

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)



DEPARTMENT OF CIVIL ENGINEERING

Mobile: 01819 557964; PABX: 966 5650-80 Ext. 7226



TRANSPORTATION ENGINEERING LABORATORY

BRTC No. : 1101-86544 /CE /18-19 ; Dt: 2/5/2018

Sent by : Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Kha); Dt: 25/4/2018

Project : -

Sample : Crushed Stone (Stone Chips) Sample ID: 05-20 mm

Test : Salinity/Chloride Content Test

Date of Test : 10/5/2018

TEST REPORT

Test	Result
Water Soluble Chloride (%) =	0.0018

Notes: Samples were received in sealed condition.

Countersigned by:

Dr. Md. Abdul Jalil

Professor

Department of Civil Engineering

BUET, Dhaka-1000, Bangladesh



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Test Performed by:



Dr. Md. Haduzzaman

Associate Professor

Department of Civil Engineering

BUET, Dhaka-1000, Bangladesh

Important Notes: Samples as supplied to us have been tested in our laboratory. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that samples are sent in a secure and sealed cover/packet/container under signature of the competent authority. In order to avoid fraudulent fabrication of test results, it is recommended that all test reports are collected by duly authorized person, and not by the Contractor/Supplier.



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Ref. No. : 28.17.0000.300.48.001.19/60(Kha); Dt: 25/4/2018

Project : -

Sample : Crushed Stone (Stone Chips) Sample ID: 05-20 mm

Test : Sulphate Content Test

Date of Test : 10/5/2018

TEST REPORT

Test	Result
Water Soluble Sulphate (%) =	0.0032 %

Notes: Samples were received in sealed condition.

Countersigned by:

Dr. Md. Abdul Jalil
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh



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Test Performed by:

Dr. Md. Hadiuzzaman
Associate Professor
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BUET, Dhaka-1000, Bangladesh



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Sent by : Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Kha); Dt: 25/4/2019

Sample ID : 05-20 mm

Sample : Stone Chips: Samples were received in sealed condition.

Test : COATING AND STRIPPING TEST [ASTM / AASHTO]

Date of Test : 10/5/2019 - 13/5/2019

TEST REPORT

Test Sl. No.	Name of the Test	Test Condition (If Any)	AASHTO Test Designation	Result
1.	Coating and Striping	-	T-182-84(93)	Above 95 (ninety five) percent

Countersigned by:

Dr. Abu Siddique.

Professor

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BUET, Dhaka-1000, Bangladesh

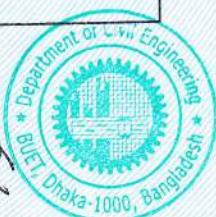
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71

Test Performed by:

Dr. Md. Hadiuzzaman

Associate Professor

Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

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Ref. No. : 28.17.0000.300.48.001.19/60(Kha); Dt: 25/4/2018

Project : -

Sample : Crushed Stone (Stone Chips) Sample ID: 05-20 mm

Test : Clay Lumps and Friable Particles [ASTM C 142]

Date of Test : 10/5/2018

TEST REPORT

Clay Lump and Friable Particles
(deleterious substance)

0.09 %

Notes: Samples were received in sealed condition.

Countersigned by:

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Professor
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Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : _____

Sample : Stone Chips Sample ID: 05-20 mm

Test : Aggregate Impact Value [BS 812 (part 3) 1975]

Date of Test : 10/5/2019

TEST REPORT

Type of Aggregate	Sample Size	Weight of sample	Weight of material	Aggregate Impact Value
		(Surface Dry) (gm)	passing 2.36 mm sieve (gm)	%
Stone Chips	14 mm to 10 mm	2775	686	25

Notes: Samples were received in sealed condition.



bdSjTQnFT

Countersigned by:

Dr. Md. Abdul Jalil

Professor

Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Test Performed by:

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Associate Professor

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BUET, Dhaka-1000, Bangladesh

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Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining
Sent by : Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : _

Sample : Stone Chips Sample ID: 05-20 mm

Test : Specific Gravity and Water Absorption (ASTM C127)

Date of Test : 10/5/2019

TEST REPORT

Sample Designation	Weight of oven dry sample (gm)	Weight of SSD sample (gm)	Weight of saturated sample in water (gm)	Bulk Specific Gravity (OD) (Relative Density)	Absorption Capacity (%)
Stone Chips	3106.7	3117.0	2004.7	2.79	0.30

Notes: Samples were received in sealed condition.

