



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
Zeeruk International (Pvt) Ltd
Construction of Bridge Linking DHA Phase-IV to Bahria Phase-VIII over Soan River

Reference # CED/TFL **3301** (Dr. M Rizwan Riaz)
Reference of the request letter # ZI/RE/DHA-PH-IV/23/67

Dated: 29-05-2023
Dated: 25-05-2023

Tension Test Report (Page -1/4)

Date of Test 02-06-2023
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No. | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) | | Breaking strength clause (6.2) | | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
| | (mm) | (kg/km) | (kg/km) | (kg) | (kN) | (kg) | (kN) | GPa | | |
| 1 | 12.70 (1/2") | 775.0 | 777 | 18200 | 178.54 | 20000 | 196.20 | 199 | >3.50 | xx |
| 2 | 12.70 (1/2") | 775.0 | 776 | 18400 | 180.50 | 19900 | 195.22 | 198 | >3.50 | xx |
| 3 | 12.70 (1/2") | 775.0 | 776 | 18100 | 177.56 | 20100 | 197.18 | 199 | >3.50 | xx |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |

Only three samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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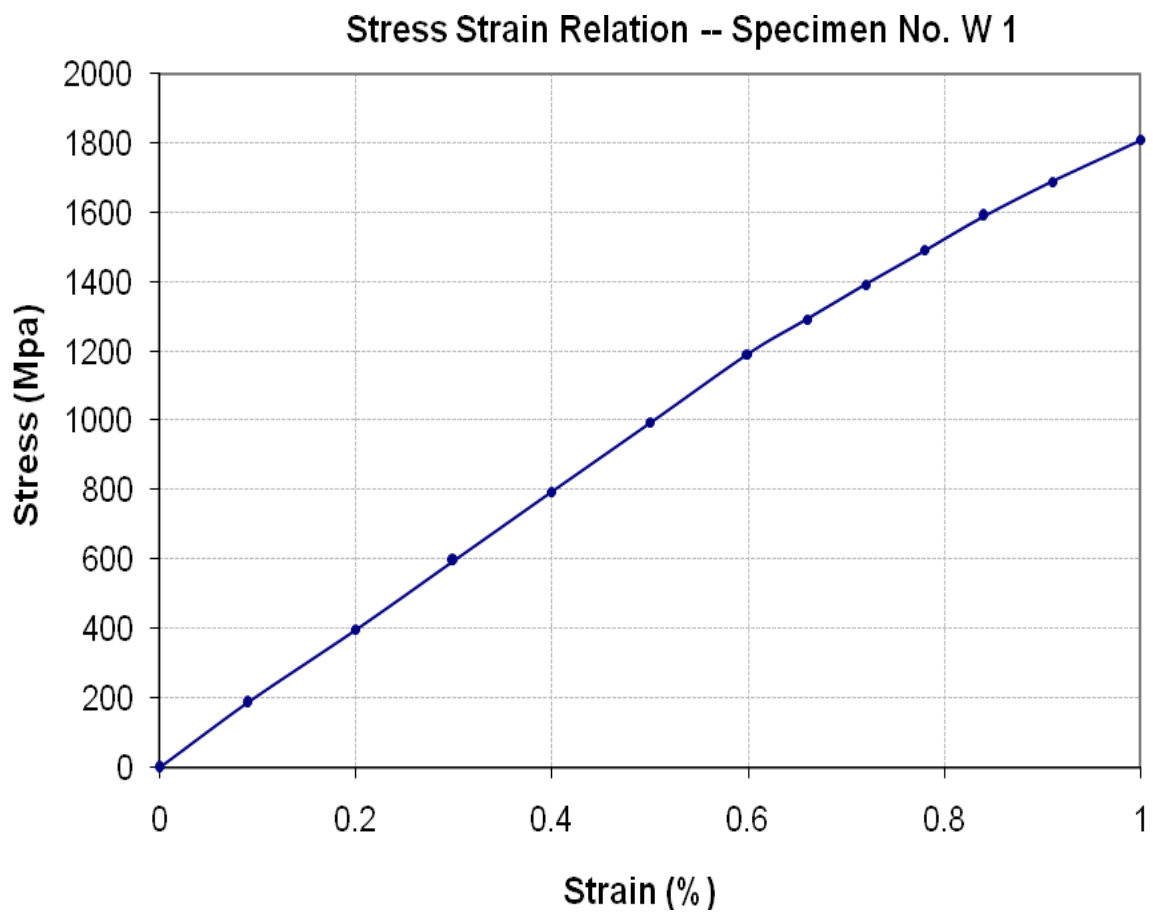
To,

Resident Engineer
Zeeruk International (Pvt) Ltd
Construction of Bridge Linking DHA Phase-IV to Bahria Phase-VIII over Soan River

Reference # CED/TFL **3301** (Dr. M Rizwan Riaz)
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Dated: 29-05-2023
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Graph (Page – 2/4)



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To,

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Zeeruk International (Pvt) Ltd
Construction of Bridge Linking DHA Phase-IV to Bahria Phase-VIII over Soan River

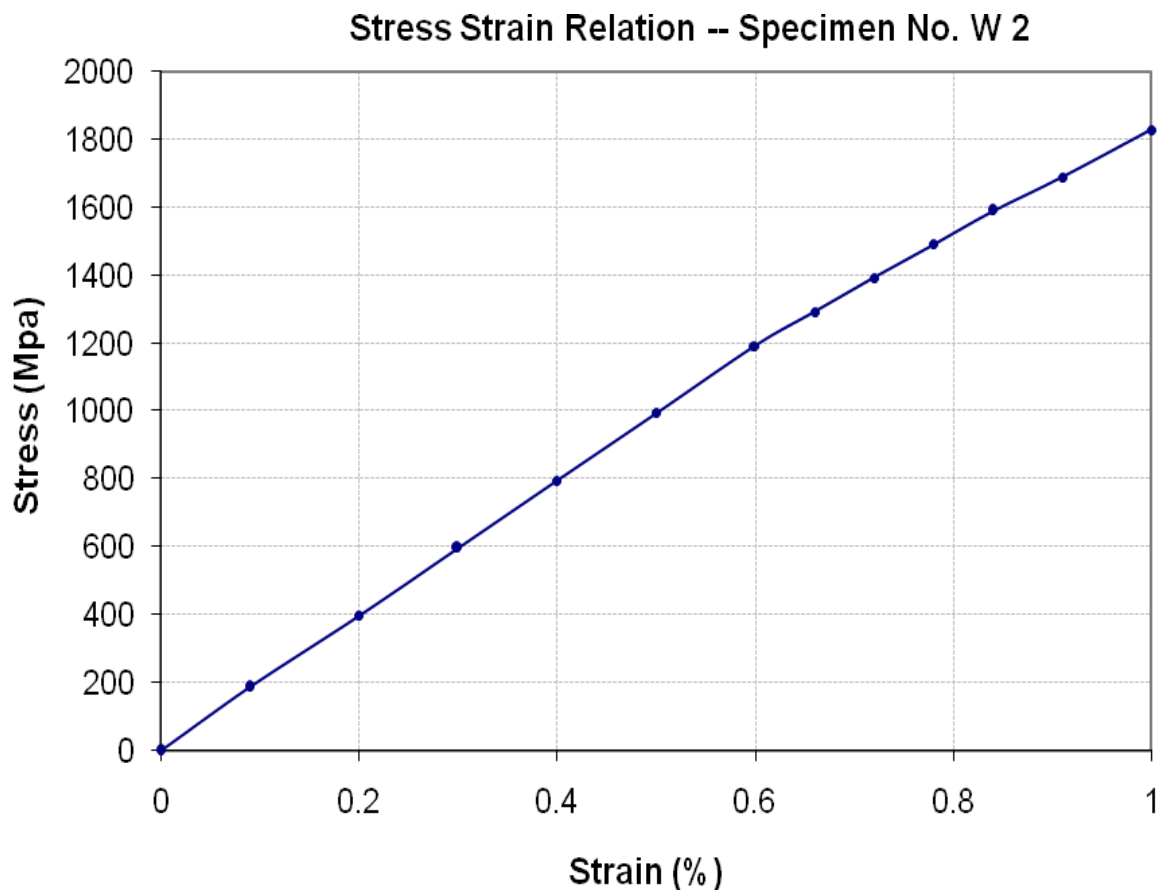
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Dated: 29-05-2023

