



**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  
 Upgradation of Radiology/Specialties Department at Service Hospital, Lahore  
 Construction of Emergency Exit Staircase

Reference # CED/TFL **34128** (Dr. Waseem Abbas)  
 Reference of the request letter # 3772/MB/MSW/019/007

Dated: 05-11-2019  
 Dated: 11-10-2019

**Tension Test Report** (Page – 1/2)

Date of Test 18-12-2019  
 Gauge length 2 inches  
 Description MS Pipe Steel Strip Tensile Test

| Sr. No.                                   | Designation | Size of Strip | X Section Area     | Yield load | Breaking Load | Yield Stress | Ultimate Stress | Elongation | % Elongation | Remarks |
|---|-------------|---------------|--------------------|------------|---------------|--------------|-----------------|------------|--------------|---------|
|   | (mm)        | (mm)          | (mm <sup>2</sup> ) | (kg)       | (kg)          | (MPa)        | (MPa)           | (in)       |              |         |
| 1   | 50          | 34.40x1.60    | 55.04              | 2100       | 2800          | 374.29       | 499.06          | 0.45       | 22.50        |         |
| 2   |             | 34.90x1.60    | 55.84              | 2200       | 2800          | 386.50       | 491.91          | 0.50       | 25.00        |         |
| 3   | 75          | 27.40x2.40    | 65.76              | 2000       | 2700          | 298.36       | 402.78          | 0.60       | 30.00        |         |
| 4   |             | 27.40x2.40    | 65.76              | 2000       | 2700          | 298.36       | 402.78          | 0.50       | 25.00        |         |
| -   | -           | -             | -                  | -          | -             | -            | -               | -          | -            |         |
| -   | -           | -             | -                  | -          | -             | -            | -               | -          | -            |         |
| -   | -           | -             | -                  | -          | -             | -            | -               | -          | -            |         |
| <b>Only Four Samples for Tensile Test</b> |             |               |                    |            |               |              |                 |            |              |         |
| <b>Bend Test</b>                          |             |               |                    |            |               |              |                 |            |              |         |
|   |             |               |                    |            |               |              |                 |            |              |         |
|   |             |               |                    |            |               |              |                 |            |              |         |
|   |             |               |                    |            |               |              |                 |            |              |         |

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

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NESPAK  
Upgradation of Radiology/Specialties Department at Service Hospital, Lahore  
Construction of Emergency Exit Staircase

Reference # CED/TFL **34128** (Dr. Waseem Abbas)  
Reference of the request letter # 3772/MB/MSW/019/007

Dated: 05-11-2019  
Dated: 11-10-2019

**Weight & Size Test Report** (Page – 2/2)

Date of Test 18-12-2019  
Gauge length -----  
Description MS Pipe Weight and Size Test

| Sr. No.                          | Designation | Weight | Length | Weight per Unit Length | External Diameter | Internal Diameter | Thickness | Remark |
|----------------------------------|-------------|--------|--------|------------------------|-------------------|-------------------|-----------|--------|
|                                  | (mm)        | (g)    | (cm)   | (kg/m)                 | (mm)              | (mm)              | (mm)      |        |
| 1                                | 50          | 1387   | 62.70  | 2.21                   | 58.40             | 55.20             | 1.60      |        |
| 2                                | 75          | 3219   | 61.20  | 5.26                   | 88.10             | 83.30             | 2.40      |        |
| -                                | -           | -      | -      | -                      | -                 | -                 | -         |        |
| -                                | -           | -      | -      | -                      | -                 | -                 | -         |        |
| -                                | -           | -      | -      | -                      | -                 | -                 | -         |        |
| -                                | -           | -      | -      | -                      | -                 | -                 | -         |        |
| -                                | -           | -      | -      | -                      | -                 | -                 | -         |        |
| -                                | -           | -      | -      | -                      | -                 | -                 | -         |        |
| <b>Only Two Samples for Test</b> |             |        |        |                        |                   |                   |           |        |

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

Ref: CED/TFL/12/34310

Dated: 11-12-19

Dated of Test: 18-12-19

To,  
Resident Engineer  
NESPAK  
Infrastructure Works of DHA Housing Scheme Gujranwala

