

REGIONAL LABORATORY  
R.W.D., MUZAFFARPUR

GRADATION TEST OF GSB Gr.I

NAME OF WORK:- Construction of Road for Darji Tola Suleman House to PMGSY  
Road Muraul under MMGSY in Bajpathi Block.

NAME OF DIVISION: - R.W.D. WORKS DIVISION Pupri.

Agreement No: 16 SBD/2019-20.

NAME OF AGENCY: - Simant Shekhar.

RECEIPT  
DATE OF COLLECTION 19.02.2020

DATE OF TEST 21.02.2020

REF:- Vide L.No.175/Enclosure/05.02.2020 of AE, RWD, WSD- Bajpatti.

[illegible]

MEMO NO 225 Dt. 24/02/2020

COPY FORWARDED TO - EXECUTIVE ENGINEER  
R.W.D., WORKS DIVISION *Pupri.*

21/02/20

L3

21/2/20  
A.E.

कार्यपालक निदेशिका  
आजीवन कार्य विभाग  
लेखीय प्रयोगशाला मुंबई

# REGIONAL LABORATORY

R.W.D , MUZAFFARPUR

## PHYSICAL & GRADATION TEST OF..... WBM Grs. III

Name of Work :- Construction of Road for Darji Tola Suleman House to PMGSY Road Muraul under MMGSY in Bajpatti Block.

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

Name Of Agency:- Simant Shekhar.

Agreement No:- 16 SBD/2019-20.

Date Of Collection / Receipt 19.02.2021

Date Of Test 21.02.2020

Ref. A.E.R.W.D Works Sub Div. Bajpatti LT.NO. 175/Enclosure/ dt. 05.02.2021

### PHYSICAL TEST

| SL.NO | A.I.V       |                 | WATER ABSORPTION |                 | REMARKS      |
|-------|-------------|-----------------|------------------|-----------------|--------------|
|       | TEST VALUE% | REQUIRED LIMIT% | TEST VALUE%      | REQUIRED LIMIT% |              |
| 1     | 22.67%      | 40%             | 0.929%           | 3%              | Permissible. |

### GRADATION TEST

| Sl. NO | Sieve No<br>M.M | Weight<br>Retained<br>(KG)      | % Wt of<br>Retained | Cumulative<br>% Retained | % of<br>passing<br>(KG) | Required<br>Limit% | Remarks |
|--------|-----------------|---------------------------------|---------------------|--------------------------|-------------------------|--------------------|---------|
|        |                 | CH. 250 M.                      |                     |                          |                         |                    |         |
|        |                 | Wt. of Sample - 16.580 Kg.      |                     |                          |                         |                    |         |
|        |                 | Wt. of Screening - 3.067 "      |                     |                          |                         |                    |         |
|        |                 | Wt. of Stone Metal = 13.513 Kg. |                     |                          |                         |                    |         |
|        | 63              | NIL                             | NIL                 | NIL                      | 100                     | 100                |         |
|        | 53              | 0.761                           | 5.63                | 5.63                     | 94.37                   | 95-100             |         |
|        | 45              | 3.422                           | 25.32               | 30.95                    | 69.05                   | 65-90              |         |
|        | 22.4            | 7.977                           | 59.03               | 89.98                    | 10.02                   | 0-10               |         |
|        | 11.2            | 1.303                           | 9.64                | 99.62                    | 0.38                    | 0-5                |         |
|        |                 |                                 | /                   |                          |                         |                    |         |

Memo No. 225

Date 24/02/20

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

21/02/20  
LA

21/02/20  
A.E.

21/02/20  
E.E.



# MS TEST HOUSE

...Substantial Testing for Quality Work

(H.D. Office) Abhlyanta Nagar, Z Sector Polt No.-09, Near R.J. Complex, Ashlana Nagar, Patna-800025  
(B.R. Office) Raj Kumar Ganj, Near Poor Home, Darbhanga  
Mobile no.: +91-900-6069-267, Email: - mstesthouse@gmail.com



NABL  
TC-7018

## TEST REPORT

Issued To:

Simant Shekhar,  
Add- Amghatta, Dumra, Sithamarhi.

Description of Sample: Design Mix  
Grade- M-30

Sub:- Mix Design of concrete for the construction of Road  
and CD works with Maintenance for Darji Tola Suleman  
House to PMGSY Road Muraul Under MMGSY.