Reference of the request letter # ZI/RE/DHA-PH-IV/23/67

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Graph (Page – 3/4)



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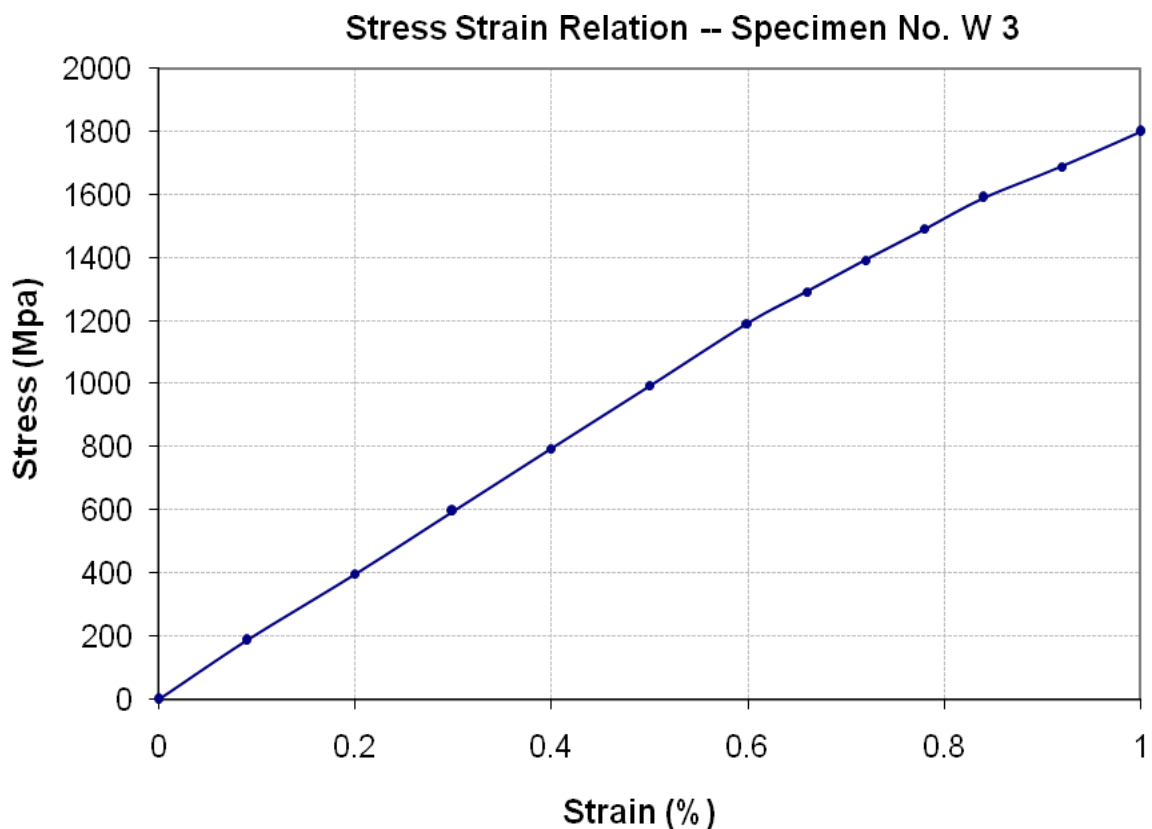
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Dated: 29-05-2023
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Graph (Page – 4/4)



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

To,
M/S Niaz Arbaaz (Pvt) Ltd
Lahore

Reference # CED/TFL **3307** (Dr. M Rizwan Riaz)
Reference of the request letter # Nil

Dated: 30-05-2023
Dated: 30-05-2023

Tension Test Report (Page -1/2)

Date of Test 02-06-2023
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No. | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) | | Breaking strength clause (6.2) | | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------------------------------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
| | (mm) | (kg/km) | (kg/km) | (kg) | (kN) | (kg) | (kN) | GPa | | |
| 1 | 12.70 (1/2") | 775.0 | 782.0 | 18100 | 177.56 | 19500 | 191.30 | 199 | >3.50 | xx |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| Only one sample for Test | | | | | | | | | | |

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

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UET Lahore, Pakistan.

Note:

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To,

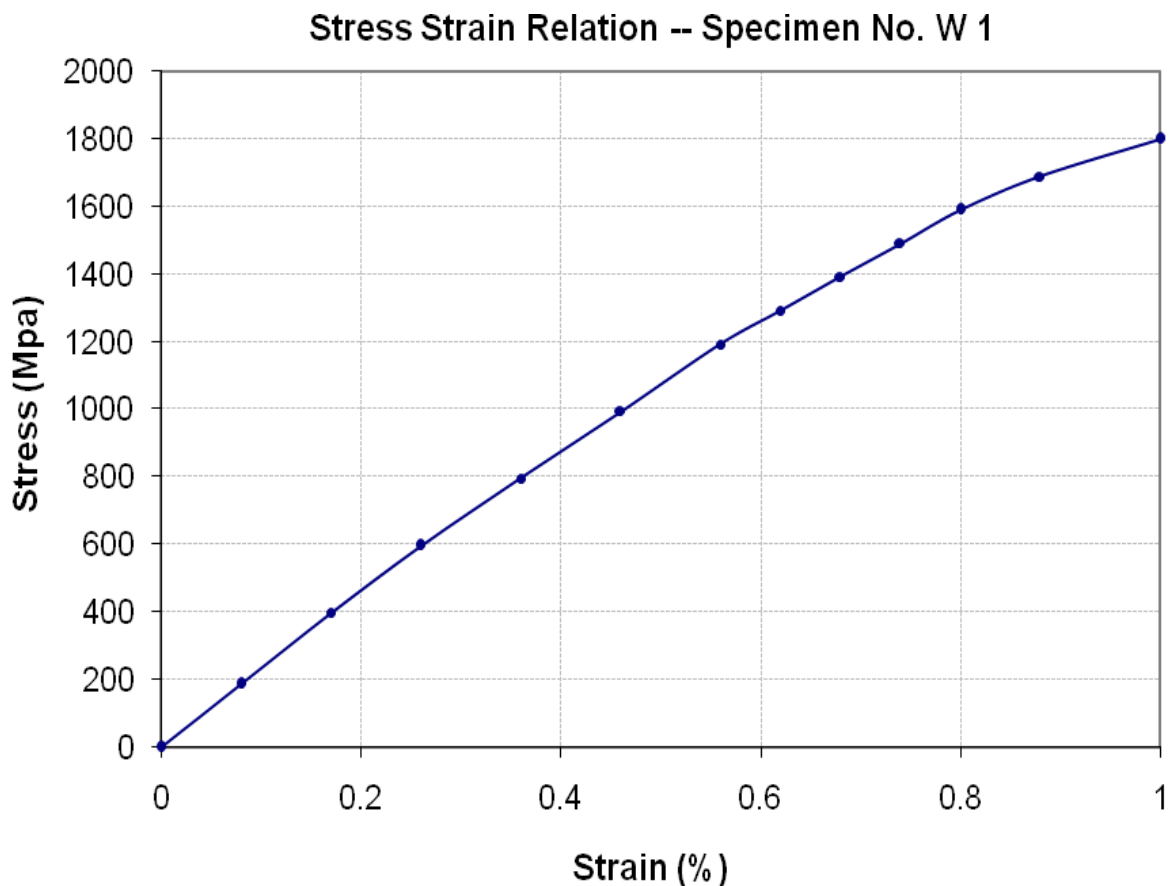
M/S Niaz Arbaaz (Pvt) Ltd
Lahore

Reference # CED/TFL 3307 (Dr. M Rizwan Riaz)
Reference of the request letter # Nil

