



**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 – Zeeruk (Jv)  
 CPEC (Western Route) Package-II  
 Isakhel

Reference # CED/TFL **33139** (Dr.Usman Akmal)  
 Reference of the request letter # RE/NESPAK/P-2/CPEC-WR/345

Dated: 24-04-2019  
 Dated: 17-04-2019

**Tension Test Report** (Page – 1/2)

Date of Test 26-04-2019  
 Gauge length 2 inches  
 Description Vertical Steel Post, Spacer Block & Metal Beam Guard Rail Strip Tensile  
 Test as per AASHTOO A-180

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
1	Vertical Steel Post	2.370x0.610	1.45	5100	7400	3527.70	5118.63	0.70	35.00	
2		2.330x0.610	1.42	5000	7300	3517.91	5136.14	0.70	35.00	
3	Spacer Block	2.750x0.500	1.38	5100	6900	3709.09	5018.18	0.60	30.00	
4		2.750x0.500	1.38	5150	7000	3745.45	5090.91	0.60	30.00	
5	Metal Beam Guard Rail	2.745x0.285	0.78	3000	4600	3834.72	5879.91	0.55	27.50	
6		2.745x0.285	0.78	3200	4800	4090.37	6135.56	0.55	27.50	
<b>Only Six Samples for Tensile Test</b>										
<b>Bend Test</b>										

**I/C Testing Laboratories**  
**UET Lahore, Pakistan.**

Note:

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To,  
Resident Engineer  
NESPAK – Zeeruk (Jv)  
CPEC (Western Route) Package-II  
Isakhel

Reference # CED/TFL **33139** (Dr.Usman Akmal)

Dated: 24-04-2019

Reference of the request letter # RE/NESPAK/P-2/CPEC-WR/345 Dated: 17-04-2019

**Thickness Test Report** (Page – 2/2)

Date of Test 26-04-2019

Gauge length -----

Description Vertical Steel Post, Spacer Block & Metal Beam Guard Rail Thickness  
Test

Sr. No.	Designation	Thickness	Remark
		(mm)	
1	Vertical Steel Post	6.10	
2	Spacer Block	5.00	
3	Metal Beam Guard Rail	3.00	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
<b>Only Three Samples for Test</b>			

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,  
 Resident Engineer  
 EA Consulting (Pvt) Ltd  
 Sukkur – Multan Motorway Project  
 Sec-III (CSCEC)(High Pole Lamp)  
 Reference # CED/TFL **33141** (Dr. Qasim Khan)  
 Reference of the request letter # CRE/EA/M.P-III/384-2019

Dated: 24-04-2019  
 Dated: 24-04-2019

**Tension Test Report** (Page -1/1)

Date of Test 26-04-2019  
 Gauge length 8 inches  
 Description Anchor Bolt Tensile Test

Sr. No.	Weight (kg/m)	Diameter/ size		Area (mm <sup>2</sup> )		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	5.945	32	31.05	-----	757.3	28000	35000	363	453	2.2	27.5	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only one sample for tensile test</b>												
Bend Test												

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To,  
 Assistant Engineer  
 Al Hussain Traders Contractors  
 Civil Works, Erection, Stringing, Testing & Commissioning of 500 kV Single Circuit T/Line  
 Guddu-Muzaffargarh from Location No. 200 to Location No. 394 (72 km Approx) Lot-I  
 (Fazal Steel)  
 Reference # CED/TFL **33143** (Dr. Waseem Abbas) Dated: 24-04-2019  
 Reference of the request letter # AHT/TLC-03/2307-10 Dated: 24-04-2019

**Tension Test Report** (Page -1/1)

Date of Test 26-04-2019  
 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 <sup>2</sup> )		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	0.400	3	0.387	0.11	0.117	3500	5600	70200	65660	112300	105100	1.00	12.5	
2	0.399	3	0.387	0.11	0.117	3500	5600	70200	65730	112300	105200	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

Witness by Sohaib Ali (Sub Engr. NESPAK)