Subject: - CALIBRATION OF PRESSURE GAUGE (MARK: TFL/12/34310) (Page -1/2)

Reference to your Letter No. 4055/13/SA/07/447, Dated: 10/12/2019 on the subject cited above. One Pressure Gauge No. 1 as received by us has been calibrated. The results are tabulated as under:

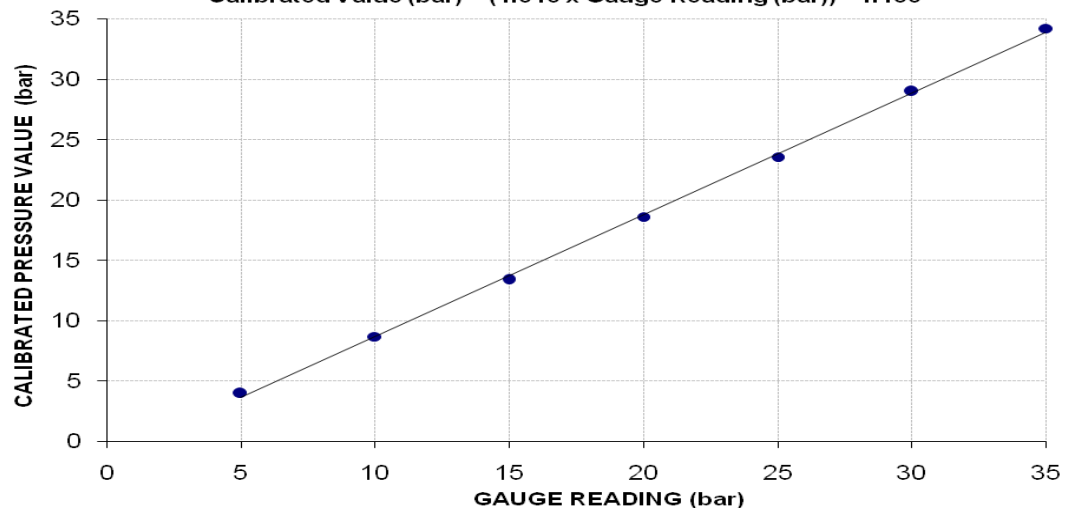
Total Range : Zero - 40 (bar)  
Calibrated Range : Zero - 35 (bar)

| Pressure Gauge Reading (bar) | 5    | 10   | 15    | 20    | 25    | 30    | 35    |
|------------------------------|------|------|-------|-------|-------|-------|-------|
| Calibrated Load (kg)         | 800  | 1750 | 2700  | 3750  | 4750  | 5850  | 6900  |
| Calibrated Pressure (bar)    | 3.96 | 8.67 | 13.37 | 18.57 | 23.53 | 28.98 | 34.18 |

The Ram Area use for Calibration = 198 cm<sup>2</sup>

**Calibration Curve for Pressure Gauge No. 1**

Calibrated Value (bar) = (1.010 x Gauge Reading (bar)) - 1.450



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

Ref: CED/TFL/12/34310

Dated: 11-12-19

Dated of Test: 18-12-19

To,  
Resident Engineer  
NESPAK  
Infrastructure Works of DHA Housing Scheme Gujranwala

Subject: - CALIBRATION OF PRESSURE GAUGE (MARK: TFL/12/34310) (Page -2/2)

Reference to your Letter No. 4055/13/SA/07/447, Dated: 10/12/2019 on the subject cited above. One Pressure Gauge No. 2 as received by us has been calibrated. The results are tabulated as under:

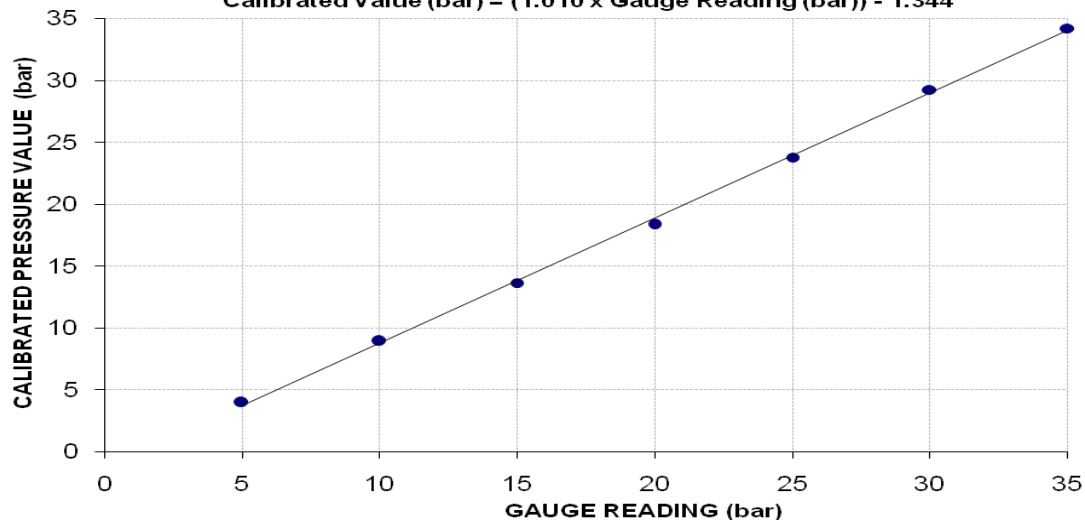
Total Range : Zero - 40 (bar)  
Calibrated Range : Zero - 35 (bar)

|                              |      |      |       |       |       |       |       |
|------------------------------|------|------|-------|-------|-------|-------|-------|
| Pressure Gauge Reading (bar) | 5    | 10   | 15    | 20    | 25    | 30    | 35    |
| Calibrated Load (kg)         | 800  | 1800 | 2750  | 3700  | 4800  | 5900  | 6900  |
| Calibrated Pressure (bar)    | 3.96 | 8.92 | 13.62 | 18.33 | 23.77 | 29.22 | 34.18 |

The Ram Area use for Calibration = 198 cm<sup>2</sup>

**Calibration Curve for Pressure Gauge No. 2**

Calibrated Value (bar) = (1.010 × Gauge Reading (bar)) - 1.344



I/C Testing Laboratories  
UET Lahore, Pakistan.

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To,  
Resident Engineer  
REC-LOYA-TECHNIA-Jv  
Construction of 4-Lane Bridge Across River Indus Linking Layyah with Taunsa including 2  
Lane Approach Roads and Training Works, Package I: Major Bridge on River Indus

Reference # CED/TFL **34316** (Dr. M Rizwan Riaz)  
Reference of the request letter # REC-LOYA-TECH/Coord/183

Dated: 13-12-2019  
Dated: 10-12-2019

**Tension Test Report** (Page – 1/2)

Date of Test 18-12-2019  
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 | % Elongation | Remarks / Coil No. |
|---------------------------------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|-------|-------------------------------|--------------|--------------------|
|                                 | (mm)             | (kg/km)        | (kg/km)         | (kg)                        | (kN)   | (kg)                           | (kN)  | E, GPa                        |              |                    |
| 1                               | 15.24 (0.6")     | 1102.0         | 1109.0          | 26800                       | 262.91 | 28200                          | 276.6 | 199                           | >3.50        | xx                 |
| -                               | -                | -              | -               | -                           | -      | -                              | -     | -                             | -            |                    |
| -                               | -                | -              | -               | -                           | -      | -                              | -     | -                             | -            |                    |
| -                               | -                | -              | -               | -                           | -      | -                              | -     | -                             | -            |                    |
| -                               | -                | -              | -               | -                           | -      | -                              | -     | -                             | -            |                    |
| -                               | -                | -              | -               | -                           | -      | -                              | -     | -                             | -            |                    |
| <b>Only one sample for Test</b> |                  |                |                 |                             |        |                                |       |                               |              |                    |

