Project ID — ~~2268~~ 105023021 84

ग्रामीण कार्य विभाग

Rural Works Department, Govt of Bihar

बिहार ग्रामीण पथ विकास एजेंसी
BRRDA

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)

AA COPY

DETAILED PROJECT REPORT

STATE :-	Bihar		DISTRICT :-	Gaya.
DIVISION :-	Sherghati		BLOCK :-	Barachatti

NAME OF ROAD :–	L055-L043 To MANJHAULIA (VR88)	
TOTAL LENGTH OF ROAD.	=	1.360 Km
TOTAL CONSTRUCTION LENGTH OF ROAD	=	1.360 Km
TOTAL COST OF CONSTRUCTION.	=	Rs. 61.528 Lacs
COST OF ROAD CONSTRUCTION PER KM	=	Rs. 45.241 Lacs
TOTAL COST OF 6 YEAR OPERATION & MANAGEMENT (O&M).	=	Rs. 8.635 Lacs
(EMERJENT@15% ,CONTINGENCY @1% & ADMINISTRATIVE COST @2.25%)	=	Rs. 12.805 Lacs
TOTAL PROJECT COST	=	Rs. 82.967 Lacs

YEAR (2024 - 2025)

ubmitted By :-
xecutive Engineer
WD (w) Division, Sherghati
aya.

Prepared By:
A.K. ENGINEERING SERVICES.
Darna Road, Mahunwan
Hamzapur, Sherghati-824211
Mob: +91 7739181616
E-Mail: akengineering120@gmail.com

प्रमाण- पत्र

यह प्रमाणित किया जाता है की जिला:- Gaya.

प्रमंडल Sherghati प्रखंड:- Barachatti के अधीन

ग्रामीण सड़क सुदृढ़ीकरण एवं प्रबंधन कार्यक्रम अंतर्गत पथ L055-L043 to MANJHAULIA (VR88)

के नवीनीकरण/उन्नयन/पुननिर्माण किये जाने हेतु तैयार किये गये

प्राक्कलन में कृत प्रावधान स्थल के अनुरूप है जिसमे विशेषत: सघन

आबादी एवं संकीर्ण क्षेत्र मे Cement Concrete Pavement(यदि लागू हो)

एवं Traffic की गणना के आधार पर BM (यदि लागू हो) का प्रावधान

किया गया है |

A. Kumar 11/01/25

संबंधित पदाधिकारी का नाम :- 11/01/25

पदनाम:- AE

पदस्थापन स्थल:- बाराचट्टी

प्रमाण- पत्र

यह प्रमाणित किया जाता है की जिला:- Gaya.

प्रमंडल Sherghati प्रखंड:- Barachatti के अधीन

ग्रामीण सड़क सुदृढ़ीकरण एवं प्रबंधन कार्यक्रम अंतर्गत पथ L055-L043 to MANJHAULIA (VR88)
के नवीनीकरण/उन्नयन/पुननिर्माण किये जाने हेतु तैयार किये गये

प्राक्कलन में कृत प्रावधान स्थल के अनुरूप है जिसमे विशेषत: सघन

आबादी एवं संकीर्ण क्षेत्र मे Cement Concrete Pavement(यदि लागू हो)

एवं Traffic की गणना के आधार पर BM (यदि लागू हो) का प्रावधान

किया गया है |

11/01/25

11.01.25

संबंधित पदाधिकारी का नाम :-

पदनाम:- Executive Engineer.

पदस्थापन स्थल:-

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)

GENERAL ABSTRACT OF COST

ock:--, Barachatti District:- Gaya.

nstruction Length Of Road:- 1.360 KM

me Of Road:-- L055-L043 To MANJHAULIA (VR88)

L. No.	Item of Work		Amount	
1	INITIAL RECTIFICATION WORKS .	:	43.457	Lacs
2	5TH YEAR PERIODIC RENEWAL COST .	:	7.425	Lacs
	TOTAL ESTIMATED COST (1+2)	:	50.882	Lacs
	Labour Cess @1%	:	0.509	Lacs
	Add Seigniorage Fee @10%	:	0.752	Lacs
	Sub Total	:	52.142	Lacs
	GST @18%	:	9.386	Lacs
A	TOTAL CONSTRUCTION COST (INC GST, LC @ SEIGN. FEE) SAY "A"	:	61.528	Lacs
3	SIX YEARS OPERATION & MANAGEMENT (O&M) COSTS AFTER COMPLETION OF CONSTRUCTION .	:	7.175	Lacs
	Labour Cess @1%	:	0.072	Lacs
	Add Seigniorage Fee @10% .	:	0.071	Lacs
	Sub Total	:	7.318	Lacs
	GST @18%	:	1.317	Lacs
B	TOTAL OPERATION & MANAGEMENT COST (INC GST, LC @ SEIGN. FEE) SAY "B"	:	8.635	Lacs
C	SUB TOTAL COST (A+B)		70.163	Lacs
D	EMERGENT & PRICE ADJUSTMENT COST @ 15% OF "C"	:	10.524	Lacs
E	Contingency @ 1% OF "C"	:	0.702	Lacs
F	Administrative Cost @ 2.25% OF "C"	:	1.579	Lacs
G	TOTAL PROJECT COST (C+D+E+F)	:	82.967	Lacs

11/01/25
Junior Engineer

11/01/25
Asstt. Engineer

11.01.25
Executive Engineer

11.01.2025
Superintending Engineer
Rural Works Department
Works Circle, Gaya
RWD

GINEERING SERVICES

Total Construction Cost: ⟶ 61.528 Lacs

Minor Improvement
Initial Rectification
5th Year Periodic Renewal
Total Maintenance Cost ⟶ 8.635 Lacs
(1st,2nd,3rd,4th,6th & 7th):

Other Cost:

Emergent Cost ⟶ 10.524 Lacs
Contigency Cost ⟶ 0.702 Lacs
Administrative Cost ⟶ 1.579 Lacs

Total--- 82.967 Lacs

T.A. No.....dt.....
Ref. SE letter No.....dt.....
Technically Approved for Rs. 82.967 Lacs
(Rupees Eighty two Lacs Ninety six thousand Seven hundred) Only
for construction work & 5 Years Maintenance

18/11/25 E.E. 18/11/25 Tec. Secy. C.E. 20/11/25

CLASSIFIED TRAFFIC VOLUME COUNT SURVEY

Road Name : L055-L043 To MANJHAULIA (VR88) — Road No :

Section From : Up L055-L043 To L055-L043 — Station No : 1

Down MANJHAULIA (VR88) To MANJHAULIA (VR88)

Location Km : 1.360 Km — 1 - 01 - 2025

24 Hours

TIME	FAST MOVING VEHICLES										SLOW MOVING VEHICLES				Hourly PCU	Peak Hour PCU
	Two Wheeler	Three Wheeler Auto Rickshaw	Car/Jeep/ Van/ Taxi	Bus		LCV	TRUCK		Agei. Tractor		Cycle	Cycle Rickshaw	Animal Drawn			
				Loaded	Un loaded		Loaded	Un loaded	With Trailer	Without Trailer			Bullock Cart	Num. Tyred		
6.00 AM - 12.00 PM	9	1	5	0	0	5	9	8	9	6	9	0	0	0	124	
12.00 PM - 6.00 PM	7	2	5	0	0	4	7	3	11	5	7	0	0	0	107	
6.00 PM - 6.00 AM	5	1	1	0	0	3	6	8	3	5	5	1	0	0	77	
Total	**21**	**4**	**11**	**0**	**0**	**12**	**22.2**	**19**	**23**	**16**	**21**	**1**				
PCU FACTOR	**0.5**	**1**	**1**	**3**	**3**	**1.5**	**3**	**3**	**4.5**	**1.5**	**0.5**	**2**	**4**	**4**	**307**	
Total PCU	**10.5**	**4**	**11**	**0**	**0**	**18**	**66.6**	**57**	**103.5**	**24**	**10.5**	**2**	**0**	**0**		

CLASSIFIED TRAFFIC VOLUME COUNT SURVEY

Road Name : L055-L043 To MANJHAULIA (VR88) Road No :

Section From : **Up** **L055-L043** To **L055-L043** Station No : 1

Down **MANJHAULIA (VR88)** To **MANJHAULIA (VR88)**

Location Km : 1.360 Km 2 - 01 - 2025

24 Hours

TIME	FAST MOVING VEHICLES										SLOW MOVING VEHICLES				Hourly PCU	Peak Hour PCU
	Two Wheeler	Three Wheeler Auto Rickshaw	Car/Jeep/ Van/ Taxi	Bus		LCV	TRUCK		Agei. Tractor		Cycle	Cycle Rickshaw	Animal Drawn			
				Mini	Full		Loaded	Un loaded	With Trailer	Without Trailer			Bullock Cart	Num. Tyred		
6.00 AM - 12.00 PM	6	0	3	0	0	3	3	2	6	7	6	0	0	0	66	
12.00 PM - 6.00 PM	4	1	3	0	0	3	3	2	5	7	4	0	0	0	61	
6.00 PM - 6.00 AM	3	0	0	0	0	2	2	3	6	5	3	0	0	0	56	
Total	**13**	**1**	**6**	**0**	**0**	**8**	**8**	**7**	**17**	**19**	**13**	**0**				
PCU FACTOR	**0.5**	**1**	**1**	**3**	**3**	**1.5**	**3**	**3**	**4.5**	**1.5**	**0.5**	**2**	**4**	**4**	**182**	
Total PCU	**6.5**	**1**	**6**	**0**	**0**	**12**	**24**	**21**	**76.5**	**28.5**	**6.5**	**0**	**0**	**0**		

CLASSIFIED TRAFFIC VOLUME COUNT SURVEY

Road Name : L055-L043 To MANJHAULIA (VR88) Road No :

Section From : **Up** **L055-L043** To **L055-L043** Station No : 1

Down **MANJHAULIA (VR88)** To **MANJHAULIA (VR88)**

Location Km : 1.360 Km 3 - 01 - 2025

24 Hours

TIME	FAST MOVING VEHICLES										SLOW MOVING VEHICLES				Hourly PCU	Peak Hour PCU
	Two Wheeler	Three Wheeler Auto Rickshaw	Car/Jeep/ Van/ Taxi	Bus		LCV	TRUCK		Agei. Tractor		Cycle	Cycle Rickshaw	Animal Drawn			
				Mini	Full		Loaded	Un loaded	With Trailer	Without Trailer			Bullock Cart	Num. Tyred		
6.00 AM - 12.00 PM	5	0	2	0	0	2	3	1	2	6	5	0	0	0	40	
12.00 PM - 6.00 PM	7	0	1	0	0	2	1	1	8	6	5	0	0	0	61	
6.00 PM - 6.00 AM	2	0	0	0	0	3	2	3	7	3	2	0	0	0	58	
Total	**14**	**0**	**3**	**0**	**0**	**7**	**6**	**5**	**17**	**15**	**12**	**0**	**0**	**0**		
PCU FACTOR	**0.5**	**1**	**1**	**3**	**3**	**1.5**	**3**	**3**	**4.5**	**1.5**	**0.5**	**2**	**4**	**4**	**159**	
Total PCU	**7**	**0**	**3**	**0**	**0**	**10.5**	**18**	**15**	**76.5**	**22.5**	**6**	**0**	**0**	**0**		

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)

YEAR (2024 - 2025)

TRAFFIC SURVEY SUMMARY OF 3 - DAY COUNT

TRAFFIC CENSUS

NAME OF ROAD :-- **L055-L043 To MANJHAULIA (VR88)**

BLOCK :- **Barachatti** **DISTRICT :-** **Gaya.**

Month & Year of Traffic Volume Count =								1 - 01 - 2025			TO	3 - 01 - 2025						
Days	Date	Motorised Traffic												Non Motorised Traffic				Tatal
		Cars, Jeep, Vans, Three Wheelers	Motorised Two Wheelers	Light Commercial Vehicle	Trucks			Agricultural Tractors Trallers			Buses			Cycles	Cycle Rickshawa	Animal Drawn Vechicle		
					L	U	OL	L	U	OL	L	U	OL			SWC	Num. Tyred	
Day 1	1 - 01 - 2025	15	21	12	22.2	19	0	23	16	0	0	0	0	21	1	0	0	150
Day 2	2 - 01 - 2025	7	13	8	8	7	0	17	19	0	0	0	0	13	0	0	0	92
Day 3	3 - 01 - 2025	3	14	7	6	5	0	17	15	0	0	0	0	12	0	0	0	79
Total		25	48	27	36	31	0	57	50	0	0	0	0	46	1	0	0	321
Average Daily Traffic (T)		8	16	9	12	10	0	19	17	0	0	0	0	15	0	0	0	106
PCU FACTOR		1	0.5	2	3	3	3	4.5	1.5		3	3	3	0.5	2	4	4	
TOTAL PCU-Day 1		15	11	18	67	57	0	104	24	0	0	0	0	11	2	0	0	307
TOTAL PCU-Day 2		7	7	12	24	21	0	77	29	0	0	0	0	7	0	0	0	182
TOTAL PCU-Day 3		3	7	11	18	15	0	77	23	0	0	0	0	6	0	0	0	159
AADT At The Time Of Traffic Survey		10	20	11	15	12	0	24	21	0	0	0	0	19	0	0	0	132
Growth Rate		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%			
AADT At The Time Of Opening Of Road		11	21	12	16	13	0	25	22	0	0	0	0	20	0			140

Total Commercial Vehicle Per Day (CVPD) : 58 CVPD

Total Motorised Vehicle Per Day : 91

Total Non - Motorised Vehicle Per Day : 15

Projected Passenger Car Unit (PCU/Day) 216

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)
YEAR (2024 - 2025)

DESIGN OF FLEXIBLE PAVEMENT
As Per IRC: SP:72-2015

Average Daily Traffic In Season

Animal Drawn Carts = 2 MCV (Laden)	0
Bicycles	15
Full-Size Trucks	22
Agricultural Tractor- Trailers & Jugads+ (Animal drawn Carts = 2 MCV (Laden))= 293 + 2 x 0 =	45
Cars & Jeeps	8
Motor Cycles	16
Total	**106**

Average Daily Traffic During the Season = 106 = **106.00**

Design CBR (%) = **5.0**

AADT = T+(1.2nTt)/365 = 106 + (1.2 x 1 x 106 x 75)/365 = 133.00

Here n = 1

t = 75 days

Here n = Multiplying Factor for Harvesting Season

t = No of days in one Harvesting Season

Therefore ADT After 2 Yrs By Considering 6% Growth Rate Projected ADT = AADT x (1+0.06)n

After opening of road to traffic, ADT = 133 x (1 + r) ^ x

After opening of road to traffic, ADT = 133 x (1.06) ^ 2 = 149

Assuming an initial growth rate of 6%

From the given traffic count data, the proportions of HCV and MCV out of the ADT of 149 work out as under:

Projection Factor = 1.406

Sr. no.	Vehicle Type	Projected Traffic	Axle Load	VDF Value	ESAL Per Day (T_0)	Cumulative ESAL N = T0 x 365 x L x [((1+ 0.06)n - 1)/0.06] N = T0 x 4811 x L
1	HCV - Truck (Laden)	16.87	15.20	2.86	48.24	232094.00
2	HCV - Truck (Unladen)	14	9.00	0.31	4.36	20964.00
3	HCV - Truck (Overloaded)	0	18.24	5.35	0.00	0.00
4	HCV - Bus (Laden)	0	15.20	2.86	0.00	0.00
5	HCV - Bus (Unladen)	0	9.00	0.31	0.00	0.00
6	HCV - Bus (Overloaded)	0	18.24	5.35	0.00	0.00
7	MCV - Agricultural Tractor-trailor	27	9.00	0.34	9.08	43687.00
8	MCV - Agricultural Tractor-trailor	24	4.50	0.02	0.45	2184.00
9	MCV - Agricultural Tractor-trailor	0	10.80	0.65	0.00	0.00
		82			**62.13**	**298929.00**

Cumulative ESAL Applications Over 10 Years @ 6% Growth Rate

= **2,98,929.00**

3.5. Traffic Categories:--

Traffic Categories	Cumulative ESAL Applications		
T01	10,000.00	-	30,000.00
T02	30,000.00	-	60,000.00
T03	60,000.00	-	1,00,000.00
T04	1,00,000.00	-	2,00,000.00
T05	2,00,000.00	-	3,00,000.00
T06	3,00,000.00	-	6,00,000.00
T07	6,00,000.00	-	10,00,000.00
T08	10,00,000.00	-	15,00,000.00
T09	15,00,000.00	-	20,00,000.00

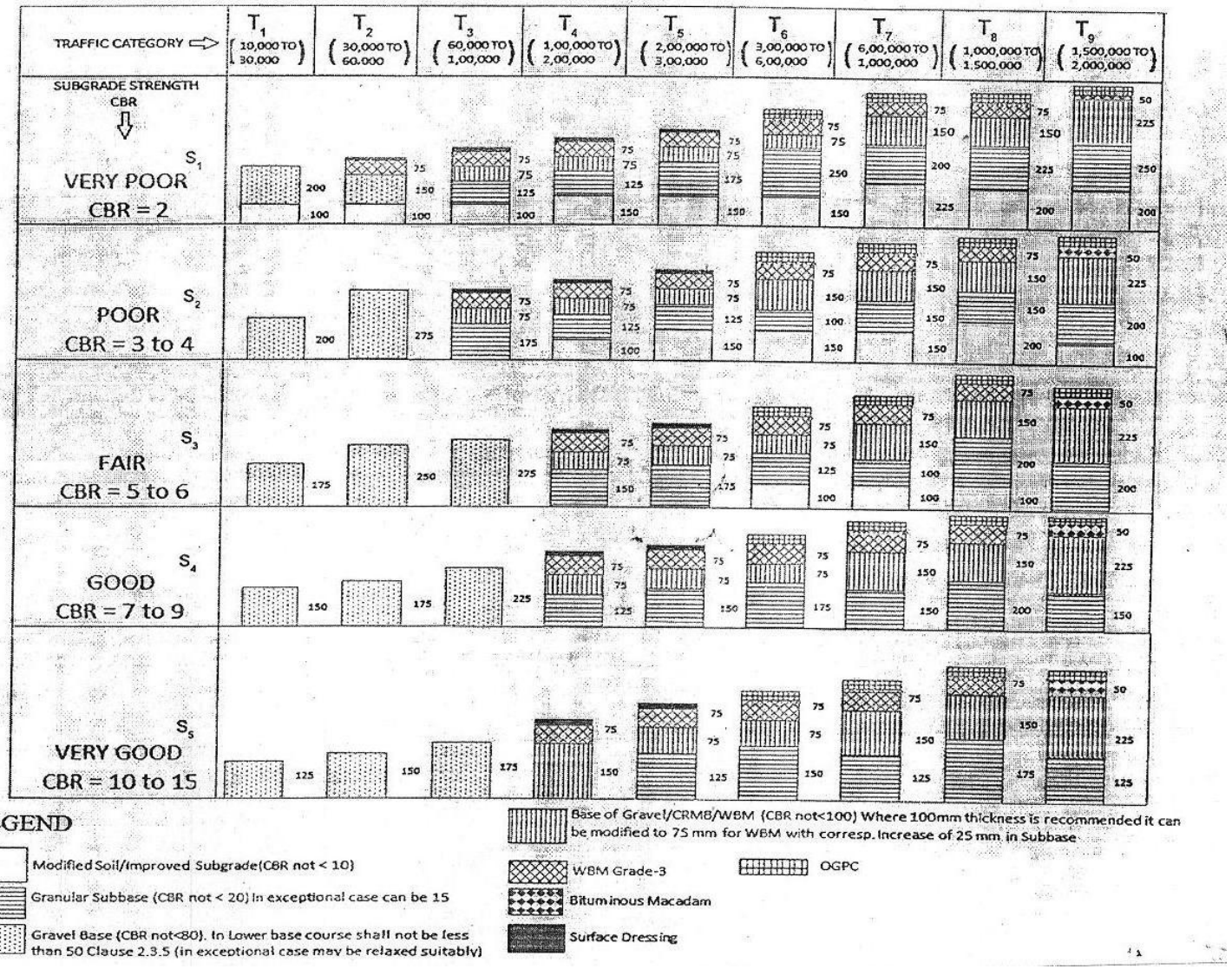
Traffic Category : T05 (Cumulative ESAL Application, Para No. 3.5, (200000 To 300000)

Design Pavement Thickness As Per Fig 4 Of IRC-SP - 72 - 2015 = 325 mm

Hence Thickness Corresponding To CBR 5% (mm) To Be Adopted 325 mm

For Flexible Pavement		
In Earthen Portion / Brick Soling		
In Strengthening Portion		
SDBC	-	25 MM
BM	-	0 MM
WMM-III	-	75 MM
WBM-III	-	225 MM

For Rigid Pavement	
In Earthen Portion / Brick Soling	
In Strengthening Portion	
PQC OVERLAY	125 MM


TRAFFIC CATEGORY
T1 (10,000 TO 30,000)
T2 (30,000 TO 60,000)
T3 (60,000 TO 1,00,000)
T4 (1,00,000 TO 2,00,000)
T5 (2,00,000 TO 3,00,000)
T6 (3,00,000 TO 6,00,000)
T7 (6,00,000 TO 1,000,000)
T8 (1,000,000 TO 1,500,000)
T9 (1,500,000 TO 2,000,000)
SUBGRADE STRENGTH
CBR
S1 VERY POOR CBR = 2
S2 POOR CBR = 3 to 4
S3 FAIR CBR = 5 to 6
S4 GOOD CBR = 7 to 9
S5 VERY GOOD CBR = 10 to 15
LEGEND
Modified Soil/Improved Subgrade(CBR not < 10)
Granular Subbase (CBR not < 20) In exceptional case can be 15
Gravel Base (CBR not<80). In Lower base course shall not be less than 50 Clause 2.3.5 (in exceptional case may be relaxed suitably)
Base of Gravel/CRMB/WBM (CBR not<100) Where 100mm thickness is recommended it can be modified to 75 mm for WBM with corresp. Increase of 25 mm in Subbase
WBM Grade-3
Bituminous Macadam
Surface Dressing
OGPC

R E P O R T

1 Introduction

1.1 The Sub-Project Road

The road passes through plain terrain

District	:--	Gaya.
Block	:--	Barachatti
Road Name	:--	L055-L043 To MANJHAULIA (VR88)
Road Length(For Construction)	:--	1.360 Km
Length of Flexible Pavement	:--	0.450 Km
Length of CC Pavement	:--	0.910 Km

2.0 Planning and Basic Design Consideration

2.1 Key maps

2.2 Site Photographs :--

Refer Appendix-1

2.3 Road Brief

Sl. No	Location			Condition	Design Solution
1	0.00	To	450.00	Damage	Flexible (3.75m)
2	450.00	To	550.00	Damage	Rigid(3.75 m)
3	550.00	To	650.00	Damage	Rigid(3.75 m)
4	650.00	To	1360.00	Damage	Rigid(3.75 m)
5	0.00	To	0.00	0	0
6	0.00	To	0.00	0	0

2.4

The Existing Road Starts From L055-L043 to MANJHAULIA (VR88), at MANJHAULIA (VR88) village. The Total Length Of Road Is 1.36 Km In Which 450 M Is Bituminous And 910 M Is PCC Pavement.

The Carriageway of the road is 3.75 M. The Existing Bituminous surface in bad condition and require major repair. The road comes under Class-I road, Hence in maintenannce is to be done on OPRMC Basis.

2.5

OPRMC:- All Class-I road are to be maintained on outpur and performance base. A Separate Model Biddding document for maintainance of Class-I road on OPRMC basis. MBD Suggetion initial rectification including Sueface renewal of road. The initial rectification including surface renewal is to be completed in 9 months. after completion of this activity for upkeeping the road in good condition. 5 year ordinary maintenance is to be done. The road is to be maintained in such a way that prescribed service level as defined in model bidding document is achieved.

The different activities in ordinary maintenance is as follow.

2.6 Table D3.1.1 Standard Jobs, Intervention Criteria and Response Times for Paved Roads

3.0 Coarse and Fine Aggregates

Information regarding the source of aggregate and sand will be gathered. The stone aggregates shall be procured from Mirzapur & Mirzapur where as the locally available sand shall be used. The source and the lead

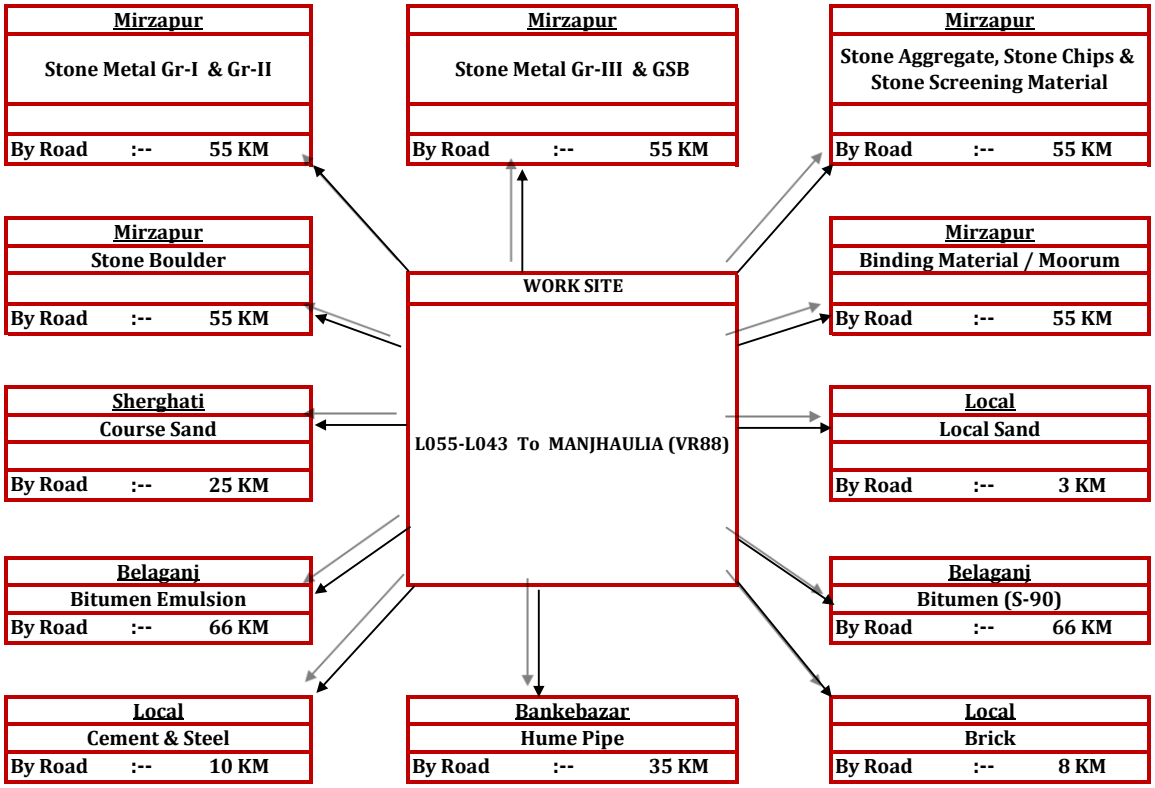
distance from the quarry to project site will be finalized in discussion with the PIU. The aggregates and sand where available and acceptable shall be used for bituminous work, concrete works, other pavement works.

Figure -3 :---

Quarry Map

Name of Road :-- L055-L043 To MANJHAULIA (VR88)
Block :-- Barachatti
District :-- Gaya.

Length Of The Road:- 1.360 KM



* Subjected to Verification of Lead

J.E **A.E.** **E.E**

S.E.

4.0 Road Furniture

Road Furniture details include:

* Road markings
* Cautionary, mandatory and information signs
* KM stones and 200m stones
* Delineators and object markers
* Delineators and object markers

Details of Km. stone. 5th km. stone and boundary pillars

Sl.	Name of Road	Chainage (km)	5th . Km. stone (nos.)	Km. stone (nos.)	200m stone (nos.)	Boundary stone (nos.)
1	L055-L043 To MANJHAULIA (VR88)	-	0	2	6	-

4.1 Road Markings

Road markings perform the important function of guiding and controlling traffic on a highway. The markings serve as psychological barriers and signify the delineation of traffic paths and their lateral clearance from traffic hazards for safe movement of traffic. Road markings are therefore essential to ensure smooth and orderly flow of traffic and to promote road safety. The Code of Practice for Road Markings, IRC: 35-1997 has been used in the study as the design basis. Schedules of Road Markings are included in contract drawings.

4.2 Cautionary, Mandatory and Informatory Signs

Cautionary, mandatory and informatory signs are provided depending on the situation and function they perform in accordance with the IRC: 67-2001 guidelines for Road Signs. Overhead signs are proposed in accordance with IRC: 67-2001.

4.3 Kilometer Stone and Hectometer Stone

The details of kilometre stones are in accordance with IRC: 8-1980 guidelines. Both ordinary and fifth kilometre stones are provided as per the schedule. Kilometre stones are located on both the side of the road.

The details of 200m stones conform to IRC: 26-1967. 200m stones are located on the same side of the road as the kilometre stones. The inscription on the stones shall be the numerals 2,4,6 and 8 marked in an ascending order in the direction of increasing kilometerage away from the starting station. Table 14.1 gives the details of Km. stone. 5th km. stone and boundary pillars provided.

4.4 Delineators and Object Markers

Roadway delineators are intended to mark the edges of the roadway to guide drivers on the alignment ahead. Object markers are used to indicate hazards and obstructions within the vehicle flow path, for example, channelising islands close to the intersections.

Delineators and object markers are provided in accordance with the provisions of IRC: 79-1981. They are driving aids and should not be regarded as substitutes for warning signs, road markings or barriers.

4.5 Guard Posts, Crash Barriers and Speed Breakers

Guard Posts, Crash Barriers and Speed Breakers are proposed on embankments of height more than 1.5m and bridge approaches. The spacing of guard post shall be 10.0m c/c in these areas. Typical Guard post consists of pre-cast (M20) CC post of size 200mm x 200mm and a height of 600mm above ground level. They are encased in M15 cement concrete to a depth of 450mm below ground level. Guard posts are painted with alternate black and white reflective paint of 150mm wide bands. Table 14.2 gives the details of guard posts, crash barrier and speed breakers. A layout of a typical speed breaker is given.

Details of guard posts, crash barrier and speed breakers

Sl.	Name of Road (km)	Chainage (m)	Guard post	Crash Barrier (m)	Speed breakers (nos)
1	L055-L043 To MANJHAULIA (VR88)	0+500 , 1+300 , , , , , , , , , , ,	12	0	0

4.6 Temporary traffic control

The road under consideration has to be widened alongwith the bridges and culvert. The list below provides the c/d structures to be widened/reconstructed and temporary traffic control measures to be implemented.

Table 14.3 gives the section-wise details of temporary traffic control measures to be adopted.

Details of temporary traffic control measures to be adopted

Sl.	Name of Road	Chainage (m)	Temporary traffic control measures to be adopted			
1	L055-L043 To MANJHAULIA (VR88)					

5.0 Analysis of Rates

5.1 General

Rates for various item of works of the project have been derived from the "Schedule of Rates 2024 for Road works, Culvert works & Carriage etc. Standered Data Book of Rate Analysis for Rural Road and "Schedule of Rates" effective from 01/04/2024. However in general the basic rates of material have been taken from State Level Schedule Rate Committee, Road Construction Department, Govt. of Bihar. The rates of different items have been worked out inclusive of all labour charges, hire charges of Tools & Plants, Machineries and all other cost estimates for the item of work, overhead& contractor's profit 12.5 % .

5.2 Basic Rate of Material

The basic rates for stone materials & river bed materials have been taken from State Level Schedule Rate Committee, Road Construction Department, Govt. of Bihar.

For bituminous materials, basic rate at (location) for equivalent viscosity grade bitumen and for emulsion the basic rate of (location) has been considered as suggested in from State Level Schedule Rate Committee, Road Construction Department, Govt. of Bihar.

Basic rate of other materials like coarse & fine sand, cement are as per the latest from State Level Schedule Rate Committee, Road Construction Department, Govt. of Bihar.

Basic rate of steel materials at sub-divisional office has been considered in analysis after adding cost of carriage, loading & unloading.

5.3 Lead for Materials

For stone aggregates and sand, lead from source to work site is calculated from the district map and block level map of core network and finalizing the same in discussion with PIU. The supply of different materials to worksite is by Road & Rail. Lead for bituminous & steel materials are similarly obtained using SOR. Earth in builtup area will be brought from 1 Km lead.

5.4 Cost Estimate

5.5 General

Cost Estimate of project has been arrived on the following basis

- Selection of Items of work
- Estimation of item wise quantities
- Analysis of Rates

5.6 Estimation of Quantities

All the relevant road and structure work Items will be identified as per survey, design and drawings. Following major item of works considered are given below:

- Site clearance, dismantling and earthwork
- Pavement works (GSB, WBM, Bituminous layers)
- Cross drainage structure works
- Drainage and protective works
- Utility relocation
- Road safety and furniture
- Maintenance works

Quantity of earthwork will be derived from the proposed cross section drawings. Volume of cut and fill will be obtained directly using the design package software. Quantity derived from software will be manually verified. There are same stretches of the road in cut section. The details are provided chainage wise in Table-18.1 of total cut and fill volume. The soil obtained from roadway excavation shall be used for construction of embankment and shall be paid as per item no.4. All other quantities will be computed from the drawings of finished road, miscellaneous drawings & drawings of CD Structures.

