55	18.02	17.285	
9:00 PM	"	"	"	15	610	16.61	18.11	17.360	
9:15 PM	"	"	"	15	625	16.70	18.18	17.440	
9:30 PM	"	"	"	15	640	16.76	18.24	17.500	
10:30 PM	"	"	"	60	700	16.80	18.28	17.540	
11:30 PM	"	"	"	60	760	16.85	18.34	17.595	
12:30 AM	"	"	"	60	820	16.91	18.42	17.665	
1:30 AM	"	"	"	60	880	16.96	18.47	17.715	
2:30 AM	"	"	"	60	940	16.98	18.49	17.735	
3:30 AM	"	"	"	60	1,000	17.00	18.50	17.750	
4:30 AM	"	"	"	60	1,060	17.00	18.50	17.750	
5:30 AM	"	"	"	60	1,120	17.00	18.50	17.750	
6:30 AM	"	"	"	60	1,180	17.00	18.50	17.750	
7:30 AM	"	"	"	60	1,240	17.00	18.50	17.750	
8:30 AM	"	"	"	60	1,300	17.00	18.50	17.750	

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STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Sheet 3 of 3

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-10	Col-11
8:30 AM	241,824	151.14	280	0	1,300	16.51	18.26	17.385	Un-Load
8:45 AM	"	"	"	15	1,315	16.47	18.21	17.340	
9:00 AM	"	"	"	15	1,330	16.45	18.19	17.320	
9:15 AM	"	"	"	15	1,345	16.44	18.18	17.310	
9:30 AM	"	"	"	15	1,360	16.44	18.18	17.310	
9:30 AM	157,192	98.25	190	0	1,360	12.57	14.67	13.620	Un-Load
9:45 AM	"	"	"	15	1,375	12.50	14.59	13.545	
10:00 AM	"	"	"	15	1,390	12.50	14.59	13.545	
10:15 AM	"	"	"	15	1,405	12.50	14.59	13.545	
10:30 AM	"	"	"	15	1,420	12.50	14.59	13.545	
10:30 AM	81,964	51.23	110	0	1,420	8.59	9.24	8.915	Un-Load
10:45 AM	"	"	"	15	1,435	8.55	9.24	8.895	
11:00 AM	"	"	"	15	1,450	8.54	9.24	8.890	
11:15 AM	"	"	"	15	1,465	8.52	9.21	8.865	
11:30 AM	"	"	"	15	1,480	8.52	9.21	8.865	
11:30 AM	0	0.00	0	0	1,480	4.95	5.20	5.075	Un-Load
11:45 AM	"	"	"	15	1,495	4.87	5.14	5.005	
12:00 PM	"	"	"	15	1,510	4.81	5.11	4.960	
12:15 PM	"	"	"	15	1,525	4.80	5.11	4.955	
12:30 PM	"	"	"	15	1,540	4.80	5.11	4.955	

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STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Record Sheet of 1

Project: Shapnu Shur

Name of the Client:	Dia of Ram (cm): <u>35.00</u>
Construction Company:	Area of Ram (cm ²): <u>962.12</u>
Test Pile No: <u>P-51</u>	Design Load (Kg): <u>160,000</u>
Pile Diameter: <u>500 mm</u>	Max. Test Load (Kg): <u>320,000</u>
Length of Pile: <u>23 m</u>	Date of Driving: <u>16-01-2024</u>
Pile Type: <u>HPC Pile</u>	Date of Calibration: <u>12-11-2023</u>
Test Method: <u>ASTM D-1143-81</u>	Reg. equation: <u>y = 9.2211x - 210.58</u>
Maximum Settlement: <u>17.75 mm</u>	Test Starting Date: <u>18-01-2024</u>
Net Settlement: <u>4.955 mm</u>	Test Complet Date: <u>19-01-2024</u>

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-9	Col-10
10:50	39648	25	65	0		0.30	0.24	0.27	
11:05				15		0.32	0.24	0.28	
11:20				15		0.32	0.24	0.28	
11:35				15		0.32	0.24	0.28	
11:50				15		0.32	0.24	0.28	
11:50	81964	50	110	0		2.54	2.72	2.63	
12:05				15		2.56	2.76	2.66	
12:20				15		2.56	2.77	2.665	
12:35				15		2.57	2.78	2.675	
12:50				15		2.57	2.78	2.675	
	119578	75	150						
12:50				0		4.94	4.86	4.90	
1:05				15		4.99	4.89	4.94	
1:20				15		5.01	4.91	4.96	
1:35				15		5.02	4.92	4.97	
1:50				15		5.03	4.92	4.975	
1:50	157192	100	190	0		6.29	6.21	6.25	
2:05				15		6.30	6.23	6.265	
2:20				15		6.30	6.24	6.27	
2:35				15		6.30	6.24	6.27	
2:50				15		6.30	6.24	6.27	

