STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

Ref: CED/TFL/06/36579, 605 Dated: 16-06-2021

Dated of Test: 22-06-2021

To
Project Director-IV
Lahore Development Authority
Construction of Underpass at Gulab Devi Hospital and Additional Lane on Lahore Bridge

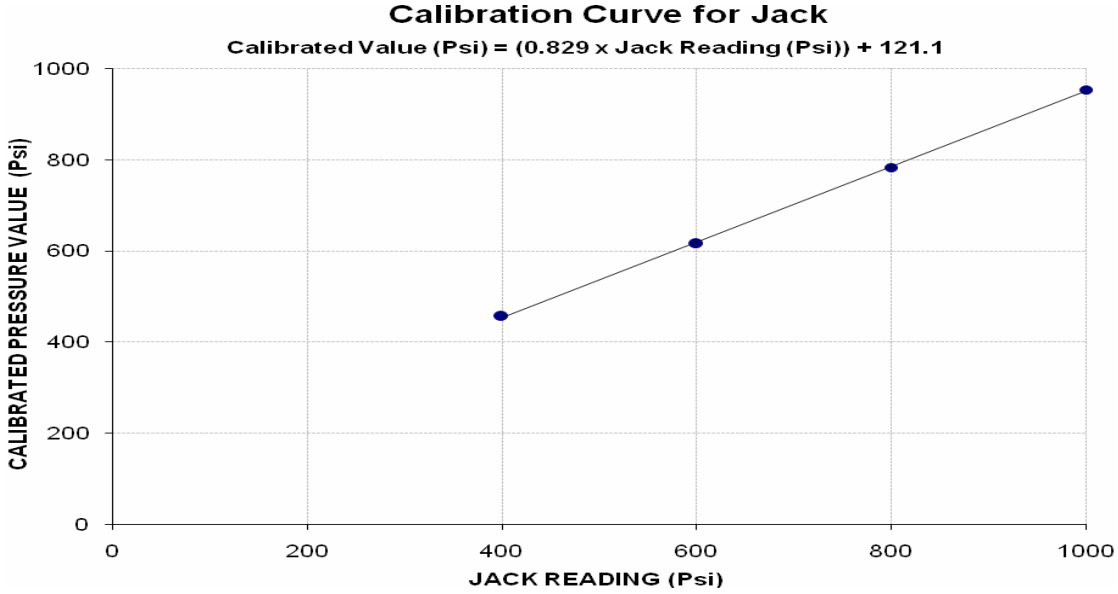
Subject: **- CALIBRATION OF HYDRAULIC JACK WITH PRESSURE GAUGE (MARK: TFL/06/36579)** **(Page # 1/3)**

Reference to your Letter No. PD-IV/LDA/13, dated: 16/06/2021 on the subject cited above. One Hydraulic with Pressure Gauge No. SENSE as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 11000 (Psi)
Calibrated Range : Zero - 1000 (Psi)

Hydraulic Jack Reading (Psi)	**400**	**600**	**800**	**1000**
Calibrated Load (kg)	**93600**	**126200**	**160600**	**195600**
Calibrated Pressure (Psi)	**456**	**615**	**783**	**953**

The Ram Area of Jack = 452.39 in^2 (Witness by Abdul Manan Shahid (Jr. Engr.)



I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

Ref: CED/TFL/06/36579, 605 Dated: 16-06-2021

Dated of Test: 22-06-2021

To
Project Director-IV
Lahore Development Authority
Construction of Underpass at Gulab Devi Hospital and Additional Lane on Lahore Bridge