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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**Test Floor Laboratory**  
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**University of Engineering and Technology Lahore, 54890**  
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To,  
 Chief Resident Engineer (Civil) Panjad Barrage  
 Trimmu Panjnad Barrages Consultants  
 Trimmu and Panjnad Barrages Improvement Project (TPBIP)  
 (Ittefaq Steel)

Reference # CED/TFL **33147** (Dr. Qasim Khan)  
 Reference of the request letter # TPBC/CRE/TECH/102

Dated: 25-04-2019  
 Dated: 23-04-2019

**Tension Test Report** (Page -1/1)

Date of Test 26-04-2019  
 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 <sup>2</sup> )		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	5.331	11	1.413	1.56	1.567	53600	71600	75800	75390	101200	100700	0.90	11.3	
2	5.221	11	1.398	1.56	1.535	49800	68000	70400	71520	96100	97700	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**Note: only two samples for tensile and one sample for bend test**

**Bend Test**

#11 Bar Bend Test Through 180° is Satisfactory

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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

To,  
M/S Defence Housing Authority.  
Lahore Cantt  
(Const. of Girls School W-Section, DHA Ph-VIII)(M/s Kingcrete)

Reference # CED/TFL **33148** (Dr. Qasim Khan)  
Reference of the request letter # 408/241/E/Lab/542/09

Dated: 25-04-2019  
Dated: 23-04-2019

**Tension Test Report** (Page -1/1)

Date of Test 26-04-2019  
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 <sup>2</sup> )		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	3400	4900	68200	69300	98200	99900	1.30	16.3	Kamran Steel
2	0.370	3	0.372	0.11	0.109	3200	4900	64200	64850	98200	99300	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only two samples for tensile and one sample for bend test</b>														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,  
Chief Resident Engineer  
Osmani & Company (Pvt) Ltd  
Swat Motorway Project

Reference # CED/TFL 33149 (Dr. Qasim Khan)  
Reference of the request letter # 277/CRE/QAT/SMP/2019

Dated: 25-04-2019  
Dated: 23-04-2019

**Tension Test Report** (Page – 1/4)

Date of Test 26-04-2019  
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	784.0	17500	171.68	20300	199.14	198	>3.50	128
2	12.70 (1/2")	775.0	784.0	17700	173.64	20400	200.12	199	>3.50	130
3	12.70 (1/2")	775.0	786.0	17900	175.60	20200	198.16	199	>3.50	132
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	