Dated: 30-05-2023

Dated: 30-05-2023

Graph (Page – 2/2)



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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,
Asst. Manager
DBH JVMC Project Islamabad

Reference # CED/TFL **3318** (Dr. M Rizwan Riaz)

Dated: 30-05-2023

Reference of the request letter # DBHJVMC/QAQC/2023/64/UET Dated: 24-05-2023

Tension Test Report (Page -1/2)

Date of Test 02-06-2023

Gauge length 640 mm

Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No. | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) | | Breaking strength clause (6.2) | | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------------------------------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
| | (mm) | (kg/km) | (kg/km) | (kg) | (kN) | (kg) | (kN) | GPa | | |
| 1 | 12.70 (1/2") | 775.0 | 784.0 | 17600 | 172.66 | 18800 | 184.43 | 199 | >3.50 | xx |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| Only one sample for Test | | | | | | | | | | |

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

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To,

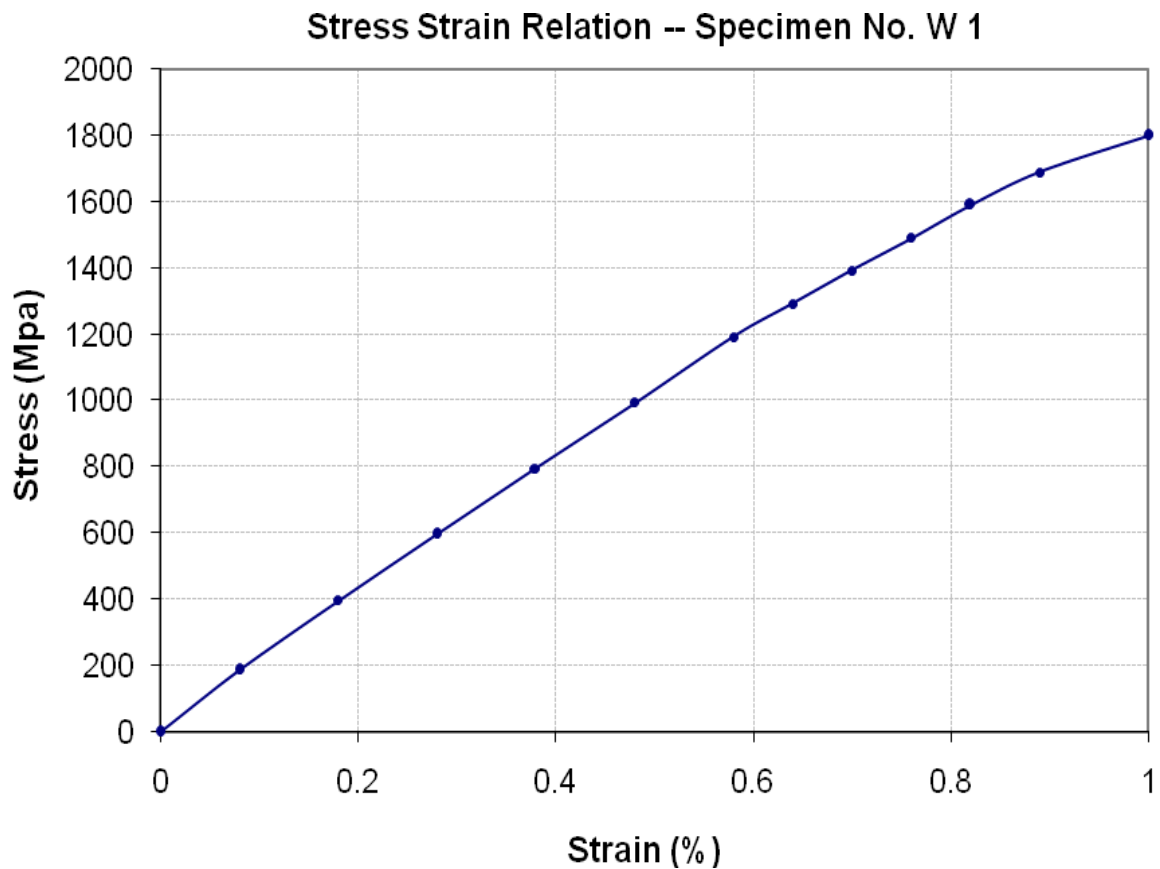
Asst. Manager
DBH JVMC Project Islamabad

Reference # CED/TFL **3318** (Dr. M Rizwan Riaz)

Dated: 30-05-2023

Reference of the request letter # DBHJVMC/QAQC/2023/64/UET Dated: 24-05-2023

Graph (Page – 2/2)



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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,
Project Manager
HMB Developers Pvt. Ltd.
Commercial Tower, FTC Lahore

Reference # CED/TFL **3337** (Dr. M Rizwan Riaz)
Reference of the request letter # HMBDPL/S.O/05/23/43 (LHR)

Dated: 01-06-2023
Dated: 31-05-2023

Tension Test Report (Page -1/1)

Date of Test 02-06-2023
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
| | | Nominal (#) | Actual (inch) | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.375 | 3 | 0.375 | 0.11 | 0.110 | 3430 | 4590 | 68800 | 68540 | 92000 | 91800 | 1.50 | 18.8 | |
| 2 | 0.371 | 3 | 0.373 | 0.11 | 0.109 | 3470 | 4840 | 69600 | 70110 | 97000 | 97800 | 0.90 | 11.3 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only two samples for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| #3 Bar Bend Test Through 180° is Satisfactory | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

I/C Testing Laboratoires
UET Lahore, Pakistan.

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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
 Associates Consulting Engineers ACE Limited
 Construction Academic Block New Campus of GC University Lahore at KSK

Reference # CED/TFL **3339** (Dr. M Rizwan Riaz)
 Reference of the request letter # RE/PERK/C-15

Dated: 01-06-2023
 Dated: 11-05-2023

Tension Test Report (Page -1/1)

Date of Test 02-06-2023
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|-------------------|
| | | Nominal (#) | Actual (inch) | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.369 | 3 | 0.372 | 0.11 | 0.109 | 3430 | 4760 | 68800 | 69640 | 95400 | 96700 | 1.50 | 18.8 | Sheikhoo Steel |
| 2 | 0.370 | 3 | 0.372 | 0.11 | 0.109 | 3430 | 4740 | 68800 | 69510 | 95000 | 96100 | 1.40 | 17.5 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only two samples for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| #3 Bar Bend Test Through 180° is Satisfactory | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

I/C Testing Laboratoires
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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

Construction of Multi-Level Grade Separation Flyover at Shahdra Moor, Lahore
(United Wire Industries Pvt. Ltd.)

