



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

To,  
 Chief Resident Engineer  
 JIP Consultants Jalalpur Sharif  
 Project Implementation Consultants (PICs) – Jalapur Irrigation Project (JIP)  
 Construction of Jalalpur Irrigation Canal and Its System (RD 225+500 to 379+750) Package-3

Reference # CED/TFL **36986** (Dr. Qasim Khan) Dated: 02-09-2021  
 Reference of the request letter # JIPIC/TECH/P-3/CRE/03-A Dated: 01-09-2021

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

Date of Test 06-09-2021  
 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  | 4.371              | 10                | 1.279            | 1.27                       | 1.285  | 40800              | 55400                    | 70900                 | 70000  | 96200                    | 95100  | 1.60                 | 20.0         | Ittefaq<br>Steel |
| 2  | 4.373              | 10                | 1.279            | 1.27                       | 1.285  | 43000              | 57400                    | 74700                 | 73740  | 99700                    | 98500  | 1.50                 | 18.8         |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |                  |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |                  |
| #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**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
M/S Gharibwal Cement Limited  
Gulberg-II, Lahore  
(C-001)

Reference # CED/TFL **36993** (Dr. Qasim Khan)  
Reference of the request letter # GCL/Admin./UET/Tests/23

Dated: 03-09-2021  
Dated: 02-09-2021

**Tension Test Report** (Page -1/4)

Date of Test 06-09-2021  
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>(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  | 0.422              | 10                        | 10.09  | 0.12                       | 0.124  | 4700               | 5800                     | 86347                 | 83580  | 106556                   | 103200 | 0.90                 | 11.3         |         |
| 2  | 0.369              | 10                        | 9.44   | 0.12                       | 0.108  | 3700               | 5300                     | 67975                 | 75250  | 97370                    | 107800 | 0.90                 | 11.3         |         |
| -  | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 10mm Dia 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,  
M/S Gharibwal Cement Limited  
Gulberg-II, Lahore  
(B-001)

Reference # CED/TFL **36993** (Dr. Qasim Khan)  
Reference of the request letter # GCL/Admin./UET/Tests/23-A

Dated: 03-09-2021  
Dated: 02-09-2021

**Tension Test Report** (Page -2/4)

Date of Test 06-09-2021  
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>(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   | 0.412              | 10                        | 9.97   | 0.12                       | 0.121  | 4000               | 5300                     | 73487                 | 72790  | 97370                    | 96500  | 1.30                 | 16.3         |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only one sample for tensile and one sample for bend test</b> |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 10mm Dia Bar Bend Test Through 180° is Satisfactory                   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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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 Gharibwal Cement Limited  
Gulberg-II, Lahore  
(A-001)

Reference # CED/TFL **36993** (Dr. Qasim Khan)  
Reference of the request letter # GCL/Admin./UET/Tests/23-B

Dated: 03-09-2021  
Dated: 02-09-2021

**Tension Test Report** (Page -3/4)

Date of Test 06-09-2021  
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>(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   | 4.246              | 32                        | 32.02  | 1.25                       | 1.248  | 37000              | 54800                    | 65256                 | 65350  | 96650                    | 96800  | 1.70                 | 21.3         |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only one sample for tensile and one sample for bend test</b> |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 32mm Dia Bar Bend Test Through 180° is Satisfactory                   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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**Test Floor Laboratory**  
**Department of Civil Engineering**  
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To,  
M/S Gharibwal Cement Limited  
Gulberg-II, Lahore  
(B-001)

Reference # CED/TFL **36993** (Dr. Qasim Khan)  
Reference of the request letter # GCL/Admin./UET/Tests/23-C

Dated: 03-09-2021  
Dated: 02-09-2021

**Tension Test Report** (Page -4/4)

Date of Test 06-09-2021  
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>(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   | 4.232              | 32                        | 31.97  | 1.25                       | 1.244  | 37800              | 54200                    | 66667                 | 66980  | 95591                    | 96100  | 1.70                 | 21.3         |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                         | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only one sample for tensile and one sample for bend test</b> |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| 32mm Dia Bar Bend Test Through 180° is Satisfactory                   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                           |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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To,  
M/S A.J. Steel Wire Industries Pvt Ltd.  
Karachi

Reference # CED/TFL **36996** (Dr. Qasim Khan)  
Reference of the request letter # Nil

