



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
 Innovation Center & Innovation Park at UET Lahore, Narowal Campus Phase-II
 (Mughal)

Reference # CED/TFL **33086** (Dr. Usman Akmal)
 Reference of the request letter # 3854/13/IAK/07/563

Dated: 17-04-2019
 Dated: 15-04-2019

Tension Test Report (Page -1/1)

Date of Test 18-04-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.378	3	0.376	0.11	0.111	3800	4900	76200	75390	98200	97300	0.90	11.3	
2	0.370	3	0.372	0.11	0.109	3800	4900	76200	76970	98200	99300	0.90	11.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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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
 Up-Gradation/Dualization of Motorway Link from Kohat Via Jand Pindigheb to Khushal Garh
 (Pkg-1) (WMI)

Reference # CED/TFL **33088** (Dr. Usman Akmal)
 Reference of the request letter # 36264/103/JH/080

Dated: 17-04-2019
 Dated: 16-03-2019

Tension Test Report (Page – 1/4)

Date of Test 18-04-2019
 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)			
1	12.70 (1/2")	775.0	780.0	18200	178.54	19600	192.28	198	>3.50	xx
2	12.70 (1/2")	775.0	780.0	17300	169.71	19500	191.30	199	>3.50	xx
3	12.70 (1/2")	775.0	781.0	17700	173.64	19600	192.28	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.

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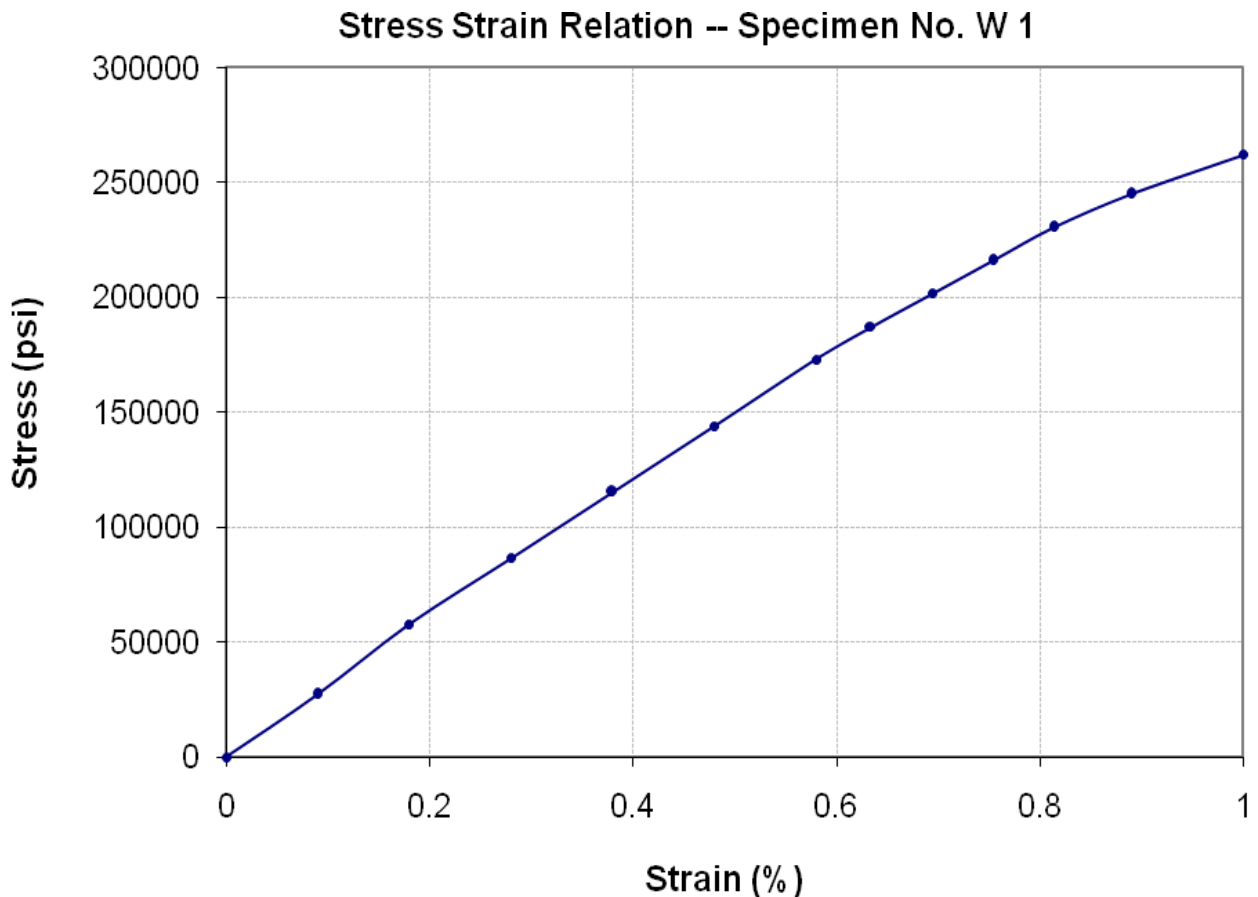
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(Pkg-1) (WMI)