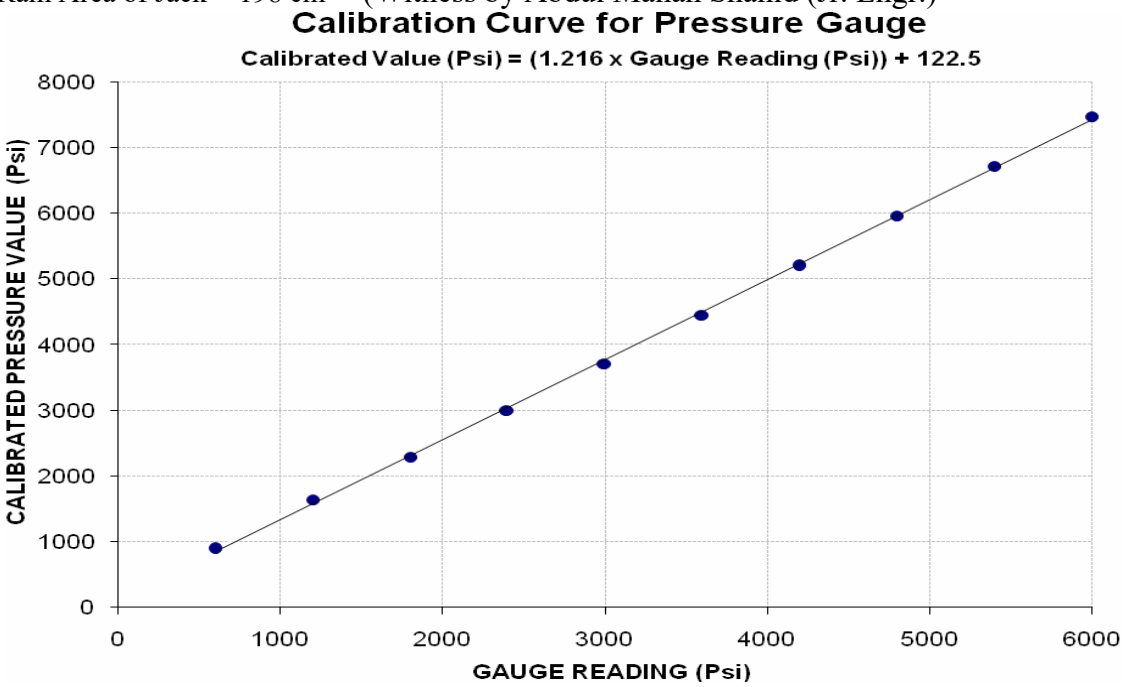
Subject: **- CALIBRATION OF PRESSURE GAUGE (MARK: TFL/10/35459)** **(Page # 2/3)**

Reference to your Letter No. PD-IV/LDA/13, dated: 16/06/2021 on the subject cited above. One Pressure Gauge No. SENSE as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 11000 (Psi)
Calibrated Range : Zero - 6000 (Psi)

Hydraulic Jack Reading (Psi)	**600**	**1200**	**1800**	**2400**	**3000**	**3600**	**4200**	**4800**	**5400**	**6000**
Calibrated Load (kg)	**9700**	**17800**	**24800**	**32500**	**40200**	**48200**	**56300**	**64500**	**72700**	**80900**
Calibrated Pressure (Psi)	**896**	**1645**	**2291**	**3003**	**3714**	**4453**	**5202**	**5959**	**6717**	**7475**

The Ram Area of Jack = 198 cm^2 (Witness by Abdul Manan Shahid (Jr. Engr.)



I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

Ref: CED/TFL/06/36579, 605 Dated: 16-06-2021

Dated of Test: 22-06-2021

To
Project Director-IV
Lahore Development Authority
Construction of Underpass at Gulab Devi Hospital and Additional Lane on Lahore Bridge

Subject: **- CALIBRATION OF DIAL GAUGES (MARK: TFL/06/36579)** (Page # 3/3)

Reference to your Letter No. PD-IV/LDA/13, Dated: 16/06/2021 on the subject cited above. Three Dial Gauges as received by us have been calibrated on standard calibration device. The results are tabulated as under.

Total Range : Zero - 100 (mm)
Calibrated Range : Zero - 50 (mm)

Standard Reading	Dial Gauge Readings		
	Dial Gauge No. I (4C19006)	Dial Gauge No. II (4C18890)	Dial Gauge No. III (4C18894)
400	400	396	399
800	800	795	799
1200	1199	1195	1199
1600	1599	1594	1599
2000	1998	1994	1999
2400	2397	2394	2393
2800	2796	2792	2794
3200	3195	3188	3193
3600	3595	3592	3592
4000	3994	3991	3991
4400	4394	4391	4392
4800	4793	4789	4392
5000	4992	4990	4992

(Witness by Abdul Manan Shahid (Jr. Engr.)