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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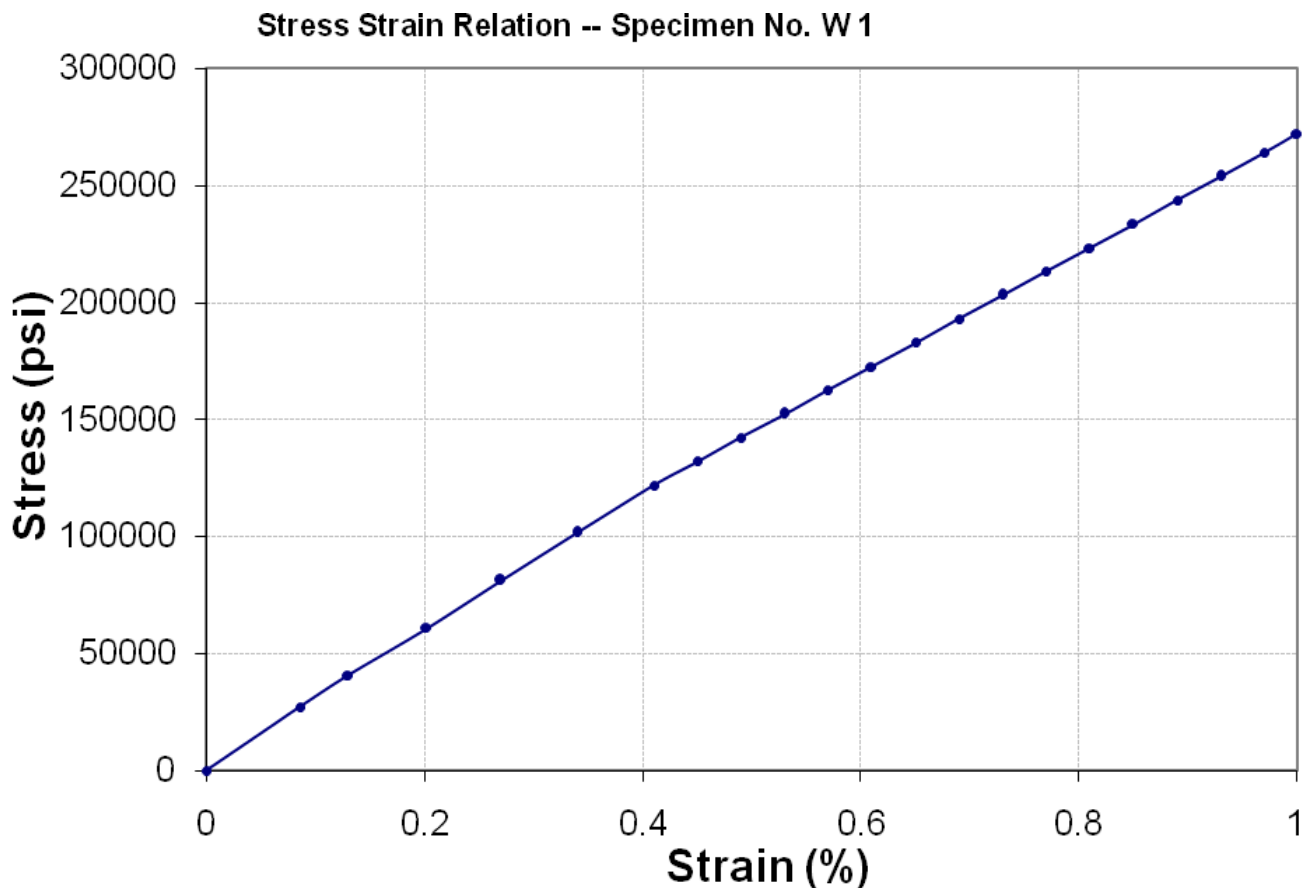
To,  
Resident Engineer  
REC-LOYA-TECHNIA-Jv  
Construction of 4-Lane Bridge Across River Indus Linking Layyah with Taunsa including 2  
Lane Approach Roads and Training Works, Package I: Major Bridge on River Indus

Reference # CED/TFL **34316** (Dr. M Rizwan Riaz)  
Reference of the request letter # REC-LOYA-TECH/Coord/183

