

# 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:-----

The Sub Divisional Officer,  
Highway Sub Division, Mailsi.

Subject: **Testing of Base Course Material**  
Additional Carriageway (Dehli-Multan Road) from Pull 114/10-R to Pir Murad  
Morr, Length =49.60 km District Vehari

Dear Sir,

It is with reference to your letter No. 435/M dated 11-01-2025.  
Please find below the results for the test conducted on the aggregate sample provided to this  
laboratory on 04-09-2025 through your representative.

## 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.
2" + 1 1/2"	5004.3	4986.4	0.36	0.29
<b>Total = 0.29%</b>				

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

Best Regards,

Director  
Transportation Engineering Laboratory

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Ref.:-----

Date:-----

The Sub Divisional Officer,  
Highway Sub Division, Mailsi.

Subject: **Testing of Sub-base Course Material**  
Additional Carriageway (Dehli-Multan Road) from Pull 114/10-R to Pir Murad  
Morr, Length =49.60 km District Vehari

Dear Sir,

It is with reference to your letter No. 427/M dated 02-06-2025.  
Please find below the results for the test conducted on the aggregate sample provided to this  
laboratory on 04-09-2025 through your representative.

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

Grading Used	Los Angeles Abrasion Value (%)
A	25.94

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

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Ref.-----

Date:-----

The Sub Divisional Officer,  
Highway Sub Division, Mailsi.

Subject: **Testing of Asphalt Concrete Cores and Chunk**  
Additional Carriageway (Dehli-Multan Road) from Pull 114/10-R to Pir  
Murad Morr, Length =49.60km District Vehari

Dear Sir,

It is with reference to your letter No. 461/M dated 19-06-2025.

Please find below the results for the tests conducted on asphalt concrete cores and a chunk provided to this laboratory on 04-09-2025 through your representative.

## BULK SPECIFIC GRAVITY OF COMPACTED ASPHALT (ASTM D2726):

Core	Mean Thickness (cm)	Mean Diameter (cm)	Bulk Specific Gravity
1 (RD 1496+80) L/S	7.750	15.100	2.450
2 (RD 1496+80) C/L	7.850	15.100	2.470
3 (RD 1496+80) R/S	8.820	15.100	2.500

## BITUMEN EXTRACTION TEST: (Chunk)

<b>Bitumen Extraction Value (ASTM D-2172)</b>	<b>3.69%</b>								
<b>Gradation Analysis</b>									
Sieve No.	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#50	#200
% Passing	100	88.11	68.21	58.51	53.01	37.21	21.31	8.01	5.11

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Ref.-----

Date:-----

The Sub Divisional Officer,  
Highway Sub Division, Mailsi.

Subject: **Testing of Asphalt Concrete Cores and Chunk**  
Additional Carriageway (Dehli-Multan Road) from Pull 114/10-R to Pir  
Murad Morr, Length =49.60km District Vehari

Dear Sir,

It is with reference to your letter No. 81/SDM dated 08-08-2025.

Please find below the results for the tests conducted on asphalt concrete cores and a chunk provided to this laboratory on 04-09-2025 through your representative.

## BULK SPECIFIC GRAVITY OF COMPACTED ASPHALT (ASTM D2726):

Core	Mean Thickness (cm)	Mean Diameter (cm)	Bulk Specific Gravity
1 (RD 1545+00) L/S	7.570	15.100	2.470
2 (RD 1545+00) C/L	7.460	15.100	2.470
3 (RD 1545+00) R/S	7.630	15.100	2.480

## BITUMEN EXTRACTION TEST: (Chunk)

<b>Bitumen Extraction Value (ASTM D-2172)</b>	<b>3.66%</b>								
<b>Gradation Analysis</b>									
Sieve No.	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#50	#200
% Passing	100	86.01	69.01	59.02	52.03	36.03	22.04	8.10	4.58

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

Ref.:-----

Date:-----

Mr. Asim Khan  
Resident Engineer,  
NESPAK, Lahore.