Reference # CED/TFL **3340** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # 4537/03/MSA/09/53

Dated: 31-05-2023

Tension Test Report (Page -1/5)

Date of Test 02-06-2023

Gauge length 640 mm

Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No. | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) | | Breaking strength clause (6.2) | | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
| | (mm) | (kg/km) | (kg/km) | (kg) | (kN) | (kg) | (kN) | GPa | | |
| 1 | 12.70 (1/2") | 775.0 | 789.0 | 18000 | 176.58 | 19800 | 194.24 | 199 | >3.50 | 3875 |
| 2 | 12.70 (1/2") | 775.0 | 781.0 | 18100 | 177.56 | 19800 | 194.24 | 198 | >3.50 | 3881 |
| 3 | 12.70 (1/2") | 775.0 | 788.0 | 18300 | 179.52 | 19900 | 195.22 | 199 | >3.50 | 3895 |
| 4 | 12.70 (1/2") | 775.0 | 788.0 | 17800 | 174.62 | 19700 | 193.26 | 199 | >3.50 | 3902 |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |

Only four samples for Test

Witness by Muhammad Shahzad Khan (ME NESPAK)

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
NESPAK

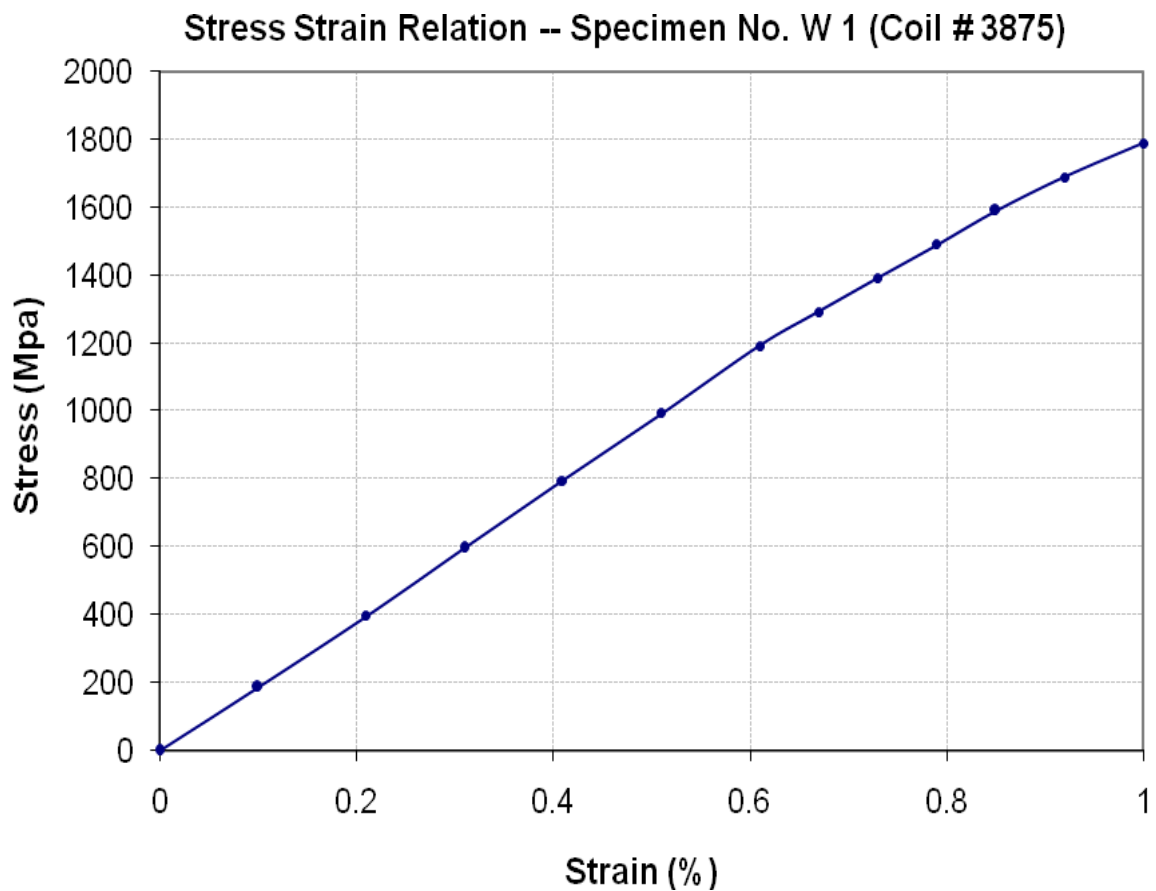
Construction of Multi-Level Grade Separation Flyover at Shahdra Moor, Lahore

Reference # CED/TFL **3340** (Dr. M Rizwan Riaz)
Reference of the request letter # 4537/03/MSA/09/53

Dated: 01-06-2023

Dated: 31-05-2023

Graph (Page – 2/5)



I/C Testing Laboratoires
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To,

Resident Engineer
NESPAK

Construction of Multi-Level Grade Separation Flyover at Shahdra Moor, Lahore

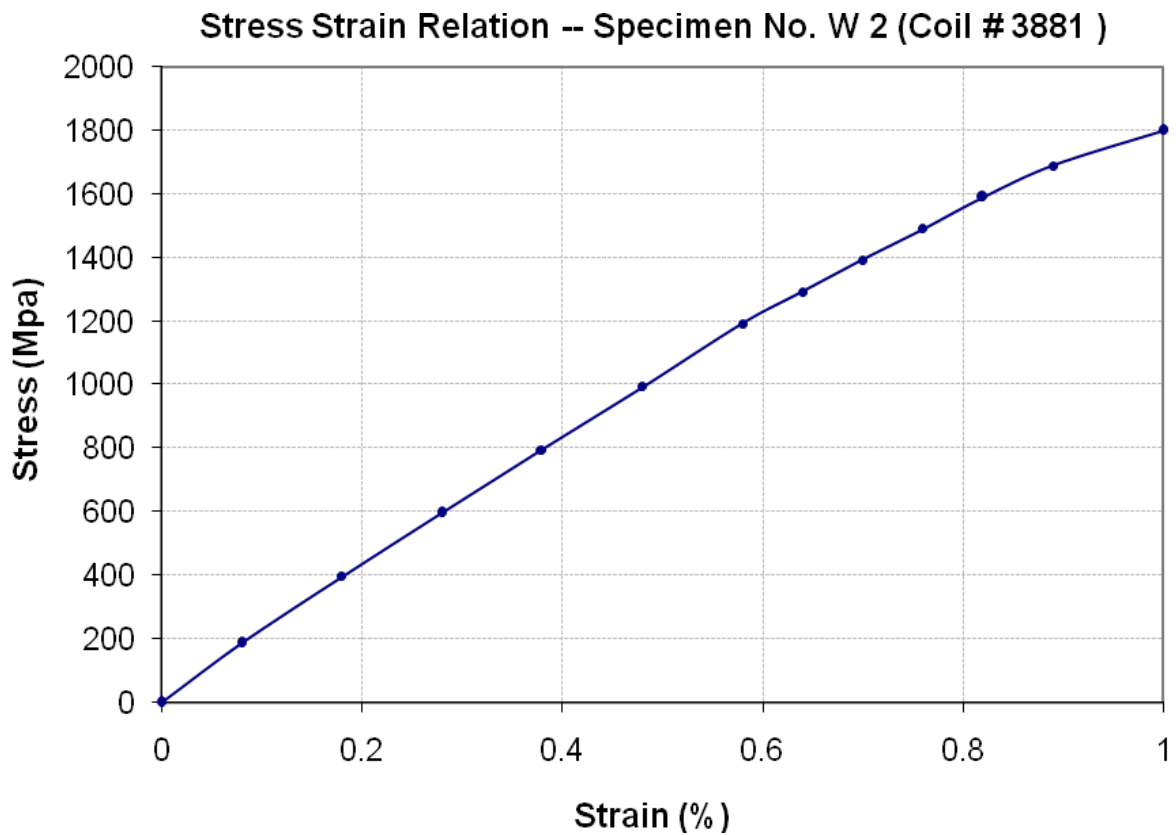
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Dated: 01-06-2023