Dated: 13-12-2019

Dated: 10-12-2019

**Graph** (Page – 2/2)



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

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**University of Engineering and Technology Lahore, 54890**  
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To,  
 Dy. Director (Maint)  
 National Highway Authority  
 Black Sports/Highway Safety Work of Contract No. BSHS-2014-15-BS-02 (km 222+000 – 545+000 – N-25)  
 Reference # CED/TFL **34320** (Dr. Waseem Abbas) Dated: 13-12-2019  
 Reference of the request letter # DD(M)/NHA/KHZ/19/1961 Dated: 11-12-2019

**Tension Test Report** (Page – 1/1)

Date of Test 18-12-2019  
 Gauge length 2 inches  
 Description Metal Guard Rail Strip Tensile Test

| Sr. No.                                  | Designation      | Size of Strip | X Section Area | Yield load | Breaking Load | Yield Stress | Ultimate Stress | Elongation | % Elongation | Remarks |
|--|------------------|---------------|----------------|------------|---------------|--------------|-----------------|------------|--------------|---------|
|  |                  |               |                |            |               |              |                 |            |              |         |
| 1  | Metal Guard Rail | 2.77x0.28     | 0.78           | 2500       | 3500          | 3223         | 4513            | 0.70       | 35.00        |         |
| 2  |                  | 2.77x0.28     | 0.78           | 2600       | 3600          | 3352         | 4642            | 0.70       | 35.00        |         |
| -  | -                | -             | -              | -          | -             | -            | -               | -          | -            |         |
| -  | -                | -             | -              | -          | -             | -            | -               | -          | -            |         |
| -  | -                | -             | -              | -          | -             | -            | -               | -          | -            |         |
| -  | -                | -             | -              | -          | -             | -            | -               | -          | -            |         |
| -  | -                | -             | -              | -          | -             | -            | -               | -          | -            |         |
| <b>Only Two Samples for Tensile Test</b> |                  |               |                |            |               |              |                 |            |              |         |
| <b>Bend Test</b>                         |                  |               |                |            |               |              |                 |            |              |         |
|  |                  |               |                |            |               |              |                 |            |              |         |
|  |                  |               |                |            |               |              |                 |            |              |         |
|  |                  |               |                |            |               |              |                 |            |              |         |

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

To,  
 Project Manager  
 Rafts Properties (Pvt) Ltd  
 Gulberg-II, Lahore

Reference # CED/TFL **34324** (Dr. Waseem Abbas)  
 Reference of the request letter # Nil

Dated: 16-12-2019  
 Dated: 16-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.403              | 3                 | 0.388            | 0.11                       | 0.118  | 3800               | 5200                     | 76200                 | 70700  | 104200                   | 96800  | 1.00                 | 12.5         |         |
| 2  | 0.394              | 3                 | 0.384            | 0.11                       | 0.116  | 3800               | 4700                     | 76200                 | 72380  | 94200                    | 89600  | 1.40                 | 17.5         |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| #3 Bar Bend Test Through 180° is Satisfactory                          |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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**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,  
 Sub Divisional Officer (Buildings)  
 Sub Division Sheikhupura  
 (GPS Tarey wala TEhsil Safdarabad District Sheikhupura (EMIS Code 35620420))

Reference # CED/TFL **34325** (Dr. Waseem Abbas)  
 Reference of the request letter # 6203/S

Dated: 16-12-2019  
 Dated: 03-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(inch) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal                     | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.387              | 3/8                         | 0.381  | 0.11                       | 0.114  | 3200               | 4900                     | 64200                 | 62010  | 98200                    | 95000  | 1.10                 | 13.8         |         |
| 2  | 0.376              | 3/8                         | 0.375  | 0.11                       | 0.110  | 3000               | 4600                     | 60200                 | 59890  | 92200                    | 91900  | 1.30                 | 16.3         |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile test</b> |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test                                      |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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**Pakistan. Ph: 92-42-99029202**

To,  
 Chief Executive  
 KS & Associates  
 Setting up of New Branch of MCB Bank & Regional Office at Muzaffargarh

Reference # CED/TFL **34326** (Dr. Waseem Abbas)