Table of cut and fill volume in Earthwork Chart

5.7 Abstract of Cost

Unit rates will be derived by using the "Schedule of Rates for Road Works, Culvert works and Carriage etc. Stat Level Schedule Rate Committee, Road Construction Department, Govt. of Bihar." The abstract of Cost estimate is given in the Table below.

The details of cost in Format F6 Attached.

5.8 Maintenance

Cost of Annual Maintenance for five years after completion of project will be estimated as per the PMGSY Guidelines. Different activities of ordinary repairs are done as and when.

Total Cost of 5 year Routine Maintenance Works Attached

5.9 Construction Program :-- Attached

JE	AE	EE
RWD	RWD	RWD

PAVEMENT COMPOSITION DETAILS

NAME OF ROAD:- :-- **L055-L043 To MANJHAULIA (VR88)**

Link No. :-- **-**

BLOCK :-- **Barachatti**

LENGTH OF ROAD :-- **1.360** **Km**

S.L. No.	Chainages From	-	To	Total Length In Meter	Existing Pavement	Condition	Type Of Pavement Proposed	Type Of Existing Area
1	0	-	450	450	BT	Damage	Flexible (3.75m)	Open Area
2	450	-	550	100	BT	Damage	Rigid(3.75 m)	Village Area
3	550	-	650	100	CC	Damage	Rigid(3.75 m)	Village Area
4	650	-	1360	710	BT	Damage	Rigid(3.75 m)	Village Area

Total Length	**1360**				
Total Construction Length	**1360**		**BT LENGTH FOR WIDENING**		
BT Length	**1260**		**PCC LENGTH FOR WIDENING.**		
PCC length	**100**		**BRICK SOLING WIDENING FOR CC.**		
GR-III	**0**		**BRICK SOLING WIDENING FOR BT.**		
Earthen(washout)	**0**		**Scarifying Length.**	**0**	
			Dismantaling Length		

Proposed Flexible Pavement			**Proposed Rigid Pavement**	
GR-III	0		On Brick Soling Portion	0
On Earthen Portion	0		On Earthen Portion	0
On BT Portion	450		On BT Portion	810
On PCC Portion	0		On PCC Portion	100
Total Flexible Pavement	**450**		**Total Rigid Pavement**	**910**

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)

GENERAL ABSTRACT OF COST

Block:-- Barachatti **District:-** Gaya.

Construction Length Of Road:- 1.360 KM

Name Of Road:-- L055-L043 To MANJHAULIA (VR88)

SL. No.	Item of Work		Amount	
1	INITIAL RECTIFICATION WORKS .	:	43.457	Lacs
2	5TH YEAR PERIODIC RENEWAL COST .	:	7.425	Lacs
	TOTAL ESTIMATED COST (1+2)	:	50.882	Lacs
	Labour Cess @1%	:	0.509	Lacs
	Add Seigniorage Fee @10%	:	0.752	Lacs
	Sub Total	:	52.142	Lacs
	GST @18%	:	9.386	Lacs
A	TOTAL CONSTRUCTION COST (INC GST, LC @ SEIGN. FEE) SAY "A"	:	61.528	Lacs
3	SIX YEARS OPERATION & MANAGEMENT (O&M) COSTS AFTER COMPLETION OF CONSTRUCTION .	:	7.175	Lacs
	Labour Cess @1%	:	0.072	Lacs
	Add Seigniorage Fee @10% .	:	0.071	Lacs
	Sub Total	:	7.318	Lacs
	GST @18%	:	1.317	Lacs
B	TOTAL OPERATION & MANAGEMENT COST (INC GST, LC @ SEIGN. FEE) SAY "B"	:	8.635	Lacs
C	SUB TOTAL COST (A+B)		70.163	Lacs
D	EMERGENT & PRICE ADJUSTMENT COST @ 15% OF "C"	:	10.524	Lacs
E	Contingency @ 1% OF "C"	:	0.702	Lacs
F	Administrative Cost @ 2.25% OF "C"	:	1.579	Lacs
G	TOTAL PROJECT COST (C+D+E+F)	:	82.967	Lacs

Junior Engineer **Asstt. Engineer** **Executive Engineer**

SE
RWD

GENERAL ABSTRACT OF COST FOR ROAD

LINK ROUTE No. -

NAME OF ROAD : L055-L043 To MANJHAULIA (VR88)

DISTRICT Gaya.

BLOCK Barachatti

DIVISION Sherghati

CONST. LENGTH OF ROAD (KM) 1.360

LENGTH OF BT PAVEMENT (M) 450

LENGTH OF CC PAVEMENT (M) 910

CD STRUCTURES

HUME PIPE 0

RCC SLAB CULVERT 0

BOX CELL CULVERT 0

Sl. No.	DESCRIPTION	AMOUNT (LAKHS)
PART-I	INITIAL RECTIFICATION WORKS.	
1	PREPARATORY WORKS ,SITE CLEARANCE , DISMANTLING	0.424
2	EARTHWORK	1.373
3	GSB GR-II	1.358
4	WBM GRADE III	2.011
5	WMM GRADE III	3.082
6	PRIME COAT	0.919
7	PATCH WORK USING MSS	0.000
8	TACK COAT	0.316
9	BM	0.000
10	SDBC	4.746
11	Cement Concrete Pavement (PQC)	23.992
12	Edging with 1st Class Bricks, Lald Dry Length wise.	1.767
13	Interlocking Concrete Block Pavement	0.000
14	DRAIN	0.000
15	PROTECTION WORK	0.000
16	ROAD FURNITURES , KM STONES , TRAFFIC & DIRECTION SIGN, MAINTENANCE BOARD,ROAD SAFETY &PLANTATION OF TREES.	3.258
17	**CROSS DRAINAGE STRUCTURES**	
	HUME PIPE	0.000
	RCC	0.000
	BOX	0.000
	IRRIGATION PIPE (300 MM DIA)	0.078
	DISMANTLING OF CD	0.000
	REPAIR OF CD WORK	0.132
	SUB TOTAL OF INTIAL RECTIFICATION WORKS =	**43.457**
PART-II	**5TH YEAR PERIODIC RENEWAL COST .**	**7.425**
	TOTAL ESTIMATED COST (PART-I+PART-II)	**50.882**
PART-III	**SIX YEARS OPERATION & MANAGEMENT (O&M) COSTS AFTER COMPLETION OF CONSTRUCTION .**	
	I st Year	1.060
	II nd Year	1.285
	III rd Year	1.373
	IV th Year	1.380
	VI th Year	0.968
	VII th Year	1.109
	SUB TOTAL OF =SIX YEARS OPERATION & MANAGEMENT (O&M)	**7.175**
	TOTAL COST (without GST, LC and SF) (PART-I+PART-II+PART-III)(IN LACS) =	**58.057**

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Name Of Work :-			L055-L043 To MANJHAULIA (VR88)						Length :-	1.360 Km	
			DETAILED ESTIMATE								
Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (In Rs.)
1	2.2	201 (I-A)	Clearing and Grubbing Road Land (By manual means) including uprooting wild vegetation, grass, bushes, shrubs, saplings and trees of girth upto 300mm, removals of stumps of such trees cut earlier & disposal of unserviceable materials & stacking of serviceable materials to be used or auctioned upto a lead of 1000 m including removal and disposal of top organic soil not exeeding 150mm in thickness as per technical specification clause 201.1 and direction of E/I								
				Ha	2.00	1,360.00	1.000		2,720.00		
									0.27	73,248.75	19,924.00
2	3.2	301.4	**Scarifying Existing Bituminous Surface**								
			Scarifying the existing bituminous road surface to a depth of 150 mm and disposal of scarified material with a lift upto 3 m and lead upto 1000 m as per Technical Specification Clause 301.4.								
				Sqm	25%	1,260.00	3.750		1,181.25		
									1,181.25	19.02	22,467.00
3	3.14	303.1	**Construction Of Subgrade And Earthen Shoulders**								
			Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table 300.2 with lead upto 1000 m as per Technical Specification Clause 303.1.								
			Only Flank (Diches Due To Rain Cut)								
			BT Portion	Cum	2.00	450.00	1.125	0.300	303.75		
			PCC Portion	Cum	2.00	910.00	0.500	0.300	273.00		
			Adjacent to WMM & BM (BT Portion)	Cum	2.00	450.00	1.125	0.075	75.94		
			Adjacent to GSB, WBM (PCC Portion)	Cum	2.00	910.00	0.500	0.125	113.75		
			Total						766.44		
			For 1000 m lead @ 20 %						153.29	243.88	37,384.00
			For 100 m lead @ 80 %						613.15	162.93	99,903.00
									A) SUB TOTAL OF CRUST =		**1,79,678.00**
			Sub Head : PAVEMENT LAYERS - GSB & WBM ITEMS								
4	4.1	401	**Granular Sub-Base With Well Graded Material (Table 400.1)**								
		(ii)	**(By Mix In Place Method) For Grading II Material**								
			Construction of granular sub-base by providing well graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, complete as per Technical Specification Clause 401.								
			Qty As Per Pot Measurment	Cum		456.45		0.150	68.47		
			Net GSB Qty						68.47	1,983.96	1,35,836.00

Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (In Rs.)
5	4.7	405	**Water Bound Macadam with Stone Screening Gr-III**								
	(2-B)		**WBM Grading 3 (By Mechanical Means)**								
			Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 3 as per Technical Specification Clause 405.								
			Qty As Per Pot Measurment	Cum		829.80		0.075	62.23		
			Net WBM -2 Qty						62.23	3,232.05	2,01,147.00
6	4.7	405	**Wet Mix Macadam**								
	(3-B)		Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed material by tipper to site, laying in uniform layers in sub-base/base course on a well prepared sub-base and compacting with smooth wheel roller of 80 to 100kN weight to achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and Technical Specification Clause 406.								
			Throught overlay for BT	Cum	1.00	450.00	3.75	0.075	126.56		
			Add For Extra Widening On Curve	Cum	2%				2.531		
			Net WBM -3 Qty						129.09	2,387.10	3,08,159.00
									B) SUB TOTAL OF CRUST =		**6,45,142.00**
			SUB HEAD : BITUMINOUS ITEMS								
7	5.1	502	**Prime Coat (Low porosity)**								
			Providing and applying primer coat with Bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.70- 1.0 kg/sqm using mechanical means as per Technical Specification Clause 502.								
			Grade 3 Operated Portion	Sqm		0.00			0.00		
			ON CC	Sqm	1.00	450.00	3.75		1,687.50		
			Add For Extra Widening On Curve	Sqm	2%				33.750		
			Net Area	Sqm					1,721.25	53.37	91,863.00
8	5.6	507	**Tack Coat**								
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surface tretaed with Primer and clened with hydriloc broom as per technical specification aclouse 503.								
			Throught	Sqm	1.00	450.00	3.75		1,687.50		
			Add For Extra Widening On Curve	Sqm	2%				33.75		
			Net Area	Sqm					1,721.25	18.35	31,585.00

Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (In Rs.)
9	5.7	508	**Semi-Dense Bituminous Concrete**								
		RCD	Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 508 complete in all respects.								
			Throught	Cum	1.00	450.00	3.75	0.025	42.19		
			Add For Extra Widening On Curve	Sqm	2%				0.84		
			Net Area	Cum					43.03	11,028.71	4,74,607.00
									C) SUB TOTAL OF BITUMINOUD ITEM =		**5,98,055.00**
			SUB HEAD : CC PAVEMENT								
10	6.4	1500	**Cement Concrete Pavement (PQC)**								
			Construction of un-reinforced, plain cement concrete pavement (M35 Grade) over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form paver, spread, compacted and finished in a continuous operation including provision of 0.5 x 0.5 panel, joint filler, separation membrane, sealant primer, joint sealant, debonding strip as approved, curing compound, finishing to lines and grades as per drawing .								
			THROUGHT	Cum	1.00	910.00	3.75	0.125	426.56		
			In Profile & Pot Repair In Existing PCC	Cum	5%	100.00	3.75	0.125	2.34		
			Add For Extra Widening On Curve	Cum	2%				8.531		
			Net Qty						437.43	5,484.68	23,99,190.00
11	4.18	412	**Edging with 1st Class Bricks, Lald Dry Length wise.**								
			Edging with 1st class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres								
			On Edge of CC	Sqm	2.00	910.00			1,820.00		
									1,820.00	97.11	1,76,742.00
									D) SUB TOTAL OF CC PAVEMENT =		**25,75,932.00**
			SUB HEAD : ROAD FURNITURES , KM STONES , TRAFFIC & DIRECTION SIGN ,MMGSY LOGO								
12	10.1	1700	**Kilometre stone**								
			Reinforced cement concrete M15 grade kilometre local stone of standard design asper IRC:8 fixing in position including painting and printing , etc as per drawing and technical specification clause 1703.								
			i) 5th km stone	No.	0					4,480.81	0.00
			ii) Km stone	No.	2					2,408.19	4,816.00
			iii) 200 m stone	No.	6					694.95	4,170.00

Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (In Rs.)
13	**10.9**	**1700**	**Direction And Place Identification Signs With Size More Than 0.9 Sqm Size Board**								
			Retro-reflectorised Traffic SignsProviding and erecting direction and place identification retro-\reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide Clause 1701.2.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on mild steel angle iron posts 75 mm x 75 mm x 6 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawing and Technical Specification Clause 1701.								
				Sqm	0	1.20	0.80		0.00	13,372.15	0.00
14	**10.2**	**1700**	**Retro-reflectorised Traffic Signs**								
		300	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and Technical Specification Clause 801								
		i)	600 mm equilateral & triangle	Nos		3.00				3,924.90	11,774.70
		ii)	600 mm circular	Nos		1.00				3,872.91	3,872.91
		iii)	600 mm x 450 mm rectangular	Nos		2.00				3,738.15	7,476.30
		iv)	900 mm side octagon	Nos		2.00				7,905.09	15,810.18
	8.38	v)	Providing and laying Rumble Strip with road studs and Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface								
15	**10.1**	**1700**	**Boundary Pillar/Gaurd Post**								
			Reinforced cement concrete M15 grade boundary pillars/local stone of standard design as per IRC:25, fixed in position including finishing and lettering but excluding painting as per drawing and Technical Specification Clause 1704								
				Nos	12					591.84	7,102.08
16	**Ref. to MoRTH Spec.307**		**Planting of Trees and their Maintenance for one Year**								
			Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year								
				Each		450.00	/	40.00	11.00	1,221.96	13,441.56

Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (In Rs.)
17	10.8	1700	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface**								
			Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.								
			At Edge For BT Portion	Sqm	2	450.00	0.100		90.00	801.65	72,149.00
			At Edge For Old CC Portion	Sqm	2	910.00	0.100		182.00	902.11	1,64,184.00
18	10.6	1700	**(I)Providing and Fixing 'Logo' of MMGSUY Project**								
			(I)Providing and Fixing 'Logo' of MMGSUY Project :-Providing and fixing of typical MMGSUY informatory sign board with Logo as per MORD specifications and drawing. Three MS Plates of 1.6 mm thick, top and middle plate duly welded with MS flat iron 25mm x 5m size on back on edges. The lower plate will be welded with MS angle iron frame of 25mm x 25mm x 5mm. The angle iron frame of the lower most plate and flat iron frame of middle plate will be welded to 2 nos. 75mm x 75 mm of 12 SWG sheet tubes posts duly embedded in cement concrete M-15 grade blocks of 450mm x 450mm x 600mm, 600mm below ground level. The top most diamond plate will be welded to middle plate by 47mm x 47mm of 12 SWG steel plate tube. All M.S. will be stove enameled on both sides. Lettering and printing arrows, border etc. will be painted with ready mixed synthetic enamel paint of superior quality in required shade and colour. All sections of framed posts and steel tube will be painted with primer and two coats of epoxy paint as per drawing Clause 1701 and Annexure 1700.1								
			Providing and Fixing 'Logo' of Maintenance Project	No.	2				2.00	10,520.58	21,041.00
									E) SUB TOTAL OF ROAD FURNITURES =		**3,25,837.73**
									TOTAL COST OF PAVEMENT IN RS. (A+B+C+D+E+F)=		**43,24,644.73**

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SUMMARY OF 1ST FOUR YEARS OPERATION & MANAGEMENT (O&M) COST AFTER COMPLETION OF CONSTRUCTION .

NAME OF ROAD:- L055-L043 To MANJHAULIA (VR88)

LINK ROUTE NO.:- -
DISTRICT:- Gaya.
BLOCK:- Barachatti
LENGTH OG ROAD (KM):- 1.360

Particulars	Amount in Rs.	Amount in (Lakh)
1st Year Maintenance cost	1,06,046.00	1.060
2nd Year Maintenance cost	1,28,511.00	1.285
3rd Year Maintenance cost	1,37,272.00	1.373
4th Year Maintenance cost	1,37,950.00	1.380
Total Cost of Ist Four years Maintenance	**5,09,779.00**	**5.098**
Total Cost	**5,09,779.00**	**5.098**

MATE FOR 4 YEARS MAINTENANCE W(

Total Length of Road(L) =	1360	m
Length of the Flexible Pavement(Lf) =	450	m
Length of the Rigid Pavement(Lc) =	910	m
Width of the Road (Br) =	3.750	m
Width Of the Shoulder (Bs) =	1.125	m
No. Of Hume Pipe Culvert =	2	
No. Of Slab Culvert =	0	
No. Of Box Culvert =	0	
Length of Drain=	0	m
No. of guard stone	12	

JE **AE** **EE**
RWD **RWD** **RWD**

Multiplying factor for traffic intensity(β)

Low (<=15 CVD)	Medium (15 to 45 CVD)	High (> 45 CVD)
1.0	1.25	1.5

Multiplying factor for making for pothole(α_1)

Rainfall			
	High %	Medium %	Low %
I YEAR	1.0	0.5	--
II YEAR	2.0	1.0	0.5
III YEAR	3.0	1.5	1.0
IV YEAR	4.0	2.0	1.5

Multiplying factor for making for berms(α_2)

Rainfall			
	High %	Medium %	Low %
I YEAR	15.0	18.0	7.5
II YEAR	18.0	16.0	9.0
III YEAR	21.0	14.0	10.5
IV YEAR	24.0	12.0	12.0

Multiplying factor for making for rain cut(α_3)

Rainfall			
	High %	Medium %	Low %
I YEAR	7.5	10.8	5.0
II YEAR	9.0	9.6	6.0
III YEAR	10.5	8.4	7.0
IV YEAR	12.0	7.2	8.0

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
1	OM 101 & OM 105	15.3(ii)	**Pot hole patching-** Treatmnet of isolated failed pavement areas in traffic lanes using appropriate materials to repair the defect and restore the riding surface to a smooth condition and **Edge Repair -** Repair of broken edge of seal to line and level to maintain nominal sealed width. with Mix Seal Surfacing (Qty=Lf*Br*α_{1*} β)	Sqm	0.5%	10.547	316.28	3,336.00
2	OM 102	15.3 (i)	**Surface Depression and Rut Patching** Application of a levelling course of bituminous materials to depressed or rutted areas of pavement Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*0.15*0.075*α_1*β)	Cum	0.5%	0.032	11,219.05	355.00
3	OM 103	RCD 10.6	**Crack Sealing** Filling of cracks and joints,excluding "crocodile" cracking using liquid bituminous sealents in accordance with monthly works program (Qty=L_f	M	-	450	4.17	1,877.00
4	OM 104	15.3(iii)	**Surface Treatmentt** Application of bituminous surface materials and cover aggregate ares of pavement with:- (a) Loss of aggregate(surface ravelled) (b) bleeding and flushing; or (c) Laminated asphalt surface. Patch repair over bituminous surface with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_1* β)	Sqm	0.5%	10.547	331.58	3,497.00
5	OM 106	15.3 (i)	**Digout Repair** Treatment of isolated failed pavement areas>0.25m^3 by replacemnet with new material or improvement of existing material,including reinstatement of road surface. Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*Br*α_1*0.075* β)	Cum	0.5%	0.791	11,219.05	8,874.00
6	OM 107	15.3 (ii)	**Repair of concrete pavement** Repair isolated areas of damaged concrete pavement <0.25m^2 patching with 20 mm thick premix carpet with seal coat Type B seal coat Type B (Qty=Lc*Br*α_1* β)	Sqm	0.5%	21.328	316.28	6,746.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
7		RCD 10.10	Reapir of old joint selant Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial Qty=(Lc/4)*B_r	M	-	853.125	45.86	39,124.00
8	OM 201	15.2	**Unsealed Shoulder Repair** Making up the irregularities/loss material on shoulder to design level/profit/ Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=Lf*Bs*α_2* β)*2	Sqm	18.0%	227.813	61.18	13,938.00
9	OM 202	15.1	**Embankment Repairs** Restoration of Raincuts in the embankment and shoulder/Berms with soil.moorumetc (Qty=L_f*Bs*0.3*α_3) X β) *2	Cum	10.8%	41.006	459.70	18,851.00
10	OM 301	15.6	**Surface Drain Cleaning** Cleaning of channels,including kerb and channel,and reshaping earthen drain,including culvert inlet and outlet drains,to maintain flow of water and protect road and road side from scour.	M	-	0	3.87	0.00
11	OM 302 & OM 303		**Culvert Cleaning and Culvert Repair**					
		15.7 (i)	Maintenance of C/D Works (Hume Pipe Culvert)	No.	-	2	1,515.71	3,031.00
		15.7 (ii)	Maintenance of C/D Works (Slab Culvert)	No.	-	0	3,070.58	0.00
		15.13	Painting of parapet walls of CD work	Sqm	-	0	21.22	0.00
12	OM 401	15.12	**Tree and Shrub management** Cutting of branches of trees,shrubs and trimming of glass and weeds from the Roadway or within the Road land.					
			(I)Cutting of branches of trees and shrubs	No.	-	1	157.21	157.00
			(ii) Cutting of shrubs from roadway	No.	-	0	9.66	0.00
			(iii) Trimming of grass and weeds	Sqm	-	1012.5	3.22	3,260.00
13	OM 501	15.9	**Sign maintenance** Sign repair,re-erection,support replacement and/or maintenance cleaning.	Km	-	1.360	1,382.29	1,880.00
15	OM 503	15.11	Maintenance of 200 m and km stones	Km	-	1.360	823.18	1,120.00
			Estimate For First Year Maintenance Work				**Rs.**	**1,06,046.00**

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
1	OM 101 & OM 105	15.3(ii)	**Pot hole patching-** Treatmnet of isolated failed pavement areas in traffic lanes using appropriate materials to repair the defect and restore the riding surface to a smooth condition and **Edge Repair -** Repair of broken edge of seal to line and level to maintain nominal sealed width. with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_{1*} β)	Sqm	1.0%	21.094	316.28	6,672.00
2	OM 102	15.3 (i)	**Surface Depression and Rut Patching** Application of a levelling course of bituminous materials to depressed or rutted areas of pavement Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*0.15*0.075*α_1*β)	Cum	1.0%	0.063	11,219.05	710.00
3	OM 103	RCD 10.6	**Crack Sealing** Filling of cracks and joints,excluding "crocodile" cracking using liquid bituminous sealents in accordance with monthly works program (Qty=L_f	M	-	450	4.17	1,877.00
4	OM 104	15.3(iii)	**Surface Treatmentt** Application of bituminous surface materials and cover aggregate ares of pavement with:- (a) Loss of aggregate(surface ravelled) (b) bleeding and flushing; or (c) Laminated asphalt surface. Patch repair over bituminous surface with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_1* β)	Sqm	1.0%	21.094	331.58	6,994.00
5	OM 106	15.3 (i)	**Digout Repair** Treatment of isolated failed pavement areas>0.25m^3 by replacemnet with new material or improvement of existing material,including reinstatement of road surface. Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*Br*α_1*0.075* β)	Cum	0.50%	0.791	11,219.05	8,874.00
6	OM 107	15.3 (ii)	**Repair of concrete pavement** Repair isolated areas of damaged concrete pavement <0.25m^2 patching with 20 mm thick premix carpet with seal coat Type B seal coat Type B (Qty=Lc*Br*α_1* β)	Sqm	1.0%	42.656	316.28	13,491.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
7		RCD 10.10	**Reapir of old joint selant** Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial Qty=(Lc/4)*B_r	M	-	853.125	45.86	39,124.00
8	OM 201	15.2	**Unsealed Shoulder Repair** Making up the irregularities/loss material on shoulder to design level/profit/ Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=Lf*Bs*α_2* β)*2	Sqm	16.0%	202.500	61.18	12,389.00
9	OM 202	15.1	**Embankment Repairs** Restoration of Raincuts in the embankment and shoulder/Berms with soil.moorumetc (Qty=L_f*Bs*0.3*α_3) X β) *2	Cum	9.6%	36.450	459.70	16,756.00
10	OM 301	15.6	**Surface Drain Cleaning** Cleaning of channels,including kerb and channel,and reshaping earthen drain,including culvert inlet and outlet drains,to maintain flow of water and protect road and road side from scour.	M	-	0	3.87	0.00
11	OM 302 & OM 303		**Culvert Cleaning and Culvert Repair**		-			
		15.7 (i)	Maintenance of C/D Works (Hume Pipe Culvert)	No.	-	2	1,515.71	3,031.00
		15.7 (ii)	Maintenance of C/D Works (Slab Culvert)	No.	-	0	3,070.58	0.00
		15.13	Painting of parapet walls of CD work	Sqm	-	41.28	21.22	876.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
12	OM 401	15.12	**Tree and Shrub management** Cutting of branches of trees,shrubs and trimming of glass and weeds from the Roadway or within the Road land.		-			
			(I)Cutting of branches of trees and shrubs	No.		2	157.21	314.00
			(ii) Cutting of shrubs from roadway	No.		0	9.66	0.00
			(iii) Trimming of grass and weeds	Sqm		1012.5	3.22	3,260.00
13	OM 501	15.9	**Sign maintenance** Sign repair,re-erection,support replacement and/or maintenance cleaning.	Km		1.360	1,382.29	1,880.00
15	OM 503	15.11	Maintenance of 200 m and km stones	Km		1.360	823.18	1,120.00
16	OM 504	RCD 8.13	Road marking (Qty=Lf*0.1*2)	Sqm		0	801.65	0.00
17	New	Ref. to MoRTH Spec. 307	Maintenance of Already Planted Trees for additional four Years-Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.	Each	-	11	1013	11,143.00
			Estimate For Second Year Maintenance Work				**Rs.**	**1,28,511.00**

Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
1	OM 101 & OM 105	15.3(ii)	**Pot hole patching-** Treatmnet of isolated failed pavement areas in traffic lanes using appropriate materials to repair the defect and restore the riding surface to a smooth condition and **Edge Repair -** Repair of broken edge of seal to line and level to maintain nominal sealed width. with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_{1*} β)	Sqm	1.5%	31.641	316.28	10,007.00
2	OM 102	15.3 (i)	**Surface Depression and Rut Patching** Application of a levelling course of bituminous materials to depressed or rutted areas of pavement Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*0.15*0.075*α_1*β)	Cum	1.5%	0.095	11,219.05	1,065.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
3	OM 103	RCD 10.6	**Crack Sealing** Filling of cracks and joints,excluding "crocodile" cracking using liquid bituminous sealents in accordance with monthly works program (Qty=L_f	M	-	450	4.17	1,877.00
4	OM 104	15.3(iii)	**Surface Treatmentt** Application of bituminous surface materials and cover aggregate ares of pavement with:- (a) Loss of aggregate(surface ravelled) (b) bleeding and flushing; or (c) Laminated asphalt surface. Patch repair over bituminous surface with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_1* β)	Sqm	1.5%	31.641	331.58	10,491.00
5	OM 106	15.3 (i)	**Digout Repair** Treatment of isolated failed pavement areas>0.25m^3 by replacemnet with new material or improvement of existing material,including reinstatement of road surface. Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*Br*α_1*0.075* β)	Cum	0.5%	0.791	11,219.05	8,874.00
6	OM 107	15.3 (ii)	**Repair of concrete pavement** Repair isolated areas of damaged concrete pavement <0.25m^2 patching with 20 mm thick premix carpet with seal coat Type B seal coat Type B (Qty=Lc*Br*α_1* β)	Sqm	1.5%	63.984	316.28	20,237.00
7		RCD 10.10	**Reapir of old joint selant** Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial Qty=(Lc/4)*B_r	M	-	853.125	45.86	39,124.00
8	OM 201	15.2	**Unsealed Shoulder Repair** Making up the irregularities/loss material on shoulder to design level/profit/ Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=Lf*Bs*α_2* β)*2	Sqm	14.0%	177.188	61.18	10,840.00
9	OM 202	15.1	**Embankment Repairs** Restoration of Raincuts in the embankment and shoulder/Berms with soil.moorumetc (Qty=L_f*Bs*0.3*α_3) X β) *2	Cum	8.4%	31.894	459.70	14,662.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
10	OM 301	15.6	**Surface Drain Cleaning** Cleaning of channels,including kerb and channel,and reshaping earthen drain,including culvert inlet and outlet drains,to maintain flow of water and protect road and road side from scour.	M	-	0	3.87	0.00
11	OM 302 & OM 303		**Culvert Cleaning and Culvert Repair**		-			
		15.7 (i)	Maintenance of C/D Works (Hume Pipe Culvert)	No.	-	2	1,515.71	3,031.00
		15.7 (ii)	Maintenance of C/D Works (Slab Culvert)	No.	-	0	3,070.58	0.00
		15.13	Painting of parapet walls of CD work	Sqm	-	41.28	21.22	876.00
12	OM 401	15.12	**Tree and Shrub management** Cutting of branches of trees,shrubs and trimming of glass and weeds from the Roadway or within the Road land.					
			(I)Cutting of branches of trees and shrubs	No.	-	2	157.21	314.00
			(ii) Cutting of shrubs from roadway	No.	-	0	9.66	0.00
			(iii) Trimming of grass and weeds	Sqm	-	1012.5	3.22	3,260.00
13	OM 501	15.9	**Sign maintenance** Sign repair,re-erection,support replacement and/or maintenance cleaning.	Km	-	1.360	1,382.29	1,880.00
15	OM 503	15.11	Maintenance of 200 m and km stones	Km	-	1.360	823.18	1,120.00
16	OM 504	RCD 8.13	Road marking (Qty=Lf*0.1*2)	Sqm	-	0.00	801.65	0.00
16	OM 504		Road marking for CC Portion	Sqm	-	0.00	1,005.95	0.00
17	New	Ref. to MoRTH Spec. 307	Maintenance of Already Planted Trees for additional four Years-Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.	Each	-	11.00	874.00	9,614.00
			Estimate For Third Year Maintenance Work				**Rs.**	**1,37,272.00**

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**

Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
1	OM 101 & OM 105	15.3(ii)	**Pot hole patching-** Treatmnet of isolated failed pavement areas in traffic lanes using appropriate materials to repair the defect and restore the riding surface to a smooth condition and **Edge Repair -** Repair of broken edge of seal to line and level to maintain nominal sealed width. with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_{1*} β)	Sqm	2.0%	42.188	316.28	13,343.00
2	OM 102	15.3 (i)	**Surface Depression and Rut Patching** Application of a levelling course of bituminous materials to depressed or rutted areas of pavement Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*0.15*0.075*α_1*β)	Cum	2.0%	0.127	11,219.05	1,420.00
3	OM 103	RCD 10.6	**Crack Sealing** Filling of cracks and joints,excluding "crocodile" cracking using liquid bituminous sealents in accordance with monthly works program (Qty=L_f	M	-	450	4.17	1,877.00
4	OM 104	15.3(iii)	**Surface Treatmentt** Application of bituminous surface materials and cover aggregate ares of pavement with:- (a) Loss of aggregate(surface ravelled) (b) bleeding and flushing; or (c) Laminated asphalt surface. Patch repair over bituminous surface with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_1* β)	Sqm	2.0%	42.188	331.58	13,989.00
5	OM 106	15.3 (i)	**Digout Repair** Treatment of isolated failed pavement areas>0.25m^3 by replacemnet with new material or improvement of existing material,including reinstatement of road surface. Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*Br*α_1*0.075* β)	Cum	0.5%	0.791	11,219.05	8,874.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
6	OM 107	15.3 (ii)	**Repair of concrete pavement** Repair isolated areas of damaged concrete pavement <0.25m^2 patching with 20 mm thick premix carpet with seal coat Type B seal coat Type B (Qty=Lc*Br*α_1* β)	Sqm	2.0%	85.313	316.28	26,983.00
7		RCD 10.10	**Reapir of old joint selant** Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial Qty=(Lc/4)*B_r	M	-	853.125	45.86	39,124.00
8	OM 201	15.2	**Unsealed Shoulder Repair** Making up the irregularities/loss material on shoulder to design level/profit/ Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=Lf*Bs*α_2* β)*2	Sqm	12.0%	151.875	61.18	9,292.00
9	OM 202	15.1	**Embankment Repairs** Restoration of Raincuts in the embankment and shoulder/Berms with soil.moorumetc (Qty=L_f*Bs*0.3*α_3) X β) *2	Cum	7.2%	27.338	459.70	12,567.00
10	OM 301	15.6	**Surface Drain Cleaning** Cleaning of channels,including kerb and channel,and reshaping earthen drain,including culvert inlet and outlet drains,to maintain flow of water and protect road and road side from scour.	M	-	0	3.87	0.00
11	OM 302 & OM 303		**Culvert Cleaning and Culvert Repair**					
		15.7 (i)	Maintenance of C/D Works (Hume Pipe Culvert)	No.	-	2	1,515.71	3,031.00
		15.7 (ii)	Maintenance of C/D Works (Slab Culvert)	No.	-	0	3,070.58	0.00
		15.13	Painting of parapet walls of CD work	Sqm		41.28	21.22	876.00
12	OM 401	15.12	**Tree and Shrub management** Cutting of branches of trees,shrubs and trimming of glass and weeds from the Roadway or within the Road land.					
			(I)Cutting of branches of trees and shrubs	No.	-	2	157.21	314.00
			(ii) Cutting of shrubs from roadway	No.	-	0	9.66	0.00
			(iii) Trimming of grass and weeds	Sqm	-	1012.5	3.22	3,260.00
13	OM 501	15.9	**Sign maintenance** Sign repair,re-erection,support replacement and/or maintenance cleaning.	Km	-	1.360	1,382.29	1,880.00
15	OM 503	15.11	Maintenance of 200 m and km stones	Km	-	1.360	823.18	1,120.00

DETAILED ESTIMATE FOR 4 YEAR ORDINARY MAINTENANCE								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
16	OM 504	RCD 8.13	Road marking (Qty=Lf*0.1*2)	Sqm	-	0	801.65	0.00
17	New	Ref. to MoRTH Spec. 307	Maintenance of Already Planted Trees for additional four Years-Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.	Each	-	0.00	811.00	0.00
			Estimate For Fourth Year Maintenance Work				**Rs.**	**1,37,950.00**

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)

ESTIMATE FOR RENEWABLE COAT AFTER 4 YEARS MAINTENANCE

Sl. No.	SDB SL	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (in Rs.)
1	5.2	503	**Tack Coat**								
		(III)	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surface tretaed with Primer and clened with hydriloc broom as per technical specification aclouse 503.								
				Sqm	1.00	450.00	3.75		1,687.50		
			Add for extra widening on curve (2%)	Sqm					33.75		
			Net Area	Sqm					1,721.25	18.35	31,585.00
2	5.9	508	**Semi-Dense Bituminous Concrete**								
	(II)		Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 508 complete in all respects.								
			SDBC	Cum	1.00	450.00	3.75	0.025	42.19		
			Add For Extra Widening On Curve (2%)	Cum					0.84		
			Net Area	Cum					43.03	11,028.71	4,74,565.00
							D) SUB TOTAL OF BITUMINOUS ITEM =				**5,06,150.00**
			SUB HEAD : TRAFFIC & DIRECTION SIGN & ROAD SAFETY WORK								
3	8.13	803	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface**								
	RCD		Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.								
			At Both Edge	Sqm	2	450.00	0.100		90.00	801.65	72,149.00
4	8.13	803	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Conctete Surface**								
	RCD		Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.								
			At Both Edge	Sqm	2	910.00	0.100		182.00	902.11	1,64,184.00
							G) SUB TOTAL OF ROAD FURNITURES =				**2,36,333.00**
										TOTAL COST OF PAVEMENT IN RS. (A+B+C+D+E+F)=	**7,42,483.00**

Junior Engineer **Assistant Engineer** **Executive Engineer**

SUMMARY OF LAST TWO YEARS OPERATION & MANAGEMENT (O&M) COSTS.

