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. Salim Javed
Resident Engineer,
NESPAK, Lahore.

Subject: **Testing of Coarse Aggregate**
Tender No. XEN(O&M-I) NT/2024-25/58 - Improvement of Water Supply and Sewerage System in UC-231, Nishter Zone, Lahore

Dear Sir,

It is with reference to your letter No. 43101/MZA/01/1149 dated 08-01-2025.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 17-01-2025 through your representative.

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

Sieve Size	1”	¾”	½”	3/8”	#4
%age Passing	100	97.00	17.26	2.79	0

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

Specific Gravity (oven dried condition)	2.81
Specific Gravity (saturated surface dry condition)	2.83
Apparent Specific Gravity	2.86
Water Absorption (%)	0.67

3. **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
$1/2" + 3/8"$	1004.4	992.4	1.19	1.12
	Total = 1.12%			

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

Grading Used	**Los Angeles Abrasion Value (%)**
B	19.49

5. 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	$^3/_4$	16.56	0.49	56.08	1.68
$^3/_4$	$^1/_2$	8.28	6.60	15.33	12.23
$^1/_2$	$^3/_8$	6.73	0.98	18.55	2.69
$^3/_8$	$^1/_4$	30.68	0.86	75.75	2.11
		Flakiness Index = 8.93%		**Elongation Index = 18.71%**	

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. Salim Javed
Resident Engineer,
NESPAK, Lahore.

Subject: **Testing of Fine Aggregate**
Tender No. XEN(O&M-I) NT/2024-25/58-Improvement of Water Supply and Sewerage System in UC-231, Nishter Zone, Lahore

Dear Sir,

It is with reference to your letter No. 43101/MZA/01/1150 dated 08-01-2025.
Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 17-01-2025 through your representative.

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

Sieve Size	#4	#8	#16	#30	#50	#100	#200
%age Passing	100	95.51	98.93	98.58	96.52	13.09	2.27

2. **Percentage of Fines (ASTM D-1140)** ***Wet Sieving***

Silt and Clay (%)	4.01

3. **Fineness Modulus (ASTM C-142)**

Fineness Modulus (%)	0.93

4. **Specific Gravity & Water Absorption (ASTM C-128)**

Specific Gravity (OD)	2.65
Specific Gravity (SSD)	2.67
Apparent Specific Gravity	2.71
Water Absorption (%)	0.89

5. **Organic Impurities (ASTM C-40)**

Organic Impurities	Nil

6. 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
#30 to #50	100.0	98.4	1.60	0.10
			Total = 0.10%	

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Ref.---------- Date:----------

Mr. Jawad Qayyum Khan
Resident Engineer (NESPAK),
Sargodha.

Subject: **Testing of Bitumen – AASHTO Standard (M-20)**
Restoration/Improvement of Road from M. M. Road (Harnoli Morr) to Piplan, Length = 12.40 km, Tehsil Piplan in District Mianwali

Dear Sir,

It is with reference to your letter No. RE/4834/JQK/25/7822 dated 23-04-2025.
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)	60 Units
2	Ductility (ASTM D-113)	Above 100 cm
3	Softening Point (ASTM D-36)	48.8°C
4	Flash Point (ASTM D-92)	297°C
5	Specific Gravity Value (ASTM D-70)	1.021
6	Thin Film Oven Test Value (ASTM D-1754)	0.478%
7	Loss on Heating Value (ASTM D-6)	0.438%

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Director
Transportation Engineering Laboratory

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