

# Transportation Engineering Laboratory (TEL)

Department of Civil Engineering (CED)

UNIVERSITY OF ENGINEERING & TECHNOLOGY (UET)

LAHORE – 54890 (PAKISTAN)



Phone: 092-42-9929202 Cable: UNIVENGTECH Fax: 092-42-9922566

Ref.:-----

Date:-----

Mr. Amjad Saeed  
Resident Engineer,  
NESPAK.

Subject: **Testing of Base Course (WBM)**

Road Rehabilitation Programme and Chief Minister Initiative (ADP 2024-25)  
Dualization of Faisalabad Chiniot Sargodha Road from Kamalpur Interchange to Tehsil  
Chowk Chiniot, District Faisalabad and Chiniot, Length =24.00 km, Section-I = 8.53 km  
& Section-II = 15.5 km (ADP No. 1753)

Dear Sir,

It is with reference to your letter No. 4834/F/(RR)/103/AS/06/619 dated 29-05-2025.

Please find below the results of tests conducted on the WBM sample provided to this laboratory on 16-06-2025 through your representative.

## 1. Sieve Analysis (ASTM C-136)

| Sieve Size   | 3"  | 2 ½"  | 2"    | 1 ½" | 1" | ¾" | ½" | 3/8" | #4 |
|--------------|-----|-------|-------|------|----|----|----|------|----|
| %age Passing | 100 | 84.42 | 12.45 | 0.99 | 0  | 0  | 0  | 0    | 0  |

## 2. Los Angeles Abrasion Value Test (ASTM C-131/535)

| Grading Used | Los Angeles Abrasion Value (%) |
|--------------|--------------------------------|
| 1            | 21.19                          |

If you have further query, please do not hesitate to contact the undersigned.

Best Regards,

Director  
Transportation Engineering Laboratory

### Note:

1. This test report is based solely on the particular sample(s) supplied by the client and should not be reproduced in parts.
2. Sampling has not been performed by Transportation Engineering Laboratory (TEL), UET and TEL-UET does not accept the responsibility that the sample(s) supplied is/are truly representative sample(s) of any batch or stock or entire project.
3. While TEL-UET agrees to take every reasonable precaution to ensure validity of its test results, it assumes no liability thereof beyond the amount of the fee charged for the analysis or test.
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Ref:-----

Date:-----

Mr. Amjad Saeed  
Resident Engineer,  
NESPAK.

Subject: **Testing of Bitumen – AASHTO Standard (M-20)**  
Road Rehabilitation Programme and Chief Minister Initiative (ADP 2024-25)  
Dualization of Faisalabad Chiniot Sargodha Road from Kamalpur Interchange to Tehsil  
Chowk Chiniot, District Faisalabad and Chiniot, Length =24.00 km (ADP No. 1753)

Dear Sir,

It is with reference to your letter No. 4834/F/(RR)/103/AS/06/625 dated 31-05-2025.  
Please find below the results of tests conducted on the bitumen sample provided to this  
laboratory on 16-06-2025 through your representative.

| Sr.# | Laboratory Tests                        | Results  |
|------|---|----------|
| 1    | Penetration (ASTM D-5)                  | 62 Units |
| 2    | Penetration of Residue (ASTM D-5)       | 56 Units |
| 3    | Softening Point (ASTM D-36)             | 49.3°C   |
| 4    | Flash Point (ASTM D-92)                 | 298°C    |
| 5    | Solubility (ASTM D-2042)                | 99.75%   |
| 6    | Specific Gravity Value (ASTM D-70)      | 1.012    |
| 7    | Thin Film Oven Test Value (ASTM D-1754) | 0.475%   |
| 8    | Loss on Heating Value (ASTM D-6)        | 0.430%   |

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Ref.:-----

Date:-----

Mr. Amjad Saeed  
Resident Engineer, NESPAK.

Subject: **Testing of Coarse Aggregate for Asphalt Work**  
Road Rehabilitation Programme and Chief Minister Initiative (ADP 2024-25)  
Dualization of Faisalabad Chiniot Sargodha Road from Kamalpur Interchange to Tehsil  
Chowk Chiniot, District Faisalabad and Chiniot, Length =24.00 km (ADP No. 1753)

Dear Sir,

It is with reference to your letter No. 4834/F/(RR)/103/AS/06/626 dated 31-05-2025.  
Please find below the results of tests conducted on the aggregate sample provided to this laboratory  
on 16-06-2025 through your representative.