NAME OF ROAD:- L055-L043 To MANJHAULIA (VR88)

LINK ROUTE NO.:- -
DISTRICT:- Gaya.
BLOCK:- Barachatti
LENGTH OG ROAD (KM):- 1.360

Particulars	Amount in Rs.	Amount in (Lakh)
6TH Year Maintenance cost	96,795.00	0.968
7TH Year Maintenance cost	1,10,885.00	1.109
Total Cost of Ist Four years Maintenance	**2,07,680.00**	**2.077**
Total Cost	**2,07,680.00**	**2.077**

MATE FOR 2 YEARS MAINTENANCE W(

Total Length of Road(L) =	1360	m
Length of the Flexible Pavement(Lf) =	450	m
Length of the Rigid Pavement(Lc) =	910	m
Width of the Road (Br) =	3.750	m
Width Of the Shoulder (Bs) =	1.125	m
No. Of Hume Pipe Culvert =	2	
No. Of Slab Culvert =	0	
No. Of Box Culvert =	0	
Length of Drain=	0	m
No. of guard stone	12	

JE **AE** **EE**
RWD **RWD** **RWD**

Multiplying factor for traffic intensity(β)

Low (<=15 CVD)	Medium (15 to 45 CVD)	High (> 45 CVD)
1.0	1.25	1.5

Multiplying factor for making for pothole(α_1)

	Rainfall		
	High %	**Medium %**	**Low %**
VI YEAR	5.0	0.5	2.0
VII YEAR		1.0	

Multiplying factor for making for berms(α_2)

	Rainfall		
	High %	**Medium %**	**Low %**
VI YEAR	27.0	10.0	13.5
VII YEAR		10.0	

Multiplying factor for making for rain cut(α_3)

	Rainfall		
	High %	**Medium %**	**Low %**
VI YEAR	13.5	6.0	9.0
VII YEAR		6.0	

DETAILED ESTIMATE FOR 2 YEAR (O&M)								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
1	OM 101 & OM 105	15.3(ii)	**Pot hole patching-** Treatmnet of isolated failed pavement areas in traffic lanes using appropriate materials to repair the defect and restore the riding surface to a smooth condition and **Edge Repair -** Repair of broken edge of seal to line and level to maintain nominal sealed width. with Mix Seal Surfacing (Qty=Lf*Br*α_{1*} β)	Sqm	0.5%	10.547	316.28	3,336.00
2	OM 102	15.3 (i)	**Surface Depression and Rut Patching** Application of a levelling course of bituminous materials to depressed or rutted areas of pavement Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*0.15*0.075*α_1*β)	Cum	0.5%	0.032	11,219.05	355.00
3	OM 103	RCD 10.6	**Crack Sealing** Filling of cracks and joints,excluding "crocodile" cracking using liquid bituminous sealents in accordance with monthly works program (Qty=L_f	M	-	450	4.17	1,877.00
4	OM 104	15.3(iii)	**Surface Treatmentt** Application of bituminous surface materials and cover aggregate ares of pavement with:- (a) Loss of aggregate(surface ravelled) (b) bleeding and flushing; or (c) Laminated asphalt surface. Patch repair over bituminous surface with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_1* β)	Sqm	0.5%	10.547	331.58	3,497.00
5	OM 106	15.3 (i)	**Digout Repair** Treatment of isolated failed pavement areas>0.25m^3 by replacemnet with new material or improvement of existing material,including reinstatement of road surface. Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*Br*α_1*0.075* β)	Cum	0.5%	0.791	11,219.05	8,874.00
6	OM 107	15.3 (ii)	**Repair of concrete pavement** Repair isolated areas of damaged concrete pavement <0.25m^2 patching with 20 mm thick premix carpet with seal coat Type B seal coat Type B (Qty=Lc*Br*α_1* β)	Sqm	0.5%	21.328	316.28	6,746.00

DETAILED ESTIMATE FOR 2 YEAR (O&M)								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
7		RCD 10.10	Reapir of old joint selant Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial Qty=(Lc/4)*B_r	M	-	853.125	45.86	39,124.00
8	OM 201	15.2	**Unsealed Shoulder Repair** Making up the irregularities/loss material on shoulder to design level/profit/ Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=Lf*Bs*α_2* β)*2	Sqm	10.0%	126.563	61.18	7,743.00
9	OM 202	15.1	**Embankment Repairs** Restoration of Raincuts in the embankment and shoulder/Berms with soil.moorumetc (Qty=L_f*Bs*0.3*α_3) X β) *2	Cum	6.0%	22.781	459.70	10,473.00
10	OM 301	15.6	**Surface Drain Cleaning** Cleaning of channels,including kerb and channel,and reshaping earthen drain,including culvert inlet and outlet drains,to maintain flow of water and protect road and road side from scour.	M	-	0	3.87	0.00
11	OM 302 & OM 303		**Culvert Cleaning and Culvert Repair**					
		15.7 (i)	Maintenance of C/D Works (Hume Pipe Culvert)	No.	-	2	1,515.71	3,031.00
		15.7 (ii)	Maintenance of C/D Works (Slab Culvert)	No.	-	0	3,070.58	0.00
		15.13	Painting of parapet walls of CD work	Sqm	-	41.28	128.93	5,322.00
12	OM 401	15.12	**Tree and Shrub management** Cutting of branches of trees,shrubs and trimming of glass and weeds from the Roadway or within the Road land.					
			(I)Cutting of branches of trees and shrubs	No.	-	1	157.21	157.00
			(ii) Cutting of shrubs from roadway	No.	-	0	9.66	0.00
			(iii) Trimming of grass and weeds	Sqm	-	1012.5	3.22	3,260.00
13	OM 501	15.9	**Sign maintenance** Sign repair,re-erection,support replacement and/or maintenance cleaning.	Km	-	1.360	1,382.29	1,880.00
15	OM 503	15.11	Maintenance of 200 m and km stones	Km	-	1.360	823.18	1,120.00
16	OM 504	RCD 8.13	Road marking (Qty=Lf*0.1*2)	Sqm	-	0	801.65	0.00
			Estimate For Sixth Year Maintenance Work				**Rs.**	**96,795.00**

DETAILED ESTIMATE FOR 2 YEAR (O&M)								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**

Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
1	OM 101 & OM 105	15.3(ii)	**Pot hole patching-** Treatmnet of isolated failed pavement areas in traffic lanes using appropriate materials to repair the defect and restore the riding surface to a smooth condition and **Edge Repair -** Repair of broken edge of seal to line and level to maintain nominal sealed width. with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_{1*} β)	Sqm	1.0%	21.094	316.28	6,672.00
2	OM 102	15.3 (i)	**Surface Depression and Rut Patching** Application of a levelling course of bituminous materials to depressed or rutted areas of pavement Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*0.15*0.075*α_1*β)	Cum	1.0%	0.063	11,219.05	710.00
3	OM 103	RCD 10.6	**Crack Sealing** Filling of cracks and joints,excluding "crocodile" cracking using liquid bituminous sealents in accordance with monthly works program (Qty=L_f	M	-	450	4.17	1,877.00
4	OM 104	15.3(iii)	**Surface Treatmentt** Application of bituminous surface materials and cover aggregate ares of pavement with:- (a) Loss of aggregate(surface ravelled) (b) bleeding and flushing; or (c) Laminated asphalt surface. Patch repair over bituminous surface with 20 mm Premix carpet with seal coat Type B (Qty=Lf*Br*α_1* β)	Sqm	1.0%	21.094	331.58	6,994.00
5	OM 106	15.3 (i)	**Digout Repair** Treatment of isolated failed pavement areas>0.25m^3 by replacemnet with new material or improvement of existing material,including reinstatement of road surface. Repair of Pot holes filled with 75 mm BM X 1.25 (Qty=Lf*Br*α_1*0.075* β)	Cum	0.50%	0.791	11,219.05	8,874.00
6	OM 107	15.3 (ii)	**Repair of concrete pavement** Repair isolated areas of damaged concrete pavement <0.25m^2 patching with 20 mm thick premix carpet with seal coat Type B seal coat Type B (Qty=Lc*Br*α_1* β)	Sqm	1.0%	42.656	316.28	13,491.00

DETAILED ESTIMATE FOR 2 YEAR (O&M)								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
7		RCD 10.10	**Reapir of old joint selant** Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial Qty=(Lc/4)*B_r	M	-	853.125	45.86	39,124.00
8	OM 201	15.2	**Unsealed Shoulder Repair** Making up the irregularities/loss material on shoulder to design level/profit/ Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=Lf*Bs*α_2* β)*2	Sqm	10.0%	126.563	61.18	7,743.00
9	OM 202	15.1	**Embankment Repairs** Restoration of Raincuts in the embankment and shoulder/Berms with soil.moorumetc (Qty=L_f*Bs*0.3*α_3) X β) *2	Cum	6.0%	22.781	459.70	10,473.00
10	OM 301	15.6	**Surface Drain Cleaning** Cleaning of channels,including kerb and channel,and reshaping earthen drain,including culvert inlet and outlet drains,to maintain flow of water and protect road and road side from scour.	M	-	0	3.87	0.00
11	OM 302 & OM 303		**Culvert Cleaning and Culvert Repair**		-			
		15.7 (i)	Maintenance of C/D Works (Hume Pipe Culvert)	No.	-	2	1,515.71	3,031.00
		15.7 (ii)	Maintenance of C/D Works (Slab Culvert)	No.	-	0	3,070.58	0.00
		15.13	Painting of parapet walls of CD work	Sqm	-	41.28	128.93	5,322.00

DETAILED ESTIMATE FOR 2 YEAR (O&M)								
Multiplying Factor for Commercial Vehicle 15 to 45 per days = 1.25 {ref. – Annexure 14.4 operation Manual from Rural Road}								
Sl. No.	**OM No.**	**SOR No.**	**Description of Items**	**Unit**	**% Taken**	**Yearly Estimated Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
12	OM 401	15.12	**Tree and Shrub management** Cutting of branches of trees,shrubs and trimming of glass and weeds from the Roadway or within the Road land.		-			
			(I)Cutting of branches of trees and shrubs	No.		2	157.21	314.00
			(ii) Cutting of shrubs from roadway	No.		0	9.66	0.00
			(iii) Trimming of grass and weeds	Sqm		1012.5	3.22	3,260.00
13	OM 501	15.9	**Sign maintenance** Sign repair,re-erection,support replacement and/or maintenance cleaning.	Km		1.360	1,382.29	1,880.00
15	OM 503	15.11	Maintenance of 200 m and km stones	Km		1.360	823.18	1,120.00
16	OM 504	RCD 8.13	Road marking (Qty=Lf*0.1*2)	Sqm		0	801.65	0.00
17	New	Ref. to MoRTH Spec. 307	Maintenance of Already Planted Trees for additional four Years-Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.	Each	-	0	1013	0.00
			Estimate For Seventh Year Maintenance Work				**Rs.**	**1,10,885.00**

SUMMARY OF POT MEASUREMENT

Block :- Barachatti **District :-** Gaya.

Length Of Road :- 1.360 Km

Name of Road :-- L055-L043 To MANJHAULIA (VR88)

Sl. No.	Item Of Work		Percent	Area (Sqm)
A	TOTAL QTY OF GSB (For BT)	Sqm	9.66%	456.448
B	TOTAL QTY OF WBM-III (For BT)	Sqm	17.56%	829.800

Junior Engineer **Asstt. Engineer** **Executive Engineer**

SE
RWD

Road Name :-	L055-L043 To MANJHAULIA (VR88)			

Pot Measurment GSB (For BT)

In Km	Nos.	Length (M)	Width (M)	Area(Sqm)
1.260	5	1.873	0.685	6.42
	6	1.544	0.779	7.21
	8	2.884	1.246	28.74
	5	2.384	0.972	11.59
	6	1.601	1.308	12.57
	5	1.544	1.136	8.77
	6	3.137	0.748	14.07
	3	1.158	0.920	3.19
	5	2.510	1.084	13.60
	6	2.761	0.853	14.12
	5	3.137	1.234	19.35
	6	2.929	0.450	7.91
	5	1.748	0.685	5.99
	6	2.418	0.631	9.16
	3	2.350	0.759	5.35
	3	2.065	0.430	2.66
	3	2.478	0.759	5.65
	2	1.419	1.027	2.91
	3	1.612	0.277	1.34
	2	2.329	1.061	4.95
	6	3.578	1.167	25.06
	3	2.559	1.033	7.93
	5	3.489	1.435	25.04
	6	3.877	1.824	42.42
	3	2.141	1.435	9.22
	5	2.845	1.167	16.61
	6	1.740	1.569	16.38
	3	2.877	1.167	10.07
	2	2.407	0.899	4.33
	3	8.103	1.167	28.37
	2	1.147	0.963	2.21
	3	1.873	1.466	8.24
	2	1.544	1.721	5.32
	4	2.884	1.338	15.43
	2	2.384	1.082	5.16
	3	1.601	1.466	7.04

In Km	Nos.	Length (M)	Width (M)	Area(Sqm)
	2	1.544	1.082	3.34
	2	3.137	1.338	8.39
	2	1.158	0.954	2.21
	4	2.510	1.466	14.71
	3	2.761	0.826	6.84
	2	3.137	1.045	6.56
			Total Qty (Sqm) :-	***456.45***

Road Name :-	L055-L043 To MANJHAULIA (VR88)			

Pot Measurment WBM-3(For BT)

In Km	Nos.	Length (M)	Width (M)	Area(Sqm)
1.260	5	2.526	0.924	11.67
	6	2.082	1.050	13.12
	8	3.888	1.680	52.26
	5	3.215	1.310	21.06
	6	2.158	1.764	22.84
	5	2.082	1.532	15.95
	6	4.230	1.008	25.58
	3	1.561	1.240	5.81
	5	3.384	1.462	24.73
	6	3.722	1.150	25.68
	5	4.230	1.663	35.18
	6	3.949	0.607	14.38
	5	2.357	0.924	10.89
	6	3.260	0.851	16.65
	3	3.168	1.024	9.73
	3	2.784	0.580	4.84
	3	3.341	1.024	10.26
	2	1.913	1.384	5.30
	3	2.174	0.374	2.44
	2	3.141	1.431	8.99
	6	4.824	1.574	45.56
	3	3.450	1.393	14.42
	5	4.704	1.935	45.52
	6	5.227	2.459	77.12
	3	2.887	1.935	16.76
	5	3.836	1.574	30.19
	6	2.346	2.116	29.78
	3	3.879	1.574	18.31
	2	3.245	1.213	7.87
	3	10.926	1.574	51.58
	2	1.546	1.299	4.02
	3	2.526	1.976	14.97
	2	2.082	2.321	9.66
	4	3.888	1.804	28.05
	2	3.215	1.459	9.38

In Km	Nos.	Length (M)	Width (M)	Area(Sqm)
	3	2.158	1.976	12.80
	2	2.082	1.459	6.07
	2	4.230	1.804	15.26
	2	1.561	1.286	4.02
	4	3.384	1.976	26.75
	3	3.722	1.114	12.44
	2	4.230	1.410	11.92
			Total Qty (Sqm) :-	***829.80***

ROAD SAFETY WORKS

L055-L043 To MANJHAULIA (VR88)

Item -01	Guard Post	Nos.
a)	At Culvert approaches on both side @ 8 nos. Per structure	8
b)	At Narrow Curve @ 4 No Both Side	4
	Total=	**12**

Item -02	Retro-reflectorised Traffic Signs	Nos.
	600MM Equilateral Triangle	
	Y	**0**
	T	**1**
	X	**0**
	Give way (For X-Junction)	0
	Curves	**2**
	Road Ahead	0
	Bridge Ahead	**0**
	School/College Ahead	**0**
	Speed Breaker	0
	Pedestrian Crossing	0
	Railway Crossing	**0**
	Total	**3**
	600MM X 450MM Reactangular (Informatory Board)	
	Habitation / Place	0
	School	**2**
	Temple / Maszid	0
	Community Hall / Govt Buildings	0
	Total	**2**
	600 MM Circular	
	U Turn Prohibited	0
	Speed Limit	1
	Total	**1**
	900 mm side octagon	
	Stop	2
	Total	**2**

Sl. No.	SDB Sl .NO	MORD Ref.No	Description	Unit	Quantity	Rate	Amount (In Rs.)	Total Material Required	Material Amount	Add Seignoirage Fee 10%
			EARTHWORK							
1	**3.14**	**303.1**	**Construction of Subgrade and Earthen Shoulders**							
			Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table 300.2 with lead upto 1000 m as per Technical Specification Clause 303.1.							
			Unit = cum							
			Taking output = 100 cum							
		a)	**Material**							
			Compensation For Earth Taken From Private Land	Cum	100	35.25	3,525.00			
			Cost for 100 cum = a				**3,525.00**			
			Rate Per Cum = (a)/100=	**Cum**			**35.25**			
			Total Cost =	**Cum**			**35.25**	**153.29**	**5,403.40**	**540.34**
			PAVEMENT LAYERS - GSB ,WBM-II & WBM-III							
2	**4.1**	**401**	**Granular Sub-base with Well Graded Material (Table 400.1)**							
		(i)	**(By Mix In Place Method) For Grading II Material**							
			Construction of granular sub-base by providing well graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, complete as per Technical Specification Clause 401.							
			For Grading II Material							
			Unit = cum							
			Taking output = 300 cum							
		a)	**Material**							
			Well graded granular sub-base material as per Table 400.1							
			26.5 mm to 9.5 mm @ 35 per cent	cum	126.00	913.48	1,15,098.48			
			9.5 mm to 2.36 mm @ 25 per cent	cum	90.00	434.45	39,100.500			
			2.36 mm below @ 40 per cent - (Coarse Sand)	cum	144.00	584.64	84,188.160			
			Cost for 300 cum = a				**2,38,387.14**			
			Rate Per Cum = (a)/300=	**Cum**			**794.62**			
			Total Cost =	**Cum**			**794.62**	**68.47**	**54,405.61**	**5,440.56**
			SUB HEAD : BITUMINOUS ITEMS							
3	**5.11**	**509**	**Mix Seal Surfacing (Type B) BITUMINOUS (S-65) By Mechanical Means (Waste Plastic)**							
			Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 13.2 mm to 0.9 mm (Type-B) aggregates using penetration grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 8-10 kN static roller and finishing to required level and grades as per Technical Specification Clause 509							
			Unit = cum							
			Taking output = 4000 sqm (80 cum)							
		a)	**Material**							

Sl. No.	SDB Sl .NO	MORD Ref.No	Description	Unit	Quantity	Rate	Amount (In Rs.)	Total Material Required	Material Amount	Add Seignoirage Fee 10%
			Aggregate							
			Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	Cum	108.00	434.45	46,920.60			
			Cost for 4000sqm = a				**46,920.60**			
			Rate Per Cum = (a)/4000=	Cum			**11.73**			
			Total Cost =	**Cum**			**11.73**	**0.00**	**0.00**	**0.00**
4	**5.70**	**508**	**Semi-Dense Bituminous Concrete**							
		RCD	Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 508 complete in all respects.							
			Unit = cum							
			Taking output = 195 cum (450 tonnes)							
		a)	**Material**							
			Aggregate							
			Total weight of mix = 450 tonnes							
			Weight of bitumen = 22.5 tonnes							
			Weight of aggregate = 450 -22.50 = 427.50 tonnes							
			Taking density of aggregate = 1.5 ton/cum							
			Volume of aggregate = 285 cum							
			Grading II: 10 mm (Nominal Size)							
			9.5 - 4.75 mm @ 57 per cent	Cum	162.45	602.28	97,840.39			
			4.75 and below @ 41 per cent	Cum	116.85	434.45	50,765.48			
			Filler @ 2 percent of Weightof Aggregates (Lime)	T	8.62	3150.00	27,153.00			
			Cost for 195 cum = a				**1,75,758.87**			
			Rate Per Cum = (a)/195=	Cum			**901.33**			
			Total Cost =	**Cum**			**901.33**	**43.03**	**38,787.55**	**3,878.75**
			SUB HEAD : CC PAVEMENT							
5	**12.13**	**1204**	Brick masonry work in cement mortar (CM 1:4) in foundation complete excluding pointing and plastering as per drawing and technical specifications Clauses 602, 603, 604, 1202 & 1203							
			Unit = cum							
		a)	**Material**							
			Brick	Nos.	500.00	6.12	3,062.00			
			Sand	cum	1.05	584.64	613.87			
			Rate Per Cum = (a)=				**3,675.87**			
			Total Cost =	**Cum**			**3,675.87**	**0.00**	**0.00**	**0.00**
6	**12.13**	**1300 & 2200**	Plastering with cement mortar (1:4) on brick work in sub-structure as per Technical Specifications							
		a)	**Material**							
			Sand	cum	1.05	584.64	613.87			
			Rate Per Cum = (a)=				**613.87**			

Sl. No.	SDB Sl .NO	MORD Ref.No	Description	Unit	Quantity	Rate	Amount (In Rs.)	Total Material Required	Material Amount	Add Seignoirage Fee 10%
			Total Cost =	**Cum**			**613.87**	**42.88**	**26,322.83**	**2,632.28**
									Total Construction Cost (With 10% Seigniorage Fee) :--	**71,873.75**
			MAINTENANCE							
7	**15.1**	**1900**	Patch Repair Over Pot Hole With 25 mm SDBC							
		A.	**Manual Means**							
			Unit = cum							
			Taking output = 195 cum (450 tonnes)							
		a)	**Material**							
			9.5 - 4.75 mm @ 57 per cent	Cum	162.45	602.28	97,840.39			
			4.75 and below @ 41 per cent	Cum	116.85	434.45	50,765.48			
			Filler @ 2 percent of Weightof Aggregates (Lime)	T	8.62	3150	27,153.00			
			Cost For 195 Cum = a				**1,75,758.87**			
			Rate Per Cum = (a)/195=	Cum			**901.33**			
			Total Cost =	**Cum**			**901.33**	**3.43**	**3,089.51**	**308.95**
8	**15.1**	**1900**	Repair to pot holes by removal of failed material, trimming the sides to vertical and levelling the bottom, cleaning the same with compressed air or any appropriate method filled with 75mm B.M, applying bitumen emulsion prime coat at the bottom and bitumen emulsion tack coat on sides and on bottom as per technical specifications Clauses 502 and 503.							
			Maintenace of bituminous surface road							
			Unit = sqm							
			Taking output = 187.5x0.075 = 14.06 cum = (30.94 Tonne)							
		a)	**Material**							
			Grading (1) (40 mm nominal size)							
			37.5 - 25 mm 15%	Cum	2.99	1,115.24	3,328.99			
			25 - 10 mm 45%	Cum	8.96	913.48	8,180.21			
			10 - 5 mm 25%	Cum	4.98	602.28	2,996.34			
			5 mm and below 15%	Cum	2.99	434.45	1,296.83			
			Cost For 100 Sqm = a				**15,802.38**			
			Rate Per Sqm = (a)/100=	Cum			**158.02**			
			Total Cost =	**Cum**			**158.02**	**126.56**	**19,999.89**	**1,999.99**
9	**15.3**	**1900**	Making up loss of material/irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per technical specification Clause 1903							
			Maintenance of Earthen shoulder (filling with fresh selected soil)							
			Unit = sqm							
			Taking output = 100 sqm							
		a)	**Material**							
			Compensation of earth	cum	15.00	35.25	528.75			
			Cost For 200 Sqm = a				**528.75**			

Sl. No.	SDB Sl .NO	MORD Ref.No	Description	Unit	Quantity	Rate	Amount (In Rs.)	Total Material Required	Material Amount	Add Seignoirage Fee 10%
			Rate Per Sqm = (a)/100=	Cum			**5.29**			
			Total Cost =	**Cum**			**5.29**	**4,768.50**	**25,213.44**	**2,521.34**
10	**15.3**	**1900**	Restoration of rain cuts with soil, moorum gravel or a mixture of these, clearing the loose soil, benching for 300mm width laying fresh material in layers not exceeding 250 mm and compaction with plate compactor or power rammer to restore the original alignment, level and slopes as per drawings and technical specifications Clause 1902							
			Restoration of Rain Cuts							
			Taking output = 10 cum							
		a)	**Material**							
			Compensation of earth	cum	7.50	35.25	264.38			
			Cost For 200 Sqm = a				**264.38**			
			Rate Per Sqm = (a)/10=	Cum			**26.44**			
			Total Cost =	**Cum**			**26.44**	**858.33**	**22,692.10**	**2,269.21**
									Total Maintenace Cost (With 10% Seigniorage Fee) :--	**7,099.49**
			FOR RENEWAL COAT							
	1	**5.7**	**Semi-Dense Bituminous Concrete**							
		RCD	Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 508 complete in all respects.							
			9.5 - 4.75 mm @ 57 per cent	**Cum**	0.833	43.030	35.847	**602.28**	**21589.93**	**2158.99**
			4.75 and below @ 41 per cent	**Cum**	0.599	43.030	25.785	**434.45**	**11202.29**	**1120.23**
								Renewal Coat (Seigniorage Fee) :--		**3279.22**
									Total Construction + Maintenace Cost (With 10% Seigniorage Fee) :--	**82,252.47**

ABSTRACT SHEET OF MANDAYS FOR MMGSUY ROAD

LINK ROUTE No. -

NAME OF ROAD : L055-L043 To MANJHAULIA (VR88)

DISTRICT Gaya.
BLOCK Barachatti
DIVISION Sherghati
CONST. LENGTH OF ROAD (KM) 1.360
LENGTH OF BT PAVEMENT (M) 450
LENGTH OF CC PAVEMENT (M) 910

CD STRUCTURES

HUME PIPE 0
RCC SLAB CULVERT 0
BOX CELL CULVERT 0
CAUSEWAY / MINOR BRIDGE 0

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
1	PREPARATORY WORKS ,SITE CLEARANCE , DISMANTLING	Ha	0.27	1.00	0.00	6.00	150.00	0.00	1.63	40.80
2	Scrarifying Existing Bituminous Surface	sqm	0.00	100.00	0.00	0.16	0.25	0.00	0.00	0.00
3	EARTHWORK (1000 M Lead)	cum	153.29	100.00	0.00	0.04	1.00	0.00	0.06	1.53
4	EARTHWORK (100 M Lead)	cum	0.00	180.00	0.00	0.08	2.00	0.00	0.00	0.00
5	GSB GR-II	cum	68.47	300.00	2.00	0.48	10.00	0.46	0.11	2.28
6	WBM GRADE II	cum	0.00	360.00	2.00	0.68	15.00	0.00	0.00	0.00
7	WBM GRADE III	cum	129.09	360.00	2.00	0.68	15.00	0.72	0.24	5.38
8	WMM	cum	0.00	100.00	10.00	0.40	0.00	0.00	0.00	0.00
9	PRIME COAT	sqm	1721.25	1750.00	0.00	0.04	1.00	0.00	0.04	0.98
10	TACK COAT	sqm	1721.25	1750.00	0.00	0.04	1.00	0.00	0.04	0.98
11	BM	cum	0.00	205.00	5.00	0.44	8.00	0.00	0.00	0.00
12	SDBC	cum	43.03	195.00	5.00	0.84	18.00	1.10	0.19	3.97
13	PQC	cum	0.00	900.00	5.44	10.00	6.00	0.00	0.00	0.00
14	PQC	cum	437.43	900.00	5.44	10.00	6.00	2.64	4.86	2.92
15	**ROAD FURNITURES**									
16	i) 5th km stone (Precast)	nos	0.00	14.00	2.42	0.38	5.80	0.00	0.00	0.00
17	Km Stone	nos	2.00	14.00	15.65	0.85	3.60	2.24	0.12	0.51
18	200m Stone	nos	6.00	33.00	10.96	0.58	2.52	1.99	0.11	0.46
19	Direction Sign	nos	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Traffic Sign	nos	8.00	1.00	0.06	0.04	0.54	0.48	0.34	4.28
21	Boundary Pillar	nos	12.00	57.00	0.00	0.57	14.25	0.00	0.12	3.00
22	Plantation	nos	11.00	10.00	0.00	1.70	17.00	0.00	1.87	18.70
23	Road Marking(BT)	sqm	90.00	640.00	0.00	0.50	2.00	0.00	0.07	0.28
24	Road Marking(PCC)	sqm	182.00	640.00	0.00	0.50	2.00	0.00	0.14	0.57