Dated: 16-12-2019

Reference of the request letter # KSA/MCB-MZFG/18/D-11

Dated: 13-12-2019

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

Date of Test 18-10-2019

Gauge length 8 inches

Description Deformed Steel Bar Tensile Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.416              | 3                 | 0.395            | 0.11                       | 0.122  | 4500               | 5700                     | 90200                 | 81050  | 114300                   | 102700 | 0.80                 | 10.0         |         |
| 2  | 0.417              | 3                 | 0.395            | 0.11                       | 0.122  | 4500               | 5800                     | 90200                 | 80980  | 116300                   | 104400 | 1.20                 | 15.0         |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test                                      |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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**

Ref: CED/TFL/12/34328

Dated: 17-12-2019

Dated of Test: 18-12-2019

To  
**Assistant Director (QCD)**  
**WASA, LDA, Lahore**  
**(M/s S.S. RCC Pipe Factory)**

Subject: - **CALIBRATION OF HYDRAULIC JACK (MARK: TFL/12/34328)**

Reference to your Letter No. QCD/1032-33, Dated: 10/10/2019 on the subject cited above. One Hydraulic Jack as received by us has been calibrated. The results are tabulated as under:

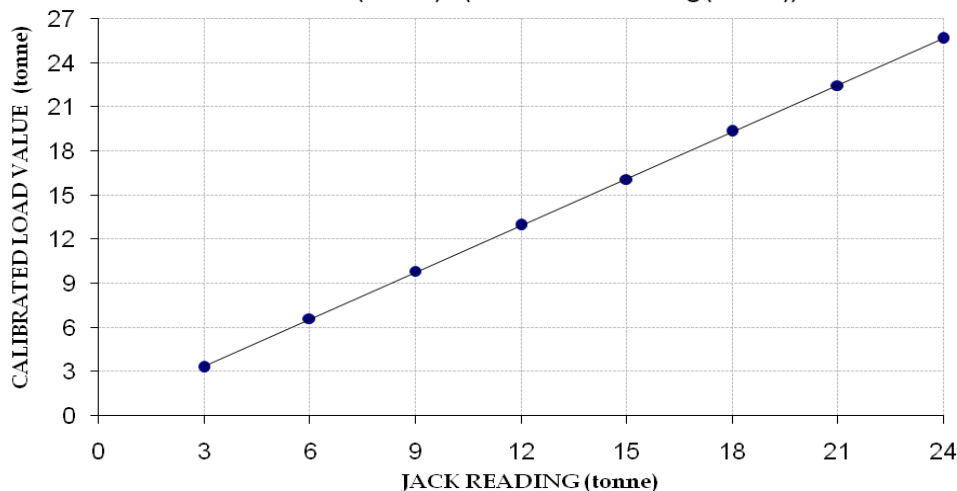
**Total Range : Zero - 25 (Tonne)**  
**Calibrated Range : Zero - 24 (Tonne)**

| Hydraulic Jack Reading (Tonne) |       | 3    | 6    | 9    | 12    | 15    | 18    | 21    | 24    |
|--------------------------------|-------|------|------|------|-------|-------|-------|-------|-------|
| Calibrated Load                | (kg)  | 3300 | 6600 | 9850 | 12950 | 16100 | 19350 | 22450 | 25650 |
|                                | Tonne | 3.30 | 6.60 | 9.85 | 12.95 | 16.10 | 19.35 | 22.45 | 25.65 |

1 Tonne = 1000 Kg

**Calibration Curve For Jack**

**Calibrated Value (Tonne) = (1.060 x Jack Reading (Tonne)) + 0.208**



**I/C Testing Laboratories**  
**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,  
 Director  
 Construction of Hussain Bibi Memorial Cardiac & General Hospital  
 Gujranwala

Reference # CED/TFL **34329** (Dr. Waseem Abbas)  
 Reference of the request letter # AIC/2019/Gw/18