Dated: 03-09-2021

Dated: 03-09-2021

**Tension Test Report** (Page – 1/1)

Date of Test 06-09-2021  
Gauge length 640 mm  
Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No.                  | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) |       | Breaking strength clause (6.2) |       | % Elongation    | Remarks/ Coil No. |
|--------------------------|------------------|----------------|-----------------|-----------------------------|-------|--------------------------------|-------|-----------------|-------------------|
|                          | (mm)             | (kg/km)        | (kg/km)         | (kg)                        | (kN)  | (kg)                           | (kN)  |                 |                   |
| 1                        | 9.53<br>(3/8")   | 432.0          | 439.0           | 6100                        | 59.84 | 7600                           | 74.56 | <3.50<br>Not ok | xx                |
| -                        | -                | -              | -               | -                           | -     | -                              | -     | -               | -                 |
| -                        | -                | -              | -               | -                           | -     | -                              | -     | -               | -                 |
| -                        | -                | -              | -               | -                           | -     | -                              | -     | -               | -                 |
| -                        | -                | -              | -               | -                           | -     | -                              | -     | -               | -                 |
| -                        | -                | -              | -               | -                           | -     | -                              | -     | -               | -                 |
| Only one sample for Test |                  |                |                 |                             |       |                                |       |                 |                   |

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**Test Floor Laboratory**  
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To,  
 Deputy Manager  
 POWERCHINA SEPCO1  
 Design Manufacturing, Supply Installation, Testing and Commissioning of 220kV Mirpur Khas  
 Substation and Extension at Hala Road Substation.  
 Reference # CED/TFL 36997 (Dr. Qasim Khan) Dated: 03-09-2021  
 Reference of the request letter # ADB-200/2018/215 Dated: 30-08-2021

**Tension Test Report** (Page -1/2)

Date of Test 06-09-2019  
 Gauge length 8 inches  
 Description Anchor Bolt Tensile Test as per ASTM- F1554

| Sr. No.                                       | Weight<br>(kg/m) | Diameter/<br>size |                | Area<br>(mm <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking Load<br>(kg) | Yield Stress<br>(MPa)<br>Actual | Ultimate Stress<br>(MPa)<br>Actual | Elongation<br>(inch) | % Elongation | Remarks |
|---|------------------|-------------------|----------------|----------------------------|--------|--------------------|-----------------------|---------------------------------|------------------------------------|----------------------|--------------|---------|
|   |                  | Nominal<br>(mm)   | Actual<br>(mm) | Nominal                    | Actual |                    |                       |                                 |                                    |                      |              |         |
| 1   | 8.887            | 36                | 37.97          | -----                      | 1132.2 | 48600              | 79600                 | 421                             | 690                                | 1.40                 | 17.5         |         |
| .   | .                | .                 | .              | .                          | .      | .                  | .                     | .                               | .                                  | .                    | .            |         |
| .   | .                | .                 | .              | .                          | .      | .                  | .                     | .                               | .                                  | .                    | .            |         |
| .   | .                | .                 | .              | .                          | .      | .                  | .                     | .                               | .                                  | .                    | .            |         |
| .   | .                | .                 | .              | .                          | .      | .                  | .                     | .                               | .                                  | .                    | .            |         |
| .   | .                | .                 | .              | .                          | .      | .                  | .                     | .                               | .                                  | .                    | .            |         |
| <b>Note: only one sample for tensile test</b> |                  |                   |                |                            |        |                    |                       |                                 |                                    |                      |              |         |
| Bend Test                                     |                  |                   |                |                            |        |                    |                       |                                 |                                    |                      |              |         |
|   |                  |                   |                |                            |        |                    |                       |                                 |                                    |                      |              |         |
|   |                  |                   |                |                            |        |                    |                       |                                 |                                    |                      |              |         |
|   |                  |                   |                |                            |        |                    |                       |                                 |                                    |                      |              |         |

Witness by M. Rashid Iqbal (D.M SSD NTDC)

**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,  
Deputy Manager  
POWERCHINA SEPCO1  
Design Manufacturing, Supply Installation, Testing and Commissioning of 220kV Mirpur Khas  
Substation and Extension at Hala Road Substation.