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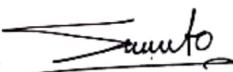
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STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Record Sheet of 2

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-9	Col-10
2:50	119578	75	150	0		6.30	6.23	6.265	Unloading
3:00				10		6.28	6.22	6.25	
3:10				10		6.27	6.20	6.235	
3:10	81964	50	110	0		5.34	5.43	5.385	Unloading
3:20				10		5.34	5.43	5.385	
3:30				10		5.31	5.40		
3:30	39648	25	65	0		3.60	3.71	3.655	Unloading
3:40				10		3.56	3.71	3.635	
3:50				10		3.55	3.70		
3:50	00	00	00	0		1.31	1.67	1.49	Unloading
4:05				15		1.25	1.62	1.435	
4:20				15		1.22	1.59	1.405	
4:35				15		1.19	1.58	1.385	
4:50				15		1.17	1.57	1.37	
4:50	81964	50	110	0		3.18	3.15	3.165	Loading
5:00				10		3.20	3.18	3.19	
5:10				10		3.21	3.20	3.205	
5:10	157192	100	190	0		6.42	6.15	6.285	Loading
5:20				10		6.45	6.16	6.305	
5:30				10		6.46	6.18	6.32	
5:30	199508	125	235	0		7.70	7.06	7.38	Loading
5:45				15		7.72	7.08	7.40	
6:00				15		7.73	7.10	7.415	
6:15				15		7.74	7.12	7.43	
6:30				15		7.74	7.14	7.44	
6:30	241824	150	280	0		9.90	9.57	9.735	
6:45				15		9.95	9.60	9.775	


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STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Record Sheet of 3

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-9	Col-10
7:00	24182	150	280	15		9.99	9.64	9.815	
7:15				15		10.04	9.70	9.87	
7:30				15		10.07	9.72	9.895	
7:30	229438	175	320	0		12.06	11.83	11.945	
7:45				15		12.10	11.90	12.00	
8:00				15		12.14	11.93	12.035	
8:15				15		12.17	11.96	12.065	
8:30				15		12.18	11.98	12.08	
8:30	329000	200	363.13	0		16.48	17.94	17.21	
8:45				15		16.55	18.02	17.285	
9:00				15		16.61	18.11	17.36	
9:15				15		16.76	18.18	17.44	
9:30				15		16.76	18.29	17.50	
10:30				60		16.80	18.28	17.54	
11:30				60		16.85	18.34	17.59	
12:30				60		16.91	18.42	17.665	
1:30				60		16.96	18.47	17.715	
2:30				60		16.98	18.49	17.735	
3:30				60		17.00	18.50	17.75	
4:30				60		17.00	18.50	17.75	
5:30				60		17.00	18.50	17.75	
6:30				60		17.00	18.50	17.75	
7:30				60		17.00	18.50	17.75	
8:30				60		17.00	18.50	17.75	
8:30	24182	150	280	0		16.51	18.26	17.385	Unloading
8:45				15		16.47	18.21	17.34	
9:00				15		16.45	18.19	17.32	
9:15				15		16.44	18.18	17.31	
9:30				15		16.44	18.18	17.31	


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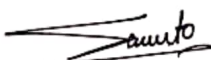
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STATIC AXIAL PILE LOAD TEST FIELD DATA RECORD SHEET

Field Data Record Sheet of 4

Date & Time	Load on Test Pile (Kg)	Percent Of Design Load (%)	Observed Pressure (kg/cm ²)	Elapsed Time (min)	Cumulative Elapsed Time (min)	Dial Gage Reading		Average Settlement (mm)	Remarks
						M1 (mm)	M2 (mm)		
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7	Col-8	Col-9	Col-10
9:30	15702	100	190	0		12.57	14.67	13.62	Unloading
9:45				15		12.50	14.59	13.54	
10:00				15		12.50	14.59	13.54	
10:15				15		12.50	14.59	13.54	
10:30				15		12.50	14.59	13.54	
10:30	8194	50	110	0		8.59	9.24	8.915	Unloading
10:45				15		8.55	9.24	8.895	
11:00				15		8.54	9.24	8.89	
11:15				15		8.52	9.21	8.865	
11:30				15		8.52	9.21	8.865	
11:30	00	00	00	0		4.95	5.20	5.075	Unloading
11:45				15		4.87	5.14	5.005	
12:00				15		4.81	5.11	4.96	
12:15				15		4.80	5.11	4.955	
12:30				15		4.80	5.11	4.955	END


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