Dated: 17-12-2019  
 Dated: 17-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.377              | 3                 | 0.376            | 0.11                       | 0.111  | 3300               | 5500                     | 66200                 | 65580  | 110200                   | 109300 | 0.90                 | 11.3         |         |
| 2  | 0.371              | 3                 | 0.372            | 0.11                       | 0.109  | 3400               | 5500                     | 68200                 | 68780  | 110200                   | 111300 | 0.90                 | 11.3         |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <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 Laboratories**  
**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,  
 Resident Engineer  
 Raees Faheem Associates  
 Construction of Club House Building at DHA Bahawalpur (Banquet Hall)

Reference # CED/TFL **34330** (Dr. Waseem Abbas)  
 Reference of the request letter # RF/BQH/DHA/MT/04/19

Dated: 17-12-2019  
 Dated: 06-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(inch) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal                     | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.381              | 3/8                         | 0.378  | 0.11                       | 0.112  | 3400               | 5100                     | 68200                 | 66870  | 102200                   | 100400 | 1.00                 | 12.5         |         |
| 2  | 0.384              | 3/8                         | 0.379  | 0.11                       | 0.113  | 3400               | 5200                     | 68200                 | 66390  | 104200                   | 101600 | 1.00                 | 12.5         |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 3/8" Dia Bar Bend Test Through 180° is Satisfactory                    |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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,  
 Sub Divisional Officer (Buildings)  
 Sub Division Sheikhupura  
 (Construction of District Education Complex in District Sheikhupura)

Reference # CED/TFL **34333** (Dr. Waseem Abbas)  
 Reference of the request letter # 6193/S

Dated: 17-12-2019  
 Dated: 02-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile Test as per ASTM-A615

| Sr. No.   | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(inch) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|---|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|   |                    | Nominal                     | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1   | 0.386              | 3/8                         | 0.380  | 0.11                       | 0.114  | 3100               | 4800                     | 62200                 | 60170  | 96200                    | 93200  | 1.30                 | 16.3         |         |
| -   | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only one sample for tensile and one sample for bend test</b> |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test   |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 3/8" Dia Bar Bend Test Through 180° is Satisfactory                   |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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,  
M/S Unique Wire  
Lahore

Reference # CED/TFL **34334** (Dr. M Rizwan Riaz)  
Reference of the request letter # Nil

Dated: 17-12-2019

Dated: 17-12-2019

**Tension Test Report** (Page – 1/1)

Date of Test 18-12-2019  
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                        | 9.53<br>(3/8")   | 432.0          | 451.0           | 8900                        | 87.31 | 10600                          | 103.99 | >3.50        | xx                 |
| -                        | -                | -              | -               | -                           | -     | -                              | -      | -            | -                  |
| -                        | -                | -              | -               | -                           | -     | -                              | -      | -            | -                  |
| -                        | -                | -              | -               | -                           | -     | -                              | -      | -            | -                  |
| -                        | -                | -              | -               | -                           | -     | -                              | -      | -            | -                  |
| -                        | -                | -              | -               | -                           | -     | -                              | -      | -            | -                  |
| Only one sample for Test |                  |                |                 |                             |       |                                |        |              |                    |

**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,  
 Sub Divisional Officer  
 Highway (M&R) Sub Division  
 Sargodha  
 (Special Repair of Road from Noori Gate to 85 Jhall Total Length 5.50 km (Damage Length 670 Rft in District Sargodha)

Reference # CED/TFL **34336** (Dr. Waseem Abbas)  
 Reference of the request letter # 2147

Dated: 17-12-2019  
 Dated: 11-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.357              | 3                 | 0.365            | 0.11                       | 0.105  | 3400               | 4800                     | 68200                 | 71470  | 96200                    | 100900 | 1.00                 | 12.5         |         |
| 2  | 0.358              | 3                 | 0.366            | 0.11                       | 0.105  | 3800               | 5000                     | 76200                 | 79630  | 100200                   | 104800 | 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                          |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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,  
 Executive Engineer  
 Building Division No. 2  
 Faisalabad  
 (Construction of 02-Nos Additional Class Rooms along with Venandah (Punjab Schools Construction and Rehabilitation Programme) in Govt. Primary School Chak No. 655/6-GB, Tehsil Jaranwala District Faisalabad)  
 Reference # CED/TFL **34337** (Dr. Waseem Abbas) Dated: 17-12-2019  
 Reference of the request letter # 3688/CB Dated: 14-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(inch) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal                     | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.388              | 3/8                         | 0.381  | 0.11                       | 0.114  | 3400               | 5200                     | 68200                 | 65770  | 104200                   | 100600 | 1.20                 | 15.0         |         |
| 2  | 0.383              | 3/8                         | 0.379  | 0.11                       | 0.113  | 2500               | 3700                     | 50100                 | 48930  | 74200                    | 72500  | 1.60                 | 20.0         |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 3/8" Dia Bar Bend Test Through 180° is Satisfactory                    |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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,  
 Executive Engineer  
 Building Division No. 2  
 Faisalabad