Reference # CED/TFL **36997** (Dr. Qasim Khan)  
Reference of the request letter # ADB-200/2018/215

Dated: 03-09-2021  
Dated: 30-08-2021

**Slippage Test Report** (Page -2/2)  
Date of Test 08-09-2021  
Description Anchor Bolt Slippage Test

| Sr. No.                                | Dia  | Proof Load | Remarks | Failure Load | Mode of Failure |
|--|------|------------|---------|--------------|-----------------|
|  | (mm) | (kg)       |         | (kg)         |                 |
| 1                                      | 36   | 35900      | -----   | 34000        | Thread Failure  |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| -                                      | -    | -          | -       | -            | -               |
| <b>Note: only two samples for test</b> |      |            |         |              |                 |
|  |      |            |         |              |                 |

Witness by M. Rashid Iqbal (D.M SSD NTDC)

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

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**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 Khushal Garh to Kohat  
(Package-3)(W.M.I)

Reference # CED/TFL **36998** (Dr. Qasim Khan)  
Reference of the request letter # 4035/103/JH/81

Dated: 03-09-2021  
Dated: 02-09-2021

**Tension Test Report** (Page -1/2)

Date of Test 06-09-2021  
Gauge length 640 mm  
Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No.                         | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) |        | Breaking strength clause (6.2) |        | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------------------------------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
|                                 | (mm)             | (kg/km)        | (kg/km)         | (kg)                        | (kN)   | (kg)                           | (kN)   |                                   |              |                    |
| 1                               | 12.70<br>(1/2")  | 775.0          | 791.0           | 18200                       | 178.54 | 19500                          | 191.30 | 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.**

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**

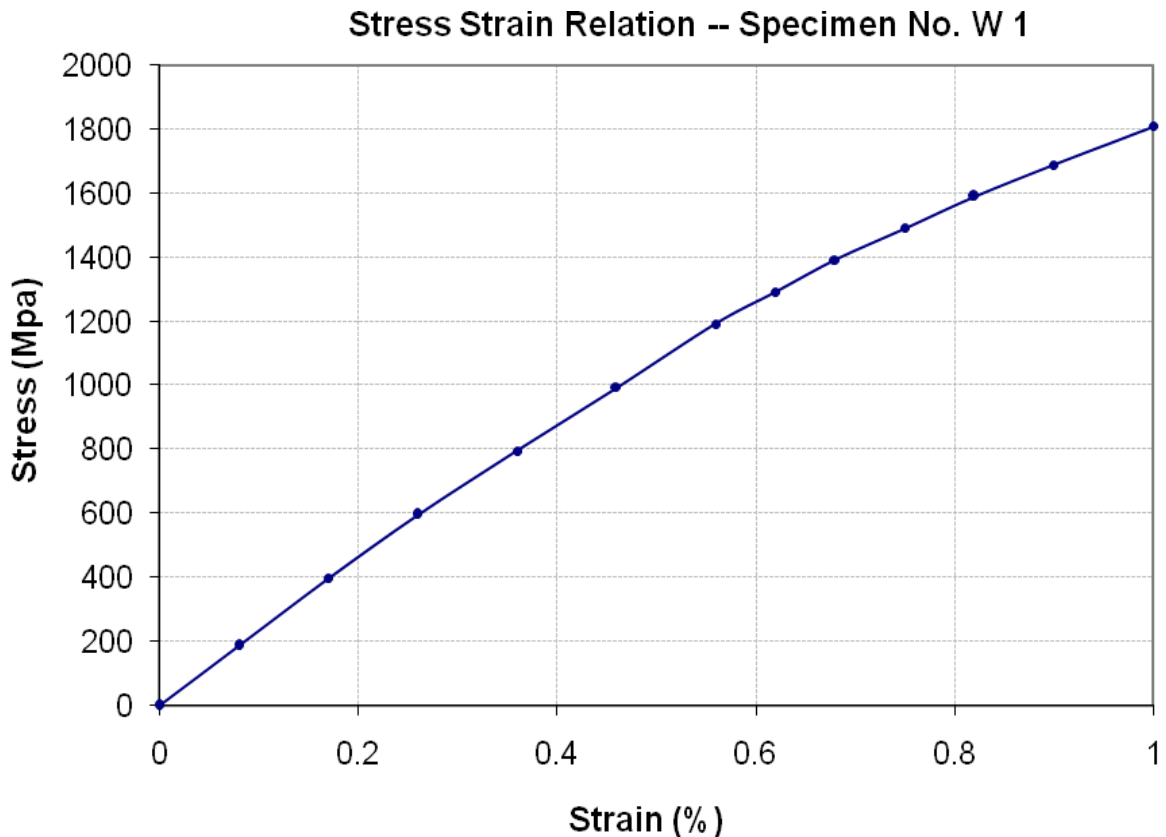
To,  
Resident Engineer  
NESPAK  
Up-Gradation / Dualization of Motorway Link from Kohat via Jand Khushal Garh to Kohat  
(Package-3)(W.M.I)

