

GRADATION TEST OF G.S.B Gr. I
 Name of works: Construction of Road from Main Road Banaul
Hannuan Pindir to Amin Sahab Tola Via Brahm
Asthan under Bokhara Block under M.M.G.S.Y.
 Name of Division: R.W.D., Works Division, Puzri Date of Collection: 24.11.2020
 Name of Agency: Rao Birendra Date of Test: 27.11.2020
 Agreement No: 64/SBP/2019-20 Package No: M.M.G.S.Y.
 Ref: (PIU) A.E., R.W.D., Works Sub Div. Bekhara LT. No: 310/Enclosure Dt 21.08.20

[illegible]

Copy forwarded to – Executive Engineer
R.W.D, Works Division P.M.P.Xi

27/10/20
LA

27/11/20
A.E.

27-11-20
E.E
R.W.D

MUZAFFARPUR

कायपालक अधिवर्ती
ग्रामीण कार्य विभाग
क्षेत्रीय प्रयोगशाला, मुजफ्फरपुर

REGIONAL LABORATORY
R.W.D., MUZAFFARPUR

PHYSICAL & GRADATION TEST OF WBM Gr-III

Name of Work: Construction of Road from Main Road Bannaul Hanuman Mandir to Atain Sahab Tola Via Brahm Asthan under Bokhara Block under M.M.G.S.Y.

Name of Division: R.W.D. Works Division Pupri.

Date of Collection/ Receipt 24.11.20

Name of Agency: Rao Birendra.

Date of Test: 27.11.2020

Agreement No: 64/SB/2019-20

Package No: M.M.G.S.Y.

Ref: (PIL) A.E., R.W.D., Works Sub Div Bokhara LT No: 310/Enclosure/OT 21.08.2020

PHYSICAL TEST

SL NO	A.I.V		WATER ABSORPTION		REMARKS
	TEST VALUE %	REQUIRED LIMIT %	TEST VALUE %	REQUIRED LIMIT %	
1.	22.46%	40%	0.914%	3%	Permissible

GRADATION TEST

SL NO	Sieve No. mm	Weight Retained (KG)	% Wt. of Retained	Cumulative % Retained	% of passing (KG)	Required limit %	Remarks
		CH - 350 mm.					
		Wt. of Sample - 17.340 Kg.					
		Wt. of Screening - 3.641 "					
		Wt. of Stone Metal - 13.699 Kg.					
	63	NIL	NIL	NIL	100	100	Permissible:
	53	0.673	4.91	4.91	95.09	95-100	
	45	3.821	27.89	32.80	67.20	65-90	
	22.4	7.829	57.15	89.95	10.05	0-10	
	11.2	3.236	9.02	98.97	1.03	0-5	

Memo No: 1319 Date: 28/11/2020

Copy to: E.E., R.W.D., Works Div. Pupri

37/11/20
LA

27/11/20
A.E.

27/11-20

फाउण्डेशन अभियंता
ग्रामीण कार्य विभाग
क्षेत्रीय प्रयोगशाला, मुजफ्फरपुर

TEST REPORT

Issued To:

Rao Birendra

At-Katwasa, Benipur, Darbhanga

Description of Sample: Design Mix

Grade:- M-30

Sub: - Mix Design of concrete for the Construction of Road and CD works with Maintenance for Main Road Banaul Hanuman Mandir to Amin Saheb

Tola via Brahm Asthan Under MMGSY.

Ref.No.-, Dated: 23.01.2020

Report No: MSTH-2401201505

Date of Receipt: 24.01.2020

Date of Testing: 25.01.20-22.02.20

Date of Report: 23.02.2020

The method of concrete mix design consists of selection of optimum proportions of water, cement, fine & coarse aggregate and admixture of produce concrete of specified properties most economically. The proportion of concrete mix is obtained by experimentally evolved relationship between the factors in the choice of mix design. It provides reasonably accurate guide to arrive at optimum proportions of ingredients. The final mix proportions are obtained on the basis of trial mixes. The mix design has been carried out as per stipulation of India standards specification IS: 10262 guidelines keeping in view the recommended mix standard deviations and targeted mean strength. The Recommended mix proportions should be tested at site for their workability & strength before it is adopted.

1. Design Stipulations:		
A	Characteristic Compressive Strength of Concrete required in field after 28 days	30 N/mm ²
B	Target Strength at 28 days N/mm ²	38.25 N/mm ²
C	Maximum size of Aggregates	20 mm
D	Required Slump	75-100 mm
E	Degree of quality control	Medium
F	Type of Exposure	Moderate
2. Test Data For The Materials Used		
A	Type of Cement	OPC 43 Grade (Birla Gold)
B	Consistency, %	29.8
C	Initial Setting Time (Minutes)	135
D	Final Setting Time(Minutes)	260
E	Compressive Strength (3 days) MPa	25.5
F	Compressive Strength (7 days) MPa	36.7
G	Compressive Strength (28 days) MPa	50.2
H	Specific Gravity	3.15
I	Minimum Cement Content	320 Kg/m ³
J	Specific Gravity of Admixture	
K	Type of Admixture	

MS TEST HOUSE
Authorized Signatory
Kanwarshwar Kumar
(Tech. Manager)

Sample as received in the Laboratory by Agency.
Result listed refer only to the tested sample & applicable parameters. Endorsement of product is neither inferred nor implied.
Sample will be destroyed after one month from the date of issue of test certificates unless otherwise specified.
Liability of Laboratory is limited to the invoiced amount only any dispute arising out of this report shall be subject of Bihar Jurisdiction only.
This Report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without special permission in writing.