**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**  
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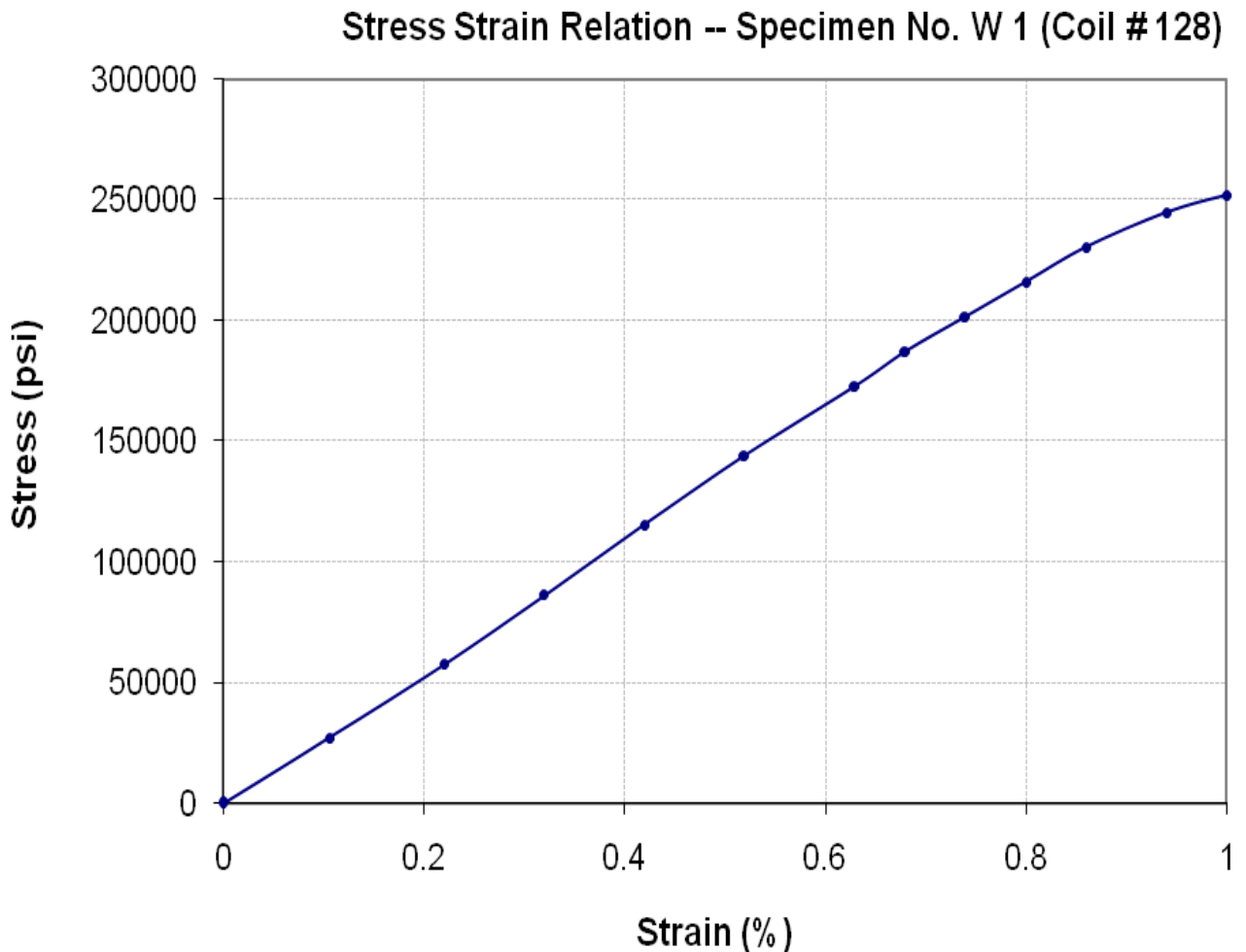
To,  
Chief Resident Engineer  
Osmani & Company (Pvt) Ltd  
Swat Motorway Project

Reference # CED/TFL 33149 (Dr. Qasim Khan)  
Reference of the request letter # 277/CRE/QAT/SMP/2019