81



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Countersigned by:

Dr. Md. Abdul Jalil

Professor

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Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : -

Sample : Stone Chips Sample ID: 05-20 mm

Test : Unit Weight/Bulk Density & Voids in Aggregate [ASTM C 29]

Date of Test : 10/5/2019

TEST REPORT

Unit weight/Bulk Density (kg/m ³) =	1540 kg/m ³
Voids in Aggregate, compacted by Rodding(%) =	11 %

Notes: Samples were received in sealed condition.

Countersigned by:

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Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2018

Project : -

Sample : Crushed Stone (Stone Chips) Sample ID: 05-20 mm

Test : Materials Finer than No. 200 Sieve [ASTM C 117]

Date of Test : 10/5/2018

TEST REPORT

Materials Finer than # 200 Sieve (%) =

0.2 Percent

Notes: Samples were received in sealed condition.

72



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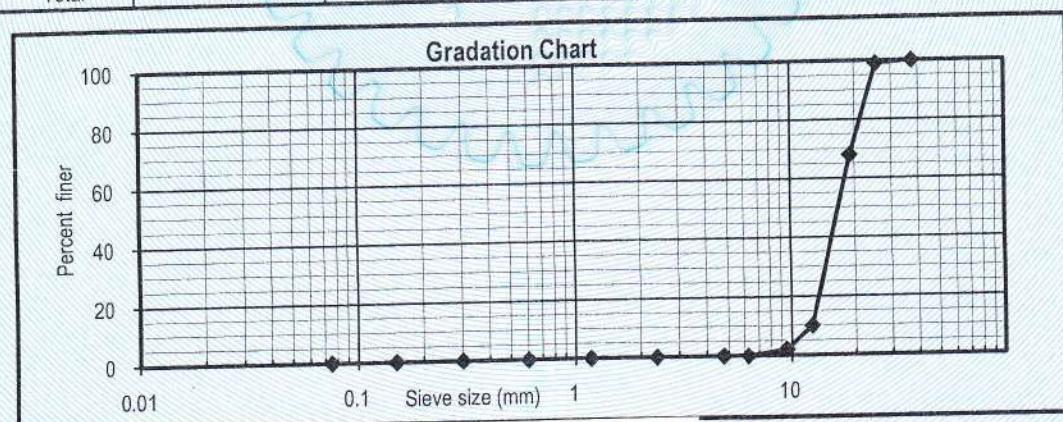
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 Sent by : Mining Company Limited.
 Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019
 Project :
 Sample : Crushed Stone (Stone Chips) Sample ID: 05-20 mm
 Test : Gradation of Aggregates [ASTM C136]
 Date of Test : 10/5/2019

TEST REPORT

Sieve Size	Material Retained	Percent of Material Retained	Cumulative % Retained	Percent Finer	Fineness Modulus
mm	gm	%	%	%	
37.5	0.0	0	0	100	
25.4	55.0	1	1	99	
19.05	3133.0	31	32	68	
12.5	5833.0	58	90	10	
9.5	806.0	8	98	2	
6.3	160.0	2	100	0	
4.75	0.0	0	100	0	
2.36	0.0	0	100	0	
1.18	0.0	0	100	0	
0.6	0.0	0	100	0	
0.3	0.0	0	100	0	
0.15	0.0	0	100	0	
0.075	0.0	0	100	0	
Pan	13.0	0	100	0	
Total	10000				

7.3
(Seven point three zero)



Notes: Samples were received in sealed condition.

Countersigned by:

Dr. Md. Abdul Jalil

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F7nAjm6b5

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Test Performed by:

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Sent by Mining Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : -

Sample : Stone Chips Sample ID: 05-20 mm

Test : Aggregate Crushing Value [BS 812 (part 3) 1975]

Date of Test : 10/5/2019

TEST REPORT

Type of Aggregate	Sample Size	Weight of sample (Surface Dry)	Weight of material passing 3.35 mm sieve	Aggregate Crushing Value
		(gm)	(gm)	%
Stone Chips	20 mm to 14 mm	365	95	26

Notes: Samples were received in sealed condition.