Reference of the request letter # 4537/03/MSA/09/53

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Graph (Page – 3/5)



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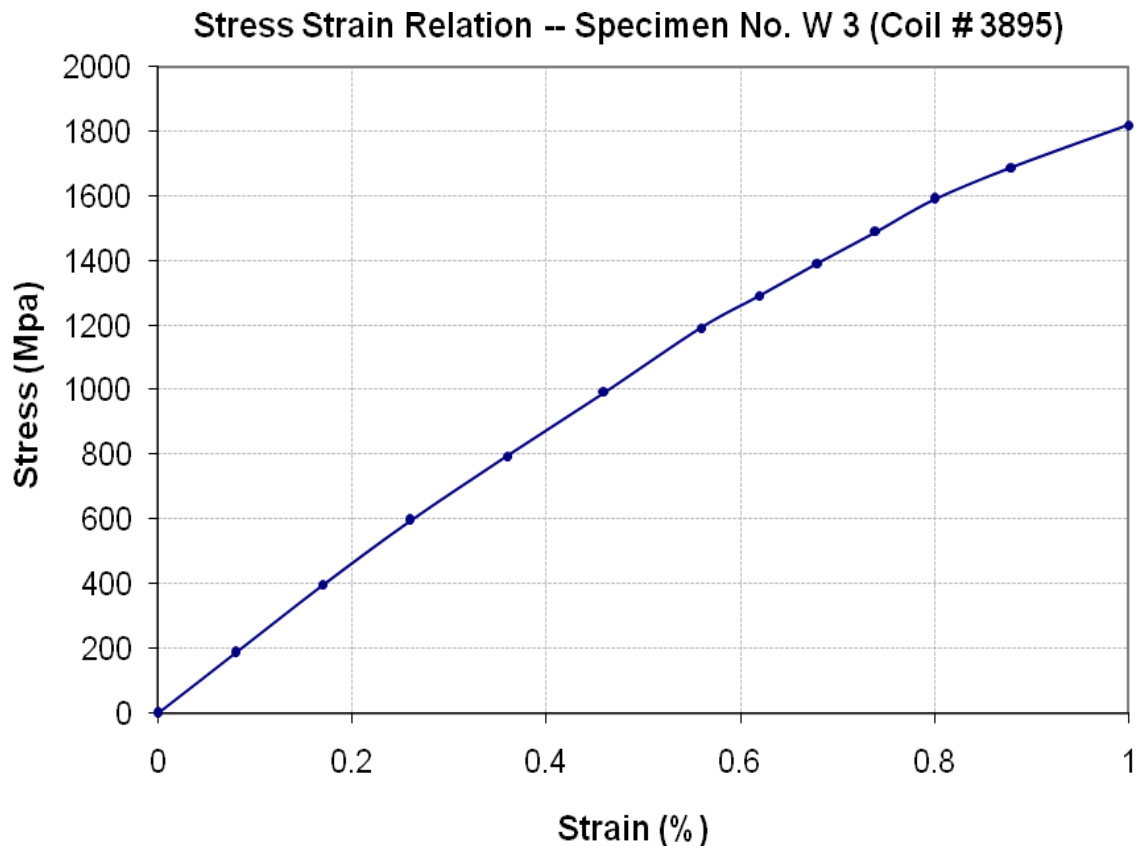
Reference # CED/TFL **3340** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # 4537/03/MSA/09/53

Dated: 31-05-2023

Graph (Page – 3/5)



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To,

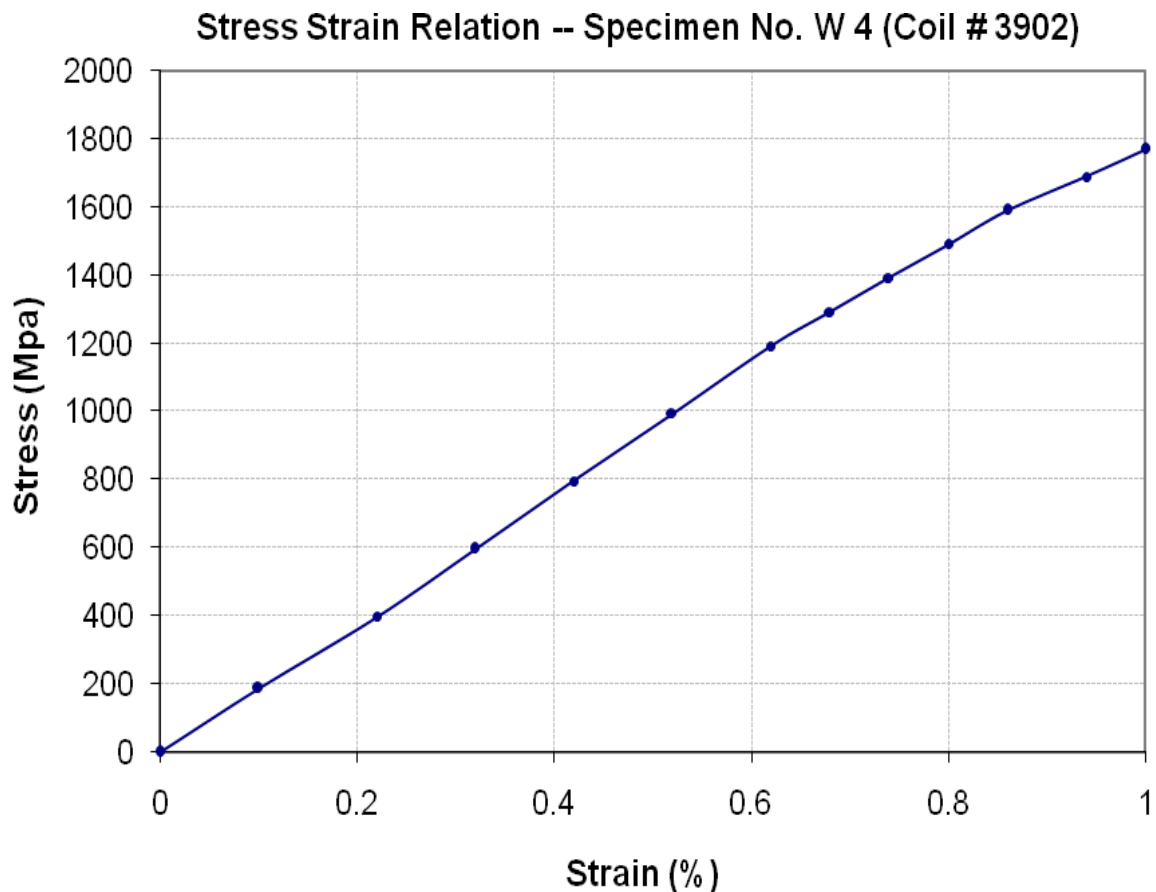
Resident Engineer
NESPAK

Construction of Multi-Level Grade Separation Flyover at Shahdra Moor, Lahore

Reference # CED/TFL **3340** (Dr. M Rizwan Riaz)
Reference of the request letter # 4537/03/MSA/09/53

Dated: 01-06-2023
Dated: 31-05-2023

Graph (Page – 5/5)



I/C Testing Laboratories
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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,

Assistant Resident Engineer
 EPCM Consultants – NESPAK
 (NCB-Works/PICIP-03(Lot-04) Lot-04: Truk Main Sewer, Effluent Pumping Station
 and Allied Work.