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
25	Logo	nos	2.00	1.00	0.00	0.03	0.75	0.00	0.06	1.50
26	**Sub Total**							**9.63**	**10.00**	**88.15**
27	**HUME PIPE**									
28	Earth work in excavation for foundation of structures upto 3.0 m depth as per drawing and technical specification clause 1104	cum	0.00	10.00	0.00	0.32	8.00	0.00	0.00	0.00
29	Providing M15 (PCC 1:2.5:5) as levelling course in foundation :-- Providing PCC M 15 (1:2.5:5) concrete for plain concrete in open foundations complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
30	Plain/reinforced cement concrete in substructure complete as per drawings and technical specification Clauses 802, 804, 805, 806, 807, 1202 ans 1204 (M20)	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
31	Providing and laying RCC pipe NP-3 for culverts on first class bedding of PCC M10 material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works,backfilling concrete and masonary works in head walls and parapets as per clause 1106	RM	0.00	7.50	0.25	9.00	2.00	0.00	0.00	0.00
32	Providing and laying RCC pipe NP-3 for culverts on first class bedding of PCC M10 material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works,backfilling concrete and masonary works in head walls and parapets as per clause 1106	RM	0.00	7.50	0.25	0.09	2.00	0.00	0.00	0.00
33	Painting on Parapet Wall (Black & White Strips) Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701	Sqm	0.00	40.00	3.00	0.20	2.00	0.00	0.00	0.00
34	**SLAB Culvert**									
35	Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m.	cum	0.00	10.00		0.32	8.00	0.00	0.00	0.00
36	Sand Filling in Foundation Trenches as per drawing and technical specification Clause 1108.	cum	0.00	1.00		0.01	0.30	0.00	0.00	0.00
37	Providing PCC M 15 (1:2.5:5) concrete for plain concrete in open foundations complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
38	Providing PCC M 15 (1:2.5:5) concrete for plain concrete in open foundations complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
39	Plain/reinforced cement concrete in substructure complete as per drawings and technical specification Clauses 802, 804, 805, 806, 807, 1202 ans 1204. (M15 (PCC 1:2.5:5)	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
40	Plain/Reinforced cement concrete(M-20) in substructure complete as per drawings and technical specification Clauses 802, 804, 805, 806, 807, 1202 ans 1204	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
41	RCC M25 in Deck Slab :-- Providing and laying reinforced cement concrete in superstructure (Deck slab M25) as per drawing and technical specifications Clauses 800, 1205.4, 1205.5	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
42	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	0.00	1.00	3.00	0.44	8.00	0.00	0.00	0.00
43	Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent	RM	0.00	7.50	0.50	0.02	0.10	0.00	0.00	0.00
44	Providing Weepholes in brick masonary , Plain / Reinforced concrete abutement , wing wall , return wall with 100 mm dia AC pipe extending through the full width of the structure with slope of 1V: 20H towards drawing	Nos	0.00	30.00	0.50	0.03	0.25	0.00	0.00	0.00
45	Providing and laying filter material underneath pitching in slopes complete as per drawing and technical specifications Clause 1302	cum		10.00	1.00	0.40	9.50	0.00	0.00	0.00
46	Drainage spouts complete as per drawing and technical specifications Clause 1209.	Nos	0.00	1.00	0.03	0.03	0.22	0.00	0.00	0.00
47	Painting on Parapet Wall Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701	Sqm	0.00	40.00	3.00	0.20	2.00	0.00	0.00	0.00
48	**Protection Work**									
49	Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.	cum	0.00	10.00	0.00	0.32	8.00	0.00	0.00	0.00
50	Providing PCC M 15 (1:2.5:5) concrete for plain concrete in open foundations complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
51	Brick masonry work in cement mortar (CM 1:4) in foundation complete excluding pointing and plastering as per drawing and technical specifications Clauses 602, 603, 604, 1202 & 1203	cum	0.00	1.00	0.80	0.10	2.04	0.00	0.00	0.00

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
52	Providing concrete for plain/reinforced concrete M-20 in coping over protection wall complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203 P.C.C grade M 20	cum	0.00	1.00	0.10	0.08	1.90	0.00	0.00	0.00
53	Providing Weepholes in brick masonary , Plain / Reinforced concrete abutement , wing wall , return wall with 100 mm dia AC pipe extending through the full width of the structure with slope of 1V: 20H towards drawing face complete as per drawing and technical specification	cum	0.00	30.00	0.50	0.03	0.25	0.00	0.00	0.00
54	Plastering with cement mortar (1:4) on brick work in sub-structure as per Technical Specifications	Sqm	0.00	10.00	0.60	0.07	1.14	0.00	0.00	0.00
55	**Parapet Work**									
56	Brick masonry work in cement mortar 1:3 in parapet excluding pointing and plastering as per drawing and technical specifications Clauses 600, 900 and 1208.4	cum	0.00	1.00	0.80	0.10	2.04	0.00	0.00	0.00
57	Plastering with cement mortar (1:4) on brick work in sub-structure as per Technical Specifications	Sqm	42.88	10.00	0.60	0.07	1.14	2.57	0.30	4.87
58	Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701	Sqm	42.88	40.00	3.00	0.20	2.00	3.22	0.21	2.14
59	**Sub total**							**5.79**	**0.51**	**7.01**
60	**1st Year Maintenance cost**									
61	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	114.75	10.00	0.00	0.24	6.00	0.00	2.75	68.85
62	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	637.50	100.00	0.00	0.24	5.00	0.00	1.53	31.88
63	Repair of Pot holes filled with 50 mm BM X 1.25	Cum	10.55	205.00	5.00	0.44	8.00	0.26	0.02	0.41
64	Patch repair over Pot holevswith 20 mm MSS	Cum	0.26	4000.00	3.00	0.52	12.00	0.00	0.00	0.00
65	Maintenance of C/D Works (Hume Pipe Culvert)	No.	2.00	1.00	0.00	0.15	1.00	0.00	0.30	2.00
66	Maintenance of C/D Works (Slab Culvert)	No.	0.00	1.00	0.00	1.20	4.00	0.00	0.00	0.00
67	Maintenance of Road signs	Km	0.14	1.00	0.12	0.09	2.00	0.02	0.01	0.27
68	Maintenance of 200 m and km stones	Km	0.16	1.00	0.10	0.02	0.50	0.02	0.00	0.08
69	(I)Cutting of branches of trees and shrubs	No.	1.00	10.00	1.00	0.12	2.00	0.10	0.01	0.20
70	(ii) Cutting of shrubs from roadway	No.	5.00	100.00	0.00	0.08	2.00	0.00	0.00	0.10
71	(iii) Trimming of grass and weeds	Sqm	2.16	1500.00	0.00	0.40	10.00	0.00	0.00	0.01
72	White washing of parapet walls of CD work and tree truncks	Sqm	42.00	90.00	0.00	0.01	0.29	0.00	0.00	0.13
73	**2nd Year Maintenance cost**									
74	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	137.70	10.00	0.00	0.24	0.29	0.00	3.30	3.94
75	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	765.00	100.00	0.00	0.24	0.29	0.00	1.84	2.19

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
76	Repair of Pot holes filled with 50 mm BM X 1.25	Cum	21.09	205.00	5.00	0.44	0.29	0.51	0.05	0.03
77	Patch repair over Pot holevswith 20 mm MSS	Sqm	0.53	4000.00	3.00	0.52	0.29	0.00	0.00	0.00
78	Maintenance of C/D Works (Hume Pipe Culvert)	No.	2.00	1.00	0.00	0.15	0.29	0.00	0.30	0.57
79	Maintenance of C/D Works (Slab Culvert)	No.	0.00	1.00	0.00	1.20	0.29	0.00	0.00	0.00
80	Maintenance of Road signs	Km	0.16	1.00	0.12	0.09	0.29	0.02	0.01	0.05
81	Maintenance of 200 m and km stones	Km	0.20	1.00	0.10	0.02	0.29	0.02	0.00	0.06
82	(I)Cutting of branches of trees and shrubs	No.	3.00	10.00	1.00	0.12	0.29	0.30	0.04	0.09
83	(ii) Cutting of shrubs from roadway	No.	14.00	100.00	0.00	0.08	0.29	0.00	0.01	0.04
84	(iii) Trimming of grass and weeds	Sqm	2.70	1500.00	0.00	0.40	0.29	0.00	0.00	0.00
85	White washing of parapet walls of CD work and tree truncks	Sqm	42.00	90.00	0.00	0.01	0.29	0.00	0.00	0.13
86	Maintenance of Already Planted Trees for Second Year	Each	11.00	10.00	0.00	15.00	0.29	0.00	16.50	0.31
87	**3rd Year Maintenance cost**									
88	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	160.65	10.00	0.00	0.24	0.29	0.00	3.86	4.59
89	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	892.50	100.00	0.00	0.24	0.29	0.00	2.14	2.55
90	Repair of Pot holes filled with 50 mm BM X 1.25	Sqm	31.64	205.00	5.00	0.44	0.29	0.77	0.07	0.04
91	Patch repair over Pot holevswith 20 mm MSS	Sqm	0.79	4000.00	3.00	0.52	0.29	0.00	0.00	0.00
92	Maintenance of C/D Works (Hume Pipe Culvert)	No.	2.00	1.00	0.00	0.15	0.29	0.00	0.30	0.57
93	Maintenance of C/D Works (Slab Culvert)	No.	0.00	1.00	0.00	1.20	0.29	0.00	0.00	0.00
94	Maintenance of Road signs	Km	0.20	1.00	0.12	0.09	0.29	0.02	0.02	0.06
95	Maintenance of 200 m and km stones	Km	0.24	1.00	0.10	0.02	0.29	0.02	0.01	0.07
96	(I)Cutting of branches of trees and shrubs	No.	1.00	10.00	1.00	0.12	0.29	0.10	0.01	0.03
97	(ii) Cutting of shrubs from roadway	No.	5.00	100.00	0.00	0.08	0.29	0.00	0.00	0.01
98	(iii) Trimming of grass and weeds	Sqm	2.70	1500.00	0.00	0.40	0.29	0.00	0.00	0.00
99	White washing of parapet walls of CD work and tree truncks	Sqm	42.00	90.00	0.00	0.01	0.29	0.00	0.00	0.13
100	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface	Sqm	0.00	640.00	0.50	2.00	0.29	0.00	0.00	0.00
101	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Concrete Surface	Each	0.00	640.00	0.50	2.00	0.29	0.00	0.00	0.00
102	**4th Year Maintenance cost**									
103	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	183.60	10.00	0.00	0.24	0.29	0.00	4.41	5.25
104	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	1020.00	100.00	0.00	0.24	0.29	0.00	2.45	2.92
105	Repair of Pot holes filled with 50 mm BM X 1.25	Cum	42.19	205.00	5.00	0.44	0.29	1.03	0.09	0.06
106	Patch repair over Pot holevswith 20 mm MSS	Sqm	1.05	4000.00	3.00	0.52	0.29	0.00	0.00	0.00
107	Maintenance of C/D Works (Hume Pipe Culvert)	No.	2.00	1.00	0.00	0.15	0.29	0.00	0.30	0.57
108	Maintenance of C/D Works (Slab Culvert)	No.	0.00	1.00	0.00	1.20	0.29	0.00	0.00	0.00
109	Maintenance of Road signs	Km	0.20	1.00	0.12	0.09	0.29	0.02	0.02	0.06
110	Maintenance of 200 m and km stones	Km	0.24	1.00	0.10	0.02	0.29	0.02	0.01	0.07
111	(I)Cutting of branches of trees and shrubs	No.	1.00	10.00	1.00	0.12	0.29	0.10	0.01	0.03
112	(ii) Cutting of shrubs from roadway	No.	5.00	100.00	0.00	0.08	0.29	0.00	0.00	0.01
113	(iii) Trimming of grass and weeds	Sqm	2.70	1500.00	0.00	0.40	0.29	0.00	0.00	0.00

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
114	White washing of parapet walls of CD work and tree truncks	Sqm	42.00	90.00	0.00	0.01	0.29	0.00	0.00	0.13
115	**5th Year Maintenance cost**									
116	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	206.55	10.00	0.00	0.24	0.29	0.00	4.96	5.91
117	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	1147.50	100.00	0.00	0.24	0.29	0.00	2.75	3.28
118	Repair of Pot holes filled with 50 mm BM X 1.25	Cum	52.73	205.00	5.00	0.44	0.29	1.29	0.11	0.07
119	Patch repair over Pot holevswith 20 mm MSS	Sqm	1.32	4000.00	3.00	0.52	0.29	0.00	0.00	0.00
120	Maintenance of C/D Works (Hume Pipe Culvert)	No.	2.00	1.00	0.00	0.15	0.29	0.00	0.30	0.57
121	Maintenance of C/D Works (Slab Culvert)	No.	0.00	1.00	0.00	1.20	0.29	0.00	0.00	0.00
122	Maintenance of Road signs	Km	0.20	1.00	0.12	0.09	0.29	0.02	0.02	0.06
123	Maintenance of 200 m and km stones	Km	0.33	1.00	0.10	0.02	0.29	0.03	0.01	0.09
124	(I)Cutting of branches of trees and shrubs	No.	1.00	10.00	1.00	0.12	0.29	0.10	0.01	0.03
125	(ii) Cutting of shrubs from roadway	No.	5.00	100.00	0.00	0.08	0.29	0.00	0.00	0.01
126	(iii) Trimming of grass and weeds	Sqm	4.50	1500.00	0.00	0.40	0.29	0.00	0.00	0.00
127	White washing of parapet walls of CD work and tree truncks	Sqm	42.00	90.00	0.00	0.01	0.29	0.00	0.00	0.13
128	**6th Year Maintenance cost**									
129	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	5.00	10.00	0.00	0.24	6.00	0.00	0.12	3.00
130	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	2.70	100.00	0.00	0.24	5.00	0.00	0.01	0.14
131	Repair of Pot holes filled with 50 mm BM X 1.25	Cum	0.00	205.00	5.00	0.44	8.00	0.00	0.00	0.00
132	Patch repair over Pot holevswith 20 mm MSS	Cum	206.55	4000.00	3.00	0.52	12.00	0.15	0.03	0.62
133	Maintenance of C/D Works (Hume Pipe Culvert)	No.	52.73	1.00	0.00	0.15	1.00	0.00	7.91	52.73
134	Maintenance of C/D Works (Slab Culvert)	No.	52.73	1.00	0.00	1.20	4.00	0.00	63.28	210.94
135	Maintenance of Road signs	Km	1.32	1.00	0.12	0.09	2.00	0.16	0.12	2.64
136	Maintenance of 200 m and km stones	Km	0.00	1.00	0.10	0.02	0.50	0.00	0.00	0.00
137	(I)Cutting of branches of trees and shrubs	No.	0.00	10.00	1.00	0.12	2.00	0.00	0.00	0.00
138	(ii) Cutting of shrubs from roadway	No.	2.00	100.00	0.00	0.08	2.00	0.00	0.00	0.04
139	(iii) Trimming of grass and weeds	Sqm	0.00	1500.00	0.00	0.40	10.00	0.00	0.00	0.00
140	White washing of parapet walls of CD work and tree truncks	Sqm	0.20	90.00	0.00	0.01	0.29	0.00	0.00	0.00

Sl. No.	DESCRIPTION	Unit	Quantity	Items Output	Output Taken From Analysis			Mandays		
					Skilled	Semi-Skilled	Unskilled	Skilled	Semi-Skilled	Unskilled
141	**7th Year Maintenance cost**									
142	Restoration of Raincuts/Berms with soil.moorum etc(Qty=L*Bs*0.3*%taken) X 1.25	Cum	1.00	10.00	0.00	0.24	0.29	0.00	0.02	0.03
143	Making up of Berms/shoulder, stripping excess soil from the shoulder surfaces to achieve level etc. (Qty=L*Br*%taken) X 1.25	Sqm	5.00	100.00	0.00	0.24	0.29	0.00	0.01	0.01
144	Repair of Pot holes filled with 50 mm BM X 1.25	Cum	0.00	205.00	5.00	0.44	0.29	0.00	0.00	0.00
145	Patch repair over Pot holevswith 20 mm MSS	Sqm	0.00	4000.00	3.00	0.52	0.29	0.00	0.00	0.00
146	Maintenance of C/D Works (Hume Pipe Culvert)	No.	114.75	1.00	0.00	0.15	0.29	0.00	17.21	32.82
147	Maintenance of C/D Works (Slab Culvert)	No.	637.50	1.00	0.00	1.20	0.29	0.00	765.00	182.33
148	Maintenance of Road signs	Km	0.00	1.00	0.12	0.09	0.29	0.00	0.00	0.00
149	Maintenance of 200 m and km stones	Km	0.00	1.00	0.10	0.02	0.29	0.00	0.00	0.00
150	(I)Cutting of branches of trees and shrubs	No.	10.55	10.00	1.00	0.12	0.29	1.05	0.13	0.30
151	(ii) Cutting of shrubs from roadway	No.	0.26	100.00	0.00	0.08	0.29	0.00	0.00	0.00
152	(iii) Trimming of grass and weeds	Sqm	0.00	1500.00	0.00	0.40	0.29	0.00	0.00	0.00
153	White washing of parapet walls of CD work and tree truncks	Sqm	0.00	90.00	0.00	0.01	0.29	0.00	0.00	0.00
154	Maintenance of Already Planted Trees for Second Year	Each	2.00	10.00	0.00	15.00	0.29	0.00	3.00	0.06
	Sub Total							4.789	48.577	138.683
	Total							**20.000**	**59.000**	**234.000**

JE **AE** **EE** **SE**

CULVERT DETAILS

No. Of Culverts 2

Sl. No	Chainage(m)	Type Of CD	Size	Required Action
1	0+500	HPC	1X1000 MM	Parapet Repair
2	1+300	HPC	1X1000 MM	Parapet Repair

Mukhya Mantri Gram Sadak Unnayan Yojana (MMGSUY)
Abstract Cost of CD Structure

Name of Road : L055-L043 To MANJHAULIA (VR88)

Length of Road : 1.360 km

Block : Barachatti

S.No.	Particulars		Details	Total Cost (in Lakh)
	Construction of CD Works	No.	Cost of Each CD	Amount
1	Single Row 300 mm Dia (Irrigation Conduit)	1	7,830.00	7,830.00
4	Painting And Parapet Repair		13,222.00	13,222.00
	Total Cost of CD			**21,052.00**
			Say	**0.211 Lacs**

Hume Pipe 1 x 1000 mm dia

Quantities & Cost Estimate for Construction of Parapet Wall (0.4 m Width x 0.6 m height)

Sl No	SDB Sr. No.	Item of work involved	Unit	Total Qty	Rate (रु)	Amount (रु)
1	12.3 (i)A	**Plastering with cement mortar (1:4)**				
		Plastering with cement mortar (1:4) on brick work in sub-structure as per Technical Specifications				
		Side Face 4.00 x 6.40 x 0.60 = 15.360				
		Top 2.00 x 6.40 x 0.40 = 5.120				
		Front Face 4.00 x 0.40 x 0.60 = 0.960				
		Total Qty = = 21.440	**sqm**	**21.440**	**179.43**	**3,847.00**
2	12.13	**Painting Two Coats on New Concrete Surfaces**				
		Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701				
		Side Face 4.00 x 6.40 x 0.60 = 15.360				
		Top 2.00 x 6.40 x 0.40 = 5.120				
		Front Face 4.00 x 0.40 x 0.60 = 0.960				
		Total Qty = = 21.440	**sqm**	**21.44**	**128.93**	**2,764.00**

Total Amount for One Culvert = 6,611.00

Cost of 2 No CULVERT = रु 13,222.00

Analysis For Carriage By Road

Name Of Road:-- L055-L043 To MANJHAULIA (VR88)

District:- Gaya. **Block :-** Barachatti

Sl No	Item With Source	Unit	Source Up To	Carriage Cost & Lead In Km		Loading & Unloading Cost	Total
				Pucka / Surface	Katcha		
1	Stone Metal Gr-I & Gr-II	Cum	Mirzapur	8.00/4.59 x 7.25 x 55.00 Km = Rs 694.99	8.00/4.59 x 17.55 x 0.00 Km = Rs 0.00	209.22	Rs. 904.21
2	Stone Metal Gr-III / GSB	Cum	Mirzapur	8.00/4.99 x 7.25 x 55.00 Km = Rs 639.28	8.00/4.99 x 17.55 x 0.00 Km = Rs 0.00	209.22	Rs. 848.50
3	Stone Aggregate / Chips	Cum	Mirzapur	8.00/4.99 x 7.25 x 55.00 Km = Rs 639.28	8.00/4.99 x 17.55 x 0.00 Km = Rs 0.00	209.22	Rs. 848.50
4	Stone Boulder	Cum	Mirzapur	8.00/4.80 x 7.25 x 55.00 Km = Rs 664.58	8.00/4.80 x 17.55 x 0.00 Km = Rs 0.00	209.22	Rs. 873.80
5	Course Sand	Cum	Sherghati	8.00/4.99 x 7.25 x 25.00 Km = Rs 290.58	8.00/4.99 x 17.55 x 0.00 Km = Rs 0.00	112.44	Rs. 403.02
6	Binding Material/Moorum	Cum	Mirzapur	8.00/6.00 x 7.25 x 55.00 Km = Rs 531.67	8.00/6.00 x 17.55 x 0.00 Km = Rs 0.00	112.44	Rs. 644.11
6	Local Sand	Cum	Local	8.00/4.99 x 7.25 x 2.00 Km = Rs 23.25	8.00/4.99 x 17.55 x 1.00 Km = Rs 28.14	112.44	Rs. 163.83
7	Brick	1000 Nos	Local	8.00/2.00 x 7.25 x 7.00 Km = Rs 203.00	8.00/2.00 x 17.55 x 1.00 Km = Rs 70.20	467.66	Rs. 740.86
8	Cement	MT	Local	8.00/8.00 x 7.25 x 10.00 Km = Rs 72.50	8.00/8.00 x 17.55 x 0.00 Km = Rs 0.00	355.16	Rs. 427.66
9	Steel	MT	Local	8.00/8.00 x 7.25 x 10.00 Km = Rs 72.50	8.00/8.00 x 17.55 x 0.00 Km = Rs 0.00	383.96	Rs. 456.46
10	Bitumen Emulsion	MT	Belaganj	8.00/8.00 x 7.25 x 66.00 Km = Rs 478.50	8.00/8.00 x 17.55 x 0.00 Km = Rs 0.00	397.96	Rs. 876.46
11	Bitumen	MT	Belaganj	8.00/8.00 x 7.25 x 66.00 Km = Rs 478.50	8.00/8.00 x 17.55 x 0.00 Km = Rs 0.00	397.96	Rs. 876.46
12	Hume Pipe (1000 mm)	M	Bankebazar	8.00/10.00 x 7.25 x 35.00 Km = Rs 203.00	8.00/10.00 x 17.55 x 0.00 Km = Rs 0.00	68.02	Rs. 271.02
13	Hume Pipe (600 mm)	M	Bankebazar	8.00/25.00 x 7.25 x 35.00 Km = Rs 81.20	8.00/25.00 x 17.55 x 0.00 Km = Rs 0.00	29.15	Rs. 110.35
14	Hume Pipe (300 mm)	M	Bankebazar	8.00/60.00 x 7.25 x 35.00 Km = Rs 33.83	8.00/60.00 x 17.55 x 0.00 Km = Rs 0.00	29.15	Rs. 62.98

Cost Of Haulage Excluding Loading & Unloading As Per SOR

Type Of Road	` Per Ton. Km By Tipper	` Per Ton. Km By Truck
For Surface Road	11.20	7.25
Unsurface Gravel Road	13.50	8.72
Kachha Road	27.10	17.55

*** Subjected To Verification Of Lead**

JE **AE** **EE**
RWD **RWD** **RWD**

Analysis For Carriage By Road & Rail

Name of Road:-- L055-L043 To MANJHAULIA (VR88)

Block :- Barachatti

District:- Gaya. **1.360 KM.**

Sl No	Item	Unit	Carriage Cost By Road (Per cum)	Carriage Cost (Addopted In DPR)
1	Stone Metal Gr-I & Gr-II	Cum	904.21	904.21
2	Stone Metal Gr-III / GSB	Cum	848.50	848.50
3	Stone Aggregate / Chips	Cum	848.50	848.50
4	Stone Boulder	Cum	873.80	873.80
5	Course Sand	Cum	403.02	403.02
6	Binding Material (Moorum)	Cum	644.11	644.11
7	Local Sand	Cum	163.83	163.83
8	Brick	1000 Nos	740.86	740.86
9	Cement	MT	427.66	427.66
10	Steel	MT	456.46	456.46
11	Bitumen Emulsion	MT	876.46	876.46
12	Bitumnen	MT	876.46	876.46
13	Hume Pipe (1000 mm)	Pipe	271.02	271.02

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BASIC RATES
(A) Labour

Sl. No.	Description Of Labour	Unit	Rate (Rs.)
L-01	Bhisti	Day	412.00
L-02	Bitumen Sprayer	Day	433.00
L-03	Head Blacksmith	Day	553.00
L-04	Blaster	Day	680.00
L-05	Carpenter 1st Class	Day	553.00
L-06	Chips Spreader	Day	519.00
L-07	Chiseller	Day	636.00
L-08	Dresser (Skilled)	Day	521.00
L-09	Driller	Day	428.00
L-10	Electrician	Day	553.00
L-11	Fitter	Day	494.00
L-12	Mason (1st class)	Day	553.00
L-13	Mason (2nd Class)	Day	494.00
L-14	Mate	Day	437.00
L-15	Mazdoor (Unskilled)	Day	412.00
L-16	Mazdoor (Semi skilled)	Day	428.00
L-17	Mazdoor (Skilled)	Day	521.00
L-18	Painter (Ist class)	Day	523.00
L-19	Plumber	Day	553.00
L-20	Surveyor	Day	499.00
L-21	White Washer	Day	521.00

(Basic Rates taken from SOR, 18th edition, Road Construction Department, Govt of Bihar effective from 01/04/2024) & Again Revised Labour Rate (12/12/2024) & Material Rate (30/09/2024)

BASIC RATES
(B) Material

Sl. No.	SOR Code	Description	Unit	Basic Rate As Per SOR	Final Rate
M-001	M-056	AC pipe 100 mm	m	47.15	47.15
M-002	M-032	Aggregate - For 37.5 mm Maximum size - 22.4 mm to 5.6 mm	cum	913.48	913.48
M-003	M-034	Aggregate - For 37.5 mm Maximum size - 45 mm to 22.5 mm	cum	1,115.24	1,115.24
M-004	M-030	Aggregate - For 37.5 mm Maximum size - Below 5.6 mm	cum	434.45	434.45
M-005	M-032	Aggregate - For 53 mm Maximum size - 22.5 mm to 5.6 mm	cum	913.48	913.48
M-006	M-038	Aggregate - For 53 mm Maximum size - 63 mm to 45 mm	cum	1,005.81	1,005.81
M-007	M-030	Aggregate - For 53 mm Maximum size - Below 5.6 mm	cum	774.85	774.85
M-008	M-040	Aggregate - Grading I (40 mm nominal Size) 10 mm - 5 mm	cum	602.28	602.28
M-009	M-046	Aggregate - Grading I (40 mm nominal Size) 25 mm – 10 mm	cum	913.48	913.48
M-010	M-049	Aggregate - Grading I (40 mm nominal Size) 37.25 mm - 25 mm	cum	1,115.24	1,115.24
M-011	M-030	Aggregate - Grading I (40 mm nominal Size) 5 mm and below	cum	434.45	434.45
M-012	M-040	Aggregate - Grading II (19 mm nominal Size) 10 mm - 5 mm	cum	602.28	602.28
M-013	M-046	Aggregate - Grading II (19 mm nominal Size) 25 mm – 10 mm	cum	913.48	913.48
M-014	M-030	Aggregate - Grading II (19 mm nominal Size) 5 mm and below	cum	434.45	434.45
M-015	M-051	Aggregate 10 mm	cum	602.28	602.28
M-016	M-053	Aggregate 20 mm	cum	1,224.68	1,224.68
M-017	M-055	Aggregate 40 mm	cum	1,005.81	1,005.81
M-018	M-007	Aggregate- Crushable type such as moorum or Gravel for Grading I	cum	162.88	162.88
M-019	M-007	Aggregate- Crushable type such as moorum or Gravel for Grading II	cum	162.88	162.88
M-020	M-007	Aggregate- Crushable type such as moorum or Gravel for Grading III	cum	162.88	162.88
M-021	M-039	Aggregate-Grading I 90 mm to 45 mm	cum	1,005.81	1,005.81
M-022	M-038	Aggregate-Grading II 63 mm to 45 mm	cum	1,005.81	1,005.81
M-023	M-036	Aggregate-Grading III 53 mm to 22.4 mm	cum	1,115.24	1,115.24
M-024	M-031	Aggregates 22.4 mm to 2.36 mm for wet mix macadam	cum	697.86	697.86
M-025	M-034	Aggregates 45 mm to 22.4 mm for wet mix macadam	cum	1,115.24	1,115.24
M-026	M-059	Aluminium sheeting (1.5 mm thick)	sqm	8,945.43	8,945.43
M-027	M-062	Aluminium Studs 100 mm x 100 mm fitted with lense reflectors	Nos.	209.95	209.95
M-028		Bamboo (1st Class) 85 mm - 100 mm dia, 2.0 m long	No.	15.00	15.00
M-029		Bamboo (1st Class) 85 mm - 100 mm dia, 2.5 m long	No.	22.03	22.03
M-029		Bamboo (1st Class) 85 mm - 100 mm dia, 3.0 m long	No.	23.52	23.52

Sl. No.	SOR Code	Description	Unit	Basic Rate As Per SOR	Final Rate
M-030		Bamboo (1st Class) 85 mm - 100 mm dia, 4.5 m - 5.5 m long	No.	14.71	14.71
M-029		Bamboo (2nd Class) 75mm dia, 1.8 m - 2.5 m long	No.	23.52	23.52
M-030		Bamboo (2nd Class) 75mm dia, 2.1 m - 3.0 m long	No.	22.03	22.03
M-031	M-063	Barbed wire	kg	79.75	79.75
M-032	M-007	Binding Material (Moorum)	cum	162.88	162.88
M-033	M-072	Binding wire	kg	48.30	48.30
M-034	M-078	Bitumen (Crumb Rubber Modified)	tonne	62,040.00	62,040.00
M-035		Bitumen (Natural Rubber Modified)	tonne	41,272.00	41,272.00
M-036		Bitumen (Polymer Modified)	tonne	-	-
M-037	M-074	Bitumen (S-65)/VG-30 (Excluding The Cost Of Empty Drum @ Rs. 1051.40/ Per MT) (Gaya)	Tonne	52,472.60	52,472.60
M-038	M-075	Bitumen (S-90)/VG-10 (Excluding The Cost Of Empty Drum @ Rs. 1051.40/ Per MT)	Tonne	50,676.60	50,676.60
M-039		Bitumen Emulsion (RS-1)(Excluding The Cost Of Empty Drum @ Rs. 850.65/ Per MT)(Gaya)	Tonne	51,261.35	51,261.35
M-040	M-077	Bitumen Emulsion (SS-1) (Excluding The Cost Of Empty Drum @ Rs 850.65/ Per MT)	Tonne	52,527.35	52,527.35
M-042	M-120	Bituminous sealant	litre	30.54	30.54
M-043	M-148	Randum Rubble Stone	kg	694.61	694.61
M-044		Blasting material	kg	162.88	162.88
M-045	M-182	Bond stone (400 mm x 150 mm x 150 mm)	No.	10.80	10.80
M-046	M-079	Brick 1st Class	No.	6.12	6.12
M-047		Cement **(OPC - 43 Grade) (Excluding The Cost Of Empty Bag @ Rs. 3.58 / Per Bag) (OPC 43 Grade)**	t	5,402.40	5,402.40
M-048	M-090	Cement Primer	litre	125.53	125.53
M-049		Chlorprene Elastomer or Closed Cell Foam Sealing Element	m	24,868.88	24,868.88
M-050	M-163	Compensation For Earth Taken From Private Land (Including Royality @ Rs. 33.0 Per Cum & Compensation @ Rs. 1.81 Per Cum)	cum	35.25	35.25
M-051	M-084	Compressible Fibre Board	sqm	1,383.88	1,383.88
M-052	M-086	Copper plate	kg	553.35	553.35
M-053		Corbelling Stones (300 mm x 150 mm x 150 mm)	No.	-	-
M-054	M-087	Corrosion Resistant Structural Steel Grating	kg	77.40	77.40
M-055	M-089	Credit for excavated rock found suitable for use	cum	112.08	112.08
M-056		Crow bars 40 mm dia (hire charges)	hour	5.00	5.00
M-057	M-021	Crushed Sand or Grit Passing 2.36 mm and retained on 180 micron	cum	266.62	266.62
M-058		Crushed Slag	cum	729.73	729.73

Sl. No.	SOR Code	Description	Unit	Basic Rate As Per SOR	Final Rate
M-059	M-026	Crushed Stone Aggregate 26.5 mm to 75 micron	cum	913.48	913.48
M-060	M-052	Crushed Stone chipping 13.2 mm nominal size	cum	602.28	602.28
M-061	M-050	Crushed Stone Chipping 6.7 mm size 100% passing 11.2 mm and retained on 2.36 mm	cum	434.45	434.45
M-062	M-050	Crushed Stone Chipping 6.7 mm size 100% passing 9.5 mm and retained on 2.36 mm	cum	434.45	434.45
M-063	M-051	Crushed Stone chipping 9.5 mm nominal size	cum	602.28	602.28
M-064	M-035	Crushed Stone Coarse Aggregate Passing 53 mm and retained on 2.8 mm	cum	774.85	774.85
M-065	M-009	Curing compound	litre	38.00	38.00
M-066		Debonding strips	m	49.91	49.91
M-067		Edge Stone (450 mm x 350 mm x 100 mm)	No.	-	-
M-068		Edge Stone (450 mm x 350 mm x 200 mm)	No.	-	-
M-069		Elastomeric bearing assembly	Nos.	24,867.70	24,867.70
M-070	M-094	Electric Detonator	each	568.80	568.80
M-071	M-095	Epoxy Paint	litre	482.35	482.35
M-072	M-097	Epoxy Primer	litre	105.24	105.24
M-073	M-167	Farmyard manure	cum	552.10	552.10
M-074		Fevicol adhesive	kg	125.00	125.00
M-075	M-012	Filter media	cum	697.86	697.86
M-076	M-021	Fine aggregate/Crushed sand 2.36 mm to 75 micron	cum	266.62	266.62
M-077		Galvanised angle	kg	57.03	57.03
M-078		Galvanised angle Section 100 mm x 100 mm of 12 mm thickness	kg	111.84	111.84
M-079	M-104	Gelatine 80 per cent	kg	806.85	806.85
M-080	M-056	GI Pipe 100 mm dia	m	647.76	647.76
M-081	M-056	GI Pipe 50 mm dia	m	211.02	211.02
M-082	M-102	GI wires	kg	96.39	96.39
M-083		Graded stone aggregate	cum	689.23	689.23
M-084	M-003	Granular material (Natural occuring, soil gravel mixture / quarry waste, kankar, laterite, dhandla	cum	168.37	168.37
M-085	M-055	Hand Broken Metal 40 mm size	cum	1,005.81	1,005.81
M-086		Indigo	kg	416.00	416.00
M-087		Interlocking Blocks with 60 mm thickness	sqm	416.00	416.00
M-088		Interlocking Blocks with 80 mm thickness	sqm	416.00	416.00
M-089	M-141	Joint filler board	sqm	1,064.18	1,064.18