Reference # CED/TFL **33088** (Dr. Usman Akmal)
Reference of the request letter # 36264/103/JH/080

Dated: 17-04-2019
Dated: 16-03-2019

Graph (Page – 2/4)



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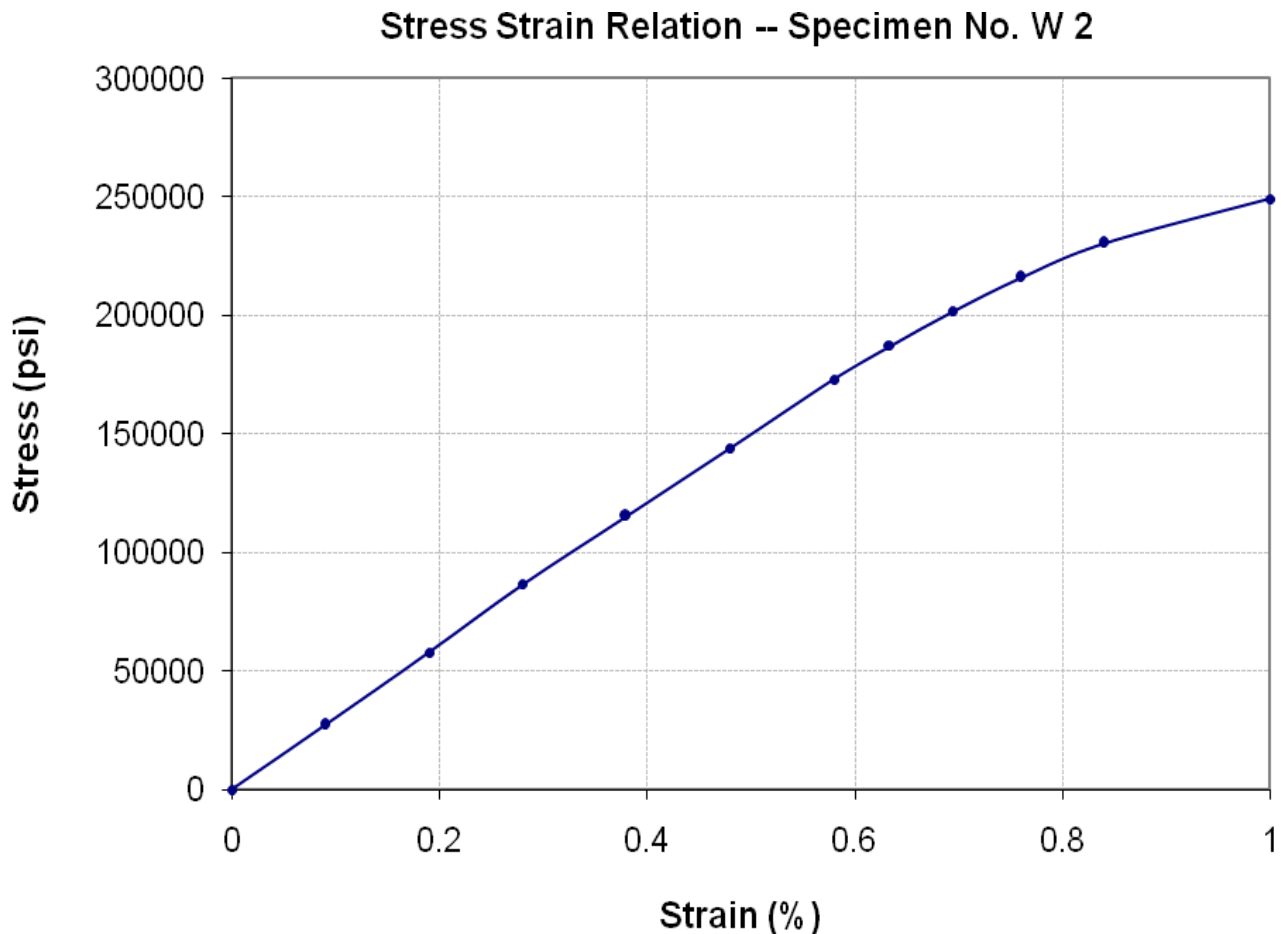
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(Pkg-1) (WMI)