Reference # CED/TFL **3344** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # 3976/11/MS/SWL/Lot-04/01/172

Dated: 25-05-2023

Tension Test Report (Page -1/1)

Date of Test 02-06-2023

Gauge length 8 inches

Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
| | | Nominal (#) | Actual (inch) | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.372 | 3 | 0.373 | 0.11 | 0.109 | 3060 | 4710 | 61400 | 61670 | 94400 | 95000 | 1.10 | 13.8 | |
| 2 | 0.390 | 3 | 0.382 | 0.11 | 0.115 | 3130 | 4890 | 62800 | 60160 | 98000 | 94000 | 1.10 | 13.8 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only two samples for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| #3 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,

SDO for Executive Engineer
 Highway Division
 Lahore
 (Construction of Metalled Road from Babu Interchange to Shamshan Ghat (100ft Road)
 L = 2.5km Lahore.)

Reference # CED/TFL **3345** (Dr. M Rizwan Riaz)
 Reference of the request letter # 253/M

Dated: 01-06-2023
 Dated: 30-05-2023

Tension Test Report (Page -1/1)

Date of Test 02-06-2023
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
| | | Nominal (#) | Actual (inch) | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.373 | 3 | 0.374 | 0.11 | 0.110 | 3180 | 4760 | 63800 | 63920 | 95400 | 95700 | 1.00 | 12.5 | |
| 2 | 0.344 | 3 | 0.359 | 0.11 | 0.101 | 2750 | 4050 | 55100 | 59970 | 81200 | 88400 | 0.90 | 11.3 | |
| 2 | 0.360 | 3 | 0.367 | 0.11 | 0.106 | 3180 | 4910 | 63800 | 66190 | 98400 | 102200 | 0.80 | 10.0 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only three samples for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| #3 Bar Bend Test Through 180° is Satisfactory | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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

To,

Resident Engineer
NESPAK

Dualization of Rawalpindi-Kahuta Road including 4-Lane Bridge Over Sihala Railway
Pass, Sihala By-Pass & Kahuta By-pass Package-2, km 16+500 to 28+352.

Reference # CED/TFL **3346** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # NESPAK/103/MW/110

Dated: 30-05-2023

Tension Test Report (Page -1/3)

Date of Test 02-06-2023

Gauge length 640 mm

Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No. | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) | | Breaking strength clause (6.2) | | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
| | (mm) | (kg/km) | (kg/km) | (kg) | (kN) | (kg) | (kN) | GPa | | |
| 1 | 12.70 (1/2") | 775.0 | 784.0 | 18200 | 178.54 | 19300 | 189.33 | 198 | >3.50 | xx |
| 2 | 12.70 (1/2") | 775.0 | 784.0 | 18000 | 176.58 | 19400 | 190.31 | 199 | >3.50 | xx |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |

Only two samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing 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
NESPAK

Dualization of Rawalpindi-Kahuta Road including 4-Lane Bridge Over Sihala Railway
Pass, Sihala By-Pass & Kahuta By-pass Package-2, km 16+500 to 28+352.

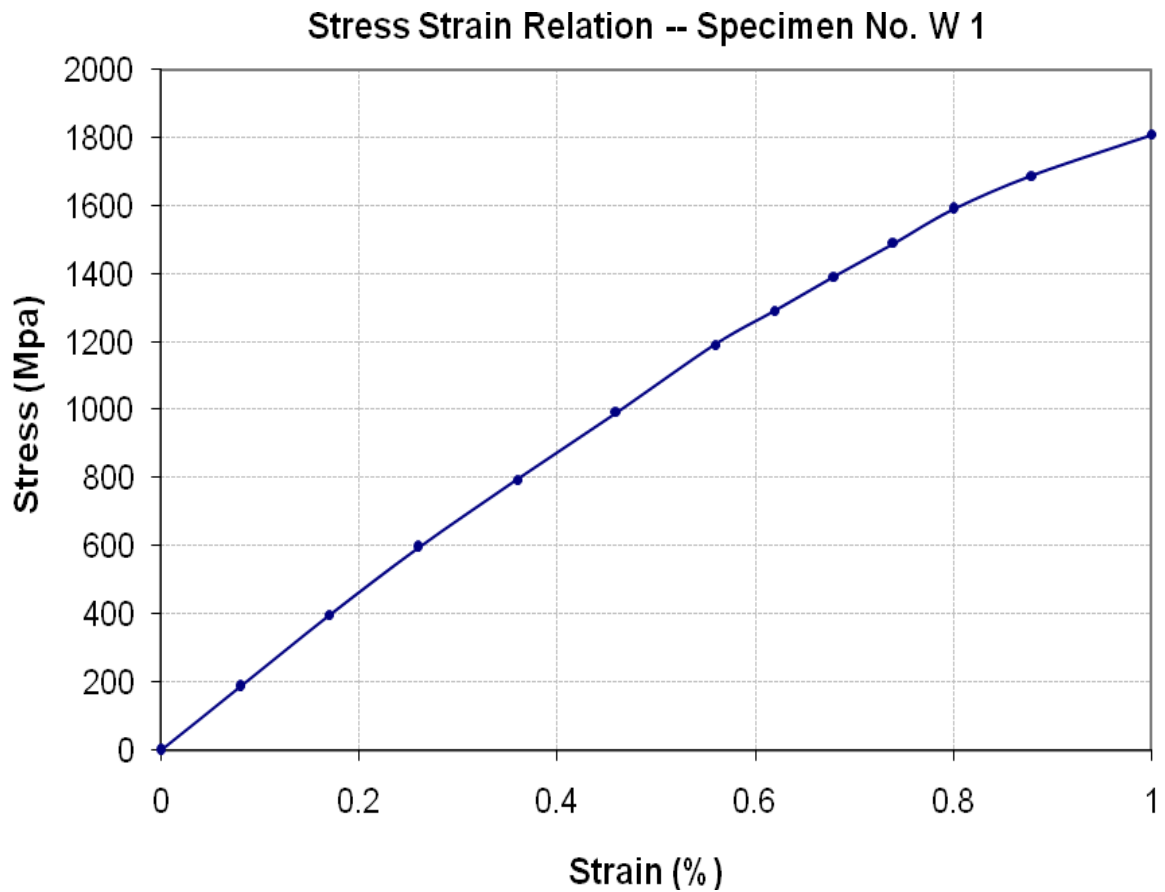
Reference # CED/TFL **3346** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # NESPAK/103/MW/110

Dated: 30-05-2023

Graph (Page – 2/3)



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,

Resident Engineer
NESPAK

Dualization of Rawalpindi-Kahuta Road including 4-Lane Bridge Over Sihala Railway
Pass, Sihala By-Pass & Kahuta By-pass Package-2, km 16+500 to 28+352.