Countersigned by :

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Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining Company

Sent by : Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : -

Sample : Stone Chips

Sample ID: 05-20 mm

Test : FLAKINESS INDEX [BS812; Part1]

Date of Test : 10/5/2019

TEST REPORT

Sieve Size	Weight of material retained	Percent of material retained	Flaky Particles	Flakiness Index
mm	(gm)	%	(gm)	
63	---	---	---	
50	0	0.0	---	
37.5	0	0.0	---	
28	0	0.0	---	
20	570	19.0	219	
14	1513	50.4	405	
10	731	24.4	175	
6.3	188	6.3	52	
Total	3002	100	851	28 %

Notes: Samples were received in sealed condition.

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Sent by :
Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : -

Sample : Stone Chips Sample ID: 05-20 mm

Test : ELONGATION INDEX [BS812; Part1]

Date of Test : 10/5/2019

TEST REPORT

Sieve Size mm	Weight of material retained (gm)	Percent of material retained %	Elongated Particles (gm)	Elongation Index
63	---	---	---	
50	---	---	---	
37.5	0	0.0	0	
28	0	0.0	0	
20	570	19.0	123	
14	1513	50.4	660	
10	731	24.4	418	
6.3	188	6.3	89	
Total	3002	100	1290	43 %

Notes: Samples were received in sealed condition.

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10/5/19

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Ref. No. : 28.17.0000.300.48.001.19/60(Ka); Dt: 25/4/2019

Project : -

Sample : Stone Chips Sample ID: 05-20 mm

Test : Ten Percent Fines Value [BS 812-111:1990]

Date of Test: 10/5/2019

TEST REPORT

Type of Aggregate	Sample Size	Weight of sample (Surface Dry)	Applied Load	Weight of material passing 3.35 mm sieve	Ten Percent Fines Value
		(gm)	(KN)	(gm)	
Stone Chips	20 mm to 14 mm	2775	160	345	140 KN

Notes: Samples were received in sealed condition.

76



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Countersigned by:

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Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite

Sent by : Mining Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project : -

Sample : **Stone Chips** Sample ID: **40-60 mm**Test : **Aggregate Crushing Value [BS 812 (part 3) 1975]**Date of Test : **10/5/2019****TEST REPORT**

Type of Aggregate	Sample Size	Weight of sample	Weight of material	Aggregate Crushing Value
		(Surface Dry) (gm)	(gm)	%
Stone Chips	28 mm to 20 mm	2833	760	27

Notes: Samples were received in sealed condition.

Countersigned by :

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Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project :

Sample : **Stone Chips** Sample ID: 40-60 mmTest : **Aggregate Impact Value [BS 812 (part 3) 1975]**

Date of Test : 10/5/2019

TEST REPORT

Type of Aggregate	Sample Size	Weight of sample (Surface Dry)	Weight of material passing 5.0 mm sieve	Aggregate Impact Value
		(gm)	(gm)	%
Stone Chips	28 mm to 20 mm	355	94	26

Notes: Samples were received in sealed condition.

66



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Countersigned by :

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Department of Civil Engineering

BUET, Dhaka-1000, Bangladesh

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Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project : -

Sample : **Stone Chips** Sample ID: **40-60 mm**Test : **Los Angeles Abrasion Value [ASTM C-535-03]**Date of Test : **10/5/2019****TEST REPORT**

Type of Aggregate	Grading Type	Total Weight of Aggregate	Aggregate Passing 1.70 mm Sieve	Los Angeles Abrasion Value
		gm	gm	%
Stone Ballast	2	10000	2300	23

Notes: Samples were received in sealed condition.