Reference # CED/TFL **36998** (Dr. Qasim Khan)  
Reference of the request letter # 4035/103/JH/81

Dated: 03-09-2021

Dated: 02-09-2021

**Graph** (Page – 2/2)



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**STRUCTURAL ENGINEERING DIVISION**  
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To,  
 Sub Divisional Officer  
 Buildings Sub Division No. 10  
 Lahore  
 (Construction of Lines / Training School for Close Protection Unit (Dolphin) at Township,  
 Lahore (Group No. 1))  
 Reference # CED/TFL **37000** (Dr. Qasim Khan)  
 Reference of the request letter # 399/10<sup>th</sup>

Dated: 03-09-2021  
 Dated: 30-08-2021

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

Date of Test 06-09-2021  
 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  | 0.386              | 3/8                         | 0.380  | 0.11                       | 0.114  | 3500               | 4700                     | 70200                 | 67940  | 94200                    | 91300  | 1.00                 | 12.5         |         |
| 2  | 0.372              | 3/8                         | 0.373  | 0.11                       | 0.109  | 3700               | 4800                     | 74200                 | 74530  | 96200                    | 96700  | 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                    |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                             |        |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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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 Defence Housing Authority.  
Lahore Cantt  
(Infra Dev Works Sector-4, DHA Ph-XI) (M/s DHA-C)

Reference # CED/TFL 37001 (Dr. Qasim Khan)  
Reference of the request letter # 408/241/E/Lab/129/719

Dated: 03-09-2021  
Dated: 31-08-2021

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

Date of Test 06-09-2021  
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A496

| Sr. No.  | Weight<br>(Kg/m) | Diameter/<br>size |                | Area<br>(mm <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(Mpa) |        | Ultimate Stress<br>(Mpa) |        | Remarks |
|--|------------------|-------------------|----------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|---------|
|  |                  | Nominal<br>(in)   | Actual<br>(mm) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |         |
| 1  | 0.297            | 1/4               | 6.95           | 32.26                      | 37.88  | 1900               | 2400                     | 578                   | 492    | 730                      | 621    |         |
| 2  | 0.297            | 1/4               | 6.95           | 32.26                      | 37.90  | 1800               | 2300                     | 547                   | 466    | 699                      | 595    |         |
| -  | -                | -                 | -              | -                          | -      | -                  | -                        | -                     | -      | -                        | -      |         |
| -  | -                | -                 | -              | -                          | -      | -                  | -                        | -                     | -      | -                        | -      |         |
| -  | -                | -                 | -              | -                          | -      | -                  | -                        | -                     | -      | -                        | -      |         |
| -  | -                | -                 | -              | -                          | -      | -                  | -                        | -                     | -      | -                        | -      |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                  |                   |                |                            |        |                    |                          |                       |        |                          |        |         |
| Bend Test  |                  |                   |                |                            |        |                    |                          |                       |        |                          |        |         |
| 1/4" Dia 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,  
 Chief Executive  
 Eastern Construction Co.  
 Construction of 60 Cum/HR Capacity WWTP for Fauji Fresh n Freez Limited Project at Sahiwal

Reference # CED/TFL **37002** (Dr. Qasim Khan) Dated: 03-09-2021  
 Reference of the request letter # ECC/UET/FFFL-SWL/2021/26 Dated: 03-09-2021

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

Date of Test 06-09-2021  
 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  | 0.397              | 3                 | 0.385            | 0.11                       | 0.117  | 3400               | 4850                     | 68200                 | 64290  | 97200                    | 91800  | 1.20                 | 15.0         |         |
| 2  | 0.398              | 3                 | 0.386            | 0.11                       | 0.117  | 3500               | 4600                     | 70200                 | 65870  | 92200                    | 86600  | 1.30                 | 16.3         |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| #3 Bar Bend Test Through 180° is Satisfactory                          |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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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,  
 Project Manager  
 BWRDSP Consultants  
 Project Design, Construction Supervision and Implementation Support for Balochistan Water Resources Development Sector Project (BWRDSP)  
 (Construction of Ahmadzai (PIS & FIS) Subproject (NCB-08), Zhob River Basin)