TEST REPORT

3. Source Of Material		Mirzachowki		
A	Coarse Aggregate (20mm & 10 mm)	Koilwar		
B	Fine Aggregate (Sand)			
4. Specific Gravity		2.71		
A	Coarse Aggregate (20mm)	2.60		
B	Fine Aggregate	16.6		
C	Impact Value, % Coarse Aggregate (20mm)			
5. Abrasion Value, %		21.5		
A	Coarse Aggregate (20mm)			
6 Water Absorption, %		0.60		
A	Coarse Aggregate (20 mm)	1.19		
B	Fine Aggregate			
7. Free Moisture Content, %		Nil		
A	Coarse Aggregate (20mm)			
8. Bulk Density, Gm/Cc		1.52		
A	Coarse Aggregate (20mm)	1.60		
B	Fine Aggregate			
9. Sieve Analysis				
(i) Coarse Aggregate:				
IS: Sieve Size (mm)	Analysis of Aggregate coarse fraction % finer (%)	As Per IS: 383 For Graded Aggregate Of Nominal Size		
	20mm	10mm	60:40	
40.0	100	100	100	100
20.0	94.3	100	96.6	90-100
12.5	-	100	-	-
10.0	12.2	89.6	43.2	25-55
4.75	1.9	11.0	5.8	0-10
2.36	-	1.5	-	-
(ii) Fine Aggregate:			Cumulative percentage Finer as per IS: 383-2016 Zone-III	
IS : Sieve Size	Cumulative Percentage Passing			
10.0 mm	100		100	
4.75 mm	97.7		90-100	
2.36 mm	91.3		85-100	
1.18 mm	88.4		75-100	
600 micron	65.5		60-79	
300 micron	21.4		12-40	
150 micron	7.2		0-10	


Authorized Signatory

Sample as received in the Laboratory by Agency.
Result listed refer only to the tested sample & applicable parameters. Endorsement of product is neither inferred nor implied.
Sample will be destroyed after one month from the date of issue of test certificates unless otherwise specified.
Liability of Laboratory is limited to the invoiced amount only any dispute arising out of this report shall be subject of Bihar Jurisdiction only.
This Report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without special permission in writing.





MS TEST HOUSE

Page 3 of 4

.....Substantial Testing for Quality Work

NABL ACCREDITED & ISO 9001:2015 CERTIFIED LABORATORY

(H.D. Office) Abhiyanta Nagar, Z-Sector Plot No.-09, Near R.J. Complex, Ashiana Nagar, Patna - 800025

(B.R. Office) Raj Kumar Ganj, Near Poor Home, Darbhanga

Mobile No. +91-900-6069-267, 7903542027 Email: mstesthouse@gmail.com

TEST REPORT

10. Determination Of Quantity Of Materials:

Water Cement ratio	0.45
Water:	191.0 Ltr./m ³
Sand content:	700 Kg/m ³
Coarse Aggregate:	1086 Kg/m ³
Cement Content:	421 Kg/m ³
Slump	110 mm

11. Ratio (By Weight)

Cement Content	Water	Fine Aggregate	Coarse Aggregate
1	0.45	1.66	2.58

Mix Proportion By Weight Are As Follows:

Mix Proportion By Weight Are As Follows:					
Cement Kg/m ³		Water Kg/m ³	Admixture (% by wt. of Cement), Kg/m ³ (0.6) %	Fine Aggregate Kg/m ³ (40%)	Total Coarse Aggregate (20mm) Kg/m ³ (60%)
Trial-1	432	201.0	2.592	686	1064
Trial-2	426	196.0	2.556	692	1075
Trial-3	421	191.0	2.526	700	1086

Mix Proportion By Weight Are As Follows:

Cement Kg/m ³	Water Kg/m ³	Admixture (% by wt. of Cement), Kg/m ³ (0.6)%	Fine Aggregate Kg/m ³ (40%)	Total Coarse Aggregate (20mm) Kg/m ³ (60%)
50	22.5	0.30	83.0	129.0



Authorized Signatory

- Sample as received in the Laboratory by Agency.
- Result listed refer only to the tested sample & applicable parameters. Endorsement of product is neither inferred nor implied.
- Sample will be destroyed after one month from the date of issue of test certificates unless otherwise specified.
- Liability of Laboratory is limited to the invoiced amount only any dispute arising out of this report shall be subject of Bihar Jurisdiction only.
- The Report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without special permission in writing.



TEST REPORT

12. A. Compressive Strength (7 Days)		DOC-25.01.2020	DOT-01.02.2020
S No.	Compressive Strength (N/mm ²)	Average Compressive Strength	
		(N/mm ²)	(Kg/cm ²)
1.	23.4	23.7	237
2.	25.3		
3.	22.5		
B. Compressive Strength (28 Days)		DOC-25.01.2020	DOT-22.02.2020
S No.	Compressive Strength (N/mm ²)	Average Compressive Strength	
		(N/mm ²)	(Kg/cm ²)
1.	37.8	35.8	358
2.	38.4		
3.	39.3		

Remarks: -

1. Trial-3 is recommended for the mix proportion at the Site for their Workability and Strength.
2. This mix design has been done at saturated condition.
3. Your material brought at site is dry or wet, than water can be decreased or increased according water Absorption.
4. Tap Water of our lab has been used, if water not supply, water should be pure and clean in concrete mix
As Per IS: 456-2000 & IS: 3025
5. Admixture is Used.

M.S. TEST HOUSE
Authorized Signatory

- Sample as received in the Laboratory by Agency.
- Result listed refer only to the tested sample & applicable parameters. Endorsement of product is neither inferred nor implied.
- Sample will destroyed after one month from the date of issue of test certificates unless otherwise specified.
- Liability of Laboratory is limited to the invoiced amount only any dispute arising out of this report shall be subject of Bihar Jurisdiction only.
- This Report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without Special permission in writing.