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Project Manager
CCECC-MATRACON-HABIB Joint Venture
Re-Construction of & Up-gradation of Main Runway (18L/36R) at Allama Iqbal International Airport (AIIAP), Lahore

Reference # CED/TFL **36586** (Dr. Waseem Abbass) Dated: 17-06-2021
Reference of the request letter # AIIAP/CCECC-MATRACON-HABIB Jv/2021/445
Dated: 17-06-2021

Tension Test Report (Page -1/1)

Date of Test 22-06-2021
Gauge length 8 inches
Description Plain Steel Dowel Bar Tensile Test

Sr. No.	Diameter / size	Reduced Dia	Reduced Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	(mm)	(mm)	(mm^2)	(kg)	(kg)	(MPa)	(MPa)	(inch)		
1	50	36.00	1017.876	30200	50600	291.06	487.67	2.00	25.00	
2	50	36.00	1017.876	30800	50800	296.84	489.60	2.00	25.00	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
ote: only two samples for tensile test										
-	-	-	-		-				-	
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Project Manager
CCECC-MATRACON-HABIB Joint Venture
Re-Construction of & Up-gradation of Main Runway (18L/36R) at Allama Iqbal International Airport (AIIAP), Lahore

Reference # CED/TFL **36586** (Dr. Waseem Abbass) Dated: 17-06-2021
Reference of the request letter # AIIAP/CCECC-MATRACON-HABIB Jv/2021/445

Test Report (Page -1/1)

Date of Test 22-06-2021
Description Plain Steel Dowel Weight & Size Test

Sr. No.	Weight	Diameter/ Size (mm)		Area (mm^2)		Remarks
	(kg/m)	Nominal	Actual	Nominal	Actual	
1	15.565	50	50.25	--------	1982.8	
2	15.653	50	50.39	--------	1994.1	
-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
-	-	-	-	-	-	
Note: only two samples for test						

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
M/S Potential Engineers (Pvt.) Limited
Lahore
(PCC Pole Plant Sadiqabad)

Reference # CED/TFL **36597** (Dr. Waseem Abbass) Dated: 18-06-2021
Reference of the request letter # PCP/HTLT/SPUN/SDK/123 Dated: 17-06-2021

Tension Test Report (Page -1/3)

Date of Test 22-06-2021
Gauge length 8 inches
Description MS Plain Wire Tensile Test

Sr. No.	Weight	Diameter/ size		Area (mm^2)		Yield load	Breaking Load	Yield Stress (MPa)	Ultimate Stress (MPa)	Elongation	% Elongation	Remarks
	(kg/m)	Nominal (mm)	Actual (mm)	Nominal	Actual	(kg)	(kg)	Actual	Actual	(inch)		
1	0.150	5	4.94	------	19.1	--------	960	--------	492	0.30	3.8	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile test												
Bend Test												

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
M/S Potential Engineers (Pvt.) Limited
Lahore
(PCC Pole Plant Sadiqabad)

Reference # CED/TFL **36597** (Dr. Waseem Abbass) Dated: 18-06-2021
Reference of the request letter # PCP/HTLT/SPUN/SDK/122 Dated: 17-06-2021

Tension Test Report (Page -2/3)

Date of Test 22-06-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)		
1	**9.53 (3/8")**	**432.0**	**441**	**9600**	**94.18**	**10700**	**104.97**	**>3.50**	**xx**
2	**11.11 (7/16")**	**582.0**	**593**	**13100**	**128.51**	**15000**	**147.15**	**>3.50**	**xx**
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
Only two sample for Test									