## **Sample # 1**

### **1. Sodium Sulphate Soundness (ASTM C-88)**

| Sieve Size           | Weight of Fraction Before Test (gm) | Weight of Fraction After Test (gm) | Percentage Passing Designated Sieve After Test | Weighted Percentage Loss |
|----------------------|-------------------------------------|------------------------------------|--|--------------------------|
| 1" + 3/4"            | 1501.7                              | 1492.3                             | 0.63   | 0.62                     |
| <b>Total = 0.62%</b> |                                     |                                    |  |                          |

### **2. Los Angeles Abrasion Value Test (ASTM C-131/535)**

| Grading Used | Los Angeles Abrasion Value (%) |
|--------------|--------------------------------|
| 3            | 15.59                          |

### **3. Flakiness & Elongation Index (BS 812: Part 105)**

| Sieve Size                     |                | Individual Flakiness Index (%) | Weighted Flakiness Index (%)    | Individual Elongation Index (%) | Weighted Elongation Index (%) |
|--------------------------------|----------------|--------------------------------|---------------------------------|---------------------------------|-------------------------------|
| Passing (in.)                  | Retained (in.) |                                |                                 |                                 |                               |
| 1 1/2                          | 1              | 4.67                           | 4.26                            | 9.62                            | 8.77                          |
| 1                              | 3/4            | 0                              | 0                               | 14.37                           | 1.22                          |
| 3/4                            | 1/2            | 0                              | 9                               | 0                               | 0                             |
| <b>Flakiness Index = 4.26%</b> |                |                                | <b>Elongation Index = 9.99%</b> |                                 |                               |

**Sample # 2**

**1. Sodium Sulphate Soundness (ASTM C-88)**

| Sieve Size  | Weight of Fraction Before Test (gm) | Weight of Fraction After Test (gm) | Percentage Passing Designated Sieve After Test | Weighted Percentage Loss |
|-------------|-------------------------------------|------------------------------------|--|--------------------------|
| 1/2" + 3/8" | 1004.3                              | 993.9                              | 1.04   | 0.91                     |
|             | <b>Total = 0.91%</b>                |                                    |  |                          |

**2. Los Angeles Abrasion Value Test (ASTM C-131/535)**

| Grading Used | Los Angeles Abrasion Value (%) |
|--------------|--------------------------------|
| B            | 16.39                          |

**3. Flakiness & Elongation Index (BS 812: Part 105)**

| Sieve Size                     |                | Individual Flakiness Index (%) | Weighted Flakiness Index (%)     | Individual Elongation Index (%) | Weighted Elongation Index (%) |
|--------------------------------|----------------|--------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Passing (in.)                  | Retained (in.) |                                |                                  |                                 |                               |
| 1                              | 3/4            | 0                              | 0                                | 13.22                           | 1.70                          |
| 3/4                            | 1/2            | 8.68                           | 7.52                             | 13.89                           | 12.04                         |
| 1/2                            | 3/8            | 0                              | 0                                | 0                               | 0                             |
| <b>Flakiness Index = 7.52%</b> |                |                                | <b>Elongation Index = 13.74%</b> |                                 |                               |

**Sample # 3**

**1. Sodium Sulphate Soundness (ASTM C-88)**

| Sieve Size | Weight of Fraction Before Test (gm) | Weight of Fraction After Test (gm) | Percentage Passing Designated Sieve After Test | Weighted Percentage Loss |
|------------|-------------------------------------|------------------------------------|--|--------------------------|
| #4         | 301.3                               | 295.2                              | 2.02   | 1.47                     |
|            | <b>Total = 1.47%</b>                |                                    |  |                          |

**2. Los Angeles Abrasion Value Test (ASTM C-131/535)**

| Grading Used | Los Angeles Abrasion Value (%) |
|--------------|--------------------------------|
| C            | 18.53                          |

### 3. Flakiness & Elongation Index (BS 812: Part 105)

| Sieve Size                     |                | Individual Flakiness Index (%) | Weighted Flakiness Index (%)     | Individual Elongation Index (%) | Weighted Elongation Index (%) |
|--------------------------------|----------------|--------------------------------|----------------------------------|---------------------------------|-------------------------------|
| Passing (in.)                  | Retained (in.) |                                |                                  |                                 |                               |
| 1/2                            | 3/8            | 0                              | 0                                | 28.67                           | 2.11                          |
| 3/8                            | 1/4            | 6.09                           | 5.64                             | 10.29                           | 9.53                          |
| <b>Flakiness Index = 5.64%</b> |                |                                | <b>Elongation Index = 11.64%</b> |                                 |                               |

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