Reference # CED/TFL **33088** (Dr. Usman Akmal)
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Dated: 17-04-2019
Dated: 16-03-2019

Graph (Page – 3/4)



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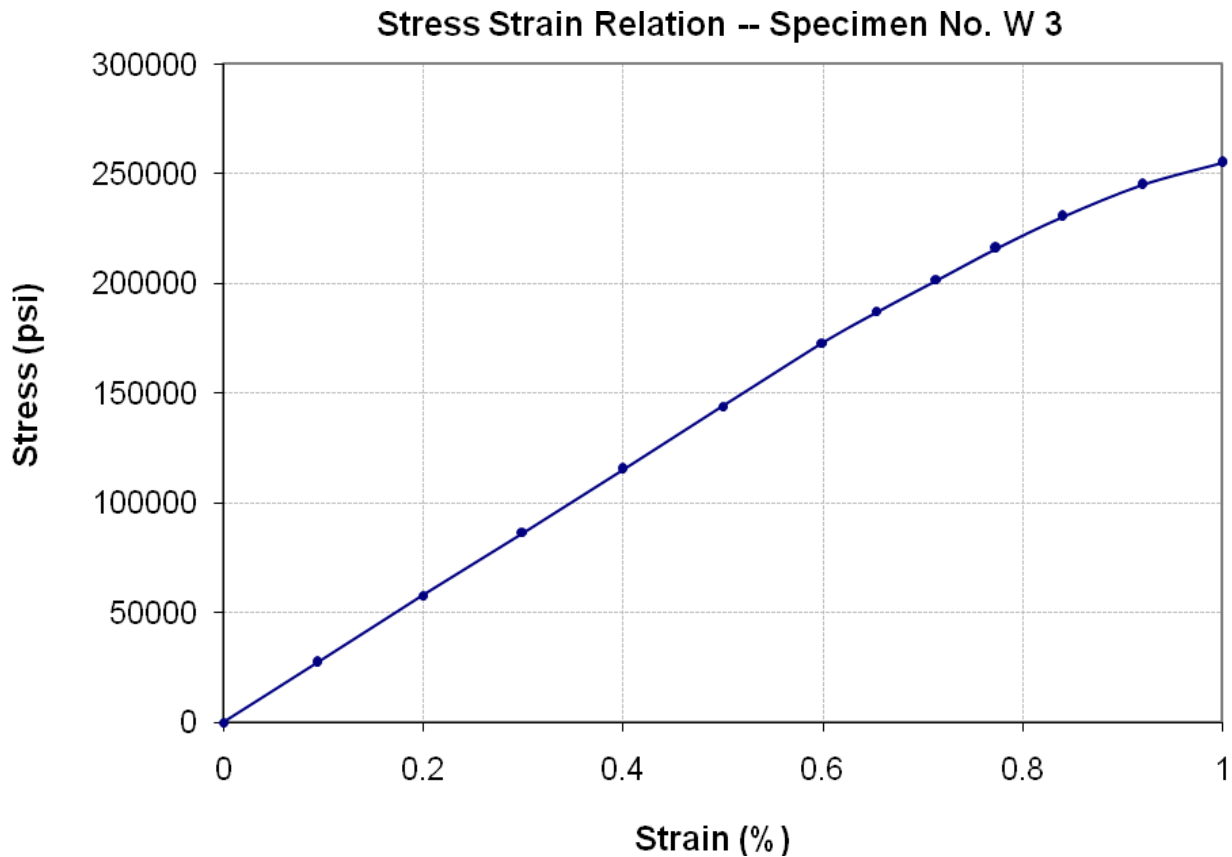
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(Pkg-1) (WMI)