Dated: 25-04-2019

Dated: 23-04-2019

**Graph** (Page – 2/4)



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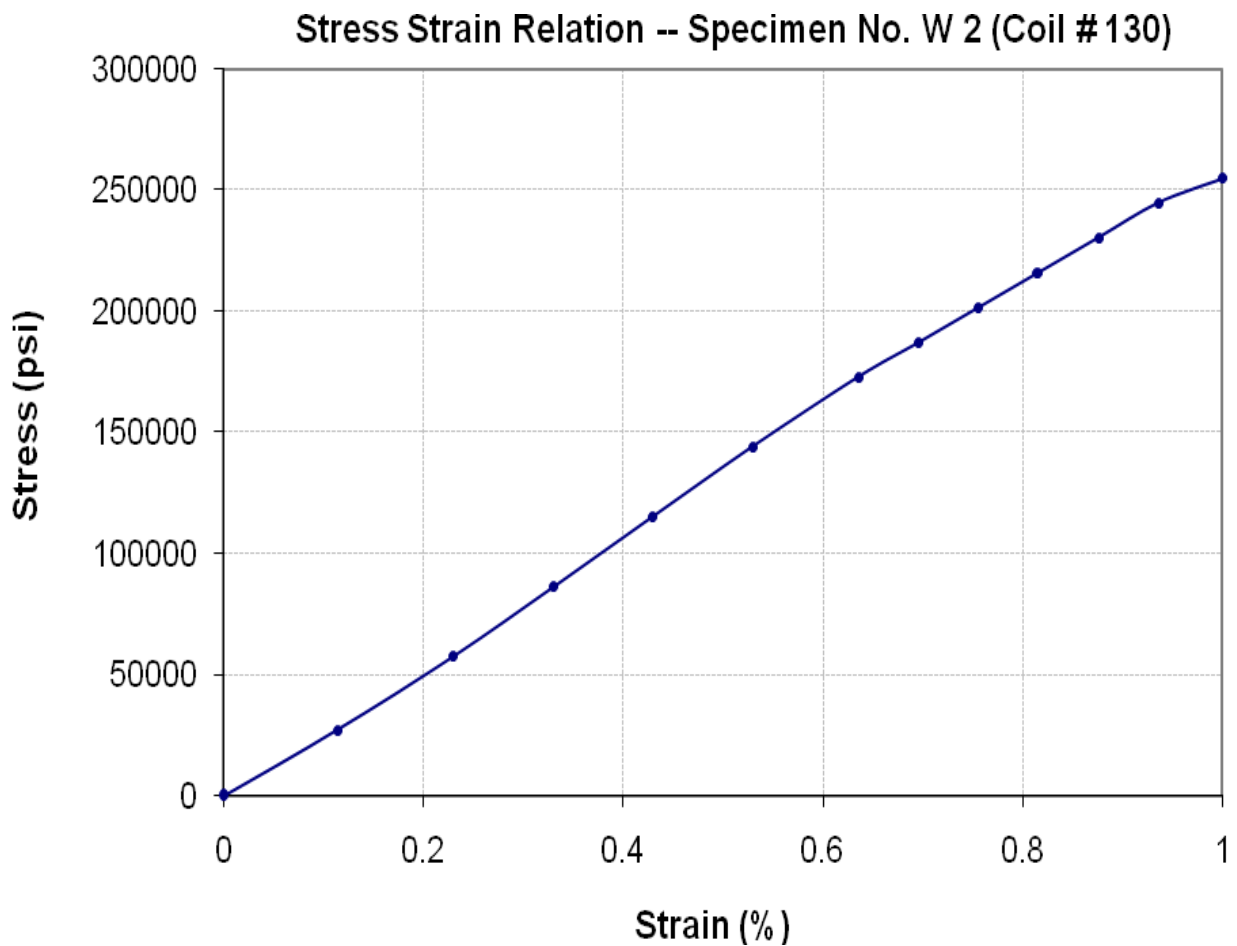
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**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
Chief Resident Engineer  
Osmani & Company (Pvt) Ltd  
Swat Motorway Project

Reference # CED/TFL 33149 (Dr. Qasim Khan)  
Reference of the request letter # 277/CRE/QAT/SMP/2019