Sl. No.	SOR Code	Description	Unit	Basic Rate As Per SOR	Final Rate
M-090	M-121	Jute netting, open weave 25 mm square opening	sqm	41.26	41.26
M-091	M-121	Jute rope 12 mm dia	m	41.26	41.26
M-092	M-031	Key Aggregates passing 22.4 mm and retained on 2.8 mm	cum	697.86	697.86
M-093	M-188	Lime	t	3,150.00	3,150.00
M-094	M-188	Lime putty	t	3,000.00	3,000.00
M-095	M-094	Local Wood Piles (1st Class) 150-200 mm dia ,6m long	No.	193.50	193.50
M-096		Local Wood Piles (1st Class) 100 mm x 75 mm	cum	20,775.00	20,775.00
M-097	M-002	Loose stone	cum	206.33	206.33
M-098	M-101	MS clamps	Nos.	84.83	84.83
M-099	M-179	MS Flat / Structural Steel	t	55,450.00	55,450.00
M-100		MS Sheet Tube (47 mm x 47 mm x 12 SWG Sheet)	kg	44.93	44.93
M-101		MS Sheet 1.5 mm thick	sqm	416.00	416.00
M-102		MS Sheet 2 mm thick	sqm	832.00	832.00
M-103	M-130	Nuts, Bolts and Rivets	t	80.28	80.28
M-104	M-131	Paint (Synthetic Enamel)	litre	283.74	283.74
M-105	M-180	Plasticizer	litre	30.45	30.45
M-106	M-138	Polythene sheet (125 micron)	sqm	16.20	16.20
M-107	M-138	Polythene Sheething	Nos.	17.81	17.81
M-108	M-002	Quarried Stone 150-200 mm size	cum	694.61	694.61
M-109	M-150	RCC Pipe NP3 (1200 mm dia)	m	6,953.28	6,953.28
M-110	M-149	RCC Pipe NP3 (1000 mm dia)	m	5,949.27	5,949.27
M-111		RCC Pipe NP3 (750 mm dia)	m	-	-
M-112		RCC Pipe NP3 (600 mm dia)	m	2,510.02	2,510.02
M-113		RCC Pipe NP3 (500 mm dia)	m	-	-
		RCC Pipe NP3 (300 mm dia)	m	568.48	568.48
M-114	M-150	RCC Pipe NP4 (1200 mm dia)	m	6,953.28	6,953.28
M-115	M-149	RCC Pipe NP4 (1000 mm dia)	m	5,949.27	5,949.27
M-116		RCC Pipe NP4 (750 mm dia)	m	-	-
M-117		RCC Pipe NP4 (600 mm dia)	m	2,510.02	2,510.02
M-118		RCC Pipe NP4 (300 mm dia)	m	568.48	568.48
M-119		Red-oxide Primer	litre	246.65	246.65

Sl. No.	SOR Code	Description	Unit	Basic Rate As Per SOR	Final Rate
M-120	M-132	Road marking paint	litre	283.74	283.74
M-121	M-005	Sand (Coarse)	cum	584.64	584.64
M-122	M-006	Sand (Fine)	cum	145.87	145.87
M-123	M-162	Seeds	kg	42.95	42.95
M-124	M-175	Steel Pipe 50 mm dia	m	272.10	272.10
M-125		Steel Reinforcement (HYSD Bars) 12 mm-Tata/Sail/Vizag	t	48,550.00	48,550.00
M-126		Steel Reinforcement (MS Round Bars) 6 mm-Tata/Sail/Vizag	t	48,550.00	48,550.00
M-127		Steel Reinforcement (TMT Bars) 8 mm-Tata/Sail/Vizag	t	48,550.00	48,550.00
M-128	M-001	Stone Boulder of size 150 mm and below	cum	694.61	694.61
M-129	M-052	Stone Chips 12 mm size	cum	602.28	602.28
M-130	M-043	Stone Chips 13.2 mm to 5.6 mm	cum	602.28	602.28
M-131	M-041	Stone Crushed Aggregate 11.2 mm to 0.09 mm	cum	434.45	434.45
M-132		Stone for Coarse Rubble Masonry 1st Sort	cum	-	-
M-133		Stone for Coarse Rubble Masonry 2nd Sort	cum	-	-
M-134	M-148	Stone for Random Rubble Masonry	cum	694.61	694.61
M-135		Stone for Stone Set Pavement (300 mm x 200 mm x 150 mm)	No.	-	
M-136	M-042	Stone Screening - Type A 13.2 mm for Grading-1	cum	434.45	434.45
M-137	M-042	Stone Screening - Type A 13.2 mm for Grading-2	cum	434.45	434.45
M-138	M-041	Stone Screening - Type B 11.2 mm for Grading-2	cum	434.45	434.45
M-139	M-041	Stone Screening - Type B 11.2 mm for Grading-3	cum	434.45	434.45
M-140	M-001	Stone spall	cum	363.47	363.47
M-141		Traffic cones	No.	441.78	441.78
M-142	M-189	Water	kl	61.40	61.40
M-143	M-020	Well graded Granular Base Material - Grading A 2.36 mm below	cum	266.62	266.62
M-144	M-026	Well graded Granular Base Material - Grading A 26.5 mm to 4.75 mm	cum	913.48	913.48
M-145	M-029	Well graded Granular Base Material - Grading A 53 mm to 26.5 mm	cum	1,115.24	1,115.24
M-146	M-020	Well graded Granular Base Material - Grading B 2.36 mm below	cum	266.62	266.62
M-147	M-026	Well graded Granular Base Material - Grading B 26.5 mm to 4.75 mm	cum	913.48	913.48
M-148	M-020	Well graded Granular Base Material - Grading C 2.36 mm below	cum	266.62	266.62
M-149	M-016	Well graded Granular Base Material - Grading C 9.5 mm to 4.75 mm	cum	602.28	602.28
M-150	M-020	Well Graded Material for Sub-Base - Grading I 2.36 mm below	cum	266.62	266.62

Sl. No.	SOR Code	Description	Unit	Basic Rate As Per SOR	Final Rate
M-151	M-013	Well Graded Material for Sub-Base - Grading I 53 mm to 9.5 mm	cum	1,115.24	1,115.24
M-152	M-017	Well Graded Material for Sub-Base - Grading I 9.5 mm to 2.36 mm	cum	434.45	434.45
M-153	M-020	Well Graded Material for Sub-Base - Grading II 2.36 mm below	cum	266.62	266.62
M-154	M-027	Well Graded Material for Sub-Base - Grading II 26.5 mm to 9.5 mm	cum	913.48	913.48
M-155	M-017	Well Graded Material for Sub-Base - Grading II 9.5 mm to 2.36 mm	cum	434.45	434.45
M-156	M-020	Well Graded Material for Sub-Base - Grading III 2.36 mm below	cum	266.62	266.62
M-157	M-018	Well Graded Material for Sub-Base - Grading III 4.75 mm to 2.36 mm	cum	266.62	266.62
M-158	M-016	Well Graded Material for Sub-Base - Grading III 9.5 mm to 4.75 mm	cum	602.28	602.28
M-159		Wooden sleepers (250 mm x 250 mm x 125 mm) (hire charges)	No.	5.00	5.00
RCD					-
M-118	M-118	Hot applied thermoplastic compound (Sp. Gravity - 2.10)	litre	210.99	210.99
M-152	M-152	Reflectorising glass beads	kg	80.71	80.71
M-146	M-146	Stone crushed aggregates 13.2 mm to 0.09 mm	cum	523.37	523.37
		Slow-curing bitumen emulsion	kg	43.00	43.00
M-146	M-146	Sapling 2 m high 25 mm dia	each	28.64	28.64
M-146	M-146	Pesticide	Kg	89.55	89.55
M-146	M-091	Delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	600.00	600.00
M-146	M-292	Waste Plastic	T	16974.00	16,974.00

BASIC RATES
(C) USAGE RATES OF PLANT & MACHINERY

Sr. No.	SOR Code	Description of		Output of Machine		Usage Rates in Rs.	
		Machine	Activity	Unit	Output	Unit	Rate
PM-001	P&M-001	Air Compressor 210 cfm	Supplying compressed air	cfm	210.00	Per Hour	455.00
PM-002	P&M-024	HMP 100-120 TPH (75 t per hour)	BM, DBM, SDBC, PM	Cum/h	75.00	Per Hour	51,313.00
PM-003	P&M-002	HMP 40-60 TPH (40 t per hour)	BM, DBM, SDBC, PM	Cum/h	20.00	Per Hour	31,459.00
PM-004	P&M-005	Bitumen boiler oil fired	Bitumen Spraying				
		20		litre / h	400.00	Per Hour	563.00
		10		litre / h	2000.00	Per Hour	563.00
PM-005	P&M-004	Bitumen pressure distributor	Applying bitumen tack coat	sqm/h	1750.00	Per Hour	1,362.00
PM-006	P&M-009	Concrete mixer 0.28/0.4 cum	Mixing of ingradients	cum/h	2.50	Per Hour	351.00
PM-007	P&M-012	Crane upto 3.5T	Lifting of materials			Per Hour	822.00
PM-008	P&M-015	Dozer D 50	Dozing/cutting/ Clearing	cum/h	200.00	Per Hour	4,342.00
				cum/h	100.00		3,014.00
PM-009	P&M-018	Electric generator set, 125 KVA	Electricity generation	KVA	100.00	Per Hour	1,646.00
PM-010	P&M-016	Emulsion Sprayer with Tractor	Spraying of Emulsion			Per Hour	1,362.00
PM-011	P&M-017	Front end-loader 1 cum bucket capacity @ 45 cum/hour	Loading Aggregates	cum/h	45.00	Per Hour	1,432.00
			Loading Soil	cum/h	100.00		1,432.00
PM-012	P&M-031	Hydraulic broom with tractor	Surface cleaning	sqm/h	1250.00	Per Hour	807.00
PM-013	P&M-026	Hydraulic Excavator 0.9 cum	Excavation	cum/h	100.00	Per Hour	2,288.00
PM-014	P&M-025	Hydraulic self propelled chip spreader	Surface Dressing	sqm/h	1500.00	Per Hour	1,689.00
PM-015	P&M-084	Jack Hammer with tractor	Pavement breaking & rock drilling	cum/h	05. to 1	Per Hour	1,289.00
PM-016	P&M-083	Joint Cutting Machine with 2-3 blades	Cutting of Joints	h		Per Hour	357.00
PM-017		Mixall 6-10 t capacity	Mixing of bituminous materials	t/h	8.00	Per Hour	3,702.00
PM-018	P&M-032	Motor Grader	Scarifier & levelling	cum/h	200.00	Per Hour	4,479.00
	P&M-054	Tractor Mounted Grader			50.00		693.00
PM-019		Needle vibrator	Vibrating cement concrete mix	cum/h	3.50	Per Hour	405.00
PM-020	P&M-035	Paver finisher	Laying/spreading	t/h	75.00	Per Hour	2,157.00
PM-021	P&M-086	Plate compactor	Compaction	cum/h		Per Hour	415.00
PM-022	P&M-086	Plate vibrator	Compaction	cum/h		Per Hour	396.00
PM-023		Screed vibrator	Compaction	cum/h		Per Hour	102.64
PM-024	P&M-044	Smooth wheeled 80-100 kN tandem roller	Compaction of Sub-base/ Asphalt	cum/h	30.00	Per Hour	2,072.00
PM-025	P&M-028	Stone crusher (Integrated) of 200 TPH	Crushing of Spalls	t/h	200.00	Per Hour	13,800.00
PM-026	P&M-044	Three wheel 80-100 kN Static Roller	Compaction/ Rolling				1,612.00
			Earth:- Embankment or sub-grade	cum/h	80/70		1,612.00
			Sub-base G-I	cum/h	10.00		1,612.00
			Sub-base G-II/G-III	cum/h	8.00		1,612.00

Sr. No.	SOR Code	Description of		Output of Machine		Usage Rates in Rs.	
		Machine	Activity	Unit	Output	Unit	Rate
			WMM	cum/h	16.00	Per Hour	1,612.00
			BUSG	cum/h	10.00		1,612.00
			BM 50/75 mm	cum/h	12.00		1,612.00
			Premix 20 mm	sqm/h	250.00		1,612.00
			Seal Coat	sqm/h	500.00		1,612.00
			Surface Dressing 1st Coat	sqm/h	400.00		1,612.00
			Surface Dressing 2ndCoat	sqm/h	500.00		1,612.00
PM-027	P&M-048	Tipper 5.5 cum/10 t	Carriage	cum/trip	5.50	Per Hour	1,441.00
PM-028	P&M-053	Tractor with Disc Harrows	Pulverisation of soil	cum/h	80.00	Per Hour	688.00
PM-029	P&M-055	Tractor with ripper @ 60 cum per hour	Ripping Pavements, uprooting trees	cum/h	60.00	Per Hour	697.00
PM-030	P&M-053	Tractor with trolley/with Grading equipment	Transportation of materials	t/trip	3 to 5	Per Hour	688.00
PM-031	P&M-054	Tractor with Rotavator	Scarifier	cum/h	25.00	Per Hour	705.00
PM-032	P&M-057	Truck 10 t capacity	Carriage	cum/trip	5.50	Per Hour	934.30
PM-033	P&M-059	Vibratory roller 80-100 kN	Compaction of soil WMM	cum/h	100.00	Per Hour	2,072.00
			Compaction of BM	cum/h	60.00		2,072.00
PM-034	P&M-060	Water tanker 6 kl capacity (Truck Mounted)	Carriage of water	litre / h	12000.00	Per Hour	764.00
PM-035	P&M-062	Wet mix plant (Pug Mill)	Wet Mix	cum/h	25.00	Per Hour	690.00
RCD							
P&M-036	PM40001	Road marking machine	Road marking	Sqm/h	100.00	Per Hour	1,423.00
P&M-037	P&M-022	Hot Mix Plant - 100 TPH	DBM/BM/SDBC/Premix	Cum/h	30.00	Per Hour	51,313.00
P&M-038	P&M-034	Sensor Paver Finisher	Paving of DBM/BM/SDBC/Premix	Cum/h	40.00	Per Hour	6,427.00
P&M-039	P&M-081	250 KVA Generator Set	Generation of Electric Energy	KVA	200.00	Per Hour	3,134.00
P&M-040	P&M-047	Tipper 5 Cum	Transportation of Soil, GSB, WMM, Hotmix etc.	Capacity in Cum	5.50	Tonne.Km	9.89
P&M-040	P&M-045	Tandem Road Roller	Rolling of Aspalt Surface	Cum/h	30.00	Per Hour	2,072.00
	P&M-081	250 KVA Generator Set	Generation of Electric Energy	KVA	200.00	per hour	3,134.00
		Tipper 10 Cum	Transportation of Soil, GSB, WMM, Hotmix etc.	Capacity in Cum	10.00	Tonne.Km	1,954.00
		transit truck agiator				Tonne.Km	10.75
		Texture Curing Machine upto 9 m		hrs			3,426.00
		transit Mixer 6 cum					10.85
		Batching and Mixing Plant - 120 cum Capacity					3,684.00
P&M-042	P&M-046	Mastic Cooker	Mastic Wearing coat	capacity in tonne	1.00	per hour	514.00
PM74001		Tipper 10 Cum (Surface Road)	Loading/Unloading	Capacity in Cum	10.00	Tonne.Km	7.10
PM29002	P&M-035	Paver finisher (170 HP)	Laying/spreading	t/h	170.00	per hour	6,427.00
	PM10001	Pneumatic Tyre Roller				per hour	2,077.00
		Front End loader 3.1 cum bucket capacity				per hour	3,519.00

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Haulage BY TIPPER				
1	1.10	(i)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-I : Surfaced Road				
			Speed with load: 25 km per hour				
			Speed while returning empty: 35 km per hour				
		a)	**Machinery**				
			Tipper 10 t capacity				
			Haulage with load	hour	0.40	1441.00	576.40
			Empty return trip	hour	0.29	1441.00	417.89
		b)	Overheads & CP @ 12.5% on (a)				**124.29**
			Cost for 100 t-km = a+b+c				1118.58
			Rate per cum = (a+b+c) /100				**11.19**
			Rate Per Km.	**Cum**			**11.20**
2	1.10	(ii)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-II: Unsurfaced Gravel Road.				
			Speed with load: 20 km/hour				
			Speed for empty return trip: 30 km/hour				
		a)	**Machinery**				
			Tipper 10 t capacity				
			Haulage with load	hour	0.50	1441.00	720.50
			Empty return trip	hour	0.33	1441.00	475.53
		b)	Overheads & CP @ 12.5% on (a)				**149.50**
			Cost for 100 t-km = a+b+c				1345.53
			Rate per cum = (a+b+c) /100				**13.46**
			Rate Per Km.	**Cum**			**13.50**
3	1.10	(iii)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-III : Katcha Track and Track in River Bed/Nallah Bed and Choe Bed.				
			Speed with load: 10 km per hour				
			Speed while returning empty: 15 km per hour				
		a)	**Machinery**				
			Tipper 10 t capacity				
			Haulage with load	hour	1.00	1441.00	1441.00
			Empty return trip	hour	0.67	1441.00	965.47
		b)	Overheads & CP @ 12.5% on (a)				**300.81**
			Cost for 100 t-km = a+b+c				2707.28
			Rate per cum = (a+b+c) /100				**27.07**
			Rate Per Km.	**Cum**			**27.10**
			Haulage BY TRUCK				
4	1.10	(i)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-I : Surfaced Road				
			Speed with load: 25 km per hour				
			Speed while returning empty: 35 km per hour				
		a)	**Machinery**				
			Truck 10 t capacity				
			Haulage with load	hour	0.40	934.30	373.72
			Empty return trip	hour	0.29	934.30	270.95
		b)	Overheads & CP @ 12.5% on (a)				**80.58**
			Cost for 100 t-km = a+b+c				725.25

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Rate per cum = (a+b+c) /100				**7.25**
			Rate Per Km.	**Cum**			**7.25**
5	1.10	(ii)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-II: Unsurfaced Gravel Road.				
			Speed with load: 20 km/hour				
			Speed for empty return trip: 30 km/hour				
		a)	**Machinery**				
			Truck 10 t capacity				
			Haulage with load	hour	0.50	934.30	467.15
			Empty return trip	hour	0.33	934.30	308.32
		b)	Overheads & CP @ 12.5% on (a)				**96.93**
			Cost for 100 t-km = a+b+c				872.40
			Rate per cum = (a+b+c) /100				**8.72**
			Rate Per Km.	**Cum**			**8.72**
6	1.10	(iii)	**Haulage excluding Loading & Unloading**				
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.				
			Unit = t.km				
			Taking output 10 t load and lead 10 km = 100 t.km				
			Case-III : Katcha Track and Track in River Bed/Nallah Bed and Choe Bed.				
			Speed with load: 10 km per hour				
			Speed while returning empty: 15 km per hour				
		a)	**Machinery**				
			Truck 10 t capacity				
			Haulage with load	hour	1.00	934.30	934.30
			Empty return trip	hour	0.67	934.30	625.98
		b)	Overheads & CP @ 12.5% on (a)				**195.04**
			Cost for 100 t-km = a+b+c				1755.32
			Rate per cum = (a+b+c) /100				**17.55**
			Rate Per Km.	**Cum**			**17.55**
8	1.2	RWD	Loading and Unloading Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Mechanical Means				
		i	Loading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by mechanical means including a lead upto 30 m Placing tipper at loading point, loading with front end loader excluding time for haulage and return trip.				
			Unit = cum				
			Taking output = 5.5 cum				
			Time required for				
		i	Positioning of tipper at loading point	Min	1.000		
		ii	Loading by front end loader 1 cum bucket capacity @ 45 cum per hour	Min	7.330		
		iii	Waiting time, unforeseen contingencies, etc.	Min	2.000		
			Total	Min	10.330		
		a)	**Machinery**				
			Tipper 10 t capacity	hour	0.172	1441.00	247.85
			Front end-loader 1 cum bucket capacity @ 45 cum per hour	hour	0.122	1432.00	174.70
		b)	Overheads & CP @ 12.5% on (a)				**52.82**
			Cost for 5.5 cum = a+b+C				475.38
			Rate per cum = (a+b)/5.5				**86.43**
			Unloading of Earth, Sand, Lime, Moorum, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Manure, Crushed Slag, Flyash, Stone for Masonry Work by mechanical means.				
			Unit = cum				
			Taking output = 5.5 cum				
			Placing tipper at unloading point excluding time for haulage and return trip				
			Time required for				
		i	Positioning of tipper at loading point	Min	1.000		
		ii	Manoeuvering, reversing, dumping and turning for return	Min	2.000		
		iii	Waiting time, unforeseen contingencies, etc.	Min	2.000		
			Total	Min	5.000		
		a)	**Machinery**				
			Tipper 10 t capacity	hour	0.080	1441.00	115.28
		b)	Overheads & CP @ 12.5% on (a)				**14.41**
			Cost for 5.5 cum = a+b				129.69
			Rate per cum = (a+b)/5.5				23.58
			Total loading and unloading by mechanical means				***110.01***

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
10	1.1	(i)	Loading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by manual means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Truck	hour	0.50	934.30	467.15
		c)	Overheads & CP @ 12.5% on (a)				**85.24**
			Cost for 5.5 cum = a+b+c+d				767.13
			Rate per cum = (a+b+c+d) /5.5				**139.48**
			Total Cost	**Cum**			**139.48**
11		(ii)	Loading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m.				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		b)	**Machinery**				
			Truck	hour	0.25	934.30	233.58
		c)	Overheads & CP @ 12.5% on (a+b))				**42.62**
			Cost for 5.5 cum = a+b+c+d				383.56
			Rate per cum = (a+b+c+d) /5.5				**69.74**
			Total Cost	**Cum**			**69.74**
12		(iii)	Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by mechanical means including a lead upto 30 m				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		b)	**Machinery**				
			Truck	hour	0.25	934.30	233.58
		c)	Overheads & CP @ 12.5% on (a+b))				**42.62**
			Cost for 5.5 cum = a+b+c+d				383.56
			Rate per cum = (a+b+c+d) /5.5				**69.74**
			Total Cost	**Cum**			**69.74**
			Total Loding & Unloading of Stone Aggregate	***Cum***	***= 139.48 + 69.74 =***		***209.22***
13		(iv)	Unloading of Earth, Sand, Moorum, Manure, Flyash by manual means including a lead upto 30 m.				
			Unit = cum				
			Taking output = 5.5 cum				
		a)	**Labour**				
			Mate	day	0.01	437.00	2.19
			Mazdoor (Unskilled)	day	0.13	412.00	51.50
		b)	**Machinery**				
			Truck	hour	0.17	934.30	155.09
		c)	Overheads & CP @ 12.5% on (a+b))				**26.10**
			Cost for 5.5 cum = a+b+c+d				234.88
			Rate per cum = (a+b+c+d) /5.5				**42.70**
			Total Cost	**Cum**			**42.70**
			Total Loding & Unloading of Sand / Moorum	***Cum***	***= 69.74 + 42.7 =***		***112.44***
14	1.3		**Loading, Unloading and Stacking of Bricks by Manual Means**				
		(i)	Loading of Bricks by manual means including a lead upto 30 m				
			Unit = 1000 Nos.				
			Taking output = 2000 Nos.				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		b)	**Machinery**				
			Truck	hour	0.33	934.30	308.32
		c)	Overheads & CP @ 12.5% on (a+b))				**51.96**
			Cost for 2000 Nos. = a+b+c+d				467.65
			Rate for 1000 bricks = (a+b+c+d)/2				**233.83**
			Total Cost	**no.**			**233.83**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
15		(ii)	Unloading and Stacking of Bricks by manual means including a lead upto 30 m				
			Unit = 1000 Nos.				
			Taking output = 2000 Nos.				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		b)	**Machinery**				
			Truck	hour	0.33	934.30	308.32
		c)	Overheads & CP @ 12.5% on (a+b))				**51.96**
			Cost for 2000 Nos. = a+b+c+d				467.65
			Rate for 1000 bricks = (a+b+c+d)/2				**233.83**
			Total Cost	**no.**			**233.83**
			Total Loding & Unloading of Brick Per 1000		***= 233.83 + 233.83 =***		***467.66***
16			**Loading and Unloading of Cement by Manual Means**				
		(i)	Loading of Cement by manual means including a lead upto 30 m				
			Unit = t				
			Taking output = 10 t				
		a)	**Labour**				
			Mate	day	0.06	437.00	26.22
			Mazdoor (Unskilled)	day	1.50	412.00	618.00
		b)	**Machinery**				
			Truck	hour	1.00	934.30	934.30
		c)	Overheads & CP @ 12.5% on (a+b))				**197.32**
			Cost for 10 t = a+b+c+d				1775.84
			Rate per tonnes = (a+b+c+d)/10				**177.58**
			Total Cost including	**t**			**177.58**
17		(ii)	Unloading of Cement by manual means including a lead upto 30 m				
			Unit = t				
			Taking output = 10 t				
		a)	**Labour**				
			Mate	day	0.06	437.00	26.22
			Mazdoor (Unskilled)	day	1.50	412.00	618.00
		b)	**Machinery**				
			Truck	hour	1.00	934.30	934.30
		c)	Overheads & CP @ 12.5% on (a+b))				**197.32**
			Cost for 10 t = a+b+c+d				1775.84
			Rate per tonne = (a+b+c+d)/10				**177.58**
			Total Cost	**t**			**177.58**
			Total Loding & Unloading of Cement	***t***	***= 177.58 + 177.58 =***		***355.16***
18	1.5		**Loading and Unloading of Structural Steel and Steel Bars by manual means**				
		(i)	Loading of Structural Steel, Steel Bars by manual means including a lead upto 30 m				
			Unit = t				
			Taking output = 10 t				
		a)	**Labour**				
			Mate	day	0.07	437.00	30.59
			Mazdoor (Unskilled)	day	1.80	412.00	741.60
		b)	**Machinery**				
			Truck	hour	1.00	934.30	934.30
		c)	Overheads & CP @ 12.5% on (a+b))				**213.31**
			Cost for 10 t = a+b+c+d				1919.80
			Rate per tonnes = (a+b+c+d)/10				**191.98**
			Total Cost	**t**			**191.98**
19		(ii)	Unloading of Structural Steel, Steel Bars by manual means including a lead upto 30 m				
			Unit = t				
			Taking output = 10 t				
		a)	**Labour**				
			Mate	day	0.07	437.00	30.59
			Mazdoor (Unskilled)	day	1.80	412.00	741.60
		b)	**Machinery**				
			Truck	hour	1.00	934.30	934.30
		c)	Overheads & CP @ 12.5% on (a+b))				**213.31**
			Cost for 10 t = a+b+c+d				1919.80
			Rate per t = (a+b+c+d)/10				**191.98**
			Total Cost	**t**			**191.98**
			Total Loding & Unloading of Steel	***t***	***= 191.98 + 191.98 =***		***383.96***

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
20	1.6		**Loading and Unloading of Bitumen Drums by Manual Means**				
		(i)	Loading of Bitumen Drums by manual means including a lead upto 30 m				
			Unit = t				
			Taking output = 10 t				
		a)	**Labour**				
			Mate	day	0.06	437.00	26.22
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
		b)	**Machinery**				
			Truck	hour	1.25	934.30	1167.88
		c)	Overheads & CP @ 12.5% on (a+b))				**231.66**
			Cost for 10 t = a+b+c+d				2084.96
			Rate per tonnes = (a+b+c+d)/10				**208.50**
			Total Cost	**t**			**208.50**
21		**(ii)**	Unloading of Bitumen Drums by Manual Means including a lead upto 30 m				
			Unit = t				
			Taking output = 10 t				
		a)	**Labour**				
			Mate	day	0.05	437.00	21.85
			Mazdoor (Unskilled)	day	1.20	412.00	494.40
		b)	**Machinery**				
			Truck	hour	1.25	934.30	1167.88
		c)	Overheads & CP @ 12.5% on (a+b))				**210.52**
			Cost for 10 t = a+b+c+d				1894.64
			Rate per t = (a+b+c+d)/10				**189.46**
		Note :-	The rate is inclusive of the self weight of drum				
			Total Cost	**t**			**189.46**
			Total Loding & Unloading of Bitumen Drums	***t***	***= 208.5 + 189.46 =***		***397.96***
22	1.9		**Loading and Unloading of Hume Pipes**				
		(i)	Loading of RCC Hume pipes by mechanical means including a lead upto 30 m				
		A.	**1000 / 1200 mm dia Hume pipe**				
			Unit = per pipe				
			Taking output = 9 pipes				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Truck	hour	0.33	934.30	308.32
			Crane	hour	0.33	822.00	271.26
		c)	Overheads & CP @ 12.5% on (a+b))				**99.29**
			Cost for 9 pipes = a+b+c+d				893.61
			Rate per pipe = (a+b+c+d)/9				**99.29**
			Total Cost	**per p**			**99.29**
23		**C.**	**600/450 mm dia Hume pipe**				
			Unit = per pipe				
			Taking output = 21 pipe				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Truck	hour	0.33	934.30	308.32
			Crane	hour	0.33	822.00	271.26
		c)	Overheads & CP @ 12.5% on (a+b))				**99.29**
			Cost for 21 pipes = a+b+c+d				893.61
			Rate per pipe = (a+b+c+d)/21				**42.55**
			Total Cost	**per p**			**42.55**
24		**(ii)**	Unloading of RCC Hume pipe by mechanical means including a lead upto 30 m				
		A.	**1000/1200 mm dia RCC Hume pipes**				
			Unit = per pipe				
			Taking output = 9 pipes				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Truck	hour	0.20	934.30	186.86
			Crane	hour	0.20	822.00	164.40
		c)	Overheads & CP @ 12.5% on (a+b))				**70.75**
			Cost for 9 pipes = a+b+c+d				636.75
			Rate per pipe = (a+b+c+d)/9				**70.75**
			Total Cost	**per p**			**70.75**
			Total Loding & Unloading of RCC Hume Pipe per Pipe		***= 99.29 + 70.75 =***		***170.04***