Letter No.: Dated: 11.11.2019

Report No: MSTH-1111901497

Date of Receipt: 11.11.2019

Date of Testing: 12.11.19-10.12.19

Date of Report: 10.12.2019

Protocol: IS10262:2009, IS 456:2000

|     |                                              |                                |
|-----|----------------------------------------------|--------------------------------|
| 1.  | Grade of Concrete                            | M-30                           |
| 2.  | Characteristic Strength at 28 Days, $N/mm^2$ | 30.0 $N/mm^2$                  |
| 3.  | Targeted Strength at 28 Days, $N/mm^2$       | 38.25 $N/mm^2$                 |
| 4.  | Degree of Quality Control                    | Good                           |
| 5.  | Exposure Condition                           | Moderate                       |
| 6.  | Slump required                               | (75-125) mm                    |
| 7.  | Maximum size of Aggregate                    | 20 mm                          |
| 8.  | Type of Cement                               | OPC- 43 grade (Konark)         |
| 9.  | Minimum Cement Content                       | 320.0 $Kg/m^3$ (As per IS 456) |
| 10. | Type of Admixture                            | Sikkament                      |
| 11. | Source of Material                           |                                |
| (a) | Aggregate (10 mm & 20 mm)                    | Pakur                          |
| (b) | Fine Aggregate, (Sand)                       | Koilwar                        |

### Test data of Ingredients of Cement

|       |                                                     |      |          |
|-------|-----------------------------------------------------|------|----------|
| 1.(i) | Compressive Strength of Cement at 3 Days, $N/mm^2$  | 21.6 | $N/mm^2$ |
| (ii)  | Compressive Strength of Cement at 7 Days, $N/mm^2$  | 28.9 |          |
| (iii) | Compressive Strength of Cement at 28 Days, $N/mm^2$ | 42.4 |          |

|     |                           | Cement | Fine Aggregate | Coarse Aggregate |      | Admixture |
|-----|---------------------------|--------|----------------|------------------|------|-----------|
|     |                           |        |                | 20 mm            | 10mm |           |
| 2.  | Fineness, $m^2/kg$        | 240    | -              | -                | -    | -         |
| 3.  | Setting Time, minute      |        | -              | -                | -    | -         |
| (a) | Initial                   | 150    | -              | -                | -    | -         |
| (b) | Final                     | 235    | -              | -                | -    | -         |
| 4.  | Specific Gravity          | 3.15   | 2.63           | 2.76             | 2.71 | 1.14      |
| 5.  | Bulk Density, $g/cc$      | -      | 1.65           | 1.50             | 1.52 | -         |
| 6.  | Water Absorption, %       | -      | 1.32           | 0.41             | 0.43 | -         |
| 7.  | Moisture Content, %       | -      | 0.66           | Nil              | Nil  | -         |
| 8.  | Silt Content, % (by vol.) | -      | 4.4            |                  |      | -         |

Authorized Signatory



# MS TEST HOUSE

.....Substantial Testing for Quality Work

NABL ACCREDITED & ISO 9001:2015 CERTIFIED LABORATORY  
(H.D. Office) Abhlyanta Nagar, Z-Sector Polt No.-09, Near R.J. Complex, Ashlana Nagar, Patna-800025  
(B.R. Office) Raj Kumar Ganj, Near Poor Home, Darbhanga  
Mobile no.: +91-900-6069-267, Email: - mstesthouse@gmail.com



## TEST REPORT

| 9. | Sieve Analysis<br>Material Passing<br>Through IS Sieve | Fine Aggregate | Coarse Aggregate |       | Mix ratio of<br>Coarse Aggregate |
|----|--------------------------------------------------------|----------------|------------------|-------|----------------------------------|
|    |                                                        |                | 20 mm            | 10 mm |                                  |
|    | 40 mm                                                  | 100            | 100              | 100   | 62:38                            |
|    | 20 mm                                                  | 100            | 97.4             | 100   | 100                              |
|    | 12.5 mm                                                | 100            | -                | 100   | 98.4                             |
|    | 10 mm                                                  | 100            | 19.8             | 91.6  | -                                |
|    | 4.75 mm                                                | 96.7           | 2.4              | 12.7  | 42.3                             |
|    | 2.36 mm                                                | 92.5           |                  | 2.3   | 6.5                              |
|    | 1.18 mm                                                | 80.6           |                  | -     | -                                |
|    | 600 mm                                                 | 69.8           |                  | -     | -                                |
|    | 300 micron                                             | 21.5           |                  | -     | -                                |
|    | 150 micron                                             | 7.9            |                  | -     | -                                |

|     |                                   |          |
|-----|-----------------------------------|----------|
| 10. | Gradation of Fine Aggregate       | Zone-III |
| 11. | Gradation of Coarse Aggregate     | Graded   |
| 12. | Mix ratio of Coarse Aggregate     | 62:38    |
| 13. | Water cement, kg/m <sup>2</sup>   | 0.48     |
| 14. | Cement content, kg/m <sup>2</sup> | 396.0    |
| 15. | Workability (Slump), mm           | (80±5)   |
| 16. | Admixture                         | 1%       |