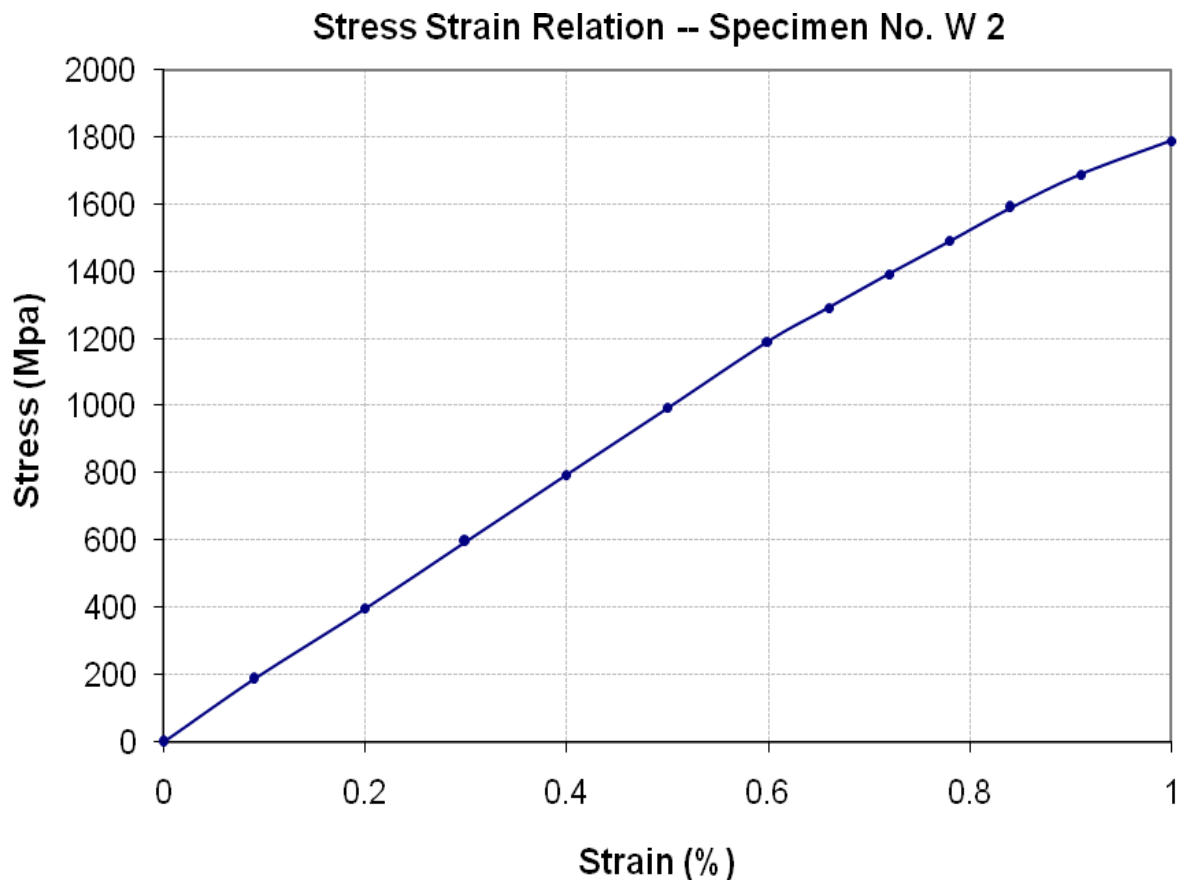
Reference # CED/TFL **3346** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # NESPAK/103/MW/110

Dated: 30-05-2023

Graph (Page – 2/3)



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

To,

Resident Engineer
NESPAK

Dualization of Rawalpindi-Kahuta Road including 4-Lane Bridge Over Sihala Railway
Pass, Sihala By-Pass & Kahuta By-pass Package-2, km 16+500 to 28+352.

Reference # CED/TFL **3346** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # NESPAK/103/MW/110

Dated: 30-05-2023

Tension Test Report (Page -1/3)

Date of Test 02-06-2023

Gauge length 640 mm

Description Steel Strand Tensile Test as per ASTM A-416-94a

| Sr. No. | Nominal Diameter | Nominal Weight | Measured weight | Yield strength clause (6.3) | | Breaking strength clause (6.2) | | Young's Modulus of Elasticity "E" | % Elongation | Remarks / Coil No. |
|---------|------------------|----------------|-----------------|-----------------------------|--------|--------------------------------|--------|-----------------------------------|--------------|--------------------|
| | (mm) | (kg/km) | (kg/km) | (kg) | (kN) | (kg) | (kN) | GPa | | |
| 1 | 12.70 (1/2") | 775.0 | 784.0 | 18200 | 178.54 | 19300 | 189.33 | 198 | >3.50 | xx |
| 2 | 12.70 (1/2") | 775.0 | 784.0 | 18000 | 176.58 | 19400 | 190.31 | 199 | >3.50 | xx |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | |

Only two samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

- 1- You can See your reports On Internet in the following web site
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Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,

Resident Engineer
NESPAK

Dualization of Rawalpindi-Kahuta Road including 4-Lane Bridge Over Sihala Railway
Pass, Sihala By-Pass & Kahuta By-pass Package-2, km 16+500 to 28+352.

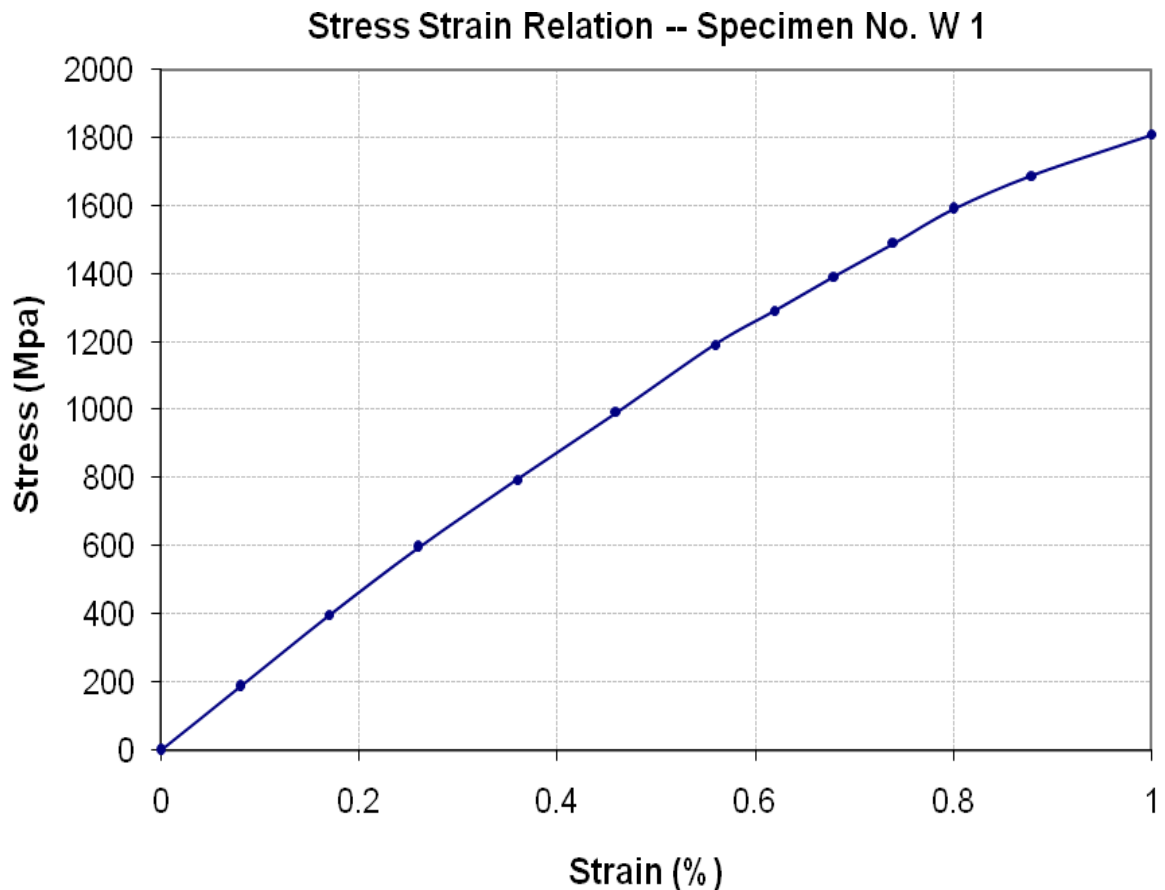
Reference # CED/TFL **3346** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # NESPAK/103/MW/110