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Total Loding & Unloading of RCC Hume Pipe	*m*	*= 170.04 / 2.50 =*		*68.02*
25		C.	**600/450 mm dia Hume pipe**				
			Unit = per pipe				
			Taking output = 21 pipes				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Truck	hour	0.20	934.30	186.86
			Crane	hour	0.20	822.00	164.40
		c)	Overheads & CP @ 12.5% on (a+b))				**70.75**
			Cost for 21 pipes = a+b+c+d				636.75
			Rate per pipe = (a+b+c+d)/21				**30.32**
			Total Cost	**per p**			**30.32**
			Total Loding & Unloading of RCC Hume Pipe per Pipe		*= 42.55 + 30.32 =*		*72.87*
			Total Loding & Unloading of RCC Hume Pipe	*m*	*= 72.87 / 2.50 =*		*29.15*
26	1.16	100	**Setting Out Pillars**				
			Unit = 1 No.				
			Analysis of rates per pillar shall account for following :				
			Typical Benchmark 1 no. as per Dwg no. 200.1				
			of MORD Data Book (Page 1-18)				
			The rate analysis for a typical benchmark as per dwg.				
			1. Excavation	cum	0.33	386.53	125.62
			2. P.C.C. grade M 10	cum	0.10	6104.45	610.45
			3. Brick Masonry in CM 1:4	cum	0.48	6165.76	2928.74
			4. Plastering with CM 1:4 , 15 mm thick cement plaster on Brick work.	sqm	2.63	179.43	471.90
			Add 5 per cent cost of items No.1 to 4 for white washing,				206.84
			Sub Total	NO			**4343.54**
			A Total 6 Nos. of Pillars required for 1 Km.	**NO**	**6.00**	**4343.54**	**26061.24**
27	1.16	100	**Setting Out Pillars**				
			Unit = 1 No.				
			Analysis of rates per pillar shall account for following :				
			Reference Pillar 1 no. as per Dwg no. 200.2				
			of MORD Data Book (Page 1-18)				
			The rate analysis for a typical benchmark as per dwg.				
			1. Excavation	cum	0.19	386.53	74.21
			2. P.C.C. grade M 10	cum	0.06	6104.45	366.27
			3. Brick Masonry in CM 1:4	cum	0.19	6165.76	1189.99
			4. Plastering with CM 1:4 , 15 mm thick cement plaster on Brick work.	sqm	1.50	179.43	269.15
			Add 5 per cent cost of items No.1 to 4 for white washing,				94.98
			Sub Total	NO			**1994.60**
			B Total 2 Nos. of reference pillars required for 1 Km.	**NO**	**2.00**	**1994.60**	**3989.20**
			Cost of Setting out	**Km**	**A + B**		**30050.44**
							30050.44
28	2.20 (I)	201	**Clearing and Grubbing Road Land**				
			Clearing and Grubbing Road Land including uprooting wild vegetation , grass,bushes,shurbs,saplings and trees of girth upto 300mm, removal of stumps of such trees cut earlier and unseviceable materials & stacking of serviceable materials to be used or auctioned upto a lead of 1000m including removal and disposal of top organic soil not exceeding 150mm in thickness as per technical specification(clause201.1)				
			By Manual Means				
		(A)	In area of non-thorny jungle				
		a)	Labour				
			Mate	day	6.00	437.00	2622.00
			Mazdoor (Unskilled)	day	150.00	412.00	61800.00
		b)	Machinery				
			Tractor with trolley	hour	1.00	688.00	688.00
		c)	Overheads & CP @ 12.5% on (a+b))				**8138.75**
			Rate per hectare = a+b+c+d=				73248.75
			Total Cost	**Ha.**			**73248.75**
30	2.5	202	**Dismantling of Structures**				
			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 m as per Technical Specification Clause 202.				
			Unit = cum				
			Taking output = 1.25 cum				
		(I)	**By Manual Means**				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		(C)	**Reinforced Cement Concrete**				
		a)	**Labour**				
			Mate	day	0.05	437.00	21.85
			Mazdoor (Unskilled)	day	1.25	412.00	515.00
			Machinery				
		b)	Tractor with trolley	hour	0.27	697.00	188.19
		c)	Overheads & CP @ 12.5% on (a+b))				**90.63**
			Cost for 1.25 cum = a+b+c+d				815.67
			Rate per cum = (a+b+c+d)/1.25				**652.54**
			Total Cost	**cum**			**652.54**
31	**2.6- D**	**202**	**Dismantling of existing structures**, like culverts, bridge,retaining wall and other structures comprising of brick masonary including unserviceable material and stacking the serviceable material with all lift and lead of 1000m as per technical specification clause 202.				
			(Dismantling of dry brick pitching or Brick Soling,Masonry work)				
		a)	Labour				
			Mate	day	0.014	437.00	6.12
			Mazdoor (Unskilled)	day	0.35	412.00	144.20
		b)	Machinery				
			Tractor with trolley	hour	0.27	688.00	185.76
		c)	Overheads & CP @ 12.5% on (a+b))				**42.01**
			Cost for 1.25 cum = a+b+c+d				378.09
			Rate per cum = (a+b+c+d)/1.25=				302.47
			Total Cost	**cum**			**302.47**
		(c)	**Reinforced Cement Concrete**				
		a)	**Labour**				
			Mate	day	0.15	437.00	65.55
			Blacksmith	day	0.25	345.00	
			Mazdoor (Unskilled)	day	3.50	412.00	1442.00
			Machinery				
		b)	Tractor with trolley	hour	0.27	697.00	188.19
		c)	Overheads & CP @ 12.5% on (a+b))				**211.97**
			Cost for 1.25 cum = a+b+c+d				1907.71
			Rate per cum = (a+b+c+d)/1.25				**1526.17**
			Total Cost	**cum**			**1,526.17**
32	**2.13**	**202**	***Removing all types of Hume pipe and stacking***				
			Removing all types of Hume pipes and stacking within a lead of 1000 m including Earthwork and Dismantling of Masonry Works as per Technical Specification Clause 202.				
		(A)	Upto 600 mm dia Hume pipe				
		a)	Labour				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.52	412.00	214.24
		b)	Overheads & CP @ 12.5% on (a)				**27.87**
			Rate per m = a+b+c				250.85
			Total Cost	**m**			**250.85**
		(B)	Above 600 mm to 900 mm dia Hume pipe				
		a)	Labour				
			Mate	day	0.03	437.00	13.11
			Mazdoor (Unskilled)	day	0.70	412.00	288.40
		b)	Overheads & CP @ 12.5% on (a)				**37.69**
			Rate per m = a+b+c=				**339.20**
			Total Cost	**m**			**339.20**
		(C)	Above 900 mm dia Hume pipe				
		a)	Labour				
			Mate	day	0.05	437.00	21.85
			Mazdoor (Unskilled)	day	1.20	412.00	494.40
		b)	Overheads & CP @ 12.5% on (a)				**64.53**
			Rate per m = a+b+c				**580.78**
			Total Cost	**m**			**580.78**
28	**2.15**	**202**	***Dismantling of Cement Concrete Pavements as per Technical Specification Clause 202.***				
			Dismantling of cement concrete pavements by mechanical means using pneumatic tools breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials upto a lead of 1000 m, stacking serviceable and unserviceable materials separately				
			Unit = cum				
			Taking output = 1 cum				
		a)	Labour				
			Mate	day	0.03	437.00	13.11
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
			Mazdoor (Semi-skilled)	day	0.50	428.00	213.00
		b)	Machinery				
			Air compressor 210 cfm with two leads for pneumatic cutters / hamme	hour	1.00	455.00	455.00
			Tractor with trolley	hour	0.40	688.00	275.20

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Joint Cutting Machine with 2-3 blades	hour	1.00	357.00	357.00
		c)	Overheads & CP @ 12.5% on (a+b))				**189.91**
			Cost for 100 sqm = a+b+c+d				1709.22
			Rate per sqm = (a+b+c+d)				1709.22
			Total Cost	sqm			**1709.22**
29	**3.20**	**301**	***Scarifying Existing Bituminous Surface***				
			Scarifying the existing bituminous road surface to a depth of 150 mm and disposal of scarified material with a lift upto 3 m and lead upto 1000 m as per Technical Specification Clause 301.4.				
			Unit = sqm				
			Taking output = 100 sqm				
		a)	Labour				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		b)	Machinery				
			Tractor with ripper attachment @ 60 cum per hour	hour	0.25	697.00	174.25
			Front end loader 1 cum bucket capacity @ 50 cum per hour	hour	0.30	1432.00	429.60
			Tipper 5.5 cum capacity, 4 trips per hour	hour	0.68	1441.00	979.88
		c)	Overheads & CP @ 12.5% on (a+b))				**211.39**
			Cost for 100 sqm = a+b+c+d				1902.49
			Rate per sqm = (a+b+c+d)/100=				19.02
			Total Cost	sqm			**19.02**
			EARTHWORK				
30	**3.30**	**302**	***Construction of embankment with material obtained from road way cutting***				
			Construction of embankment with approved materials deposited at site and obtained from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Tables 300.1 and 300.2 as per Technical Specification Clause 301.5				
			Unit = cum				
			Taking output = 100 cum				
		a)	Labour				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	Machinery				
			Dozer D-50 for spreading @ 100 cum per hour	hour	0.50	3014.00	1507.00
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	1.00	693.00	693.00
			Water tanker 6 kl capacity	hour	2.00	764.00	1528.00
			Three wheel 80-100 kN Static Roller	hour	1.25	1612.00	2015.00
		c)	Material				
			Water	kl	12.00	61.40	736.80
		d)	Overheads & CP @ 12.5% on (a+b+c)				**836.82**
			Rate for 100 cum = a+b+c+d+e				7531.36
			Rate per cum = (a+b+c+d+e)/100=				75.31
			Total Cost	**CUM**			**75.31**
31	**3.50**	**(iii)**	**Excavation in Soil using Hydraulic Excavator and Tippers with disposal upto 1000 m**				
			Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross-sections, and transporting to the embankment location with a lift upto 1.5 m and lead upto 1000 m as per Technical Specification Clause 302.3				
			Unit = cum				
			Taking output = 360 cum				
		a)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mazdoor (Unskilled)	day	2.00	412.00	824.00
		b)	**Machinery**				
			Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	3.60	2288.00	8236.80
			Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	1441.00	21615.00
		c)	Overheads & CP @ 12.5% on (a+b))				**3838.85**
			Cost for 360 cum = a+b+c+d				34549.61
			Rate per cum = (a+b+c+d)/360				**95.97**
			Total Cost	**CUM**			**95.97**
32	**3.40**	**302**	**Construction of Embankment with Material Obtained from Borrow Pits**				
		(A)	Construction of embankment with approved material obtained from borrow pits with a lift upto 1.5 m, transporting to site, spreading, grading to required slope and compacting to meet requirement of Tables 300.1 and 300.2 with a ***lead upto 1000 m*** as per Technical Specification Clause 301.5				
			Unit = cum				
			Taking output = 100 cum				
		a)	Labour				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	Machinery				
			Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	2288.00	3820.96
			Tipper 5.5 cum with 10 t capacity	hour	4.50	1441.00	6484.50
			Add 10 % of the cost of carriage by tipper				648.45
		c)	Material				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Water	kl	12.00	61.40	736.80
			Compensation for earth taken from private land	cum	100.00	35.25	3525.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**2673.52**
			Cost for 100 cum = a+b+c+d+e				24061.71
			Rate per cum = (a+b+c+d+e)/100=				240.62
			Total Cost	**CUM**			**240.62**
33	**3.40**	**302**	**Construction of Embankment with Material Obtained from Borrow Pits**				
			Construction of embankment with approved material obtained from borrow pits with a lift upto 1.5 m, transporting to site, spreading, grading to required slope and compacting to meet requirement of Tables 300.1 and 300.2 with a lead upto **100 m** as per Technical Specification Clause 301.5				
	A	**302**	**Excavation in Cutting in Soil by manual means with lead upto 50 m**				
		(i)	Excavation for roadway in soil using manual means for carrying of cut earth to embankment site with a lift upto 1.5 m and lead upto 50 m as per Technical Specification Clause 302.3				
			Unit = cum				
			Taking output = 120 cum				
		a)	**Labour**				
			Mate	day	1.80	437.00	786.60
			Mazdoor (Unskilled)	day	45.00	412.00	18540.00
		b)	Overheads & CP @ 12 % on (a)				**2415.83**
			Cost of 120 cum = a+b+c				21742.43
			Rate per cum = (a+b+c)/120=				181.19
	B		**Construction of subgrade with Material Obtained from excavated material**				
			Unit = cum				
			Taking output = 100 cum				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	1.00	693.00	693.00
			Water tanker 6 kl capacity	hour	2.00	764.00	1528.00
			Three wheel 80-100 kN Static Roller	hour	1.25	1612.00	2015.00
		c)	**Material**				
			Water	kl	12.00	61.40	736.80
			Compensation for earth taken from private land	cum	100.00	35.25	3525.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**1089.07**
			Rate for 100 cum = (a+b+c+d+e)				9801.61
			Rate per cum = (a+b+c+d+e)/100	cum			**98.02**
			Total A+B				**279.21**
			Total Cost	**CUM**			**279.21**
	B		**Construction of subgrade with Material Obtained from excavated material**				
			Unit = cum				
			Taking output = 100 cum				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	**Machinery**				
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	1.00	693.00	693.00
			Water tanker 6 kl capacity	hour	2.00	764.00	1528.00
			Three wheel 80-100 kN Static Roller	hour	1.25	1612.00	2015.00
		c)	**Material**				
			Water	kl	12.00	61.40	736.80
			Compensation for earth taken from private land	cum	100.00	35.25	3525.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**1089.07**
			Rate for 100 cum = (a+b+c+d+e)				9801.61
			Rate per cum = (a+b+c+d+e)/100	cum			**98.02**
			Total Cost	**CUM**			**98.02**
34	**3.12**	**309**	**Turfing with Sods**				
			Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other locations shown on the drawing or as directed by the Engineer including preparation of ground, fetching of sods and watering as per Technical Specification Clause 309.				
			Unit = sqm				
			Talking output = 100 sqm				
		a)	Labour				
			Mate	day	0.12	437.00	52.44
			Mazdoor (Unskilled)	day	3.00	412.00	1236.00
		b)	Machinery				
			Water tanker including watering for 3 months	hour	2.00	764.00	1528.00
			Tractor with Trolley	hour	1.00	688.00	688.00
		c)	Material				
			Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	552.10	99.38
			Water	kl	12.00	61.40	736.80
		d)	Overheads & CP @ 12.5% on (a+b+c)				**542.58**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Cost for 100 sqm = a+b+c+d+e				4883.20
			Total Cost	**sqm**			**4883.20**
36	3.3	301.5	***Construction of embankment with material obtained from road way cutting***				
			Construction of embankment with approved materials deposited at site and obtained from roadway cutting and excavation from				
			Unit = cum				
			Taking output = 100 cum				
		a)	Labour				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	Machinery				
			Dozer D-50 for spreading @ 100 cum per hour	hour	0.50	3014.00	0.00
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	0.50	693.00	346.50
			Water tanker 6 kl capacity	hour	2.00	764.00	1,528.00
			Three wheel 80-100 kN Static Roller	hour	1.25	1,612.00	2,015.00
		c)	Material				
			Water	kl	12.00	61.40	736.80
			Compensation for earth	cum	0.00	35.25	0.00
		d)	Contractor's profit & Overheads @ 12.5% on (a+b+c)				605.13
			Rate for 100 cum = a+b+c				5,446.17
			Rate per cum = (a+b+c+d+e)/100=				54.46
			Total Cost	**CUM**		***A***	**54.46**
37	3.5	**(ii)**	**Excavation in Soil with Dozer with lead upto 100 m**				
			Excavation for roadway in soil by mechanical means including cutting and pushing the earth to site of embankment				
			Unit = cum				
			Taking output = 180 cum				
		a)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mazdoor (Unskilled)	day	2.00	412.00	824.00
		b)	**Machinery**				
			Dozer D-50 @ 50 cum per hour (cutting with pushing)	hour	3.60	3,014.00	10,850.40
		c)	Contractor's profit & Overheads @ 12.5% on (a+b)				1470.48
			Cost for 360 cum = a+b+c+d				13,179.84
			Rate per cum = (a+b+c+d)/180				**73.22**
			Compensation for earth	cum	1.00	35.25	**35.25**
			Total Cost	**CUM**		***B***	**108.47**
						Total A+B=	**162.93**
35	3.14	303	**Construction Of Subgrade And Earthen Shoulders**				
			Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table 300.2 with lead upto 1000 m as per Technical Specification Clause 303.1.				
			Unit = cum				
			Taking output = 100 cum				
		a)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	**Machinery**				
			Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	1.67	2288.00	3820.96
			Tipper 5.5 cum capacity, 4 trips per hour	hour	4.50	1441.00	6484.50
			Add 10 % of the cost of carriage to cover loading & unloading	cum			648.45
			Dozer D-50 for spreading @ 100 cum per hour	hour	0.50	3014.00	1507.00
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	1.00	693.00	693.00
			Water tanker with 6 kl capacity	hour	2.00	764.00	1528.00
			Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	1.43	1612.00	2305.16
		c)	**Material**				
			Water	kl	12.00	61.40	736.80
			Compensation for earth taken from private land	cum	100.00	35.25	3525.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**2709.79**
			Cost for 100 cum = a+b+c+d+e				24388.14
			Rate per cum = (a+b+c+d+e)/100				243.88
			Total Cost	**sqm**			**243.88**
			PAVEMENT CRUST LAYERS				
36	4.10	401	**Granular Sub-Base With Well Graded Material (Table 400.1)**				
			(By Mix In Place Method) For Grading II Material				
			Construction of granular sub-base by providing well graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, complete as per Technical Specification Clause 401.				
		(ii)	**For Grading II Material**				
			Unit = cum				
			Taking output = 300 cum				
		a)	**Labour**				
			Mate	day	0.48	437.00	209.76
			Mazdoor (Skilled)	day	2.00	521.00	1042.00
			Mazdoor (Unskilled)	day	10.00	412.00	4120.00

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		b)	**Machinery**				
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	12.00	693.00	8316.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1612.00	48360.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	705.00	8460.00
			Water tanker 6 kl capacity	hour	5.00	764.00	3820.00
		c)	**Material**				
			Well graded granular sub-base material as per Table 400.1				
			26.5 mm to 9.5 mm @ 35 per cent	cum	126.00	913.48	115098.48
			9.5 mm to 2.36 mm @ 25 per cent	cum	90.00	434.45	39100.50
			2.36 mm below @ 40 per cent - (Coarse Sand)	cum	144.00	584.64	84188.16
			Water	kl	30.00	61.40	1842.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**39319.61**
			Cost of GSB for 300 cum				**353876.51**
			A) Cost of GSB without carriage per cum	**cum**			**1179.59**
		f)	***CARRIAGE***				
			Carriage for GSB material	Cum	0.720	848.50	610.92
			Carriage for material below 2.36 mm (Coarse Sand)	Cum	0.480	403.02	193.45
			Rate per cum with carriage				**1983.96**
			Total Cost	**CUM**			**1983.96**
37	**4.10 (A)**	**401**	**Granular Sub-Base With Well Graded Material (Table 400.1) (By Mix In Place Method)**				
			Construction of granular sub-base by providing well graded material, spreading in uniform layers with tractor mounted grader arrangement on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, complete as per Technical Specification Clause 401.				
		(ii)	**For Grading I Material**				
			Unit = cum				
			Taking output = 300 cum				
		a)	**Labour**				
			Mate	day	0.48	437.00	209.76
			Mazdoor (Skilled)	day	2.00	521.00	1042.00
			Mazdoor (Unskilled)	day	10.00	412.00	4120.00
		b)	**Machinery**				
			Tractar Mounted Grader Arrangement For Grading @ 100 Cum/Hour	hour	12.00	693.00	8316.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	1612.00	48360.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	705.00	8460.00
			Water tanker 6 kl capacity	hour	5.00	764.00	3820.00
		c)	**Material**				
			Well graded granular sub-base material as per Table 400.1				
			53 mm to 9.5 mm @ 50 per cent	cum	180.00	1115.24	200743.20
			9.5 mm to 2.36 mm @ 20 per cent	cum	72.00	434.45	31280.40
			2.36 mm below @ 30 per cent	cum	108.00	584.64	63141.12
			Water	kl	30.00	61.40	1842.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**46416.81**
			Cost of GSB without carriage				**417751.29**
			A) Cost of GSB Without Carriage Per Cum	**cum**			**1392.50**
			Carriage Cost				
			Carriage for material		252.00	904.21	**227860.92**
			Carriage for material below 2.36 mm(Coarse Sand)	cum	108.00	403.02	43526.16
			Carriage cost	cum			271387.08
			Carriage cost per cum	cum			**904.62**
			Rate per cum =	cum			**2297.13**
			Total Cost	**CUM**			**2297.13**
37	**4.7 (2-B)**	**405**	**Water Bound Macadam With Stone Screening Gr-II WBM Grading 2**				
			Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller in stages to proper grade and camber, applying and brooming, crushable screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 2 as per Technical Specification Clause 405.				
		(A)	**By Machnical Means, Unit = cum**				
			Taking output = 360 cum				
		a)	**Labour**				
			Mate	day	0.68	437.00	297.16
			Mazdoor (Skilled)	day	2.00	521.00	1042.00
			Mazdoor (Unskilled)	day	15.00	412.00	6180.00
		b)	**Machinery**				
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	14.40	693.00	9979.20
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	1612.00	72540.00
			Water tanker 6 kl capacity	hour	24.00	764.00	18336.00
		c)	**Material (Refer Tables 400.7, 8, 9 and 10)**				
			Aggregate				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	1005.81	438130.84
			Stone Screening Type B 11.2 mm for Grading 2 @ 0.20 cum per 10 sqm	cum	96.01	434.45	41711.54
			Binding Material Binding Material @ 0.06 cum per 10 sqm for Grading 2 material	cum	28.80	162.88	4690.94
			Water	kl	144.00	61.40	8841.60
		d)	Overheads & CP @ 12.5% on (a+b+c)				**75218.66**
			Cost for 360 cum = a+b+c+d+e				**676967.95**
			Rate per cum = (a+b+c+d+e)/360				**1880.47**
		f)	***CARRIAGE***				
			Stone material Grading 2 63 mm to 45 mm	Cum	1.21	904.21	**1094.09**
			Stone Screening	Cum	0.27	848.50	**226.29**
			Binding Material	Cum	0.08	644.11	**51.53**
			Rate per cum with carriage				**3252.38**
			Total Cost	**cum**			**3252.38**
38	**4.70 (3-A)**	**405**	**Water Bound Macadam With Stone Screening Type "B" Gr- III WBM Grading 3**				
			Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 3 as per Technical Specification Clause 405.				
		(A)	**By Machnical Means**				
			Unit = cum				
			Taking output = 360 cum				
		a)	**Labour**				
			Mate	day	0.68	437.00	297.16
			Mazdoor (Skilled)	day	2.00	521.00	1042.00
			Mazdoor (Unskilled)	day	15.00	412.00	6180.00
		b)	**Machinery**				
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	14.40	693.00	9979.20
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	1612.00	72540.00
			Water tanker 6 kl capacity	hour	24.00	764.00	18336.00
		c)	**Material (Refer Tables 400.7, 8, 9 and 10)**				
			Aggregate				
			Grading 3 53 mm to 22.4 mm @ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.60	1115.24	485798.54
			Stone Screening				
			Type B 11.2 mm for Grading 3 @ 0.18 cum per 10 sqm	cum	86.40	434.45	37536.48
			Water	kl	144.00	61.40	8841.60
		d)	Overheads & CP @ 12.5% on (a+b+c)				**80068.87**
			Cost for 360 cum = a+b+c+d+e				**720619.86**
			Rate per cum = (a+b+c+d+e)/360				**2001.72**
		f)	***CARRIAGE***				
			Stone material Grading 3 53 mm to 22.4 mm	Cum	1.21	848.50	1026.69
			Stone Screening	Cum	0.24	848.50	203.64
			Rate per cum with carriage				**3232.05**
			Total Cost	**cum**			**3232.05**
39	**4.9**	**406**	**Wet Mix Macadam**				
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed material by tipper to site, laying in uniform layers in sub-base/base course on a well prepared sub-base and compacting with smooth wheel roller of 80 to 100kN weight to achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and Technical Specification Clause 406.				
		(A)	**By Mechanical Means with 1 km lead**				
			Unit = cum				
			Taking output = 100 cum				
		a)	**Labour**				
			Mate	day	0.40	437.00	174.80
			Dresser (Skilled) for alignment	day	8.00	521.00	4168.00
			Mazdoor (Skilled)	day	2.00	521.00	1042.00
		b)	**Machinery**				
			Front end loader 1 cum capacity	hour	4.00	1432.00	5728.00
			Wet mix plant (Pug Mill)	hour	4.00	690.00	2760.00
			Tipper/Dumper (10-t) capacity	hour	5.00	1441.00	7205.00
			Tractor Mounted grader for grading @ 100 cum per hour	hour	4.00	688.00	2752.00
			Water tanker 6 kl capacity	hour	1.33	764.00	1016.12
			Three wheel 80-100 kN static roller @ 16 cum per hour	hour	6.25	1612.00	10075.00
		c)	**Material (Refer Tables 400.7, 8, 9 and 10)**				
			Aggregate				
			Coarse aggregate 45 mm to 22.4 mm @ 30 per cent	cum	39.90	1115.24	44498.08
			Aggregates 22.4 mm to 2.36 mm @ 40 per cent	cum	53.20	697.86	37126.15
			Fine aggregate/Crushed sand 2.36 mm to 75 micron @ 30 per cent	cum	39.90	266.62	10638.14
			Water	kl	8.00	61.40	491.20

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		d)	Overheads & CP @ 12.5% on (a+b+c)				**15959.31**
			Cost for 100 cum = a+b+c+d				143633.80
			Rate per cum = (a+b+c+d)/100				**1436.34**
		e)	***CARRIAGE***				
			Coarse aggregate 45 mm to 22.4 mm @ 30 per cent	Cum	0.40	848.50	338.55
			Aggregates 22.4 mm to 2.36 mm @ 40 per cent	Cum	0.53	848.50	451.40
			Fine aggregate/Crushed sand 2.36 mm to 75 micron @ 30 per cent	Cum	0.40	403.02	160.80
			Rate per cum with carriage				**2387.10**
			Total Cost	**cum**			**2,387.10**
			BITUMINOUS ITEMS				
40	**5.10 (I)**	**502**	**Prime Coat (Low Porosity)**				
			Providing and applying primer coat with bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.70-1.0 kg/sqm using mechanical means as per Technical Specification Clause 502				
			Unit = sqm				
			Taking output = 1750 sqm				
		a)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	**Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	807.00	1129.80
			Air compressor 210 cfm	hour	1.40	455.00	637.00
			Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	1362.00	1362.00
			Water tanker 6 kl capacity 1 trip per hour	hour	0.50	764.00	382.00
		c)	**Material**				
			Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	52527.35	77740.48
			Water	kl	3.00	61.40	184.20
		d)	Overheads & CP @ 12.5% on (a+b+c)				**10233.12**
			Cost of 1750 sqm = a+b+c+d+e				92098.08
			Rate per sqm = (a+b+c+d+e)/1750				52.63
		f)	***Carriage Cost***				
			Bitumen Emulsion	ton	0.00085	876.46	0.74
			Rate per sqm with carriage				**53.37**
			Total Cost	**sqm**			**53.37**
41	**5.20 (I)**	**503**	**Tack Coat**				
			Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.3 kg per sqm on the prepared bituminous surface cleaned with Hydraulic broom as per Technical Specification Clause 503.				
			Unit = sqm				
			Taking output = 1750 sqm				
		a)	Labour				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	Machinery				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	807.00	1129.80
			Air compressor 210 cfm	hour	1.40	455.00	637.00
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1362.00	1362.00
		c)	Material				
			Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.39	52527.35	20485.67
		d)	Overheads & CP @ 12.5% on (a+b+c)				3005.49
		e)	Contractor's profit @ 10% on (a+b+c+d)				0.00
			Cost of 1750 sqm = a+b+c+d+e				27049.44
			Rate per sqm = (a+b+c+d+e)/1750				15.46
			Carriage Cost				
			Bitumen Emulsion	ton	0.000223	876.46	0.20
			Rate per sqm with carriage				**15.65**
			Total Cost	**sqm**			**15.81**
42	**5.20 (III)**	**503**	**Tack Coat**				
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surface tretaed with Primer and clened with hydriloc broom as per technical specification aclouse 503.				
			Unit = sqm				
			Taking output = 1750 sqm				
		a)	Labour				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	Machinery				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	807.00	1129.80
			Air compressor 210 cfm	hour	1.40	455.00	637.00
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1362.00	1362.00
		c)	Material				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	51261.35	24605.45
		d)	Overheads & CP @ 12.5% on (a+b+c)				**3520.47**
			Cost of 1750 sqm = a+b+c+d+e				31684.19
			Rate per sqm = (a+b+c+d+e)/1750				18.11
			Carriage Cost				
			Bitumen Emulsion	ton	0.0003	876.46	0.24
			Rate per sqm with carriage				**18.35**
			Total Cost	**sqm**			**18.35**
43	**5.9**	**508**	**Mix Seal Surfacing (Type B) BITUMINOUS (S-65) By Mechanical Means (Waste Plastic)**				
			Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 13.2 mm to 0.9 mm (Type-B) aggregates using penetration grade bitumen to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 8-10 kN static roller and finishing to required level and grades as per Technical Specification Clause 509				
		(B)	By Mechanical Means				
			(i) Bitumen (S-65)				
			Unit = sqm				
			Taking output = 4000 sqm (80 cum)				
		a)	**Labour**				
			Mate	day	0.52	437.00	227.24
			Mazdoor (Unskilled)	day	10.00	412.00	4120.00
			Mazdoor (Unskilled) For Waste Plastic	day	2.00	412.00	824.00
			Mazdoor (Skilled)	day	3.00	521.00	1563.00
		b)	**Machinery**				
			Batch mix HMP 100-120 TPH @ 75 t per hour actual output	hour	3.000	51313.00	153939.00
			Electric generator set 125 KVA	hour	6.00	1646.00	9876.00
			Front end loader 1 cum bucket capacity	hour	6.00	1432.00	8592.00
			Tipper 5.5 10 t capacity	tonne.km	176 x L	9.89	1,740.64
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				174.06
			Paver finisher	hour	6.00	2157.00	12942.00
			Three wheel 80-100 kN static roller	hour	6.00	1612.00	9672.00
		c)	**Material**				
			Bitumen (S-65) @ 19 kg per 10 sqm	t	7.07	52472.60	370981.28
			Processed Waste Plastic i.e 7% of 19 kg bitumen = 1.33 kg per 10 sqm	t	0.532	16974.00	9030.17
			Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	434.45	46920.60
		d)	Overheads & CP @ 12.5% on (a+b+c)				**78825.25**
			Cost of 500 sqm = a+b+c+d+e				709427.24
			Rate per sqm = (a+b+c+d+e)/4000				177.36
			Carriage Cost				
			Bitumen (S-65)	ton	0.0018	876.46	1.55
			Stone chips	cum	0.03	848.50	22.91
			Rate per sqm with carriage				**201.82**
			Total Cost	***sqm***			**201.82**
44	**5.30**	**504 Mord**	**Bituminous Macadam**				
			Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over apreviously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction.				
			Unit = cum				
			Taking output = 205 cum (450 tonnes)				
		a)	**Labour**				
			Mate	day	0.44	437.00	192.28
			Mazdoor (Unskilled)	day	6.00	412.00	2472.00
			Mazdoor (Unskilled) for Waste Plastic	day	2.00	412.00	824.00
			Mazdoor (Skilled)	day	5.00	521.00	2605.00
		b)	**Machinery**				
			Batch mix HMP 100-120 TPH @ 75 t per hour actual output	hour	5.011	51313.00	257129.44
			Hydraulic broom @ 1250 sqm per hour	hour	0.976	807.00	787.63
			Air compressor 210 cfm	hour	0.976	455.00	444.08
			Paver finisher	hour	5.011	6427.00	32205.70
			Generator 250 KVA	hour	5.011	3134.00	15704.47
			Front end loader 1 cum bucket capacity	hour	15.84	1432.00	22685.74
			Tipper 10 tonne capacity	hour	450xL	9.89	4460.39
			Tipper for loading and unloading	hour	10.02	1954.00	7620.60
			Smooth steel wheeled tandem roller for static and vibratory passages	tonne.km	10.159	2072.00	8080.80
		c)	**Material**				
			i) Bitumen @ 3.5 per cent of mix (Weight of mix = 205.0 x 2.2 = 450 t)	t	14.685	52472.60	770544.39
			Processed Waste Plastic i.e 7% of bitumen = 15.79 x 7%= 1.1 tonne	t	1.105	16974.00	18761.36

