



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-I
 NESPAK
 Widening of Aik Moria Pull, Lahore

Reference # CED/TFL **33447, 509** (Dr. M Rizwan Riaz)
 Reference of the request letter # 3772/AMP/103/MWA/04/25

Dated: 26-06-2019
 Dated: 25-06-2019

Tension Test Report (Page – 1/3)

Date of Test 04-07-2019

Gauge length 2 inches

Description Steel Structure Steel Strip Tensile Test as per ASTM A-36

| Sr. No. | Designation | | Size of Strip | X Section Area | Yield load | Breaking Load | Yield Stress | Ultimate Stress | Elongation | % Elongation | Remarks |
|--|-------------|---------|---------------|----------------|------------|---------------|--------------|-----------------|------------|--------------|---------|
| | (inch) | | | | | | | | | | |
| 1 | Angle | 4x4x3/8 | 30.90x9.70 | 299.73 | 10000 | 16500 | 327.29 | 540.04 | 0.60 | 30.00 | |
| 2 | | 4x4x3/8 | 30.90x9.70 | 299.73 | 10200 | 16600 | 333.84 | 543.31 | 0.60 | 30.00 | |
| 3 | Angle | 4x4x1/2 | 30.40x12.10 | 367.84 | 12500 | 20100 | 333.37 | 536.05 | 0.60 | 30.00 | |
| 4 | | 4x4x1/2 | 30.40x12.10 | 367.84 | 12700 | 20100 | 338.70 | 536.05 | 0.60 | 30.00 | |
| 5 | Rail Girder | 12x6 | 30.90x9.80 | 302.82 | 9800 | 16400 | 317.48 | 531.29 | 0.65 | 32.50 | |
| 6 | | 12x6 | 30.90x9.80 | 302.82 | 10300 | 16600 | 333.67 | 537.77 | 0.60 | 30.00 | |
| 7 | Channel | 6x3 | 30.70x7.50 | 230.25 | 8100 | 12100 | 345.11 | 515.53 | 0.60 | 30.00 | |
| 8 | | 6x3 | 30.70x7.50 | 230.25 | 7600 | 11800 | 323.80 | 502.75 | 0.65 | 32.50 | |
| Only Eight Samples for Tensile Test | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | |
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I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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NESPAK
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Reference # CED/TFL **33447, 509** (Dr. M Rizwan Riaz)
Reference of the request letter # 3772/AMP/103/MWA/04/25

Dated: 26-06-2019
Dated: 25-06-2019

Weight & Size Test Report (Page – 2/3)

Date of Test 04-07-2019
Gauge length -----
Description Angle Weight and Size Test

| Sr. No. | Designation | Weight | Length | Weight per Unit Length | L-1 | L-2 | Thickness | Remark |
|----------------------------------|-------------|--------|--------|------------------------|--------|--------|-----------|--------|
| | (inch) | (g) | (mm) | (kg/m) | (mm) | (mm) | (mm) | |
| 1 | 4x4x3/8 | 1434 | 92.40 | 15.52 | 103.80 | 103.70 | 9.50 | |
| 2 | 4x4x1/2 | 1849 | 92.80 | 19.92 | 105.00 | 103.00 | 12.40 | |
| - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | |
| Only Two Samples for Test | | | | | | | | |
| | | | | | | | | |

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NESPAK
Widening of Aik Moria Pull, Lahore

Reference # CED/TFL 33447, 509 (Dr. M Rizwan Riaz)
Reference of the request letter # 3772/AMP/103/MWA/04/25

Dated: 26-06-2019
Dated: 25-06-2019

Weight & Size Test Report (Page – 3/3)

Date of Test 04-07-2019
Gauge length -----
Description Girder & Channel Weight and Size Test

| Sr. No. | Designation | | Weight (g) | Length (mm) | Weight per Unit Length (kg/m) | Depth (d) mm | Flange Width (b _f) mm | Flange Thickness (t _f) mm | Web Thickness (t _w) mm | Remark |
|----------------------------------|-------------|--------|---------------|----------------|-------------------------------------|--------------------|---|---|--|--------|
| | (inch) | (inch) | | | | | | | | |
| 1 | Rail Girder | 12x6 | 4861 | 85.20 | 57.05 | 305.20 | 154.20 | 14.75 | 9.80 | |
| 2 | Channel | 6x3 | 1928 | 94.40 | 20.42 | 150.00 | 77.20 | 9.90 | 7.50 | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| Only Two Samples for Test | | | | | | | | | | |
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To,
 Resident Engineer
 NESPAK
 Development of Kartarpur Corridor