Reference # CED/TFL **33088** (Dr. Usman Akmal)
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Dated: 17-04-2019
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Graph (Page – 4/4)



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STRUCTURAL ENGINEERING DIVISION
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To,
M/S Defence Housing Authority.
Lahore Cantt
(Infra Dev Works at Sector-R Pkg-1, , DHA Ph-9)(M/s DHA-C Coy)

Reference # CED/TFL **33089** (Dr. Usman Akmal)
Reference of the request letter # 408/241/E/Lab/532/426

Dated: 17-04-2019
Dated: 16-04-2019

Tension Test Report (Page -1/1)

Date of Test 18-04-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.365	3	0.370	0.11	0.107	3200	4900	64200	65720	98200	100700	1.10	13.8	S. J Steel
2	0.365	3	0.369	0.11	0.107	3200	4900	64200	65810	98200	100800	1.00	12.5	
3	4.278	10	1.265	1.27	1.257	41000	54200	71200	71870	94100	95000	1.40	17.5	
4	4.293	10	1.268	1.27	1.262	41200	54600	71500	71960	94800	95400	1.50	18.8	
5	5.233	11	1.399	1.56	1.538	45000	71200	63600	64480	100600	102100	1.30	16.3	
6	5.227	11	1.399	1.56	1.536	45600	70400	64500	65420	99500	101000	1.10	13.8	
Note: only six samples for tensile and three samples for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														
#10 Bar Bend Test Through 180° is Satisfactory														
#11 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
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Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
NESPAK
Permanent Reconstruction Plan in Fata - Mir Ali Ghariom Dosalli Road - Major Cross Drainage
Structure MKB (WMI)

Reference # CED/TFL **33090** (Dr. Usman Akmal)
Reference of the request letter # SA-335/RE/AQK/04/52

Dated: 17-04-2019
Dated: 11-03-2019

Tension Test Report (Page – 1/4)

Date of Test 18-04-2019
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	772.0	17500	171.68	19700	193.26	199	>3.50	20323
2	12.70 (1/2")	775.0	779.0	17600	172.66	20000	196.20	198	>3.50	20325
3	12.70 (1/2")	775.0	786.0	17100	167.75	20100	197.18	199	>3.50	20328
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	

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.