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Weight of bitumen = 15.79 t				
			Weight of aggregate = 451 – 15.79 = 435.22 t				
			Taking density of aggregate = 1.5 t/cum				
			Volume of aggregate = 290.143 cum				
			(19 mm nominal size)				
			25 -10 mm - 40 per cent	cum	116.04	913.48	106000.22
			10– 5 mm - 40 per cent	Cum	116.04	602.28	69888.57
			5 mm and below - 20 per cent	Cum	58.02	434.45	25206.79
		d)	Overheads & CP @ 12.5% on (a+b+c)				**168201.68**
			Cost for 102.5 cum = a+b+c+d+e				1513815.15
			Rate per cum = (a+b+c+d+e)/205 (For Grading-II)				7384.46
			Carriage Cost				
			Bitumen (S-90)	ton	0.07	876.46	62.78
			Stone chips	cum	1.42	848.50	1200.73
			Rate per Cum with carriage				8647.98
			Total Cost	***sqm***			**8647.98**
45	**5.70**	**508**	**Semi-Dense Bituminous Concrete**				
		RCD	Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 508 complete in all respects.				
			Unit = cum				
			Taking output = 195 cum (450 tonnes)				
		a)	**Labour**				
			Mate	day	0.84	437.00	367.08
			Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.00	412.00	6592.00
			Mazdoor skilled for Waste Plastic	day	2.00	437.00	874.00
			Skilled mazdoor for checking line & levels	day	5.00	521.00	2605.00
		b)	**Machinery**				
			Batch mix HMP @ 75 tonne per hour	hour	6.00	51313.00	307878.00
			Paver Finisher	hour	6.00	2157.00	12942.00
			Generator 250 KVA	hour	6.00	3134.00	18804.00
			Front end loader 1 cum bucket capacity	hour	6.00	1432.00	8592.00
			Tipper 10 tonne capacity	tonne.km	450.00	9.89	4450.50
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				445.05
			Smooth wheeled roller 8-10 tonnes for initial break down rolling	hour	6.00x0.65*	1612.00	6286.80
			Vibratory roller 8 tonnes for intermediate rolling.	tonne.km	6.00x0.65*	2072.00	8080.80
			Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	tonne.km	6.00x0.65*	1612.00	6286.80
		c)	**Material**				
			Bitumen @ 5 per cent of weight of mix	t	20.93	52472.60	1097989.16
			Processed Waste Plastic i.e. 7%	t	1.575	16974.00	26734.05
			weight of mix = 450 tonne				
			Aggregate				
			Total weight of mix = 450 tonnes				
			Weight of bitumen = 22.5 tonnes				
			Weight of aggregate = 450 -22.50 = 427.50 tonnes				
			Taking density of aggregate = 1.5 ton/cum				
			Volume of aggregate = 285 cum				
			Grading II: 10 mm (Nominal Size)				
			9.5 - 4.75 mm @ 57 per cent	Cum	162.45	602.28	97840.39
			4.75 and below @ 41 per cent	Cum	116.85	434.45	50765.48
			Filler @ 2 per cent of weight of aggregates	t	8.62	3150.00	27153.00
		d)	Overheads & CP @ 12.5% on (a+b+c)				**210585.76**
			Cost for 195 cum = a+b+c+d+e				1895271.87
			Rate per cum = (a+b+c+d+e)/195 (For Grading-II)				9719.34
		f)	***Carriage Cost***				
			Bitumen (S-90)	t	0.11	876.46	94.05
			Stone chips	cum	1.43	848.50	1215.31
			Rate per Cum with carriage				**11028.71**
			Total Cost	**cum**			**11028.71**
			CC PAVEMENT				
46	**6.02**	**602**	**Cement Concrete Pavement (PQC)**				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Construction of un-reinforced, plain cement concrete pavement (M35 Grade) over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form paver, spread, compacted and finished in a continuous operation including provision of 0.5 x 0.5 panel, joint filler, separation membrane, sealant primer, joint sealant, debonding strip as approved, curing compound, finishing to lines and grades as per drawing .				
			Unit = cum				
			Taking output =900				
			a) Labour				
			Mate	day	0.440	437.00	192.28
			Mazdoor skilled	day	5.000	521.00	2605.00
			Mazdoor Semi-skilled (For panel cutting)	day	5.000	428.00	2140.00
			Bhisti (For panel cutting)	day	7.000	412.00	2884.00
			Mazdoor	day	6.000	412.00	2472.00
			b) Machinery				
			Mechanical Broom @ 1250 sqm per hour	hour	0.893	807.00	720.65
			Air Compressor	hour	0.893	455.00	406.32
			Paver finisher Concrete with 118HP Motor	hour	11.250	2157.00	24266.25
			For Transporter transit truck agiator 6cum capacity	t.km	2070xL1	10.85	22459.50
			For unloading time	hour	11.250	1954.00	21982.50
			concrete joint cutting machine (For panel cutting)	hour	101.587	357.00	36266.56
			Water tanker 6 kl capacity	hour	8.75xL1+42	764.00	38773.00
			Generator Set KVA (For panel cutting)	hour	10.000	3134.00	31340.00
			c) Material				
			Using Batching Plant 120cum capacity	cum	900.000	3501.23	3151108.74
			Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	3150.000	16.20	51030.00
			Joint sealant	kg	609.524	30.54	18614.86
			Sealant primer	kg	100.003	30.54	3054.09
			Curing compound	liter	600.000	38.00	22800.00
			Cost of water	KL	472.500	61.40	29011.50
			Add 1 per cent of material for cost of miscellaneous materials like tarpauline, Hessian cloth, metal cap, cotton / compressible sponge and cradle for dowel bars, work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threads, ropes, guide wires and any other unforeseen items.				32756.19
			d) Overhead charges & Contractor's profit @ 12.5% on (a+b+c)				436860.43
			Cost for 900cum = a+b+c+d+e				3931743.88
			Rate per cum = (a+b+c+d+e)/900				**4368.60**
			Carriage				
			Carriage stone aggregate	cum	0.90	848.50	763.65
			Carriage sand	cum	0.45	403.02	181.36
			carriage cement	ton	0.40	427.66	171.06
			Rate per cum including carriage				**5484.68**
47	**21.19**	**602**	**PQC M35 Grade using Batching Plant-120 cum capacity**				
			Unit-cum				
			Taking Output=900cum				
		a)	**Material**				
			Cement @400 kg/cum of concrete	tonne	360.00	5402.40	1944864.00
			Coarse Sand	cum	405.00	584.64	236779.20
			Crushed Stone Of 25 mm & 12.5 mm nominal size	cum	810.00	913.48	739918.80
			Admixture @ 0.5 % of Cement	kg	1800.00	30.45	54810.00
			Cost of Water	kl	144.00	61.40	8841.60
		b)	**Labour**				
			Mate	day	0.16	437.00	69.92
			Skilled Mazdoor	day	1.00	521.00	521.00
			Mazdoor	day	3.00	412.00	1236.00
		c)	**Machinery**				
			Batching plant of capacity 120 cum/hour	hour	10.00	3684.00	36840.00
			Generator 250kva	hour	10.00	3134.00	31340.00
			loader 3.1 cum capacity	hour	21.696	3519.00	76348.22
			Trasit Truck agiator for loading & Unloading	hour	10.00	1954.00	19540.00
			Per Cum Basic Cost (a+b+c)/900				3501.23
			Rate per cum = (a+b+c+d+e)/900				**3501.23**
48	**6.7**	**1500 (1)**	**Interlocking Concrete Block Pavement** Providing and Laying of Interlocking Concrete Block Pavements having thickness 80 mm as per drawings and Technical Specification Clause 1504. Unit = sqm Taking output = 225 sqm				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		a)	**Labour**				
			Mate	day	1.00	437.00	437.00
			Mazdoor (Unskilled)	day	17.00	412.00	7004.00
			Mason (2nd class)	day	8.00	494.00	3952.00
		b)	**Machinery**				
			Water tanker 6 kl capacity	hour	2.00	764.00	1528.00
		c)	**Material**				
		(i)	Providing inter-locking blocks of approved shape, thickness and size.	sqm	225.00	764.80	172080.00
		(ii)	Edge blocks 60 mx2 @(0.225*0.15*644.7)/0.225=96.705	m	120.00	96.705	11604.60
		(iii)	Sand as per Table 1500.5	cum	7.23	584.64	4226.95
			Bed = 603x75x 0.03 = 6.75 cum				
			Joints = 60x0.08 = 0.48 cum				
		(iv)	Water for wetting of bedding sand	kl	3.00	61.40	184.20
			Overheads & Contractor's Profit @ 12.5 % on above				**25127.09**
			Cost for 225 sqm = a+b+c+d				**226143.84**
			Rate per sqm = (a+b+c+d)/225				**1005.08**
			Carriage Cost				
			Sand	cum	0.0321	403.02	12.95
			1.00	cum			**1018.03**
49	**16.13**		**Edging with 1st Class Bricks, Lald Dry Length wise.**				
			Edging with 1st class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres				
			Unit = meter				
			Taking ouput = 10 m				
		(a)	**Labour**				
			Mate	day	0.004	437.00	1.75
			Mason 1st Class	day	0.100	553.00	55.30
			Mazdoor (Unskilled)	day	0.100	412.00	41.20
		(b)	**Material**				
			Brick 1st Class including Carriage	No.	100.00	6.865	686.49
		(c)	12.50				**98.09**
			Cost for 10m = a+b+c				97.11
			1.00	***m***			**97.11**
50	**4.18**	**412**	**Brick Soling (With New Brick)**				
			Laying brick soling layer on prepared sub-grade with brick on end edging according to lines, graded and cross-section shown on the drawing filling joints with sand and earth, spreading 25 mm thick layer of earth over brick soling, watering and rolliing the same with three wheel road roller 80-100 kN as per Technical Specification Clause 412				
			Unit = sqm				
			Taking ouput = 150 sqm				
		(a)	**Labour**				
			Mate	day	0.52	437.00	227.24
			Mazdoor (Unskilled)	day	10.00	412.00	4120.00
			Mason 1st Class	day	3.00	553.00	1659.00
		(b)	**Machinery**				
			Three wheel 80-100 kN static roller	hour	1.00	1612.00	1612.00
			Water tanker	hour	1.00	764.00	764.00
		(c)	**Material**				
			Brick 1st Class	No.	8160.00	6.12	49971.84
			Brick 1st Class on edging	No.	1100.00	6.12	6736.40
			Fine Sand	cum	5.66	145.87	825.62
			Water	kl	6.00	61.40	368.40
		(d)	Overheads & CP @ 12.5% on (a+b+c)				**8285.56**
			Cost for 150 sqm = a+b+c+d+e+f				497.13
		f	***Carriage Cost***				
			Brick 1st Class	No.	61.73	0.74	45.74
			Fine Sand	cum	0.04	163.83	6.18
			Rate per sqm = (a+b+c+d+e+f)				**549.05**
			Total Cost	***cum***			**549.05**
52	**11.50**	**600 & 1200**	Brick masonry work in cement mortar in foundation complete excluding pointing and plastering as per drawing and technical specifications Clauses 600, 1202 & 1203				
	(II)		Unit = cum				
			Brick masonry in 1:4 cement mortar				
		a)	**Material**				
			Brick	Nos.	500.00	6.12	3062.00
			Cement mortar 1:4	cum	0.24	3673.71	881.69
			Rates as per sub-analysis				
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason (1st Class)	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
		c)	Overheads & CP @ 12.5% on (a+b+c)				**645.88**
			Rate per cum = a+b+c+d	**cum**			**5812.90**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Sub-analysis				
			Cement mortar 1:4 (1 cement : 4 sand)				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.38	5402.40	2052.91
			Sand	cum	1.05	584.64	613.87
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	0.90	412.00	370.80
			Bhisti	day	0.08	412.00	32.96
			CARRIAGE				
			Cement	t	0.38	427.66	162.51
			Sand	cum	1.05	403.02	423.17
			Total material and labour				**3673.71**
51	**10.10**	**1700**	**Printing New Letters and Figures of any Shade**				
			Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade as per drawings and Technical Specification Clause 1701				
		i)	**Hindi (Matras commas and the like not to be measured and paid for. Half letters shall be counted as half only)**				
			Details for 100 letters of 160 mm height, i.e., 1600 cm				
			Unit = per cm height per letter				
		a)	**Labour**				
			Mate	day	0.12	437.00	52.44
			Painter 1st Class	day	2.00	523.00	1046.00
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	**Material**				
			Paint	litre	0.70	283.74	198.62
		c)	**Overheads & CP @ 12.5% on (a+b)**				**213.63**
			Cost for 1600 cm = a+b+c+d				1922.69
			Rate per cm height per letter = (a+b+c+d)/1600				**1.20**
		ii)	**English and Roman**				
			Hyphens, commas and the like not to be measured and paid for. Detail for 100 letters of 160 mm height, i.e., 1600 cm				
			Unit = per cm height per letter				
		a)	**Labour**				
			Mate	day	0.07	437.00	30.59
			Painter Ist class	day	1.25	523.00	653.75
			Mazdoor	day	0.50	412.00	206.00
		b)	**Material**				
			Paint	litre	0.50	283.74	141.87
		c)	**Overheads & CP @ 12.5% on (a+b)**				**129.03**
			Cost for 1600 cm = a+b+c+d				1161.24
			Rate per cm height per letter = (a+b+c+d)/1600				**0.73**
52	**10.50**	**1700**	**Painting Two Coats on New Concrete Surfaces**				
			Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and Technical Specification Clause 1701				
			Unit = sqm				
			Taking output = 40 sqm				
		a)	**Labour**				
			Mate	day	0.20	437.00	87.40
			Painter (1st Class)	day	3.00	523.00	1569.00
			Mazdoor (Unskilled)	day	2.00	412.00	824.00
		b)	**Material**				
			Cement Primer as per specifications	litre	3.00	125.53	376.59
			Paint conforming to requirement of Clause 1701.3.8	litre	6.00	283.74	1702.44
			Add for scaffolding @ 1 per cent of labour cost where required				24.80
		c)	**Overheads & CP @ 12.5% on (a+b)**				**573.03**
			Cost for 40 sqm = a+b+c+d				5157.26
			Rate per sqm = (a+b+c+d)/40				**128.93**
53	**10.10**	**1700**	**Kilometre stone**				
			Reinforced cement concrete M15 grade kilometre stone/local stone of standard design as per IRC:8 fixing in position including painting and printing, etc as per drawing and Technical Specification Clause 1703				
		i)	5th KILOMETRE STONE (precast)				
			Unit = each				
			Taking output = 6 Nos.				
		a)	M-15 grade of concrete				
			As per item No.12.5 of Chapter 12	cum	2.35	5207.29	12237.13
		b)	Steel reinforcement @ 5 kg per sqm				
			As per item No.12.6 of Chapter 12	kg	22.08	62.58	1381.77
		c)	Excavation in soil for foundation				
			As per item No.11.1 of Chapter 11	cum	1.68	386.53	649.37

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		d)	Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	9.85	128.93	1269.96
		e)	lettering on km post (average 30 letters of 10 cm height each)				
			As per item No.10.1 of Chapter 10	per cm high per litre	1800.00	0.73	1314.00
			Transportation and fixing				
		f)	**Labour**				
			Mate	day	0.26	437.00	113.62
			Mason (1st Class)	day	0.60	553.00	331.80
			Mazdoor (Unskilled)	day	6.00	412.00	2472.00
		g)	**Machinery**				
			50 HP Tractor with trolley	hour	6.00	688.00	4128.00
		h)	**Overheads & CP @ 12 % on (a+b+c+d+e+f+g)**				**2987.21**
			Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h+i				26884.85
			Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i)/6	**no.**			**4480.81**
		II)	**KM STONE**				
		ii)	**Ordinary Kilometer Stone (Precast)**				
			Unit = each				
			Taking output = 14 Nos.				
		a)	M15 grade of concrete				
			As per item No.12.5 of Chapter 12	cum	3.77	5207.29	19631.48
		b)	Steel reinforcement @ 5 kg per sqm				
			As per item No.12.6 of Chapter 12	kg	26.32	62.58	1647.11
		c)	Excavation in soil for foundation				
			As per item No.11.1 of Chapter 11	cum	2.77	386.53	1070.69
		d)	Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	11.41	128.93	1471.09
		e)	lettering on km post (average 12 letters of 10 cm height each)				
			As per item No.10.1 of Chapter 10	per cm high per letter	1680.00	0.73	1226.40
			Transportation and fixing				
		f)	**Labour**				
			Mate	day	0.32	437.00	139.84
			Mason (1st Class)	day	1.00	553.00	553.00
			Mazdoor (Unskilled)	day	7.00	412.00	2884.00
		g)	**Machinery**				
			50 HP Tractor with trolley	hour	6.00	688.00	4128.00
		h)	**Overheads & CP @ 12 % on (f+g)**				**963.11**
			Cost for 14 Nos. ordinary km stone = (a+b+c+d+e+f+g+h+i)				33714.71 **2408.19**
			Rate for each ordinary km stone = (a+b+c+d+e+f+g+h+i)/14=				**2408.19**
			iii) 200 m STONE				
		iii)	**200 m stone (precast)**				
			Unit = each				
			Taking output = 33 Nos.				
		a)	M15 grade of concrete				
			As per item No.12.5 of Chapter 12	cum	1.58	5207.29	8227.52
		b)	Steel reinforcement @ 5 kg per sqm				
			As per item No.12.6 of Chapter 12	kg	66.00	62.58	4130.28
		c)	Excavation in soil for foundation				
			As per item No.11.1 of Chapter 11	cum	1.39	386.53	537.28
		d)	Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	6.27	128.93	808.39
		e)	lettering on km post (average 1 letter of 10 cm height each)				
			As per item No. 10.1 of Chapter 10	per cm	330.00	0.73	240.90
			Transportation and fixing				
		f)	**Labour**				
			Mate	day	0.34	437.00	148.58
			Mason (1st Class)	day	1.50	553.00	829.50
			Mazdoor (Unskilled)	day	7.00	412.00	2884.00
		g)	**Machinery**				
			50 HP Tractor with trolley	hour	6.00	688.00	4128.00
		h)	**Overheads & CP @ 12 % on (f+g)**				**998.76**
			Cost for 33 Nos. 200 m stone = (a+b+c+d+e+f+g+h)				22933.21 **694.95**
			Rate for each 200 m stone = (a+b+c+d+e+f+g+h)/33				**694.95**
54	**10.20**	**1700.3,**	**Retro-reflectorised Traffic Signs**				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		800	Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and Technical Specification Clause 801				
			Unit = Each				
			Taking output = one traffic sign				
		(i)	**Excavation foundations**				
			As per Item No. 1 to 11.1 of Chapter 11	cum	0.13	386.53	48.70
		(ii)	**Cement concrete M-15 Grade**				
			As per item no. 11.4 of Chapter 11	cum	0.13	5207.29	656.12
		(iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per specifications**				
			As per item no 10.7 of Chapter 11	sqm	0.89	152.53	135.29
		a)	**Labour (For fixing at site)**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		b)	**Material**				
		(I)	Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	55.45	1109.00
		(II)	Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	0.35	8945.43	3130.90
			Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling				33.27
		i)	900 mm equilateral & triangle , OR	sqm	0.35		
		ii)	600 mm equilateral & triangle, OR	sqm	0.16		
		iii)	600 mm circular , OR	sqm	0.28		
		iv)	800 mm x 600 mm rectangular, OR	sqm	0.48		
		v)	600 mm x 450 mm rectangular, OR	sqm	0.27		
		vi)	600 mm x 600 mm, OR	sqm	0.36		
		vii)	900 mm side octagon, OR	sqm	0.67		
		c)	**Machinery**				
			Tractor with Trolley	hour	0.08	688.00	55.04
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**554.45**
			Rate per traffic sign = (i+ii+iii+a+b+c+d+i)				**5830.14**
			Cost of Retro-reflectorised Traffic Signs as per above Analysis				
		i)	900 mm equilateral & triangle , OR				**5830.14**
		ii)	600 mm equilateral & triangle, OR				**3924.90**
		iii)	600 mm circular , OR				**3872.91**
		iv)	800 mm x 600 mm rectangular, OR				**5914.91**
		v)	600 mm x 450 mm rectangular, OR				**3738.15**
		vi)	600 mm x 600 mm, OR				**4671.05**
		vii)	900 mm side octagon, OR				**7905.09**
55	**10.4**	**1700, 800 & 300**	**Direction And Place Identification Signs With Size More Than 0.9 Sqm Size Board**				
			Retro-reflectorised Traffic Signs				
		(i)	Providing and erecting direction and place identification retro-\reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide Clause 1701.2.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on mild steel angle iron posts 75 mm x 75 mm x 6 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawing and Technical Specification Clause 1701.				
			Unit = sqm				
			Taking output = 1.50 sqm				
		(i)	Excavation for foundation				
			As per Item No. 11.1 of Chapter 11	cum	0.252	386.53	97.41
		(ii)	Cement Concrete M-15 grade				
			As per Item No. 11.4 of Chapter 11	cum	0.252	5207.29	1312.24
		(iii)	Painting Angle Iron Post with Primer and two coats of Epoxy Paint specifications				
			As per item No.10.7 of Chapter 10	sqm	1.774	152.53	270.59
		a)	***Labour (For fixing at site)***				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
		b)	***Materials***				
			Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 m long, 2 nos. with 5 per cent wastage	kg	40.00	55.45	2218.00
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	kg	1.50	8945.43	13418.15
			Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				402.54
		c)	***Machinery***				
			Tractor with Trolley	hour	0.12	688.00	82.56
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**2042.00**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Cost for 1.5 sqm = i+ii+iii+a+b+c+d+e				20058.22
			Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/1.50				**13372.15**
			Total Cost	**SQM**			**13372.15**
56	**10.16**	**1700**	**Providing and Fixing 'Logo' of PMGSY / MMGSY Project**				
			Providing and fixing of typical PMGSY/ MMGSY informatory sign board with Logo as per MORD specifications and drawing. Three MS Plates of 1.6 mm thick, top and middle plate duly welded with MS flat iron 25mm x 5m size on back on edges. The lower plate will be welded with MS angle iron frame of 25mm x 25mm x 5mm. The angle iron frame of the lower most plate and flat iron frame of middle plate will be welded to 2 nos. 75mm x 75 mm of 12 SWG sheet tubes posts duly embedded in cement concrete M-15 grade blocks of 450mm x 450mm x 600mm, 600mm below ground level. The top most diamond plate will be welded to middle plate by 47mm x 47mm of 12 SWG steel plate tube. All M.S. will be stove enameled on both sides. Lettering and printing arrows, border etc. will be painted with ready mixed synthetic enamel paint of superior quality in required shade and colour. All sections of framed posts and steel tube will be painted with primer and two coats of epoxy paint as per drawing Clause 1701 and Annexure 1700.1				
			Unit = Each				
			Taking out put = one typical board				
		a)	**Excavation for foundations**				
			As per item No. 11.1 of Chapter 11	cum	0.25	386.53	97.41
			Cement Concrete M15 grade				
			As per item No. 11.4 of Chapter 11	cum	0.25	5207.29	1312.24
			Painting on MS Steel tubes with primer and two coats of epoxy paint				
			2x2.05x.30 = 1.23				
			1x1.10x188 = 0.21				
			As per item no. 10.7 of Chapter 10	sqm	1.80	152.53	274.55
			Printing new letters and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade.				
			Logo Border 60x4x5 = 1200 per cm height per letter				
			Figure 60x10 = 600 per cm height per letter				
			Middle plate words 28x5 = 140 per cm height per letter				
			Bottom plate border 150x2x5 = 1500 per cm height per letter				
			Bottom plate border 60x2x5 = 600 per cm height per letter				
			Words 101x2.5 = 252.5				
			Words 80x3 = 240.00	per cm			
			Total=4532.5 per cm height per letter	height			
			As per item No.10.1 of Chapter 10	per litre	4532.50	0.73	3308.73
			Labour (for fixing at site)				
			Mate	day	0.03	437.00	13.11
			Mazdoor (Unskilled)	day	0.75	412.00	309.00
		b)	**Material**				
			2 nos. MS tubes 75mx75mm of 12 SWG sheet 2650 mm long	kg	63.15	44.93	2837.14
			1 No. MS tube 47mm x 47mm of 12 SWG 1100 mm long	kg	4.47	44.93	200.82
			Angle iron 50mm x 50mm x 5 mm for lugs	kg	2.12	28.91	61.28
			1.6 mm thick MS sheet strengthened by 25mm x 5 MS flat iron on logo and middle plate angle iron 25mm x 25mm x 5mm on bottom plate painting with stove enameled paint on both sides as per MORD specifications	sqm	1.44	832.00	1198.08
			Add 3% cost of MS tube and angle iron towards the cost of fabrications, drilling holes, nuts, bolts, etc.				128.92
		c)	**Machinery**				
			Tractor with trolley	hour	0.24	688.00	165.12
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**614.18**
			COST OF ONE BOARD=				10520.58
			Total Cost	**Nos.**			**10520.58**
57	**8.13**	**803**	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface**				
	RCD		Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.				
			Unit = sqm				
			Taking output = 640 sqm				
			a) Labour				
			Mate	day	0.50	437.00	218.50
			Mazdoor	day	2.00	412.00	824.00
			b) Machinery				
			Road marking machine @ 80 sqm per hour	hour	8.00	1423.00	11384.00
			Tractor-trolley	hour	8.00	688.00	5504.00
			c) Material				
			Hot applied thermoplastic compound	Litre	2000.00	210.99	421980.00
			Reflectorising glass beads	kg	200.00	80.71	16142.00
			d) Overhead charges @12% on (a+b+c)				**57006.56**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Cost for 640 sqm = a+b+c+d+e				513059.06
			Rate per sqm = a+b+c+d+e)/640				801.65
			Total Cost	**sqm**			**801.65**
58	**14.16 RCD**	**800**	**Painting on concrete surface**				
			Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.				
			Unit = sqm				
			Taking output = 10 sqm				
		a)	Labour				
			Mate	day	0.01	437.00	4.37
			Painter	day	0.25	523.00	130.75
			Mazdoor (Skilled)	day	0.25	521.00	130.25
		b)	Machinery				
			Water based paint of approved quality for cement concrete surface	Litres	5.00	125.53	627.65
		c)	Overheads & CP @ 12.5% on (a+b+c)				**111.63**
			Cost for 10 sqm (a+b+c+d)				**1004.65**
			Rate per sqm (a+b+c+d)/10				**100.46**
			Total Cost	**sqm**			**100.46**
			SUB HEAD : ANALYSIS OF CULVERT/ MINOR BRIDGES ITEMS				
59	**11.10**	**300**	***Excavation for Structures***				
			Earthwork in excavation for structures as per drawing and technical				
		I.	**Ordinary soil**				
		(i)	**Upto 3 m depth**				
			Unit = cum				
			Taking output = 10 cum				
		a)	**Labour**				
			Mate	day	0.32	437.00	139.84
			Mazdoor (Unskilled)	day	8.00	412.00	3296.00
		b)	**Overheads & CP @ 12.5% on (a)**				**429.48**
							3865.32
			Cost for 10 cum = a+b				**386.53**
			Rate per cum = (a+b)/10=	**cum**			**386.53**
60	**11.2**	**300 & 1200**	**Fillling in foundation trenches as per drawing and technical specification Clause 305.3.9**				
			Sand filling				
			Unit = cum				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.30	412.00	123.60
		b)	**Material**				
			Sand (assuming 20 per cent voids)	cum	1.20	145.87	175.04
		c)	Overheads & CP @12% on (a+b)				**37.88**
			Rate per cum = (a+b+c+d)				340.89
			Carriage Cost				
			Sand (assuming 20 per cent voids)	cum	1.20	163.83	196.60
			Rate per cum = a+b+c+d=	**cum**			**537.49**
		NOTE :					
		1	*Cost of dewatering may be added, where required, up to 10 per cent of labour cost. Assessment for dewatering shall be made as per site conditions.*				
		2	*The excavated earth if found suitable, can be used partly for backfilling in trenches & partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 11.1 excluding 11.1 V*				
60	**9.20 (I)**	**1100 & 800**	**Type B (First Class) Bedding**				
			Laying (First Class) bedding on well compacted sand, moorum or approved granular material as per Clause 1105 (ii)				
			Fillling in foundation trenches as per drawing and technical specification Clause 305.3.9				
		I.	**Sand filling**				
			Unit = cum				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37
			Mazdoor (Unskilled)	day	0.30	412.00	123.60
		b)	**Material**				
			Sand (assuming 20 per cent voids)	cum	1.20	584.64	701.57
		c)	**Overheads & CP @ 12 % on (a+b)**				**103.69**
			CARRIAGE COST				
			sand	Cum	1.20	403.02	483.62
			Rate per cum = a+b+c				**1416.85**
			Total Cost	**CUM**			**1416.85**
60 (I)	**9.30**	**1100**	**Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row**				
			Providing and laying reinforced cement concrete pipe NP3 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets Clause 1106.				
		A.	**600 MM DIA**				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Unit =m				
			Taking output =7.5 m				
			(3 pipes of 2.5 m length each)				
			a) Material				
			I) Sand at site	cum	0.024	163.83	3.93
			ii) Cement at site	ton	0.018	5830.06	104.94
			iii) RCC pipe NP 4 pipe including collar at site	m	7.500	2620.37	19652.78
			b) Labour				
			Mate	day	0.040	437.00	17.48
			Mason (1st class)	day	0.120	553.00	66.36
			Mazdoor (Unskilled)	day	0.960	412.00	395.52
			Overheads & CP @ 12.5% on (a+b)				**2530.13**
			Cost for 7.5m = (a+b+c)				*22771.13*
			Rate per m =(a+b+c)/7.5				3036.15
			Total Cost	**M**			**3036.15**
60 (II)	**9.30**	**1100**	**Providing and Laying Reinforced Cement Concrete Pipe NP4 as per design in Single Row**				
			Providing and laying reinforced cement concrete pipe NP3 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets Clause 1106.				
		B.	**1000 MM DIA**				
			Unit =m				
			Taking output =7.5 m				
			(3 pipes of 2.5 m length each)				
			a) Material				
			I) Sand at site	cum	0.04	163.83	6.55
			ii) Cement at site	ton	0.03	5830.06	174.90
			iii) RCC pipe NP 4 pipe including collar at site	m	7.50	5949.27	44619.53
			b) Labour				
			Mate	day	0.09	437.00	39.33
			Mason (1st class)	day	0.25	553.00	138.25
			Mazdoor (Unskilled)	day	2.00	412.00	824.00
			Overheads & CP @ 12.5% on (a+b)				**5725.32**
			Cost for 7.5m = (a+b+c+d)				*51527.88*
			Rate per m =(a+b+c+d)/7.5				6870.38
			Carrige cost:-				
			Sand at site	cum	0.01	403.02	2.15
			Cement at site	ton	0.00	427.66	1.71
			RCC pipe NP3 concrete pipe including collar at site	m	1.00	271.02	271.02
			Rate per cum including Carrige				7145.26
			Total Cost	**m**			**7145.26**
61	**11.40**	**800 & 1200**	Providing concrete for plain/reinforced ***concrete in open foundations*** complete as per drawings and technical specifications Clause 802, 803, 1202 & 1203				
		II.	**P.C.C grade M 15**				
		(i)	**Nominal mix (1:2.5:5)**				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.275	5402.40	1485.66
			Coarse sand	cum	0.48	584.64	280.63
			40 mm aggregate	cum	0.48	1005.81	482.79
			20 mm aggregate	cum	0.24	1224.68	293.92
			10 mm aggregate	cum	0.08	602.28	48.18
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class0	day	0.10	553.00	55.30
			Mazdoor (Unskilled)	day	1.63	412.00	671.56
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**144.19**
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**468.60**
			Rate per cum =(a+b+c+d+e+f)				4217.43
			Carrige cost:-				
			Cement	t	0.275	427.66	117.61
			Coarse sand	cum	0.48	403.02	193.45
			Aggregate	cum	0.80	848.50	678.80
			Rate per cum including Carrige				**5207.29**
			Rate per cum = a+b+c+d+e+f=	**cum**			**5207.29**
	(i)	**III.**	**P.C.C. grade M 20**				
			Nominal mix (1:2:4)				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.33	5402.40	1782.79
			Sand	cum	0.45	584.64	263.09
			40 mm aggregate	cum	0.36	1005.81	362.09