Reference # CED/TFL **33462** (Dr. M Rizwan Riaz)
 Reference of the request letter # SA-394/DKC/BWN.Test/SM/87

Dated: 28-06-2019
 Dated: 27-06-2019

Tension Test Report (Page -1/1)

Date of Test 04-07-2018
 Gauge length 2 inches
 Description Wire Tensile Test

| Sr. No. | Weight (kg/m) | Diameter/ size | | Area (mm ²) | | Yield load (kN) | Breaking Load (kN) | Yield Stress (MPa) Actual | Ultimate Stress (MPa) Actual | Elongation (inch) | % Elongation | Remarks |
|---|------------------|-------------------|----------------|----------------------------|--------|--------------------|--------------------------|---------------------------------|---------------------------------------|----------------------|--------------|-------------------------|
| | | Measured (mm) | Actual (mm) | Nominal | Actual | | | | | | | |
| 1 | 0.052 | 2.95 | 2.91 | ----- | 6.7 | ----- | 2.20 | ----- | 331 | 0.40 | 20.0 | Chain Link Wire Mesh |
| 2 | 0.050 | 3.00 | 2.86 | ----- | 6.4 | ----- | 2.10 | ----- | 327 | 0.40 | 20.0 | |
| 3 | 0.054 | 3.00 | 2.96 | ----- | 6.9 | ----- | 3.65 | ----- | 530 | 0.30 | 15.0 | |
| 4 | 0.065 | 3.20 | 3.25 | ----- | 8.3 | ----- | 6.70 | ----- | 808 | 0.20 | 10.0 | Razor Barbed Wire |
| 5 | 0.066 | 3.20 | 3.26 | ----- | 8.4 | ----- | 6.60 | ----- | 789 | 0.20 | 10.0 | |
| 6 | 0.066 | 3.20 | 3.27 | ----- | 8.4 | ----- | 6.60 | ----- | 786 | 0.30 | 15.0 | |
| 7 | 0.061 | 3.20 | 3.15 | ----- | 7.8 | ----- | 3.55 | ----- | 456 | 0.40 | 20.0 | Barbed Wire |
| 8 | 0.064 | 3.20 | 3.21 | ----- | 8.1 | ----- | 6.50 | ----- | 803 | 0.20 | 10.0 | |
| 9 | 0.066 | 3.20 | 3.28 | ----- | 8.4 | ----- | 6.65 | ----- | 787 | 0.20 | 10.0 | |
| Note: only Nine samples for tensile test | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | |
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To,
 Resident Engineer
 PEPAC
 Establishment of Workers Welfare Complex (Phase-I) Adjacent to Sundar Industrial Estate,
 District Kasur (Package-R)

Reference # CED/TFL **33474** (Dr. M Rizwan Riaz)
 Reference of the request letter # RE/PEPAC/WWC/88-00

Dated: 02-07-2019
 Dated: 01-07-2019

Tension Test Report (Page -1/1)

Date of Test 04-07-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size (inch) | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|--|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
| | | Nominal | Actual | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.378 | 3/8 | 0.376 | 0.11 | 0.111 | 3000 | 4900 | 60200 | 59560 | 98200 | 97300 | 1.10 | 13.8 | |
| 2 | 0.367 | 3/8 | 0.371 | 0.11 | 0.108 | 3000 | 5100 | 60200 | 61290 | 102200 | 104200 | 1.20 | 15.0 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only two samples for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| 3/8" Dia Bar Bend Test Through 180° is Satisfactory | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

I/C Testing Laboratoires
UET Lahore, Pakistan.

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University of Engineering and Technology Lahore, 54890
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Ref: CED/TFL/07/33482

Dated: 02-07-19

To
Project Manager
Tahtan (Pvt) Ltd
Civil works/ construction for 2X400 tons/ day flour mills 4,000 tons capacities grains storage (Volka Foods International)(Laya Associates)

Subject: **STEEL PULL OUT TETS** (Page – 1/1)

Reference to your letter No. Nil, dated 01.07.2019 on the subject cited above. Two concrete cylinder with steel bar grouted with epoxy material as received by us has been tested. The results are tabulated as under.

| Sr. No. | Ultimate Load (kg) | Failure Mode |
|----------------|---------------------------|--------------------------------------|
| 1 | 4000 | Slip failure (bar pulled out) |
| 2 | 4800 | Slip failure (bar pulled out) |

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To,
 Sub Divisional Officer
 Building Sub Division
 Hafizabad
 (Construction of Store Room & Nazarat Branch at Judicial Complex Hafizabad)