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

Ref: CED/TFL/06/36597 Dated: 18-06-2021

Dated of Test: 22-06-2021

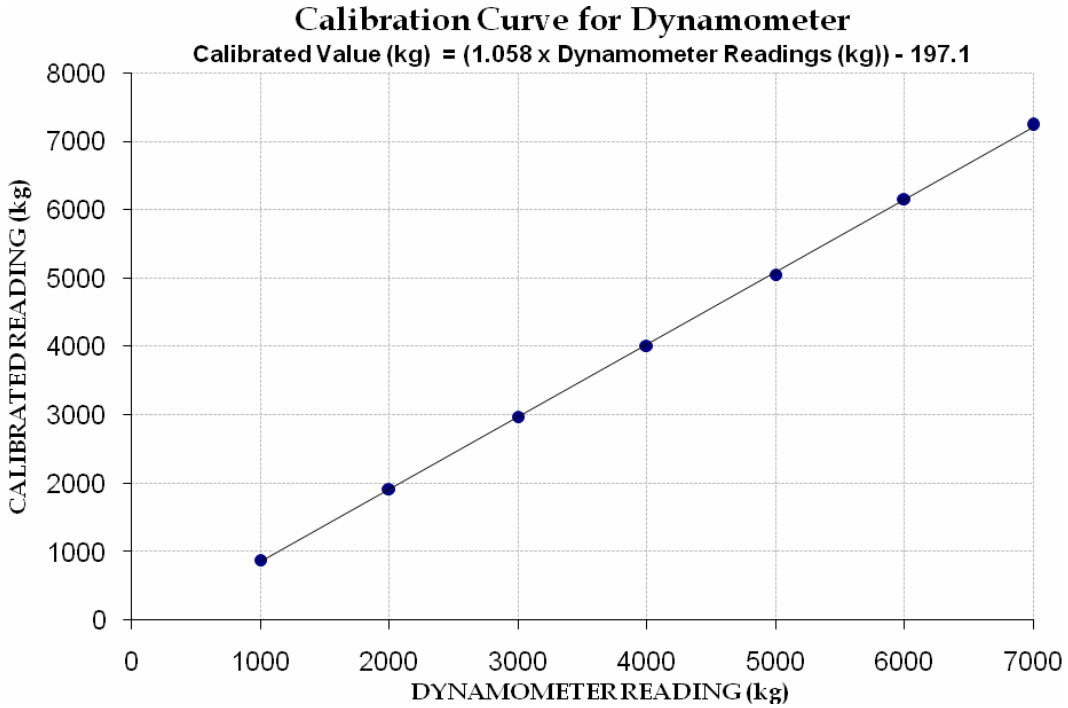
To
M/S Potential Engineers (Pvt.) Limited
Lahore
(PCC Pole Plant Sadiqabad)

Subject: **- CALIBRATION OF DYNAMOMETER (MARK: TFL/06/36597)** (Page -3/3)

Ref: Your letter No. PCP/HTLT/SPUN/SDK/128, dated: 17/06/2021 on the subject cited above. One Dynamometer as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 10000 (kg)
Calibrated Range : Zero - 7000 (kg)

Dynamometer Readings (kg)	**1000**	**2000**	**3000**	**4000**	**5000**	**6000**	**7000**
Calibrated Readings (kg)	**880**	**1920**	**2980**	**4020**	**5060**	**6160**	**7240**



I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Engr. Ghulam Rasool Domki (RE)
NESPAK
Dualization & Improvement of Old Banu Road / Domail – Khurram Road Project (P – 01)
(WMI)

Reference # CED/TFL **36604** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # 3968/OBR/P-01/RE/GRD/984 Dated: 17-06-2021

Tension Test Report (Page – 1/2)

Date of Test 22-06-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	GPa		
1	**12.70 (1/2")**	**775.0**	**781.0**	**17500**	**171.68**	**19800**	**194.24**	**199**	**>3.50**	**22644**
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
Only one sample for Test										