Dated: 25-04-2019  
Dated: 23-04-2019

**Graph** (Page – 3/4)



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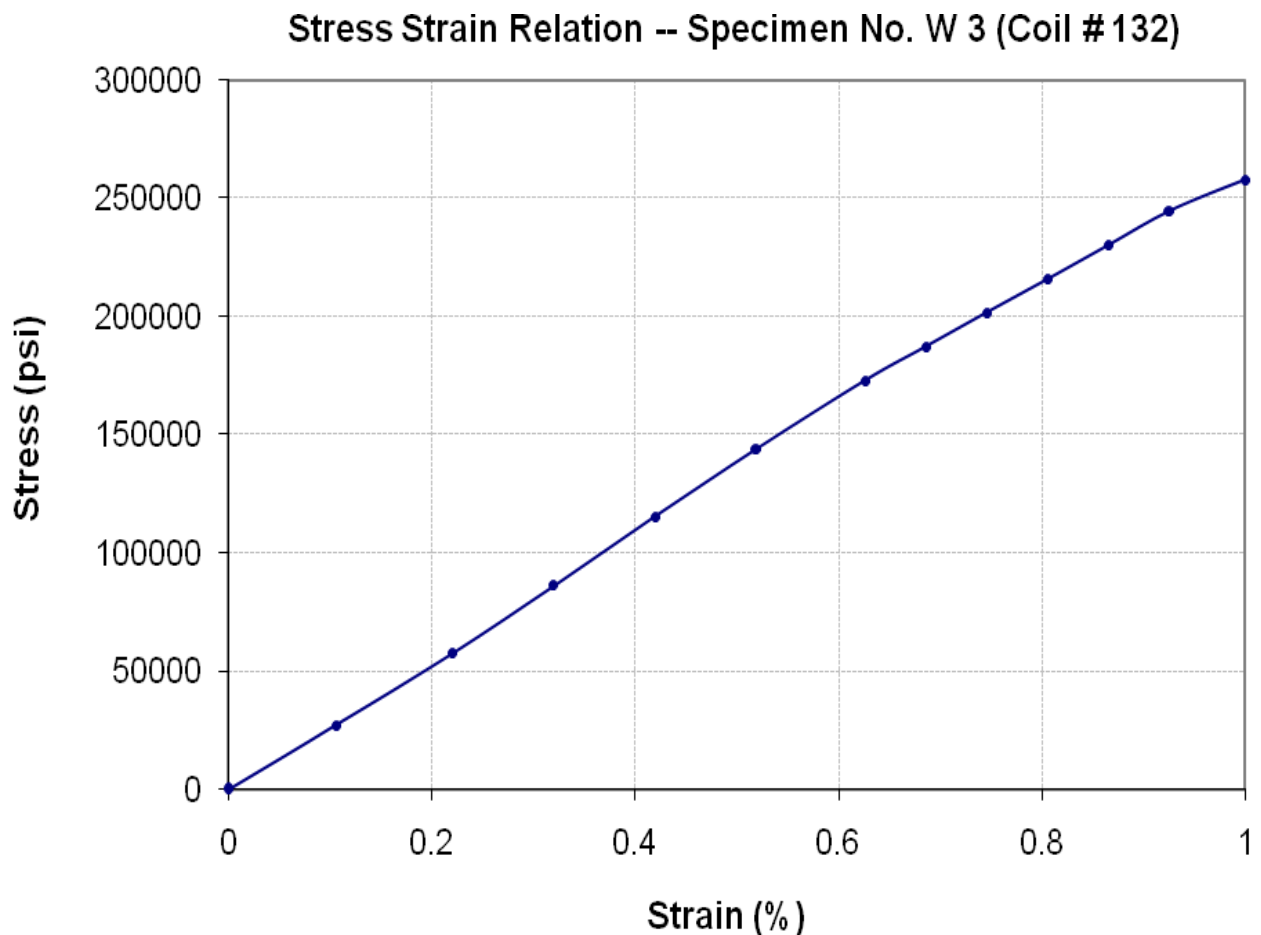
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To,  
Chief Resident Engineer  
Osmani & Company (Pvt) Ltd  
Swat Motorway Project

Reference # CED/TFL 33149 (Dr. Qasim Khan)  
Reference of the request letter # 277/CRE/QAT/SMP/2019

Dated: 25-04-2019  
Dated: 23-04-2019

**Graph** (Page – 4/4)



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

To,  
 Resident Engineer  
 NESPAK  
 Development of Kartarpur Corridor

Reference # CED/TFL **33150** (Dr. Qasim Khan) Dated: 25-04-2019  
 Reference of the request letter # SA-394/DKC/St. Test/MH/58 Dated: 23-04-2019

**Tension Test Report** (Page -1/1)

Date of Test 26-04-2019  
 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 <sup>2</sup> )		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	0.372	3	0.373	0.11	0.109	3200	4900	64200	64570	98200	98900	1.10	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Note: only one sample for tensile and one sample for bend test</b>														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

**I/C Testing Laboratoires**  
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