Reference # CED/TFL **33485** (Dr. M Rizwan Riaz)
 Reference of the request letter # 1203/HZ

Dated: 03-07-2019
 Dated: 17-06-2019

Tension Test Report (Page -1/1)

Date of Test 04-07-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size (inch) | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|---|--------------------|-----------------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
| | | Nominal | Actual | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.380 | 3/8 | 0.377 | 0.11 | 0.112 | 4000 | 4900 | 80200 | 78990 | 98200 | 96800 | 0.90 | 11.3 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only one sample for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| 3/8" Dia Bar Bend Test Through 180° is Satisfactory | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

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STRUCTURAL ENGINEERING DIVISION
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Ref: CED/TFL/07/33488

Dated: 04-07-19

To,
DCRE/RE-1
Zeeruk International (Pvt) Ltd
Lahore Sialkot Motorway Project

Subject: - CALIBRATION OF HYDRAULIC JACK (MARK: TFL/07/33488) (Page -1/2)

Reference to your Letter No. LSMP/RE-1/2019/890, Dated: 26/06/2019 on the subject cited above. One Hydraulic Jack No KY-401 as received by us has been calibrated. The results are tabulated as under:

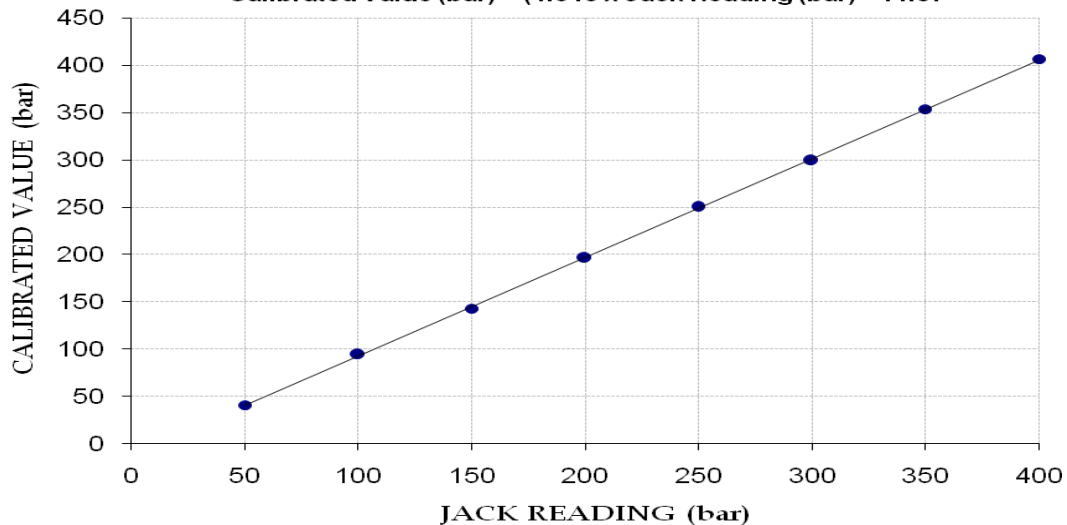
Total Range : Zero - 700 (bar)
Calibrated Range : Zero - 400 (bar)

| | | | | | | | | |
|------------------------------|-------|-------|--------|--------|--------|--------|--------|--------|
| Hydraulic Jack Reading (bar) | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |
| Calibrated Load (k g) | 19100 | 44200 | 67200 | 92200 | 117600 | 140600 | 166200 | 191200 |
| Calibrated Pressure (bar) | 40.61 | 93.98 | 142.89 | 196.05 | 250.05 | 298.96 | 353.39 | 406.55 |

The Ram Area of Jack = 461.22 cm^2

Calibration Curve For Jack No. KEY-401

Calibrated Value (bar) = $(1.043 \times \text{Jack Reading (bar)} - 11.87)$



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Ref: CED/TFL/07/33488

Dated: 04-07-19

To,
DCRE/RE-1
Zeeruk International (Pvt) Ltd
Lahore Sialkot Motorway Project

Subject: - CALIBRATION OF HYDRAULIC JACK (MARK: TFL/07/33488) (Page -2/2)

Reference to your Letter No. LSMP/RE-1/2019/890, Dated: 26/06/2019 on the subject cited above. One Hydraulic Jack No KY-402 as received by us has been calibrated. The results are tabulated as under:

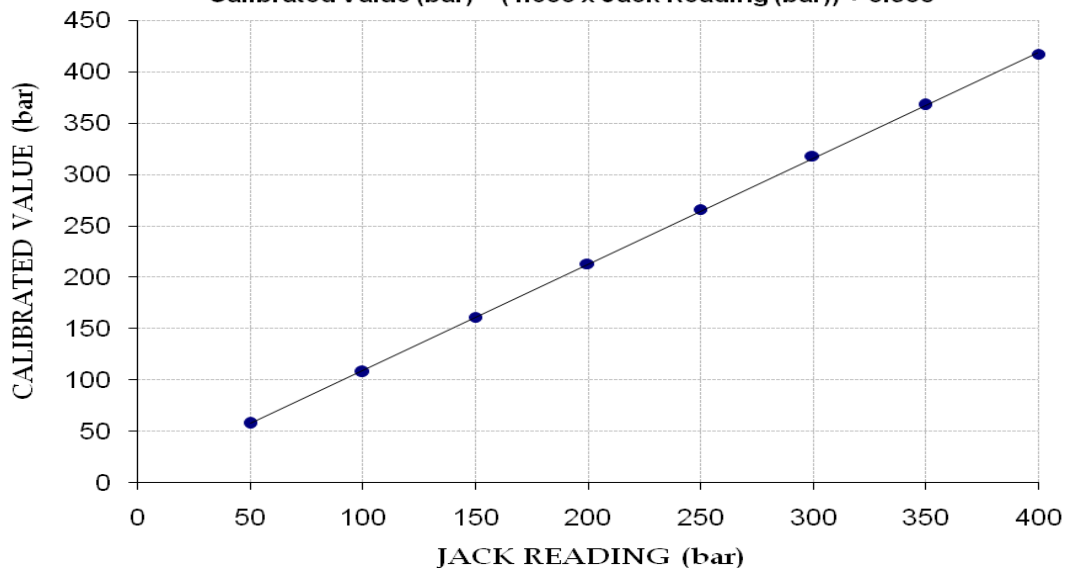
Total Range : Zero - 700 (bar)
Calibrated Range : Zero - 400 (bar)

| Hydraulic Jack Reading (bar) | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |
|------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
| Calibrated Load (k g) | 27000 | 50600 | 75800 | 100000 | 125000 | 149600 | 172800 | 196000 |
| Calibrated Pressure (bar) | 57.41 | 107.59 | 161.17 | 212.63 | 265.79 | 318.10 | 367.43 | 416.76 |

The Ram Area of Jack = 461.22 cm²

Calibration Curve For Jack No. KEY-402

Calibrated Value (bar) = (1.033 x Jack Reading (bar)) + 5.938



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To,
M/S SHENJIAO Engineering
Lahore
Rehabilitation & Up-Gradation of Trimmu Barrage
Reference # CED/TFL **33495-96** (Dr. Safer Abbas)
Reference of the request letter # NIL

Dated: 02-07-2019
Dated: 26-06-2019

Tension Test Report (Page – 1/1)

Date of Test 04-07-2019
Gauge length 8 inches
Description Steel Section Strip Tensile Test

| Sr. No. | Designation | Size of Strip | X Section Area | Yield load | Breaking Load | Yield Stress | Ultimate Stress | Elongation | % Elongation | Remarks |
|--|--------------------|---------------|--------------------|------------|---------------|-----------------------|-----------------------|------------|--------------|---------|
| | (Inch) | (cm) | (cm ²) | (kg) | (kg) | (kg/cm ²) | (kg/cm ²) | (in) | | |
| 1 | Angle(1.5x1.5x0.2) | 25.70x5.6 | 143.92 | 5200 | 8300 | 354.45 | 565.75 | 0.50 | 25.00 | |
| 2 | | 25.00x5.7 | 142.50 | 5100 | 8000 | 351.09 | 550.74 | 0.50 | 25.00 | |
| 3 | MS Pipe(2x0.15) | 24.20x4.0 | 96.80 | 2600 | 3700 | 263.49 | 374.97 | 0.60 | 30.00 | |
| 4 | | 24.00x4.0 | 96.00 | 2400 | 3500 | 245.25 | 357.66 | 0.60 | 30.00 | |
| 5 | Steel plate(0.2) | 27.00x5.0 | 135.00 | 4500 | 6500 | 327.00 | 472.33 | 0.60 | 30.00 | |
| 6 | | 25.20x5.0 | 126.00 | 4600 | 6000 | 358.14 | 467.14 | 0.65 | 32.50 | |
| Only Six Samples for Tensile Test | | | | | | | | | | |
| Bend Test | | | | | | | | | | |
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