67



AFE3NKKCB

Countersigned by:

Dr. Md. Abdul Jalil

Professor

Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

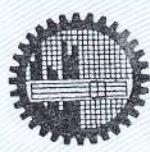
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Sent by : Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project : _

Sample : Stone Chips

Sample ID: 40-60 mm

Test : Specific Gravity and Water Absorption (ASTM C127)

Date of Test : 10/5/2019

TEST REPORT

Sample Designation	Weight of oven dry sample	Weight of SSD sample	Weight of saturated sample in water	Bulk Specific Gravity (OD)	Absorption Capacity (%)
	(gm)	(gm)	(gm)	(Relative Density)	(%)
Stone Chips	3107.3	3111.7	2007.5	2.81	0.10

Notes: Samples were received in sealed condition.

69



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Countersigned by:

Dr. Md. Abdul Jalil
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BUET, Dhaka-1000, Bangladesh





DEPARTMENT OF CIVIL ENGINEERING

Mobile: 01819 557964; PABX: 966 5650-80 Ext. 7226



TRANSPORTATION ENGINEERING LABORATORY

BRTC No. : 1101-86544 /CE /18-19 ; Dt: 2/5/2019

Sent by : Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project : -

Sample : Stone Chips Sample ID: 40-60 mm

Test : Unit Weight/Bulk Density & Voids in Aggregate [ASTM C 29]

Date of Test : 10/5/2019

TEST REPORT

Unit weight/Bulk Density (kg/m ³) =	1570 kg/ m ³
Voids in Aggregate, compacted by Rodding(%) =	9 %

Notes: Samples were received in sealed condition.

Countersigned by:

Dr. Md. Abdul Jalil
 Professor
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh



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Test Performed by:



Dr. Md. Hadiuzzaman
 Associate Professor
 Department of Civil Engineering
 BUET, Dhaka-1000, Bangladesh

Important Notes: Samples as supplied to us have been tested in our laboratory. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that samples are sent in a secure and sealed cover/packet/container under signature of the competent authority. In order to avoid fraudulent fabrication of test results, it is recommended that all test reports are collected by duly authorized person, and not by the Contractor/Supplier.

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DEPARTMENT OF CIVIL ENGINEERING

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TRANSPORTATION ENGINEERING LABORATORY

BRTC No. : 1101-86544 /CE /18-19 ; Dt: 2/5/2018

Sent by : Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining Company Limited.

Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2018

Project : -

Sample : Crushed Stone (Stone Chips) Sample ID: 40-60 mm

Test : Materials Finer than No. 200 Sieve [ASTM C 117]

Date of Test : 10/5/2018

TEST REPORT

Materials Finer than # 200 Sieve (%) =

0.07 Percent

Notes: Samples were received in sealed condition.

Countersigned by:

Dr. Md. Abdul Jalil
Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh



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Test Performed by:

18/05/19



Dr. Md. Hadiuzzaman
Associate Professor
Department of Civil Engineering
BUET, Dhaka-1000, Bangladesh

Important Notes: Samples as supplied to us have been tested in our laboratory. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that samples are sent in a secure and sealed cover/packet/container under signature of the competent authority. In order to avoid fraudulent fabrication of test results, it is recommended that all test reports are collected by duly authorized person, and not by the Contractor/Supplier.