### 17. Mixed Ratio of ingredients by weight (For 1m<sup>3</sup>, M-30)

| Trial | Cement | Fine<br>Aggregate | Coarse Aggregate |       | Water,<br>Ltr | Admixture<br>Ltr |
|-------|--------|-------------------|------------------|-------|---------------|------------------|
|       |        |                   | 20 mm            | 10 mm |               |                  |
|       |        |                   |                  |       |               | 1%               |
| 1     | 405    | 670               | 711              | 436   | 200           | 4.08             |
| 2     | 400    | 677               | 719              | 440   | 195           | 4.00             |
| 3     | 396    | 683               | 725              | 444   | 190           | 3.96             |

Quantity of material for one bag of Cement (50 kgs) is as follows:-

|     |                          |          |
|-----|--------------------------|----------|
| (a) | Cement                   | 50.0 kg  |
| (b) | Fine Aggregate           | 86.0 kg  |
| (c) | Coarse Aggregate (20 mm) | 91.4 kg  |
|     | Coarse Aggregate (10 mm) | 56.0 kg  |
| (d) | Water                    | 24.0 ltr |
| (e) | Admixture                | 0.5 ltr  |

M. S. TEST HOUSE  
Authorized Signatory

The result listed refer only to the tested samples  
Samples will be retained just for 1 month after date of issue of test report  
This report can not be used for any legal purpose or in advertising media without our special permission in writing.





# MS TEST HOUSE

.....Substantial Testing for Quality Work

NABL ACCREDITED & ISO 9001:2015 CERTIFIED LABORATORY  
(H.D. Office) Abhiyanta Nagar, Z-Sector Polt No.-09, Near R.J. Complex, Ashlana Nagar, Patna-800025  
(B.R. Office) Raj Kumar Ganj, Near Poor Home, Darbhanga  
Mobile no.: +91-900-6069-267, Email: - [mstesthouse@gmail.com](mailto:mstesthouse@gmail.com)



NABL  
TC-7018

## TEST REPORT

### A. Mix PROPORTIONS FOR TRIAL- No- III

|                  |                          |
|------------------|--------------------------|
| Cement           | 396.0 kg/m <sup>3</sup>  |
| Water            | 190.0 kg/m <sup>3</sup>  |
| Fine Aggregate   | 683.0 kg/m <sup>3</sup>  |
| Coarse Aggregate | 1169.0 kg/m <sup>3</sup> |
| Water/ Cement    | 0.48 kg/m <sup>3</sup>   |

### Ratio by wt

|                  |      |
|------------------|------|
| Cement           | 1.0  |
| Fine Aggregate   | 1.72 |
| Coarse Aggregate | 2.95 |
| Water/ Cement    | 0.48 |

### Compressive Strength of the above mix concrete:-

| DOC-12.11.2019 |         |         | DOT-19.11.2019         |  |            |
|----------------|---------|---------|------------------------|--|------------|
| A              | 7 Days  | Trial-1 | 24.7 N/mm <sup>2</sup> |  |            |
|                |         | Trial-2 | 26.4 N/mm <sup>2</sup> |  |            |
|                |         | Trial-3 | 28.3 N/mm <sup>2</sup> |  |            |
| DOC-12.11.2019 |         |         | DOT-10.12.2019         |  | Slump (mm) |
| B              | 28 Days | Trial-1 | 38.4 N/mm <sup>2</sup> |  | collapse   |
|                |         | Trial-2 | 41.2 N/mm <sup>2</sup> |  | 84         |
|                |         | Trial-3 | 38.9 N/mm <sup>2</sup> |  | 76         |

Remarks: Trial -3 is recommended for the mix Proportion at the site for their workability and strength.

MSTH

M.S. TEST HOUSE  
Authorized Signatory

The result listed refer only to the tested samples  
Samples will be retained just for 1 month after date of issue of test report  
This report can not be used for any legal purpose or in advertising media without our special permission in writing.