Note:
1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

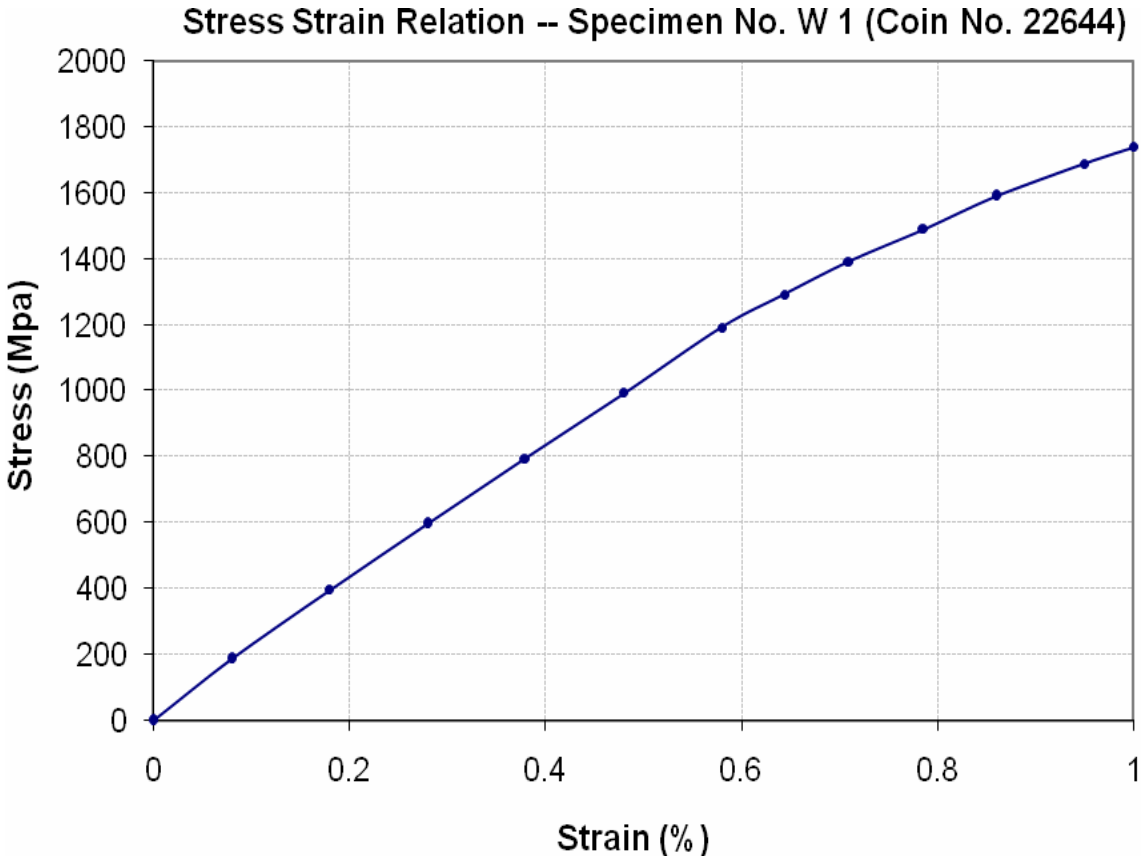
Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Engr. Ghulam Rasool Domki (RE)
NESPAK
Dualization & Improvement of Old Banu Road / Domail – Khurram Road Project (P – 01)

Reference # CED/TFL **36604** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # 3968/OBR/P-01/RE/GRD/984 Dated: 17-06-2021

Graph (Page – 2/2)



I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
NESPAK
Permanent Reconstruction Plan (PRP) Project Pash-Mana-Gurbaz Road, NWTD

Reference # CED/TFL **36607** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # 3963/021/TA/01/156 Dated: 08-06-2021

Tension Test Report (Page -1/4)

Date of Test 22-06-2021
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	GPa		
1	**12.70 (1/2")**	**775.0**	**781.0**	**17300**	**169.71**	**19800**	**194.24**	**199**	**>3.50**	**xx**
2	**12.70 (1/2")**	**775.0**	**777.0**	**17900**	**175.60**	**19600**	**192.28**	**198**	**>3.50**	**xx**
3	**12.70 (1/2")**	**775.0**	**772.0**	**17700**	**173.64**	**19700**	**193.26**	**199**	**>3.50**	**xx**
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
Only three samples for Test										