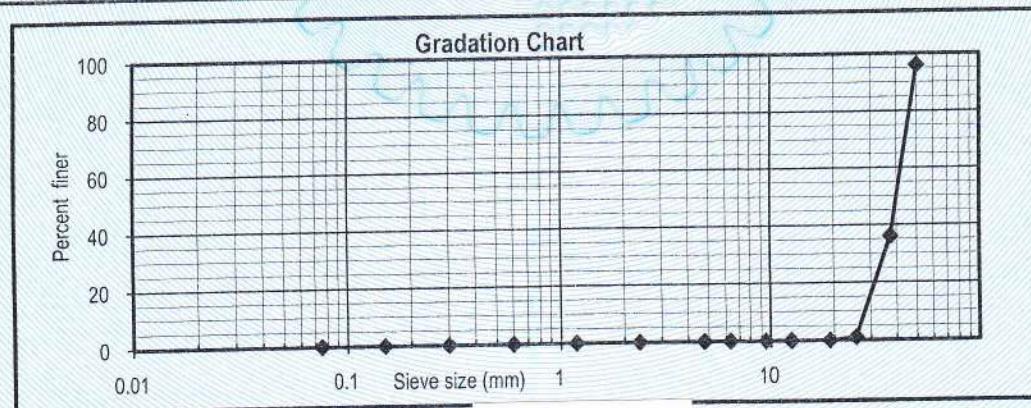


TRANSPORTATION ENGINEERING LABORATORY

BRTC No. : 1101-86544 /CE /18-19 ; Dt: 2/5/2019
 Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapa Granite
 Sent by : Mining Company Limited.
 Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019
 Project : -
 Sample : Crushed Stone (Stone Chips) Sample ID: 40-60 mm
 Test : Gradation of Aggregates [ASTM C136]
 Date of Test : 10/5/2019

TEST REPORT

Sieve Size	Material Retained	Percent of Material Retained	Cumulative % Retained	Percent Finer	Fineness Modulus
mm	gm	%	%	%	
50	428.0	4	4	96	
37.5	5997.0	60	64	36	
25.4	3522.0	35	99	1	
19.05	50.0	1	100	0	
12.5	0.0	0	100	0	
9.5	0.0	0	100	0	
6.3	0.0	0	100	0	
4.75	0.0	0	100	0	
2.36	0.0	0	100	0	
1.18	0.0	0	100	0	
0.6	0.0	0	100	0	
0.3	0.0	0	100	0	
0.15	0.0	0	100	0	
0.075	0.0	0	100	0	
Pan	3.0	0	100	0	
Total	10000				

 8.64
 (Eight point six four)


Notes: Samples were received in sealed condition.

61

Countersigned by:

Dr. Md. Abdul Jalil

Professor

Department of Civil Engineering

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Department of Civil Engineering

BUET, Dhaka-1000, Bangladesh



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Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project : -

Sample : Stone Chips Sample ID: 40-60 mm

Test : Ten Percent Fines Value [BS 812-111:1990]

Date of Test : 10/5/2019

TEST REPORT

Type of Aggregate	Sample Size	Weight of sample	Applied Load	Weight of material	Ten Percent Fines Value
		(Surface Dry) (gm)	(KN)	(gm)	
Stone Chips	28 mm to 20 mm	2833	150	320	140 KN

Notes: Samples were received in sealed condition.



Countersigned by:

Dr. Md. Abdul Jalil

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Dr. Md. Haduzzaman

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Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019

Project : _

Sample : Stone Chips Sample ID: 40-60 mm

Test : ELONGATION INDEX [BS812; Part1]

Date of Test : 10/5/2019

TEST REPORT

Sieve Size	Weight of material retained	Percent of material retained	Elongated Particles	Elongation Index
mm	(gm)	%	(gm)	
63	---	---	---	
50	1922	38.4	0	
37.5	2561	51.2	1309	
28	500	10.0	251	
20	17	0.3	0	
14	0	0.0	0	
10	0	0.0	0	
6.3	0	0.0	0	
Total	5000	100	1560	31 %

Notes: Samples were received in sealed condition.



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Countersigned by:

Dr. Md. Abdul Jalil

Professor

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TRANSPORTATION ENGINEERING LABORATORY

BRTC No. : 1101-86544 /CE /17-18 ; Dt: 2/5/2019

Manager (Sales & Marketing) on-behalf of General Manager (Operation), Maddhapara Granite Mining Company
 Sent by : Limited.
 Ref. No. : 28.17.0000.300.48.001.19/60(Ga); Dt: 25/4/2019
 Project :
 Sample : Stone Chips Sample ID: 40-60 mm
 Test : FLAKINESS INDEX [BS812; Part1]
 Date of Test : 10/5/2019

TEST REPORT

Sieve Size mm	Weight of material retained (gm)	Percent of material retained %	Flaky Particles (gm)	Flakiness Index
63	---	---	---	
50	1922	38.4	831	
37.5	2561	51.2	738	
28	500	10.0	0	
20	17	0.3	0	
14	0	0.0	0	
10	0	0.0	0	
6.3	0	0.0	0	
Total	5000	100	1569	31 %

Notes: Samples were received in sealed condition.

Countersigned by:

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