Memo NO. :- 473

Date:- 23/03/2020

REGIONAL LABORATORY
R.W.D., MUZAFFARPUR

GRADATION TEST OF ...G.S.B. Gr. I........

Name of work:- Construction of Road from the house of Ramekbal Sah Sirsi to PMGSY Road Sirsi in Nanpur Block under MMGSY. Date Of Collection 21.03.2020

Name of Divisoin:-R.W.D., Works Division ..Pupri.   Date of test ..23.03.2020

Name Of Agency Varun kumar.

Ref.(PIO) Vide L.No. 194 | Enclosure | 24.02.2020 of AE, RWD, WSD-Nanpur

Sl. No.	Sieve NO. m.m.	Weight Retained (kg)	% Wt of Retained	Cumulative % Retained (kg)	% of passing (kg)	Required limit %	Remarks
1	2	3	4	5	6	7	8
			CH. 300 M.				
		Wt.	of Sample – 19.589 Kg.				
	75	NIL	NIL	NIL	100	100	Permissible.
	26.5	6.093	31.10	31.10	68.90	55 – 75	
	4.75	8.132	41.51	72.61	27.39	10 – 30	
	0.075	5.164	26.36	98.97	1.03	< 10	

Copy forwarded to - Executive Engineer
R.W.D., Works Division Pupri.

[signature] 23/03/20
L.A.

[signature] 23/3/20
A.E.

[signature] 23-3-20
E.E.

कार्यपालक अभियंता
ग्रामीण ... प्रमंडल
क्षेत्रीय ... मुजफ्फरपुर

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REGIONAL LABORATORY

R.W.D , MUZAFFARPUR

PHYSICAL & GRADATION TEST OF ..... WBM Gr. III .....

Name of Work :- Construction of Road from House of Ramekbal Sah Sirsi to PMGSY Road Sirsi in Nanpur Block under MMGSY.

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

Name Of Agency:- Varun Kumar. Date Of Collection./Receipt 21.03.2020

Agreement No:- 24/SBD/2019-20 Date Of Test:- 23.03.2020

Ref ..... A.E.R.W.D Works Sub Div... Nanpur ... LT.NO... 194/Enclosure/ ... DT. 24.02.2020.

PHYSICAL TEST

SL.NO	A.I.V		WATER ABSORPTION		REMARKES
	TEST VALUE%	REQUIRED LIMIT%	TEST VALUE%	REQUIRED LIMIT%	
1.	21.42%	40%	0.833%	3%	Acceptable.

GRADARION TEST

Sl. NO	Sieve No M.M	Weight Reatained (KG)	% Wt of Retained	Cumulative % Retained	% of passing (KG)	Required limit%	Remarks
			CH. 300 M.				
		Wt. of Sample - 19.240 Kg.					
		Wt. of Screening - 4.040 Kg.					
		Wt. of Stone Metal = 15.200 Kg.					
	63	NIL	NIL	NIL	100	100	Permissible.
	53	0.564	3.71	3.71	96.29	95-100	
	45	4.129	27.16	30.87	69.13	65-90	
	22.4	8.981	59.08	89.95	10.05	0-10	
	11.2	1.506	9.91	99.86	0.14	0-5	

Memo No..... 473 ..... Date..... 23/3/2020

Copy To:- E.E.R.W.D Works Div..... Pupri .....

23/03/20
L.A

23/3/20
A.E

23.3.20
E.E
कार्यपालक अभियंता
ग्रामीण कार्य विभाग

of 2

MS TEST HOUSE

.....Substantial Testing for Quality Work
NABL ACCREDITED & ISO 9001:2015 CERTIFIED LABORATORY
(H.O. Office) Abhiyanta Nagar, Z-Sector Plot No.-09, Near R.J. Complex, Ashiana Nagar, Patna - 800025
(B.P. Office) Raj Kumar Ganj, Near Poor Home, Darbhanga
Mobile No. +91-900-6069-267, 7903542027 Email: mstesthouse@gmail.com

TEST REPORT

Issued To:

Varun kumar,
At-Samda, Po-Sahraul, Ps-Benipatti, Dist-Madubani

Description of Sample: Design Mix

Grade:- M-30

Sub:- Mix Design of concrete for the construction of Road and CD works With Maintenance for Ramekbal Sah Sirsi to PMGSY Road Sirsi Under MMGSY.