Reference # CED/TFL **37006** (Dr. Qasim Khan) Dated: 06-09-2021  
 Reference of the request letter # 4075/061/ARB/01NCB-08/379 Dated: 26-08-2021

**Tension Test Report** (Page – 1/2)

Date of Test 06-09-2021  
 Gauge length 2 inches  
 Description G.I Wire Tensile Test

| Sr. No.  | Weight | Diameter/<br>Size<br>(mm) |        | Area<br>(mm <sup>2</sup> ) |        | Yield load | Breaking<br>Load | Yield<br>Stress | Ultimate<br>Stress | Elongation | % Elongation | Remarks |
|--|--------|---------------------------|--------|----------------------------|--------|------------|------------------|-----------------|--------------------|------------|--------------|---------|
|  | (kg/m) | Nominal                   | Actual | Nominal                    | Actual | (kg)       | (kg)             | (MPa)           | (MPa)              | (inch)     |              |         |
| 1  | 0.105  | 4.10                      | 4.13   | -----                      | 13.4   | -----      | 820              | -----           | 600                | 0.25       | 12.5         |         |
| 2  | 0.103  | 4.10                      | 4.09   | -----                      | 13.1   | -----      | 580              | -----           | 433                | 0.50       | 25.0         |         |
| -  | -      | -                         | -      | -                          | -      | -          | -                | -               | -                  | -          | -            |         |
| -  | -      | -                         | -      | -                          | -      | -          | -                | -               | -                  | -          | -            |         |
| -  | -      | -                         | -      | -                          | -      | -          | -                | -               | -                  | -          | -            |         |
| -  | -      | -                         | -      | -                          | -      | -          | -                | -               | -                  | -          | -            |         |
| <b>Note: only two samples for tensile test</b> |        |                           |        |                            |        |            |                  |                 |                    |            |              |         |
| Bend Test                                      |        |                           |        |                            |        |            |                  |                 |                    |            |              |         |
|  |        |                           |        |                            |        |            |                  |                 |                    |            |              |         |
|  |        |                           |        |                            |        |            |                  |                 |                    |            |              |         |

**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,  
Project Manager  
BWRDSP Consultants  
Project Design, Construction Supervision and Implementation Support for Balochistan Water Resources Development Sector Project (BWRDSP)  
(Construction of Ahmadzai (PIS & FIS) Subproject (NCB-08), Zhob River Basin)

Reference # CED/TFL **37006** (Dr. Qasim Khan)  
Reference of the request letter # 4075/061/ARB/01NCB-08/379

Dated: 06-09-2021  
Dated: 26-08-2021

**Size Test Report** (Page – 2/2)  
Date of Test 06-09-2021  
Description G.I Wire Thickness Test

| Sr. No.                         | Designation | Measured Diameter | Remark |
|---------------------------------|-------------|-------------------|--------|
|                                 |             | (mm)              |        |
| 1                               | GI Wire     | 4.10              |        |
| -                               | -           | -                 |        |
| -                               | -           | -                 |        |
| -                               | -           | -                 |        |
| -                               | -           | -                 |        |
| -                               | -           | -                 |        |
| -                               | -           | -                 |        |
| -                               | -           | -                 |        |
| <b>Only One Sample for Test</b> |             |                   |        |

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

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

Ref: CED/TFL/09/37009

Dated: 06-09-2021

Dated of Test: 06-09-2021

To  
Deputy Manager  
POWERCHINA SEPCO1  
Design Manufacturing, Supply Installation, Testing and Commissioning of 220kV  
Mirpur Khas Substation and Extension at Hala Road Substation.

Subject: - Nut Proof Load Test

Reference to your letter no. ADB-200/2018/215a, Dated: 06/09/2021 on the above mentioned subject. One Nut along with test bolt as received by us has been tested as per A 563 – 97 and results are given below.

| Sample       | Proof Load Value  | Remarks/ Observation  |
|--------------|-------------------|---|
| Nut-1 (36mm) | 359 kN (36600 kg) | (1) No stripping or rupture observed.<br>(2) Nut was removed manually after test performance. |

Witness by M. Rashid Iqbal (D.M SSD NTDC)

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

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