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. Umair Sarwar Deputy Director (M & I) P-N, National Highway Authority, Lahore.

Subject: <u>Testing of Samples</u> (Bitumen Extraction Test) Periodic Maintenance Works (Structural Overlay) Contract No. PM-2021-22-PN-04

Dear Sir,

It is with reference to your letter No. Dy. Dir/(M&I)/NHA/P-N/25/225 dated 17-02-2025. Please find below the results of the tests conducted on the asphalt concrete samples (chunks) provided to this laboratory through your representative.

BITUMEN EXTRACTION TEST:

AWC

Rituman Extraction Value (ASTM D-2172)								
Bitumen Extraction Value (ASTM D-2172) 4.20%								
Gradation Analysis								
Sieve No.	3/4"	1/2"	3/8"	#4	#8	#50	#200	
% Passing	100	<u>84</u> .99	68.00	42.98	24.98	8.96	4.95	

<u>ABC</u>

Bitumen Extraction Value (ASTM D-2172) 3.40%									
Gradation Analysis									
Sieve No.	1 ½"	1"	3/4"	1/2"	3/8"	#4	#8	#50	#200
% Passing	100	80.00	72.00	65.01	53.00	36.01	21.04	9.04	4.15

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

Best Regards,	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)
Director	supplied is/are truly representative sample(s) of any batch or stock or entire
Transportation Engineering Laboratory	project.
Transportation Engineering Laboratory	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.
	4. The party shall assume full responsibility for the ethical use of the results in the
	test reports and the TEL-UET shall be held free from any and all claims which
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Ref.-----

Date:-----

Mr. M. Hassan Khan Resident Engineer, NESPAK.

Subject: <u>Testing of Aggregate</u> (Granular Sub-base)

Rehabilitation/Improvement of Roads in Jurisdiction of Gulberg Zone, MCL

Dear Sir,

It is with reference to your letter No. 4084/103/LDP/GULBERG/04/44 dated 08-01-2025. Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 05-03-2025 through your representative.

1. Sieve Analysis (ASTM C-136)

Sieve Size	1 1/2"	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	83.10	67.17	4 <mark>6.3</mark> 2	36.20	28.39

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

	Gra	iding Use	d	Los Angeles Abrasion Value (%)
A 27.67		А		27.67

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

Best Regards,

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Director Transportation Engineering Laboratory

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

Ref.-----



Date:-----

Engr. Sheikh Maqbool Hassan Resident Engineer, NESPAK, MCL Nishtar Zone, Lahore.

Subject: Testing of Aggregate (PCC Crush) Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage at Chumru Pur, Dubai Town, Bhobatiyan & Talib Gunj, Hassan Da Kot, Sher Shah Colony UC-269, Nishtar Zone MCL Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage at Ariyan More, Kingra & Kiryal, Asal & Lakhowal, Khane Nipal UC-270, Nishtar Zone MCL Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage UC-253, Nishtar Zone MCL

Dear Sir,

It is with reference to your letter No. 4084/103/LDP/NZ/04/249 dated 04-03-2025. Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 10-03-2025 through your representative.

1. Sieve Analysis (ASTM C-136)

Sieve	Size	1"	3/4"	1/2"	3/8"	#4
%age	Passing	100	94.28	5.15	0	0

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

Grading Used	Los Angeles Abrasion Value
	(%)
В	16.17

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

Sieve	e Size	Individual	Weighted	Individual	Weighted
Passing	Retained	Flakiness	Flakiness Index (%)	Elongation	Elongation
(111.)	(111.)	mucx (70)	Inucx (70)	Inucx (70)	Inucx (70)
1	3/4	0	0	23.52	1.35
3/4	1/2	4.60	4.10	11.37	10.13
1/2	3/8	6.11	0.31	13.80	0.71
		Flakiness Inc	dex = 4.41%	Elongation Ind	ex = 12.19%

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:-----

Engr. Sheikh Maqbool Hassan
Resident Engineer, NESPAK,
MCL Nishtar Zone, Lahore.

Subject: <u>Testing of Aggregate</u> (Granular Sub-base) Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage at Chumru Pur, Dubai Town, Bhobatiyan & Talib Gunj, Hassan Da Kot, Sher Shah Colony UC-269, Nishtar Zone MCL Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage at Ariyan More, Kingra & Kiryal, Asal & Lakhowal, Khane Nipal UC-270, Nishtar Zone MCL Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage UC-253, Nishtar Zone MCL

Dear Sir,

It is with reference to your letter No. 4084/103/LDP/NZ/04/243 dated 04-03-2025. Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 10-03-2025 through your representative.

1. Sieve Analysis (ASTM C-136)

Sieve Size	1 ½"	1"	3/4"	1/2"	3/8"	#4
%age Passing	100	87.61	54.16	25.21	13.79	5.26

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

	Grading Used	Los Angeles Abrasion Value (%)
	A	26.02

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

Sieve Size		Individual	Weighted	Individual	Weighted
Passing	Retained	Flakiness	Flakiness	Elongation	Elongation
(in.)	(in.)	Index (%)	Index (%)	Index (%)	Index (%)
1 1/2	1	8.95	1.17	5.36	0.70
1	3⁄4	16.47	5.81	17.35	6.13
3⁄4	1/2	11.02	3.37	15.82	4.84
1/2	3/8	7.72	0.93	11.01	1.33
3/8	1⁄4	9.22	0.83	16.68	1.50
		Flakiness Inc	dex = 12.11%	Elongation Ind	ex = 14.50%

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:-----

Engr. Sheikh Maqbool Hassan Resident Engineer, NESPAK, MCL Nishtar Zone, Lahore.

Subject: <u>Testing of Sand</u>

Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage at Chumru Pur, Dubai Town, Bhobatiyan & Talib Gunj, Hassan Da Kot, Sher Shah Colony UC-269, Nishtar Zone MCL Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage at Ariyan More, Kingra & Kiryal, Asal & Lakhowal, Khane Nipal UC-270, Nishtar Zone MCL Rehabilitation/Improvement of Streets (PCC), Sewerage/Drainage UC-253, Nishtar Zone MCL

Dear Sir,

It is with reference to your letter No. 4084/103/LDP/NZ/04/245 dated 04-03-2025. Please find below the results for the tests conducted on the aggregate sample provided to this laboratory on 10-03-2025 through your representative.

1. Sieve Analysis (ASTM C-136)

Sieve Size	#4	#8	#16	#30	#50	#100	#200
%age Passing	100	99.12	97.98	96.52	88.05	8.77	1.35

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

Silt and Clay (%) 2.50

3. Fineness Modulus (ASTM C-142)

Fineness Modulus (%) 1.10

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