Subject: **Testing of Coarse Aggregate** (Sub-base Material)  
Scheme # 15 Rehabilitation/Improvement of Streets (P.C.C), Sewerage/Drainage Tayyab  
Town, Haji Pura, Ismail Town, Rani Pind, Gullar Pir, UC-152, Aziz Bhatti Zone MC  
Lahore (Phase-II)

Dear Sir,

It is with reference to your letter No. 4084/103/LDP/AZB(S-15)/04/06 dated 12-08-2025.  
Please find below the results for the tests conducted on the aggregate sample provided to this  
laboratory through your representative.

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

Sieve Size	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	99.26	80.05	57.88	43.78	33.17	24.85

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

Grading Used	Los Angeles Abrasion Value (%)
A	28.05

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Ref.:-----

Date:-----

Mr. Muhammad Shaaban  
Resident Engineer,  
NESPAK, Lahore.

Subject: **Testing of Coarse Aggregate** (Sub-base Material)  
Restoration of Road Cut for Rain Water Management-Drainage Arrangement for Sore  
Point at Fruit & Vegetable Market (A.I. Town) Lahore (Restoration of Road Cut)

Dear Sir,

It is with reference to your letter No. 2830/MS/FVM/03/01 dated 08-09-2025.

Please find below the results for the tests conducted on the aggregate sample provided to this laboratory through your representative.

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

Sieve Size	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	100	82.07	61.87	46.14	33.99	26.18

## 2. Specific Gravity & Water Absorption (ASTM C-127)

Specific Gravity (oven dried condition)	2.63
Specific Gravity (saturated surface dry condition)	2.66
Apparent Specific Gravity	2.70
Water Absorption (%)	0.94

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

Grading Used	Los Angeles Abrasion Value (%)
A	28.34

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Transportation Engineering Laboratory

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Ref:-----

Date:-----

Engr. Muhammad Ismail  
Senior Deputy Manager (O & M),  
Lahore-Sialkot Motorway Infrastructure Management (Private) Limited.

Subject: **Testing of Bitumen**

Project: M-11

Dear Sir,

It is with reference to your letter No. LSMIM/727/9/007 dated 15-09-2025.

Please find below the results of tests conducted on the bitumen sample provided to this laboratory through your representative.

Sr.#	Laboratory Tests	Results
1	Penetration (ASTM D-5)	97 Units
2	Ductility (ASTM D-113)	Above 100 cm
3	Softening Point (ASTM D-36)	45.5°C
4	Flash Point (ASTM D-92)	289°C
5	Fire Point (ASTM D-92)	318°C
6	Specific Gravity Value (ASTM D-70)	1.021

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

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Ref.:-----

Date:-----

Mr. Atta Farid  
Resident Engineer,  
NESPAK,  
Okara.

Subject: **Testing of Bitumen – AASHTO Standard (M-20)**  
Project: Rehabilitation of Okara (Satghara More to Syed Wala Bridge via Satghara)  
Length = 30.50 km, Tehsil & District Okara (ADP 2024-25)  
Road Rehabilitation Programme-II (GS No. 1799)

Dear Sir,

It is with reference to your letter No. 4834/Okara/Rehab-II/RE/AF/13 dated 20-01-2025.  
Please find below the results of tests conducted on the bitumen sample provided to this laboratory on 19-09-2025 through your representative.

Sr.#	Laboratory Tests	Results
1	Penetration (ASTM D-5)	62 Units
2	Penetration of Residue (ASTM D-5)	55 Units
3	Ductility (ASTM D-113)	Above 100 cm
4	Ductility of Residue (ASTM D-113)	Above 100 cm
5	Softening Point (ASTM D-36)	49.7°C
6	Flash Point (ASTM D-92)	289°C
7	Solubility (ASTM D-2042)	99.80%
8	Specific Gravity Value (ASTM D-70)	1.021
9	Loss on Heating Value (ASTM D-6)	0.229%

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