Dated: 30-05-2023

Graph (Page – 2/3)



I/C Testing Laboratoires
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STRUCTURAL ENGINEERING DIVISION
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Department of Civil Engineering
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Pakistan. Ph: 92-42-99029202

To,

Resident Engineer
NESPAK

Dualization of Rawalpindi-Kahuta Road including 4-Lane Bridge Over Sihala Railway
Pass, Sihala By-Pass & Kahuta By-pass Package-2, km 16+500 to 28+352.

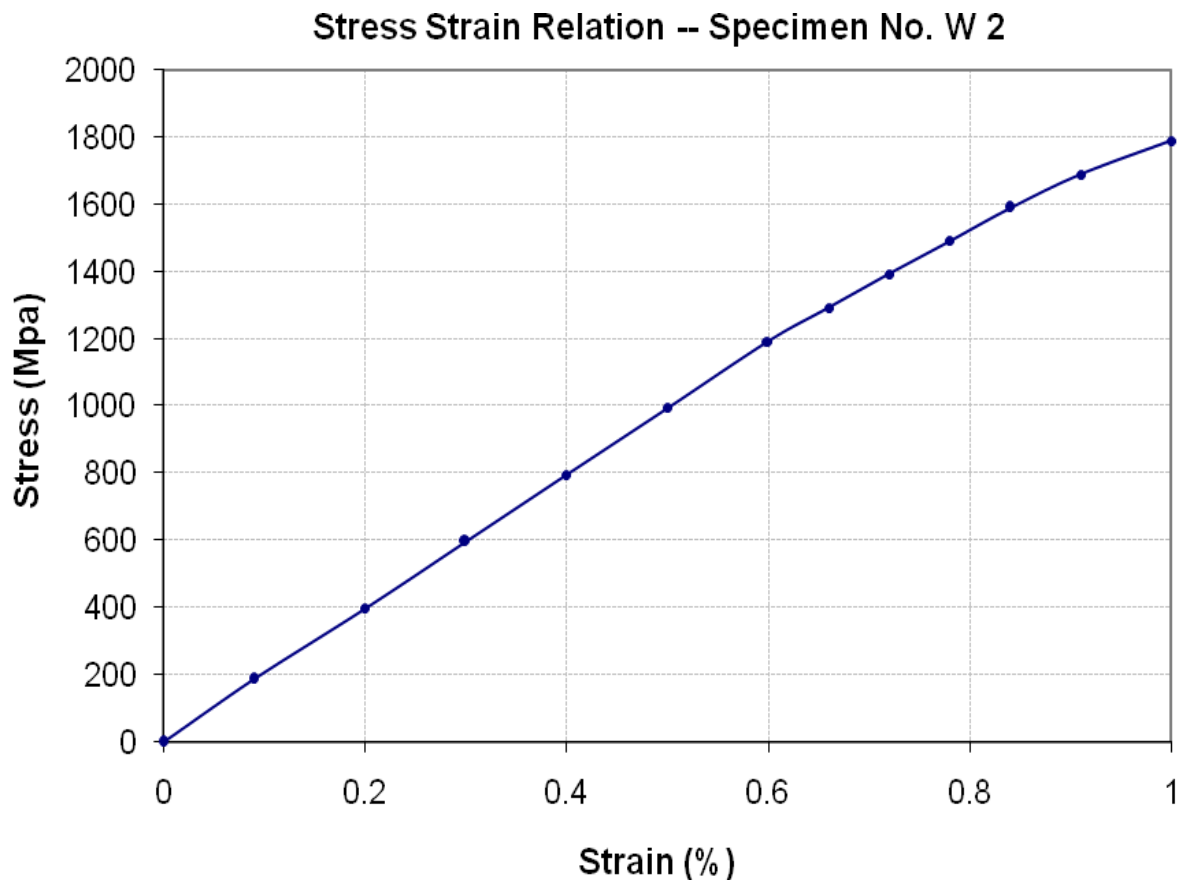
Reference # CED/TFL **3346** (Dr. M Rizwan Riaz)

Dated: 01-06-2023

Reference of the request letter # NESPAK/103/MW/110

Dated: 30-05-2023

Graph (Page – 2/3)



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

To,
M/S Vision Engineering (Pvt) Ltd
Lahore

Reference # CED/TFL **3349** (Dr. M Rizwan Riaz)
Reference of the request letter # VECO/2023/0602/7999

Dated: 02-06-2023
Dated: 02-06-2023

Tension Test Report (Page – 1/1)

Date of Test 02-06-2023
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 (3/8") | 432.0 | 429.0 | 10200 | 100.06 | 10700 | 104.97 | >3.50 | xx |
| 2 | 9.53 (3/8") | 432.0 | 429.0 | 10200 | 100.06 | 10700 | 104.97 | >3.50 | xx |
| 3 | 9.53 (3/8") | 432.0 | 428.0 | 10000 | 98.10 | 10700 | 104.97 | >3.50 | xx |
| - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | |
| Only three sample for Test | | | | | | | | | |

I/C Testing Laboratoires
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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,
Orbit Housing
The Spring Apartment Homes

Reference # CED/TFL **3352** (Dr. M Rizwan Riaz)
Reference of the request letter# NIL

Dated: 02-06-2023
Dated: 02-06-2023

Tension Test Report (Page -1/1)

Date of Test 02-06-2023
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No. | Weight (lbs/ft) | Diameter/ Size | | Area (in ²) | | Yield load (kg) | Breaking Load (kg) | Yield Stress (psi) | | Ultimate Stress (psi) | | Elongation (inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
| | | Nominal (#) | Actual (inch) | Nominal | Actual | | | Nominal | Actual | Nominal | Actual | | | |
| 1 | 0.359 | 3 | 0.367 | 0.11 | 0.106 | 3490 | 4790 | 70000 | 72840 | 96000 | 100000 | 1.20 | 15.0 | |
| 2 | 0.358 | 3 | 0.366 | 0.11 | 0.105 | 3410 | 4760 | 68400 | 71410 | 95400 | 99700 | 1.20 | 15.0 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Note: only two samples for tensile and one sample for bend test | | | | | | | | | | | | | | |
| Bend Test | | | | | | | | | | | | | | |
| #3 Bar Bend Test Through 180° is Satisfactory | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

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