Reference # CED/TFL **34338** (Dr. Waseem Abbas)  
 Reference of the request letter # 3718

Dated: 17-12-2019  
 Dated: 16-12-2019

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

Date of Test 18-12-2019  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(inch) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal                     | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.388              | 3/8                         | 0.381  | 0.11                       | 0.114  | 2600               | 3900                     | 52100                 | 50200  | 78200                    | 75300  | 1.60                 | 20.0         |         |
| 2  | 0.389              | 3/8                         | 0.382  | 0.11                       | 0.114  | 3400               | 5200                     | 68200                 | 65470  | 104200                   | 100200 | 1.40                 | 17.5         |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                           | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 3/8" Dia Bar Bend Test Through 180° is Satisfactory                    |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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,  
M/S Moaz Steel  
Lahore  
(CGGC-DESCON Jv Muhammad Dam Hydro Power Project)

Reference # CED/TFL **34339** (Dr. Waseem Abbas)  
Reference of the request letter # MZ/CGGC-DES/MD/UET/002

Dated: 17-12-2019  
Dated: 16-12-2019

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

Date of Test 18-12-2019  
Gauge length 8 inches  
Description Deformed Steel Bar Tensile Test as per ASTM-A615

| Sr. No.                                       | Weight<br>(lbs/ft) | Diameter/<br>Size<br>(mm) |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|---|--------------------|---------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|   |                    | Nominal                   | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1   | 4.199              | 32                        | 31.84  | 1.25                       | 1.234  | 42600              | 54800                    | 75133                 | 76080  | 96650                    | 97900  | 0.90                 | 11.3         |         |
| .   | .                  | .                         | .      | .                          | .      | .                  | .                        | .                     | .      | .                        | .      | .                    | .            |         |
| .   | .                  | .                         | .      | .                          | .      | .                  | .                        | .                     | .      | .                        | .      | .                    | .            |         |
| .   | .                  | .                         | .      | .                          | .      | .                  | .                        | .                     | .      | .                        | .      | .                    | .            |         |
| .   | .                  | .                         | .      | .                          | .      | .                  | .                        | .                     | .      | .                        | .      | .                    | .            |         |
| .   | .                  | .                         | .      | .                          | .      | .                  | .                        | .                     | .      | .                        | .      | .                    | .            |         |
| <b>Note: only one sample for tensile test</b> |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test                                     |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

**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**  
**Pakistan. Ph: 92-42-99029202**

To,  
M/S Defence Housing Authority.  
Lahore Cantt  
(Const of Mosque Sector-T, DHA Ph-VIII (M/s Sidiqe Sons))

Reference # CED/TFL **34340** (Dr. Waseem Abbas)  
Reference of the request letter # 408/241/E/Lab/752/65

Dated: 17-12-2019  
Dated: 31-10-2019

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

Date of Test 18-12-2019  
Gauge length 8 inches  
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks          |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|------------------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |                  |
| 1  | 0.383              | 3                 | 0.379            | 0.11                       | 0.113  | 3300               | 5000                     | 66200                 | 64570  | 100200                   | 97900  | 1.40                 | 17.5         | Ittefaq<br>Steel |
| 2  | 0.378              | 3                 | 0.376            | 0.11                       | 0.111  | 3200               | 4800                     | 64200                 | 63550  | 96200                    | 95400  | 1.40                 | 17.5         |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |
| #3 Bar Bend Test Through 180° is Satisfactory                          |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |

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