Note:
1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

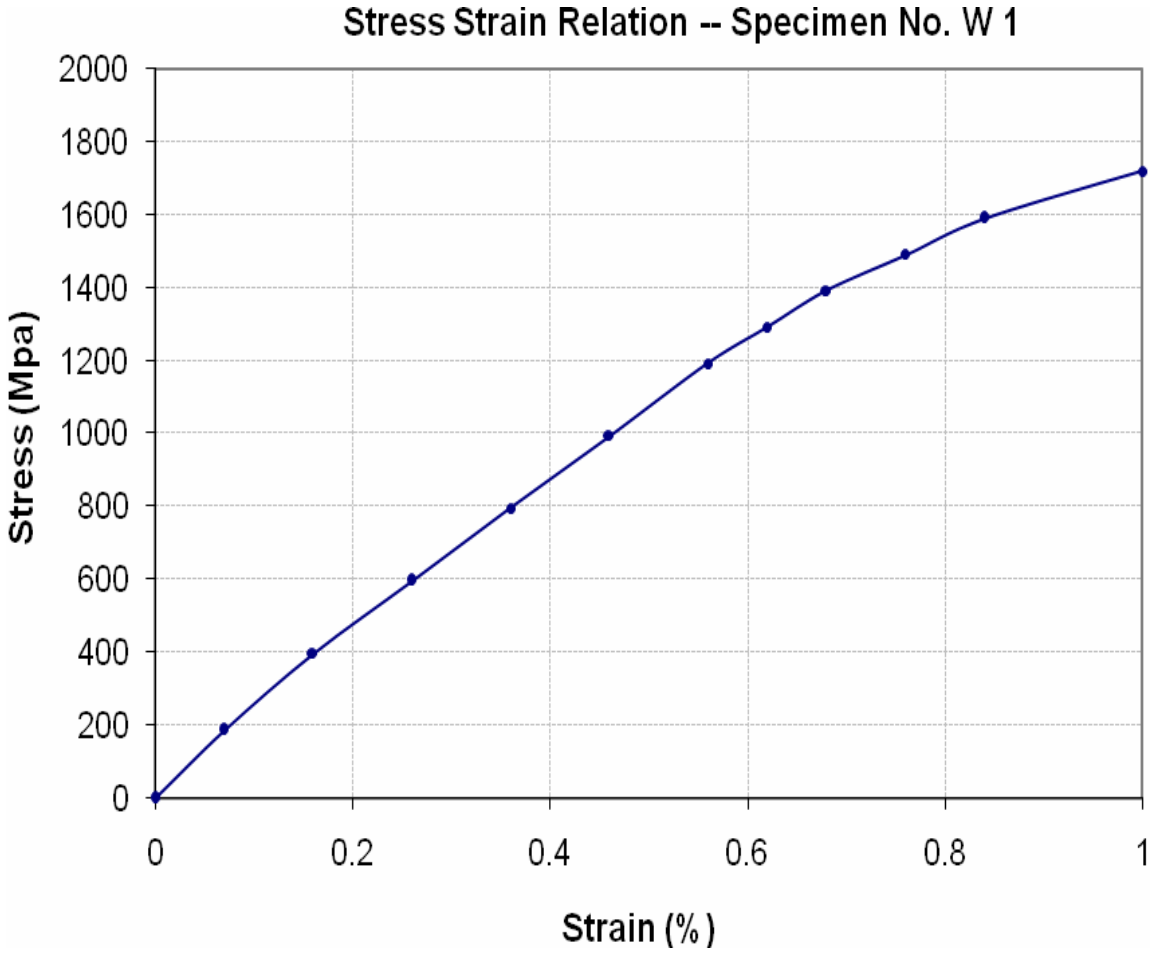
Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
NESPAK
Permanent Reconstruction Plan (PRP) Project Pash-Mana-Gurbaz Road, NWTD

Reference # CED/TFL **36607** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # 3963/021/TA/01/156 Dated: 08-06-2021

Graph (Page – 2/4)



I/C Testing Laboratoires
UET Lahore, Pakistan.