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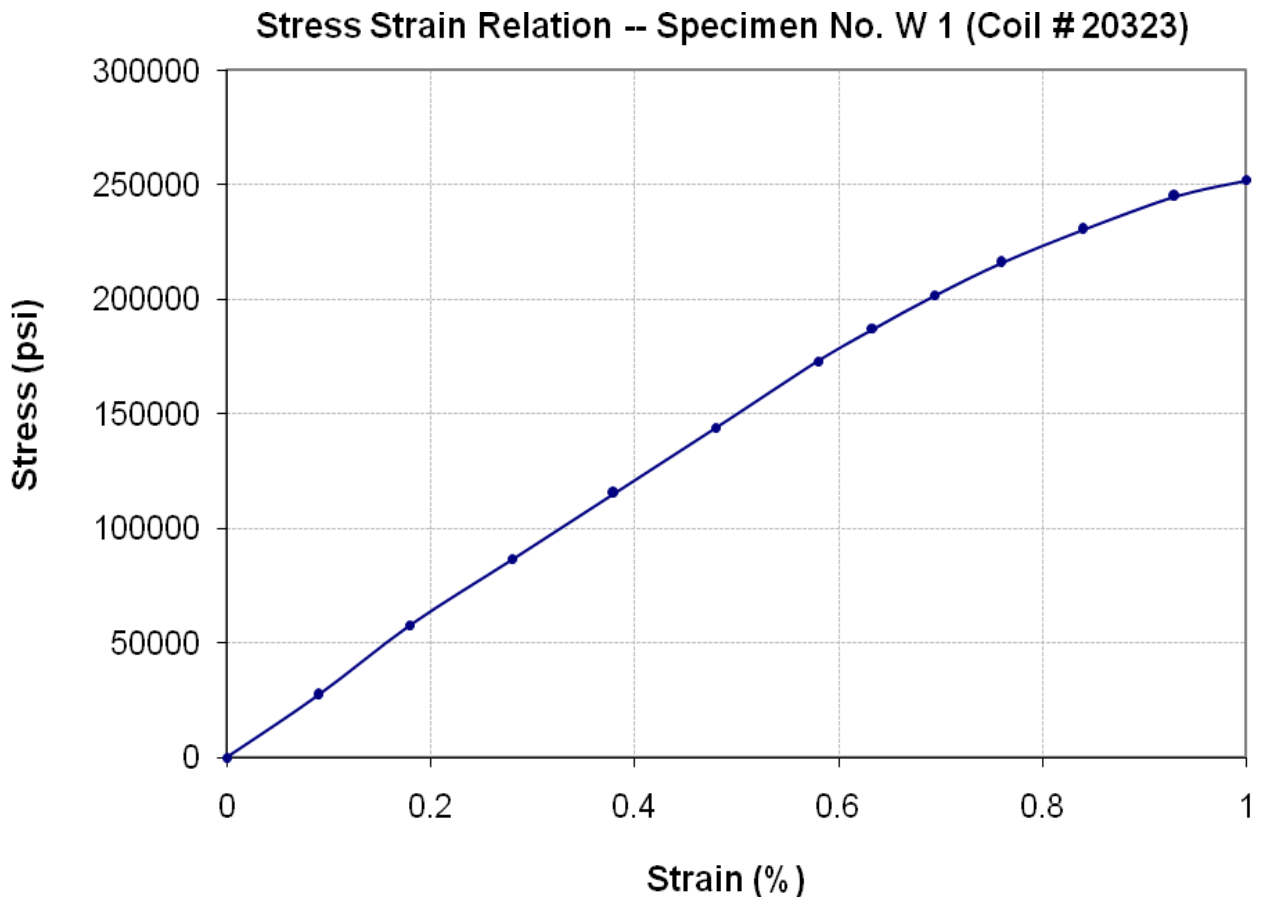
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Test Floor Laboratory
Department of Civil Engineering
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Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
NESPAK
Permanent Reconstruction Plan in Fata - Mir Ali Ghariom Dosalli Road - Major Cross Drainage
Structure MKB (WMI)

Reference # CED/TFL **33090** (Dr. Usman Akmal)
Reference of the request letter # SA-335/RE/AQK/04/52

Dated: 17-04-2019
Dated: 11-03-2019

Graph (Page – 2/4)



I/C Testing Laboratories
UET Lahore, Pakistan.

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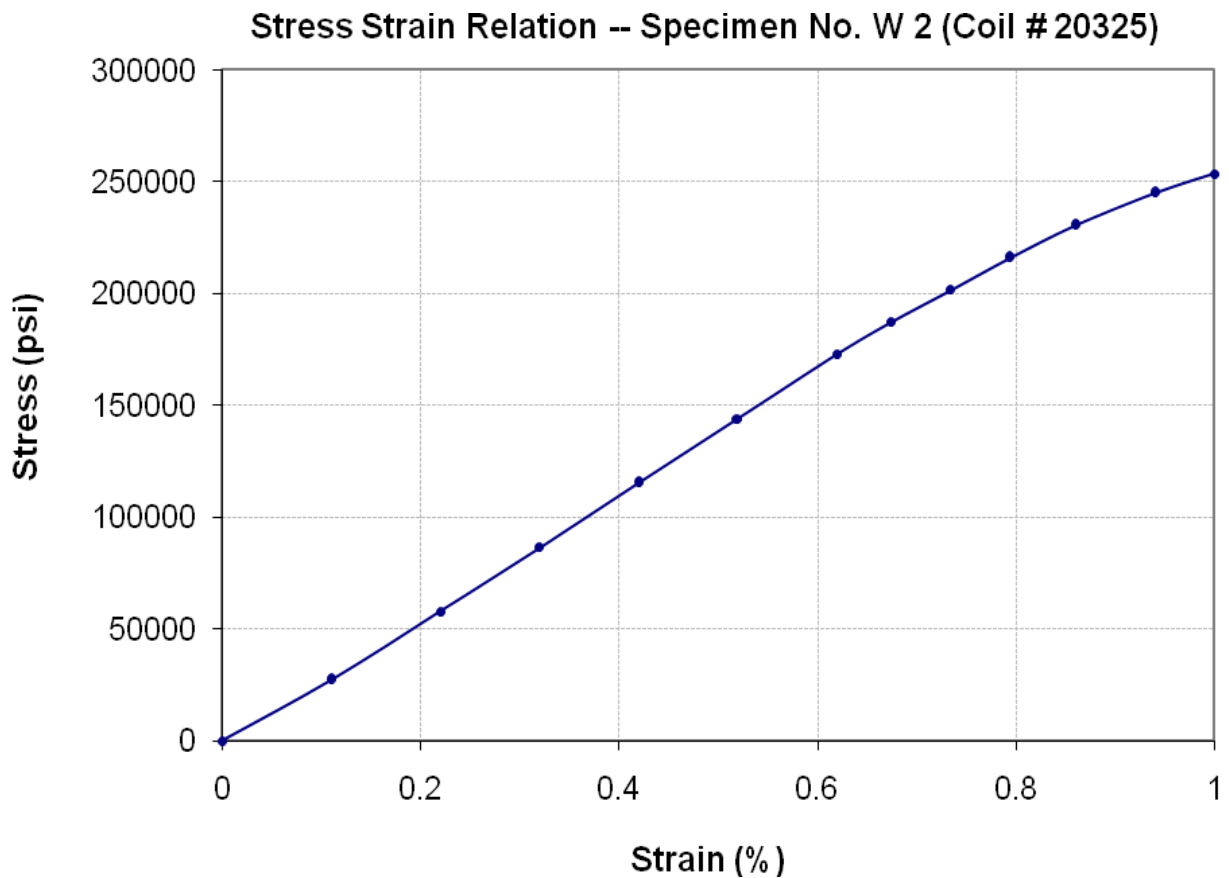
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Reference of the request letter # SA-335/RE/AQK/04/52