Ref.No.-1582 /Pupri, Dated: 18.11.2019

Report No: MSTH-18111901644
Date of Receipt: 18.11.2019
Date of Testing: 18.11.19-16.12.19
Date of Report: 17.12.2019

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 (Konark)
B	Consistency, %	29.8
C	Initial Setting Time (Minutes)	145
D	Final Setting Time(Minutes)	162
E	Compressive Strength (3 days) MPa	26.6
F	Compressive Strength (7 days) MPa	36.7
G	Compressive Strength (28 days) MPa	49.5
H	Specific Gravity	3.15
I	Minimum Cement Content	320 Kg/m^3
J	Specific Gravity of Admixture	1.08
K	Type of Admixture	Sikament
3.	**Source Of Material**	
A	Coarse Aggregate (20mm & 10 mm)	Pakur
B	Fine Aggregate (Sand)	Kosi river
4.	**Specific Gravity**	

Authorized Signatory

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TEST REPORT

A	Coarse Aggregate (20mm)	2.70
B	Fine Aggregate	2.57
C	Impact Value, % Coarse Aggregate (20mm)	16.6
5.	Abrasion Value, %	
A	Coarse Aggregate (20mm)	22.7
6	Water Absorption, %	
A	Coarse Aggregate (20 mm)	0.31
B	Fine Aggregate	1.12
7.	Free Moisture Content, %	
A	Coarse Aggregate (20mm)	Nil
8.	Bulk Density, Gm/Cc	
A	Coarse Aggregate (20mm)	1.52
B	Fine Aggregate	1.61
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	62:38
40.0	100	100	100
20.0	94.4	100	96.5
12.5	-	100	-
10.0	9.7	90.2	40.3
4.75	1.8	8,1	4.2
2.36	-	1.2	-

(ii) Fine Aggregate:

IS : Sieve Size	Cumulative Percentage Passing	Cumulative percentage Finer as per IS: 383-2016 Zone-III
10.0 mm	100	100
4.75 mm	97.4	90-100
2.36 mm	92.3	85-100
1.18 mm	81.7	75-100
600 micron	70.3	60-79
300 micron	22.5	12-40
150 micron	7.9	0-10

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10. Determination Of Quantity Of Materials:	
Water Cement ratio	0.44
Water:	180.0 Ltr./m^3
Sand content:	667 Kg/m^3
Coarse Aggregate:	1144 Kg/m^3
Cement Content:	412 Kg/m^3
Slump	95 mm

11. Ratio (By Weight)

Cement Content	Water	Fine Aggregate	Coarse Aggregate
1	0.44	1.62	2.78

Mix Proportion By Weight Are As Follows:

	Cement Kg/m^3	Water Kg/m^3	Admixture (% by wt. of Cement), Kg/m^3 (0.8) %	Fine Aggregate Kg/m^3 (38%)	Total Coarse Aggregate (20mm) Kg/m^3 (62%)
Trial-1	424	190	3.39	654	1121
Trial-2	418	185	3.34	661	1133
Trial-3	412	180	3.29	667	1144

Mix Proportion By Weight Are As Follows:

Cement Kg/m^3	Water Kg/m^3	Admixture (% by wt. of Cement), Kg/m^3 (0.9)%	Fine Aggregate Kg/m^3 (38%)	Total Coarse Aggregate (20mm) Kg/m^3 (62%)
50	22.5	0.44	81.0	134.0

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12. A.	Compressive Strength (7 Days)	DOC- 18.11.2019	DOT- 25.11.2019
S No.	Compressive Strength (N/mm^2)	Average Compressive Strength	
		(N/mm^2)	(Kg/cm^2)
1.	24.7	25.4	254
2.	25.6		
3.	25.8		
B.	Compressive Strength (28 Days)	DOC- 18.11.2019	DOT- 26.12.2019
S No.	Compressive Strength (N/mm^2)	Average Compressive Strength	
		(N/mm^2)	(Kg/cm^2)
1.	39.5	39.2	392
2.	38.7		
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 Used Sikament Brand.*

***

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