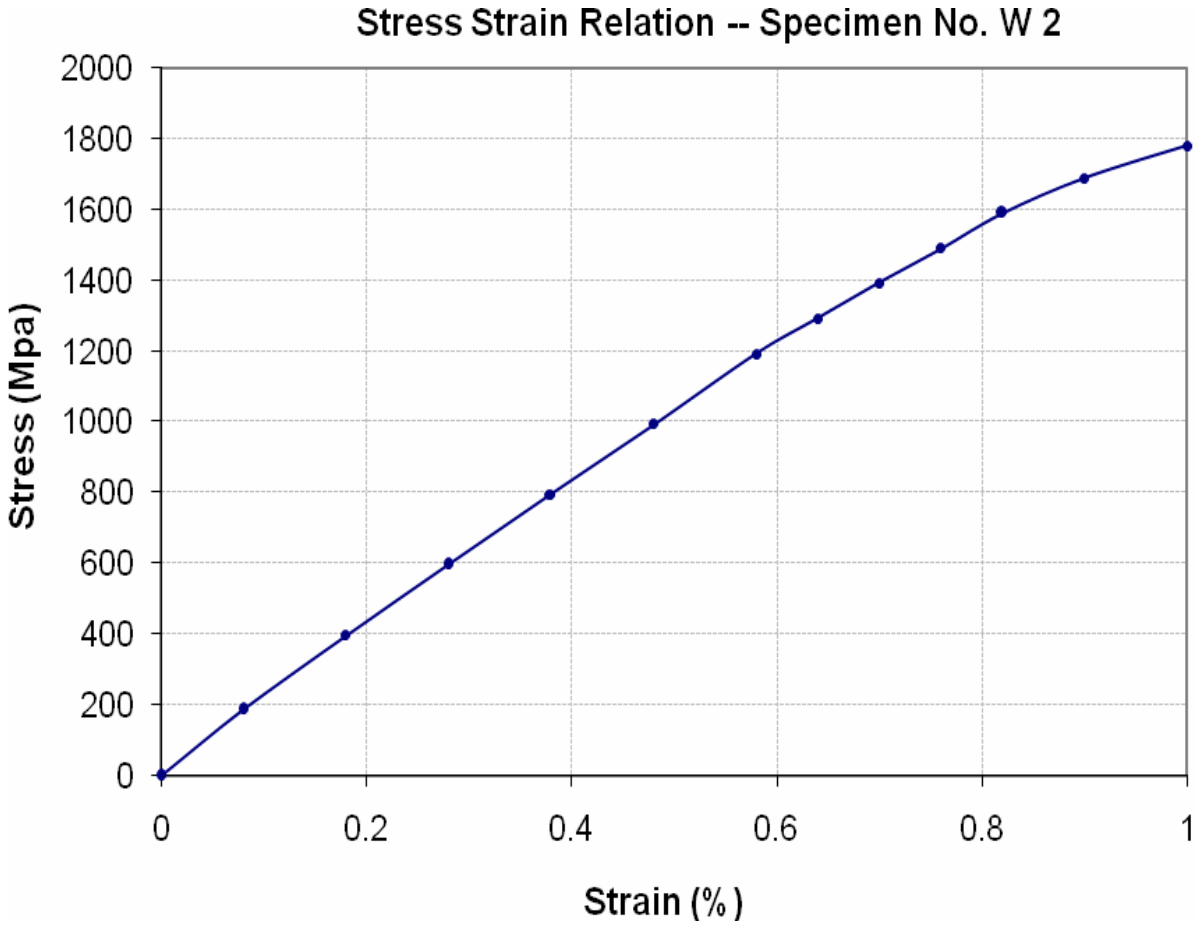
Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
NESPAK
Permanent Reconstruction Plan (PRP) Project Pash-Mana-Gurbaz Road, NWTD

Reference # CED/TFL **36607** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # 3963/021/TA/01/156 Dated: 08-06-2021

Graph (Page – 3/4)



I/C Testing Laboratoires
UET Lahore, Pakistan.