Dated: 17-04-2019
Dated: 11-03-2019

Graph (Page – 3/4)



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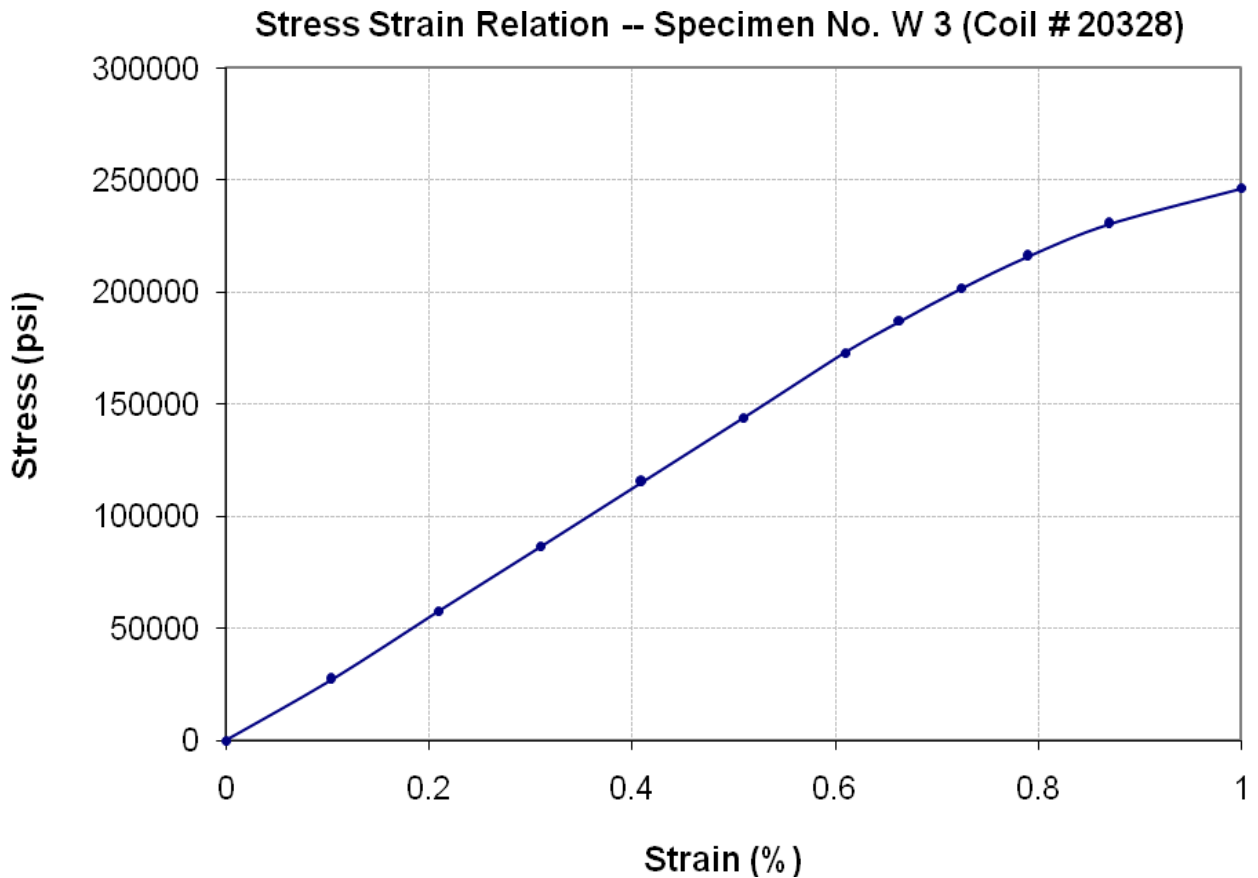
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Permanent Reconstruction Plan in Fata - Mir Ali Ghariom Dosalli Road - Major Cross Drainage
Structure MKB (WMI)

Reference # CED/TFL **33090** (Dr. Usman Akmal)
Reference of the request letter # SA-335/RE/AQK/04/52

Dated: 17-04-2019
Dated: 11-03-2019

Graph (Page – 4/4)



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STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
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To,
M/S Defence Housing Authority.
Lahore Cantt
(Infra Dev Works Prism-IX, K-Sector, DHA Ph-9)(M/s FWO)

Reference # CED/TFL **33091** (Dr. Usman Akmal)
Reference of the request letter # 408/241/E/Lab/535/293

Dated: 17-04-2019
Dated: 17-04-2019

Tension Test Report (Page -1/2)

Date of Test 18-04-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	4.240	10	1.260	1.27	1.246	38600	53200	67000	68260	92400	94100	1.40	17.5	Mughal
2	4.276	10	1.265	1.27	1.257	43800	55600	76100	76800	96500	97500	1.40	17.5	
3	4.110	10	1.240	1.27	1.208	37800	51600	65600	68970	89600	94200	1.60	20.0	
4	4.143	10	1.245	1.27	1.218	37400	51600	65000	67690	89600	93400	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only Four samples for tensile and two samples for bend test														
Bend Test														
#10 Bar Bend Test Through 180° is Satisfactory														
#10 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
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University of Engineering and Technology Lahore, 54890
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To,
M/S Defence Housing Authority.
Lahore Cantt
(Infra Dev Works at OHWT # 1 Sector-B (Extn), DHA Ph-V)(M/s Inland)

Reference # CED/TFL **33093** (Dr. Usman Akmal)
Reference of the request letter # 408/241/E/Lab/534/19

Dated: 17-04-2019
Dated: 16-04-2019

Tension Test Report (Page -1/2)

Date of Test 18-04-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.369	3	0.371	0.11	0.108	3800	5800	76200	77280	116300	118000	1.00	12.5	City Steel
2	0.368	3	0.371	0.11	0.108	3600	5600	72200	73300	112300	114100	0.90	11.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

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To,
M/S Defence Housing Authority.
Lahore Cantt
(Infra Development Works Sector-E DHA Ph-IX)(M/s Inland)

Reference # CED/TFL **33093** (Dr. Usman Akmal)
Reference of the request letter # 408/241/E/Lab/533/34

Dated: 17-04-2019
Dated: 16-04-2019

Tension Test Report (Page -2/2)

Date of Test 18-04-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.368	3	0.371	0.11	0.108	3500	5600	70200	71350	112300	114200	1.00	12.5	City Steel
2	0.368	3	0.371	0.11	0.108	3600	5600	72200	73370	112300	114200	0.90	11.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

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To,
 Commanding Officer
 10 Engineers Battalion
 FWO Camp Kartarpur
 Bridge over River Ravi at Kartarpur District Narowal

Reference # CED/TFL **33095** (Dr. Usman Akmal)
 Reference of the request letter # 607/Proj/DKC/01