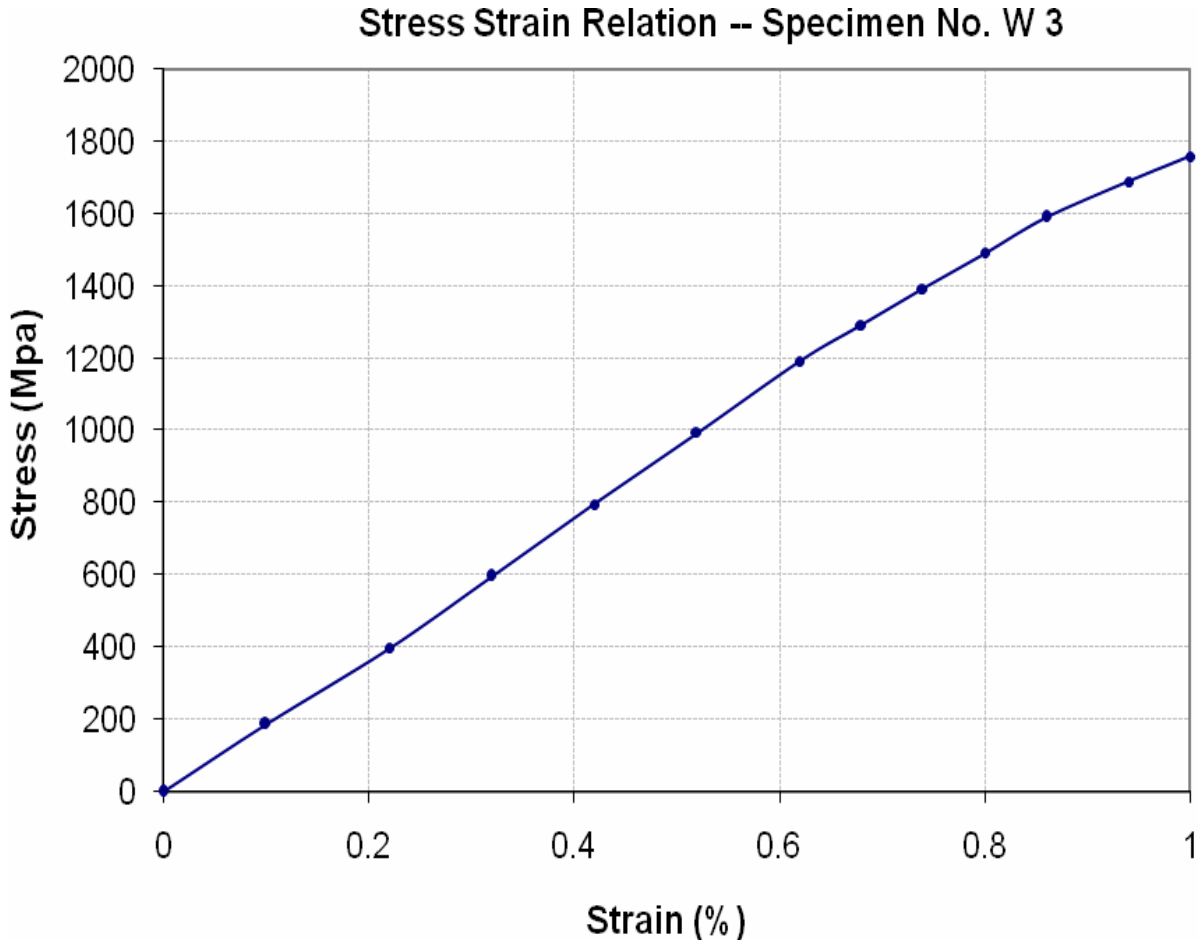
Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
NESPAK
Permanent Reconstruction Plan (PRP) Project Pash-Mana-Gurbaz Road, NWTD

Reference # CED/TFL **36607** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # 3963/021/TA/01/156 Dated: 08-06-2021

Graph (Page – 4/4)



I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples

STRUCTURAL ENGINEERING DIVISION

Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
M/S Imperium Hospitality (Pvt) Limited
Gulberg II, Lahore

Reference # CED/TFL **36610** (Dr. Waseem Abbass) Dated: 21-06-2021
Reference of the request letter # IHPL/Steel/091 Dated: 21-06-2021

Tension Test Report (Page -1/1)

Date of Test 22-06-2021
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight	Diameter/ Size		Area (in^2)		Yield load	Breaking Load	Yield Stress (psi)		Ultimate Stress (psi)		Elongation	% Elongation	Remarks
	(lbs/ft)	Nominal (#)	Actual (inch)	Nominal	Actual	(kg)	(kg)	Nominal	Actual	Nominal	Actual	(inch)		
1	4.257	10	1.262	1.27	1.251	35600	52200	61800	62710	90600	92000	1.60	20.0	PCS Steel
2	4.223	10	1.257	1.27	1.241	34600	52600	60100	61440	91300	93400	1.80	22.5	
3	4.223	10	1.257	1.27	1.241	34600	53400	60100	61450	92700	94900	1.50	18.8	
4	4.225	10	1.257	1.27	1.242	34600	53600	60100	61410	93100	95200	1.60	20.0	
5	4.258	10	1.262	1.27	1.252	32600	40400	56600	57420	70200	71200	1.60	20.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only five samples for tensile test														
Bend Test														

Witness by Rafi Ullah (IHPL) & Hafiz Abdul Rauf (National Sales Manager)

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:
1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
2. The above results pertain to sample /samples supplied to this laboratory.
3- Sealed sample / Unsealed sample / Marked sample/Signed Samples