Dated: 17-04-2019
 Dated: 28-03-2019

Tension Test Report (Page – 1/1)

Date of Test 18-04-2019
 Gauge length 2 inches
 Description Elastomeric Bearing Pad Steel Plate Steel Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
1	Pad Steel Plate	21.00x3.00	63.00	1900	2600	295.86	404.86	0.50	25.00	
.	
.	
.	
.	
.	
Only One Sample for Tensile Test										
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

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Test Floor Laboratory
Department of Civil Engineering
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To,
M/S Mazhar Traders
Lahore

Reference # CED/TFL **33097** (Dr. Usman Akmal)
Reference of the request letter # Nil

Dated: 17-04-2019

Dated: 16-04-2019

Tension Test Report (Page -1/1)

Date of Test 18-04-2019
Gauge length -----
Description Wire Tensile Test

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (Psi)		Ultimate Stress (Psi)		Remarks
		Nominal (in)	Actual (in)	Nominal	Actual			Nominal	Actual	Nominal	Actual	
1	0.096	-----	0.190	-----	0.028	-----	1040	-----	-----	-----	81000	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile test												
Bend Test												

I/C Testing Laboratoires
UET Lahore, Pakistan.

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To,
 Project Manager
 Liberty Builders
 Construction of Zee Avenue Project, 17-A, Cooper Road, Lahore
 (KSR Steel)

Reference # CED/TFL **33098, 33104** (Dr. Usman Akmal)
 Reference of the request letter # CONC-20190418

Dated: 18-04-2019
 Dated: 18-04-2019

Tension Test Report (Page -1/1)

Date of Test 18-04-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.361	3	0.367	0.11	0.106	2750	3890	55100	57160	78000	80900	1.40	17.5	
2	0.360	3	0.367	0.11	0.106	2800	3840	56200	58380	77000	80100	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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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
Habib Rafiq (Pvt) Ltd
Widening and Strengthening of National Highway N-70 (Rakhi Gajj-Bewata Section) of East
West Road Improvement Project Package-1 (WMI)

Reference # CED/TFL **33099** (Dr. Usman Akmal)
Reference of the request letter # HRL/N70/1433

Dated: 18-04-2019
Dated: 18-04-2019

Tension Test Report (Page – 1/1)

Date of Test 18-04-2019
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	12.70 (1/2")	775.0	783.0	17500	171.68	20300	199.14	>3.50	1
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
Only one sample for Test									

Witness by Faisal Shahzad (AME Habib Rafiq)

I/C Testing Laboratoires
UET Lahore, Pakistan.

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

To,
To,
Project Manager
Habib Rafiq (Pvt) Ltd
Widening and Strengthening of National Highway N-70 (Rakhi Gajj-Bewata Section) of East
Weast Road Improvement Project Package-1 (WMI)

Reference # CED/TFL **33100** (Dr. Usman Akmal)
Reference of the request letter # HRL/N70/1432

Dated: 18-04-2019
Dated: 18-04-2019

Tension Test Report (Page – 1/1)

Date of Test 18-04-2019
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	12.70 (1/2")	775.0	791.0	16800	164.81	19500	191.30	>3.50	1
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	

Only one sample for Test

Witness by Faisal Shahzad (AME Habib Rafiq)

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UET Lahore, Pakistan.

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To,
 Project Manger
 Z.T Builders
 Upgradation of Sewerage Line at CMH, SSS Line Unit Area at Multan Cantt

Reference # CED/TFL **33101** (Dr. Usman Akmal)
 Reference of the request letter # ACE-MTN-35

Dated: 18-04-2019
 Dated: 05-04-2019

Tension Test Report (Page -1/1)

Date of Test 18-04-2019
 Gauge length 8 inches
 Description Plain Steel Bar Tensile Test

Sr. No.	Weight (kg/m)	Diameter/ size		Area (mm ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (MPa) Actual	Ultimate Stress (MPa) Actual	Elongation (inch)	% Elongation	Remarks
		Nominal (mm)	Actual (mm)	Nominal	Actual							
1	0.150	5	4.94	-----	19.2	970	1350	496	691	0.6	7.5	
2	0.145	5	4.86	-----	18.5	990	1350	524	715	0.6	7.5	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile test												
Bend Test												

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UET Lahore, Pakistan.

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