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			20 mm aggregate	cum	0.36	1224.68	440.88
			10 mm aggregate	cum	0.18	602.28	108.41
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.10	553.00	55.30
			Mazdoor (Unskilled)	day	1.63	412.00	671.56
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 4% on (a+b+c)				**158.83**
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**516.19**
			Rate per cum =(a+b+c+d+e+f)				4645.75
			Carrige cost:-				
			Cement	t	0.33	427.66	141.13
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**5731.89**
			Rate per cum = a+b+c+d+e+f	**cum**			**5731.89**
62	**12.5**	**800**	Plain/reinforced ***cement concrete in substructure*** complete as per drawings and technical specification Clauses 802, 804, 805, 806, 807, 1202 ans 1204				
			For height upto 5 m				
			Unit = cum				
		II.	**P.C.C grade M 15**				
		(i)	**Nominal mix (1:2.5:5)**				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.275	5,402.40	1,485.66
			Coarse sand	cum	0.48	584.64	280.63
			40 mm aggregate	cum	0.48	1,005.81	482.79
			20 mm aggregate	cum	0.24	1,224.68	293.92
			10 mm aggregate	cum	0.18	602.28	108.41
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class0	day	0.10	553.00	55.30
			Mazdoor (Unskilled)	day	1.63	412.00	671.56
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 10% on cost of material, labour and machinery (a+b+c)				366.49
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**503.92**
			Rate per cum =(a+b+c+d+e+f)				4535.28
			Carrige cost:-				
			Cement	t	0.275	427.66	117.61
			Coarse sand	cum	0.48	403.02	193.45
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**5,609.98**
			Rate per cum = a+b+c+d+e+f=	**cum**			**5609.98**
		II.	**P.C.C. grade M 20**				
		(i)	**Nominal mix (1:2:4)**				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.33	5,402.40	1,782.79
			Sand	cum	0.45	584.64	263.09
			40 mm aggregate	cum	0.36	1,005.81	362.09
			20 mm aggregate	cum	0.36	1,224.68	440.88
			10 mm aggregate	cum	0.18	602.28	108.41
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.10	553.00	55.30
			Mazdoor (Unskilled)	day	1.63	412.00	671.56
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 10% on (a+b+c)				397.07
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				524.14
		f)	**Contractor's profit @ 0% on (a+b+c+d+e)**				489.19
			Rate per cum =(a+b+c+d+e+f)				5381.13
			Carrige cost:-				
			Cement	t	0.33	427.66	141.13
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**6,467.27**
			Rate per cum = a+b+c+d+e+f	**cum**			**6467.27**
60	**12.50**	**800**	Plain/reinforced ***cement concrete in substructure*** complete as per drawings and technical specification Clauses 802, 804, 805, 806, 807, 1202 ans 1204				
			For height upto 5 m				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Unit = cum				
		II.	**P.C.C. grade M 20**				
		(i)	**Nominal mix (1:2:4)**				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.33	5402.40	1782.79
			Sand	cum	0.45	584.64	263.09
			40 mm aggregate	cum	0.36	1005.81	362.09
			20 mm aggregate	cum	0.36	1224.68	440.88
			10 mm aggregate	cum	0.18	602.28	108.41
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.10	553.00	55.30
			Mazdoor (Unskilled)	day	1.63	412.00	671.56
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	**Formwork @ 10% on (a+b+c)**				**397.07**
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**545.97**
			Rate per cum =(a+b+c+d+e+f)				4913.77
			Carrige cost:-				
			Cement	t	0.33	427.66	141.13
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**5999.91**
			Rate per cum = a+b+c+d+e	**cum**			**5999.91**
		IV.	R.C.C. grade M 25				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.40	5402.40	2182.57
			Coarse sand	cum	0.45	584.64	263.09
			20 mm aggregate	cum	0.54	1224.68	661.33
			10 mm aggregate	cum	0.36	602.28	216.82
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.12	553.00	66.36
			Mazdoor (Unskilled)	day	1.73	412.00	712.76
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 10% on (a+b+c)				438.95
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**603.56**
			Rate per cum =(a+b+c+d+e+f)				5432.04
			Carrige cost:-				
			Cement	t	0.40	427.66	172.77
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**6549.82**
			Rate per cum = a+b+c+d+e	**cum**			**6549.82**
		NOTE :					
		1	*For height above 5 m upto 10 m same as above with following changes:*				
		a.	*Add 2 per cent of cost of material, labour and machinery to cater for extra lift.*				
		b.	*The provision of formwork shall be 12 per cent instead of 10 per cent of cost of material, labour and machinery*				
		2	*The cost of formwork has been increased for more height to account for cost of side support to formwork.*				
		3	*Extra expenditure on structures which are more than 5 m height is to cater for cost involved for approaching the work spot by providing ramp for use by labour.*				
61	**13.1**	**800**	Providing and laying ***reinforced cement concrete in superstructure*** as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5				
		II.	R.C.C M 25				
			Unit =cum				
		a)	**Material**				
			Cement	t	0.40	5402.40	2160.96
			Coarse sand	cum	0.45	584.64	263.09
			20 mm aggregate	cum	0.54	1224.68	661.33
			10 mm aggregate	cum	0.36	602.28	216.82
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.12	553.00	66.36
			Mazdoor (Unskilled)	day	1.73	412.00	712.76
			Bhisti	day	0.27	412.00	111.24
		e)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	**For formwork and staging 10%of a+b**				**436.79**
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**600.59**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Rate per cum =(a+b+c+d+e+f)				5405.30
			Carrige cost:-				
			Cement	t	0.40	427.66	171.06
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**6521.37**
			Rate per cum = a+b+c+d+e+f=	**cum**			**6521.37**
			This analysis will hold good for concrete of nominal mix 1:1½:3 also				
		II.	**R.C.C M 30**				
			Unit =cum				
		a)	**Material**				
			Cement	t	0.43	5,402.40	2,323.03
			Coarse sand	cum	0.45	584.64	263.09
			20 mm aggregate	cum	0.54	1,224.68	661.33
			10 mm aggregate	cum	0.36	602.28	216.82
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.12	553.00	66.36
			Mazdoor (Unskilled)	day	1.73	412.00	712.76
			Bhisti	day	0.27	412.00	111.24
		e)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	For formwork and staging 20%of a+b				877.92
		e)	Overheads & CP @ 12.5% on (a+b+c+d)				**675.99**
			Rate per cum =(a+b+c+d+e+f)				6083.89
			Carrige cost:-				
			Cement	t	0.43	427.66	183.89
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**7,212.80**
			Rate per cum = a+b+c+d+e+f=	**cum**			**7212.80**
62	**11.50**	**600 & 1200**	***Brick masonry work in cement mortar in foundation*** complete excluding pointing and plastering as per drawing and technical specifications Clauses 600, 1202 & 1203				
		I)	***1 : 3 Cement Mortar***				
			Unit = cum				
		I.	***Brick masonry in 1:3 cement mortar***				
		a)	***Material***				
			Brick	Nos.	500.00	6.12	3062.00
			Cement mortar 1:3	cum	0.24	3790.34	909.68
			(Rate as per Sub-analysis)				
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason (1st Class)	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
		c)	**Overheads & CP @ 12.5% on (a+b)**				**649.38**
			Rate per cum =(a+b+c+d)				5844.39
			Carriage Cost				
			carriage brick	no.	500.00	0.74	370.43
			carriage cement	t	0.11	427.66	48.11
			carriage sand	cum	0.25	403.02	101.56
			Rate per cum including Carrige				**6364.49**
			Rate per cum = a+b+c	**cum**			**6364.49**
			Sub-analysis				
			Cement mortar 1:3 (1 cement : 3 sand)				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.51	5402.40	2755.22
			Sand	cum	1.05	584.64	613.87
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	0.90	412.00	370.80
			Bhisti	day	0.08	412.00	32.96
			Rate per cum =(a+b+c+d)				3790.34
			Carriage Cost				
			carriage cement	t	0.51	427.66	0.00
			carriage sand	cum	1.05	403.02	0.00
			Rate per cum including Carrige				**3790.34**
			Total material and labour = (a+b)	**cum**			**3790.34**
		II.	***Brick masonry in 1:4 cement mortar***				
			Unit = cum				
		a)	**Material**				
			Brick	Nos.	500.00	6.12	3062.00
			Cement mortar 1:4	cum	0.24	3088.02	741.12
			Rates as per sub-analysis				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason (1st Class)	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
		c)	**Overheads & CP @ 12.5% on (a+b)**				**628.31**
			Rate per cum =(a+b+c+d)				5654.76
			Carriage Cost				
			carriage brick	no.	500.00	0.74	370.43
			carriage cement	t	0.09	427.66	39.00
			carriage sand	cum	0.25	403.02	101.56
			Rate per cum including Carrige				**6165.76**
			Rate per cum = a+b+c=	**cum**			**6165.76**
			Sub-analysis				
			Cement mortar 1:4 (1 cement : 4 sand)				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.38	5402.40	2052.91
			Sand	cum	1.05	584.64	613.87
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	0.90	412.00	370.80
			Bhisti	day	0.08	412.00	32.96
			Rate per cum =(a+b)				3088.02
			Carriage Cost				
			carriage cement	t	0.38	427.66	0.00
			carriage sand	cum	1.05	403.02	0.00
			Rate per cum including Carrige				**3088.02**
			Total material and labour = (a+b)=	**cum**			**3088.02**
		III.	**In 1:5 cement mortar**				
			Unit = cum				
		a)	**Material**				
			Bricks 1st class	Nos.	500.00	6.12	3062.00
			Cement mortar	cum	0.24	3265.60	783.74
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason 1st Class	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
			Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				253.45
		c)	**Overheads & CP @ 12.5% on (a+b)**				**665.32**
			Rate per cum = a+b+c+d=				**5987.84**
			Total Cost	**cum**			**5987.84**
			Sub-analysis				
			Cement mortar 1:5 (1 cement, 5 sand)				
		a)	**Material**				
			Cement	t	0.31	5402.40	1674.74
			Sand	cum	1.05	584.64	613.87
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	0.90	412.00	370.80
			Bhisti	day	0.08	412.00	32.96
		c)	**Carriage cost**				
			Cement	t	0.31	427.66	132.57
			Sand	cum	1.05	403.02	423.17
			Total Cost				**3265.60**
			Total material and labour = (a+b)	**cum**			**3265.60**
63	**12.10**	**600**	***Brick masonry work in cement mortar in substructure*** complete excepting pointing and plastering, as per drawing and technical specification Clauses 602, 603, 604, 1202 & 1204				
		I.	In 1:3 cement mortar				
			Unit = cum				
		a)	**Material**				
			Bricks	Nos.	500.00	6.12	3062.00
			Cement mortar (Rate as in item 11.5 I)	cum	0.24	3790.34	909.68
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason 1st Class	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
			Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				198.58
		c)	**Overheads & CP @ 12.5% on (a+b)**				**674.20**
			Rate per cum =(a+b+c+d)				6067.79
			Carriage Cost				
			carriage brick	no.	500.00	0.74	370.43
			carriage cement	t	0.11	427.66	48.11

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			carriage sand	cum	0.25	403.02	101.56
			Rate per cum including Carrige				**6587.90**
			Rate per cum = a+b+c=	**cum**			**6587.90**
		II.	In 1:4 Cement mortar				
			Unit = cum				
		a)	**Material**				
			Bricks	Nos.	500.00	6.12	3062.00
			Cement mortar				
			(Rate as in item 11.5 II)	cum	0.24	3088.02	741.12
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason 1st Class	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
			Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				251.32
		c)	**Overheads & CP @ 12.5% on (a+b)**				**659.72**
			Rate per cum =(a+b+c+d)				5937.50
			Carriage Cost				
			carriage brick	no.	500.00	0.74	370.43
			carriage cement	t	0.09	427.66	39.00
			carriage sand	cum	0.25	403.02	101.56
			Rate per cum including Carrige				6448.49
			Rate per cum = a+b+c=	**cum**			**6448.49**
64	**12.20**	**600**	***Pointing with cement mortar (1:3)*** on brickwork as per drawing and technical specification Clauses 613.3 and 1204				
			Unit = 10 sqm				
			Taking output = 10 sqm				
		a)	**Material**				
			Cement mortar 1.3 (Rate as in item 11.5. I)	cum	0.03	3790.34	113.71
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mason 1st Class	day	0.50	553.00	276.50
			Mazdoor (Unskilled)	day	0.50	412.00	206.00
			Bhisti	day	0.20	412.00	82.40
		c)	**Overheads & CP @ 12.5% on (a+b)**				**87.01**
			Rate per 10 sqm = (a+b+c)				**783.10**
			Rate per sqm = (a+b+c)/10				**78.31**
			Total Cost	***sqm***			**78.31**
62	**12.30**	**600 & 1200**	***Plastering with CM 1:4***				
			Plastering with cement mortar (1:4), 15 mm thick on brickwork in substructure as per technical specification Clauses 613.4 & 1204				
			Unit = 10 sqm				
			Taking output = 10 sqm				
		a)	**Material**				
			Cement mortar 1:4 (Rate as in item 11.5 II)	cum	0.24	3088.02	741.12
		b)	**Labour**				
			Mate	day	0.06	437.00	26.22
			Mason 1st Class	day	0.60	553.00	331.80
			Mazdoor (Unskilled)	day	0.60	412.00	247.20
			Bhisti	day	0.30	412.00	123.60
		c)	**Overheads & CP @ 12.5% on (a+b)**				**183.74**
			Rate per 10 sqm = a+b+c				**165.37**
			Carriage Cost				
			carriage cement		0.01	427.66	3.90
			carriage sand		0.03	403.02	10.16
			Rate per cum including Carrige				**179.43**
			Total Cost	**Sqm**			**179.43**
63	**13.60**	**600 & 1200**	***Neat Cement Punning 1.5 mm thick***				
	Building SOR		Providing and laying neat cement punning 1.5 mm thick as per Specification etc as per direction.				
			Unit = sqm				
			Assume area =9.30 m2				
		a)	**Material**				
			Cement	cum	0.02	5402.40	108.91
		b)	**Labour**				
			Mason (1st class)	day	0.06	553.00	33.18
			Mason (2nd Class)	day	0.50	494.00	247.00
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		c)	Sundries	LS			1.50
		d)	**Overheads & CP @ 12% on (a+b+c)**				**61.70**
			Total cost				555.29
			Rate per sqm = a+b+c+d				**59.71**
		CARRIAGE	Cement	t	0.00	427.66	0.93
			Total Cost				60.64
			Total Cost	**Sqm**			**60.64**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
64	12.40	700	***Random Rubble Stone Masonry in 1:3 cement mortar for substructure*** complete as per drawing & technical specification clauses 702, 704, 1202 and 1204				
	(III)		**(i) In Cement Mortar 1:3 (Unit = Cum)**				
			a) Material				
			Stone for RR Masonry	Cum	1.00	0.00	0.00
			Through and bond stone (7 x 0.24x 0.24x 0.39=0.16 cum)	Nos	7.00	5.63	39.41
			Cement Mortar (As per item 11.5.1)	Cum	0.33	3790.34	1250.81
			b) Labour				
			Mate	Nos	0.12	437.00	52.44
			Mason 1st class	Nos	1.20	553.00	663.60
			Mazdoor (Unskilled)	Nos	1.80	412.00	741.60
			Bhisti	Nos	0.08	412.00	32.96
			Add for scaffolding @ 5 % of cost of materials and labour				139.04
		c)	**Overheads & CP @ 12.5% on (a+b)**				**364.98**
			CARRIAGE				
			Stone Masonry	Cum	1.16	848.50	984.26
			Cement	t	0.17	427.66	72.70
			Sand	Cum	0.35	403.02	141.06
			Total Cost				**4482.87**
			Rate per Cum	**Cum**			**4482.87**
64	11.70	1000 & 1200	Supplying, fitting and placing ***HYSD bar reinforcement in foundation*** complete as per drawings and technical specifications Clauses 1000 and 1202				
			Unit = t				
		a)	**Material**				
			HYSD bars including 5 per cent for overlaps and wastage	t	1.05	48550.00	50977.50
			Binding wire	kg	6.00	48.30	289.80
		b)	**Labour for cutting, bending, shifting to site, tying and placing in position**				
			Mate	day	0.40	437.00	174.80
			Blacksmith	day	2.00	553.00	1106.00
			Mazdoor (Unskilled)	day	6.00	412.00	2472.00
		c)	**Overheads & CP @ 12.5% on (a+b)**				**6877.51**
			Rate per t = a+b+c+d				**61897.61**
			CARRIAGE				
			Reinforcement	t	1.05	456.46	479.28
			Rate per t including Carrige				**62376.90**
			Total Cost	t			**62376.90**
65	12.60	1000	Supplying, fitting and placing ***HYSD bar reinforcement (Fe 415) in substructrue*** complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202				
			Unit = t				
		a)	**Material**				
			HYSD bars including 5 per cent overlaps and wastage	t	1.05	48550.00	50977.50
			Binding wire	kg	6.00	48.30	289.80
		b)	Labour for cutting, bending, shifting to site, tying, and placing in position				
			Mate	day	0.34	437.00	148.58
			Blacksmith	day	2.00	553.00	1106.00
			Mazdoor (Unskilled)	day	6.50	412.00	2678.00
		c)	**Overheads & CP @ 12.5% on (a+b)**				**6899.99**
			Rate per t = a+b+c+d				**62099.87**
			CARRIAGE				
			Reinforcement	t	1.05	456.46	479.28
			Binding wire		0.01	456.46	2.74
			Total Cost per t including Carrige				**62581.89**
			Rate per t = a+b+c+d=	t			**62581.89**
64	13.20	1000	Supplying, fitting, and placing ***HYSD bar reinforcement in superstructure*** complete as per drawing and technical				
			Unit = t				
		a)	**Material**				
			HYSD bars including 5 per cent for laps and wastage	t	1.05	48550.00	50977.50
			Binding wire	kg	8.00	48.30	386.40
		b)	**Labour for cutting, bending, tying and placing in position**				
			Mate	day	0.44	437.00	192.28
			Blacksmith	day	3.00	553.00	1659.00
			Mazdoor (Unskilled)	day	8.00	412.00	3296.00
		c)	**Overheads & CP @ 12.5% on (a+b)**				**7063.90**
			Rate per t = a+b+c+d				**63575.08**
			CARRIAGE				
			Reinforcement	t	1.05	456.46	479.28
			Binding wire		0.01	456.46	3.65
			Total Cost per t including Carrige				64058.01
			Rate per t = a+b+c+d=	t			**64058.01**
65	13.50	800	Providing and laying ***cement concrete wearing course M 30*** grade including reinforcement complete as per drawing and technical specifications Clauses 800 and 1206.3				
			Unit = cum				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		a)	**Material**				
			Cement	t	0.43	5402.40	2323.03
			Sand	cum	0.45	584.64	263.09
			20 mm aggregate	cum	0.54	1224.68	661.33
			10 mm aggregate	cum	0.36	602.28	216.82
			HYSD bar reinforcement (Rate as per item 13.2)	t	0.08	48550.00	3641.25
			Binding Wire	kg	0.01	48.30	0.48
		b)	**Labour**				
			Mate	day	0.10	437.00	43.70
			Mason (1st Class)	day	0.12	553.00	66.36
			Mazdoor (Unskilled)	day	3.00	412.00	1236.00
			Bhisti	day	0.27	412.00	111.24
			Blacksmith	day	0.30	553.00	165.90
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 3% of cost of concrete				213.18
		e)	**Overheads & CP @ 12.5% on (a+b)**				**1135.35**
			Rate per cum = a+b+c+d+e+f				**10218.13**
			Carrige cost:-				
			Cement	t	0.43	427.66	183.89
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Reinforcement	t	0.08	456.46	34.23
			Total Cost per cum including Carrige				**11381.27**
			Rate per cum = a+b+c+d+e=	**cum**			**11381.27**
66	**13.60**	**800**	Construction of ***R.C.C. railing of M 25 grade*** in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3				
			Unit = Runing m				
			Taking output = 4x12 m				
			Span = 48 m				
		a)	**M 25 grade R.C.C.**				
			No. of vertical posts = (6+1) 4 = 28 nos				
			Cross-sectional area of vertical post = 0.25x0.275 = 0.069 sqm				
			Concrete in vertical posts = 0.069 x28x1.00 = 1.932 cum				
			Hand rail in 3 tiers = 3x48 = 144 m				
			Cross-sectional area = 0.17x0.175 = 0.03 sqm				
			Concrete in hand rails = 0.03 x 144 = 4.32 cum				
			Total concrete = 1.932+4.32 = 6.252 cum	cum	6.25	6142.07	38400.22
		b)	**HYSD bar reinforcement (Rate as per item 13.2)**	t	1.36	64058.01	87118.89
		c)	**Overheads & CP @ 12.5% on (a+b)**				**15689.89**
			Cost for 48 m = (a+b+c+d)				141209.00
			Rate per m = (a+b+c+d)/48				**3324.30**
			Sub Analysis for Rate of Concrete				
		a)	**Material**				
			Cement	t	0.40	5402.40	2160.96
			Coarse sand	cum	0.45	584.64	263.09
			20 mm aggregate	cum	0.54	1224.68	661.33
			10 mm aggregate	cum	0.36	602.28	216.82
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.12	553.00	66.36
			Mazdoor (Unskilled)	day	1.73	412.00	712.76
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	**Formwork @ 12% (a+b+c)**				**658.08**
			Carrige cost:-				
			Cement	t	0.40	427.66	171.06
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Total Cost				**6142.07**
			Total (a+b+c+d)	**m**			**6142.07**
		1	*48 m length is the total linear length adding both sides of 2x12 m span*				
		2	*Quantities of material have been adopted from standard plans of MORTH vide drawing No SD/202*				
65	**13.90**	**600**	Brick masonry work in ***cement mortar 1:3 in parapet*** excluding pointing and plastering as per drawing and technical specifications Clauses 600, 900 and 1208.4				
			Unit = cum				
		a)	**Material**				
			Bricks	Nos.	500.00	6.12	3062.00
			Cement mortar (Rate as in item 11.5 I)	cum	0.24	3790.34	909.68
		b)	**Labour**				
			Mate	day	0.09	437.00	39.33
			Mason 1st Class	day	0.80	553.00	442.40

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
		c)	**Overheads & CP @ 12.5% on (a+b)**				**649.38**
			Rate per cum = a+b+c+d				**5844.39**
			Carrige cost:-				
			Brick	nos.	500.00	0.74	370.43
			Total Cost per cum including Carrige				6214.82
			Rate per cum = a+b+c=	**cum**			**6214.82**
66	**13.10**	**1200**	***Drainage spouts*** complete as per drawing and technical specifications Clause 1209				
			Unit = 1 No				
		a)	**Material**				
		i)	Corrosion resistant structural steel grating including 5 per cent wastage	kg	4.00	0.08	0.31
		ii)	G I pipe 100 mm dia	m	1.00	647.76	647.76
		b)	**Labour**				
			For fabrication				
			Mate	day	0.02	437.00	8.74
			Blacksmith, Welder etc. (Skilled)	day	0.02	553.00	11.06
			Mazdoor (Unskilled)	day	0.20	412.00	82.40
			For fixing in position				
			Mate	day	0.01	437.00	4.37
			Mason (1st Class)	day	0.01	553.00	5.53
			Mazdoor (Unskilled)	day	0.20	412.00	82.40
			Add @ 5 per cent of cost of material and labour (a+b) for electrodes, gas cutting, sealant, anti-corrrosive bituminous paint, mild steel grating etc.				42.13
		c)	**Overheads & CP @ 12.5% on (a+b)**				**110.59**
			Total Cost				**995.29**
			Rate per m = a+b+c=	no.			**995.29**
66	**13.16**	**1200**	**Filler Joint**				
	IV)		Providing and fillling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight.				
			Unit = Running m				
			Taking output = 7.5 m				
			7.5 m long x 100 mm wide x 10 mm deep recess				
		a)	**Material**				
			Sand	cum	0.01	584.64	4.68
			Volume = 7.5 x 0.1 x 0.01 = 0.008 cum				
			Weight = 0.008 x 1400 = 11.2 kg				
			Bitumen-11.2 x 0.06 = 0.672 kg	t	0.00	52472.60	36.73
		b)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor (Skilled)	day	0.50	521.00	260.50
			Mazdoor (Unskilled)	day	0.10	412.00	41.20
		c)	**Overheads & CP @ 12.5% on (a+b)**				**43.98**
			Cost for 7.5 m with 10 mm depth =a+b+c+d				395.83
			Rate per m 1 cm depth = (a+b+c+d)/7.5				**52.78**
			Total Cost	**m**			**52.78**
		Note:	*For arriving at the final rate for filler joints per m length and per cm depth of joint filling compound, the rates of Sr. Nos (i), (ii), (iii) and (iv) shall be added.*				
67	**12.10**	**1200**	**Backfilling behind abutment, wing wall and return wall** complete as per drawings & technical specification Clause				
			Unit = cum				
			Taking output = 10 cum				
		I)	**Granular material**				
		a)	**Material**				
			Granular material	cum	12.00	168.37	2020.44
		b)	**Labour**				
			Mate	day	0.28	437.00	122.36
			Mazdoor (Unskilled)	day	10.00	412.00	4120.00
			Bhisti	day	0.40	412.00	164.80
		c)	**Overheads & CP @ 12.5% on (a+b)**				**803.45**
			Carrige cost:-				
			Granular Material	cum	0.12	848.50	101.82
			Cost for 10 cum of granular backfill = a+b+c				7332.87
			Rate per cum = (a+b+c+d)/10				**733.29**
		II)	**Sandy material**				
			Unit = cum				
			Taking output = 10 cum				
		a)	**Material**				
			Sand	cum	12.00	584.64	7015.68
		b)	**Labour**				
			Mate	day	0.40	437.00	174.80
			Mazdoor (Unskilled)	day	10.00	412.00	4120.00

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Bhisti	day	0.40	412.00	164.80
		c)	**Overheads & CP @ 12.5% on (a+b)**				**1434.41**
			Cost for per cum of sand backfill = (a+b+c+d)/10				1290.97
			Carrige cost:-				
			Sand	cum	1.20	403.02	483.62
			Cost for per cum of sand backfill including carriage				1774.59
			Rate per cum = (a+b+c)/10 =	**cum**			**1952.05**
68	**12.11**	**1200**	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8				
			Unit = cum				
			Taking output = 10 cum				
		a)	**Material**				
			Filter media as per specification	cum	12.00	697.86	8374.32
		b)	**Labour**				
			Mate	day	0.40	437.00	174.80
			Mazdoor (Unskilled)	day	9.00	412.00	3708.00
			Mazdoor (Skilled)	day	1.00	521.00	521.00
			Bhisti	day	0.50	412.00	206.00
		c)	**Overheads & CP @ 12.5% on (a+b)**				**1623.02**
			Cost for per cum = (a+b+c+d)/10				1460.71
			Carrige cost:-				
			Filter Material	cum	1.20	848.50	1018.20
			Cost for per cum including carriage				2478.91
			Rate per cum = (a+b+c)/10	**cum**			**2478.91**
69	**12.13**	**600**	Providing **PCC M-20 architectural coping** on the top of wing wall, return wall etc. complete as per drawing and technical specification Clauses 615, 710 and 1204.3.11				
			Unit = Running m				
			Taking output = 1 m				
			Assume wall thickness = 345 mm				
			Projection of the coping will be 25 mm wide on both side of the wall = 345 + 50 = 395 mm				
			Quantity = 1 x 0.395 x 0.150 = 0.059				
			PCC M-20 Grade (1:2:4) Nominal Mix				
			As per item No. 12.5 (II)(i)	cum	0.06	5999.91	353.99
			Add 10 per cent extra of cost of (a) being architectural coping				35.40
			Cost of 1 m = a				389.39
			Rate per m = a				**389.39**
70	**12.14**	**1200**	Providing ***pressure relief pipes 100 mm dia*** in bottom slab of box cell on a filter media base of 500 mm x 500 mm as per drawing and technical specification Clause 1205.5.7				
			Unit = Nos				
		a)	**Material**				
			AC pipe 100 mm dia i/c wastage of 5 per cent 600 mm long upto the bottom of levelling course	m	0.63	47.15	29.70
			Filter media base with stone aggregate 0.5 m x 0.5 m area 1 m deep	cum	0.25	697.86	174.47
		b)	**Labour**				
			Mate	day	0.03	437.00	13.55
			Mason 1st Class	day	0.02	553.00	8.85
			Mazdoor (Unskilled)	day	0.80	412.00	329.60
		c)	**Overheads & CP @ 12.5% on (a+b)**				**69.52**
			Total Cost				**625.69**
			Rate per No = (a+b+c)	**no.**			625.69
			PROTECTION WORK				
71	**14.10**	**1300**	Providing and laying **boulder apron** for bed protection with stone boulders of minimum size and weight as per Table 1300.1, no fragment weighing less than 25 kg laid dry complete as per drawing and technical specifications Clause				
			Unit = cum				
		a)	**Material**				
			Stone boulder (25 kg minimum)	cum	1.00	694.61	694.61
			Stone spalls	cum	0.20	694.61	138.92
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mason 1st Class	day	0.35	553.00	193.55
			Mazdoor (Unskilled)	day	0.75	412.00	309.00
		c)	**Overheads & CP @12.5% on (a+b)**				**169.20**
			Rate per cum = (a+b+c+d)				1522.76
			Carriage Cost				
			Stone boulder (25 Kg minimum)	cum	1.00	873.80	873.80
			Stone spalls	cum	0.20	848.50	169.70
			Rate per cum = a+b+c=	**cum**			**2566.26**
		NOTE :	Nominal excavation required for preparation of bed has been taken into account while making provisions for labour.				
			Total Cost	CUM			**2566.26**
72	**14.5**	**1300**	Providing and laying ***boulder pitching on slopes*** laid over prepared filter media as per drawing and technical specifications Clause 1302				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
		I.	**Stone/Boulder**				
			Unit = cum				
		a)	**Material**				
			Stone boulder (25 kg minimum)	cum	1.00	694.61	694.61
			Stone spalls of minimum 25 mm size	cum	0.20	694.61	138.92
		b)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mason 1st Class	day	0.35	553.00	193.55
			Mazdoor (Unskilled)	day	0.75	412.00	309.00
		c)	**Overheads & CP @12.5% on (a+b)**				**169.20**
			Rate per cum = (a+b+c+d)				1522.76
			Carriage Cost				
			Stone boulder (25 Kg minimum)	Nos	1.00	873.80	873.80
			Stone spalls	cum	0.20	848.50	169.70
			Rate per cum including Carriage				**2566.26**
			Total Cost	**CUM**			**2566.26**
73	**14.6**	**1300**	Providing and laying ***filter material underneath pitching*** in slopes complete as per drawing and technical specifications Clause 1302				
			Unit = cum				
		a)	**Material**				
			Graded stone aggregate of required size	cum	1.20	602.28	722.74
		b)	**Labour**				
			Mate	day	0.05	437.00	21.85
			Mazdoor (Skilled)	day	0.25	521.00	130.25
			Mazdoor (Unskilled)	day	1.02	412.00	420.24
		c)	**Overheads & CP @12.5% on (a+b)**				**161.88**
			Rate per cum = (a+b+c)				1456.96
			Carriage Cost				
			Graded stone aggregate of required size	cum	1.20	848.50	1018.20
			Rate per cum including Carriage				**2475.16**
			Total Cost	**Cum**			**2475.16**
74	**14.70**	**1300**	Providing and laying flooring laid over cement concrete bedding complete as per drawing and technical specification Clause 1303				
	(III)		**Brick on edge laid in cement mortar (1:3)**				
			Unit=cum				
		a)	**Material**				
			Bricks	Nos	500.00	6.12	3062.00
			Cement mortar (1:3) [(Rate as in item 11.5 (i)]	cum	0.15	5812.90	871.94
			Cement mortar bedding (1:5) [(Rate as in itm 12.1 (iii)]	cum	0.25	5277.78	1319.44
		b.	**Labour**				
			Mate	day	0.10	437.00	43.70
			Mason 1st Class	day	0.80	553.00	442.40
			Mazdoor (Unskilled)	day	1.60	412.00	659.20
			Bhisti	day	0.20	412.00	82.40
		c)	**Overheads & CP @12.5% on (a+b)**				**810.13**
			Rate per cum = (a+b+c)				7291.21
		d)	**Carriage Cost**				
			i) Bricks	Nos	500.00	0.74	370.43
			ii) Cement	cum	0.15	427.66	65.86
			iii) Sand	cum	0.42	403.02	169.27
			Rate per cum including Carriage = a+b+c+d				**7896.77**
			Total Cost	**cum**			**7896.77**
68	**12.90**	**600**	Providing ***weepholes*** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7				
			Unit = Nos				
			Taking output = 30 Nos				
		a)	**Material**				
			AC pipe 100 mm dia including wastage @ 5 per cent. Average length of weep hole is taken as one metre for the purpose of estimating	m	31.50	47.15	1485.23
			MS clamps	Nos.	30.00	84.83	2544.90
			Cement mortar 1:3 (For rate refer to item 11.5 I)	cum	0.05	3790.34	189.52
		b)	**Labour**				
			Mate	day	0.03	437.00	13.11
			Mason 1st Class	day	0.50	553.00	276.50
			Mazdoor (Unskilled)	day	0.25	412.00	103.00
		c)	**Overheads & CP @12.5% on (a+b)**				**576.53**
			Cost for 30 Nos = (a+b+c)				5188.78
			Rate per No = (a+b+c)/30=	**no.**			**345.92**
69	**11.20**	**300 & 1200**	**Fillling in foundation trenches as per drawing and technical specification Clause 305.3.9**				
			Sand filling				
			Unit = cum				
		a)	**Labour**				
			Mate	day	0.01	437.00	4.37

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Mazdoor (Unskilled)	day	0.30	412.00	123.60
		b)	**Material**				
			Sand (assuming 20 per cent voids)	cum	1.20	145.87	175.04
		c)	**Overheads & CP @12.5% on (a+b)**				**37.88**
			Rate per cum = (a+b+c)				340.89
			Carriage Cost				
			Sand (assuming 20 per cent voids)	cum	1.20	163.83	196.60
			Rate per cum = a+b+c+d=	cum			**537.49**
70	**11.40**	**800 & 1200**	Provinding concrete for plain /reinforced concrete in open foundation complete as per drawings and technical specifications Clause 802,803,1202 & 1203.				
		IV.	**R.C.C. grade M 20**				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.35	5402.40	1890.84
			Coarse sand	cum	0.45	584.64	263.09
			20 mm aggregate	cum	0.54	1224.68	661.33
			10 mm aggregate	cum	0.36	602.28	216.82
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.12	553.00	66.36
			Mazdoor (Unskilled)	day	1.73	412.00	712.76
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	Formwork @ 4% on (a+b+c)				163.91
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**532.71**
			Rate per cum =(a+b+c+d+e+f)				4794.42
			Carrige cost:-				
			Cement	t	0.35	427.66	149.68
			Coarse sand	cum	0.45	403.02	181.36
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				5889.11
			Rate per cum = a+b+c+d+e+f=	**cum**			**5889.11**
71	**10.11**	**1700**	**Boundary Pillar**				
			Reinforced cement concrete M 15 gradeboundary pillars/local stone of standard design as per IRC:25fixing in position including finishing and lettering but excluding painting as per drawings and Technical Specification Clause 1704				
			Unit = each				
			Taking out put = 57 Nos				
		a)	M-15 grade cement				
			As per item No.12.5 of Chapter 12	cum	1.25	5207.29	6509.11
		b)	Steel reinforcement @ 5kg per sqm				
			As per item No.12.6 of Chapter 12	kg	79.80	62.58	4993.88
		c)	Excavation in soil				
			As per item No.11.1 of Chapter 11	cum	10.72	386.53	4143.60
		d)	Lettering each 10 cm high				
			As per item No.10.1of Chapter 10	per litre per per cm high	2280.00	0.73	1664.40
			Transportation and fixing				
		e)	Labour				
			Mate	day	0.57	437.00	249.09
			Mazdoor (Unskilled)	day	14.25	412.00	5871.00
		f)	Machinery				
			Tractor with trolley	hour	6.00	688.00	4128.00
		g)	Material				
			Stone spall	cum	11.97	363.47	4350.74
		h)	Overheads & CP @ 12.5% on (e+f+g)				**1824.85**
			Cost for 57 Nos. boundar pillar = (a+b+c+d+e+f+g+h)				33734.68
			Rate for each boundary pillar=(a+b+c+d+e+f+g+h)/57				591.84
			Rate per cum = a+b+c+d+e+f+g+h=	**cum**			**591.84**
		Note: 1	In case of soft groun, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.				
		2	In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.				
72	**11.9**	**307**	**Planting of Trees and their Maintenance for one Year**				
			Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year				
			Unit = each				
			Taking output = 10 trees				
		b)	**Labour**				
			Mate	day	1.70	437.00	742.90
			Mazdoor for planting	day	2.00	412.00	824.00

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Mazdoor for maintenance for one year	day	15.00	412.00	6180.00
		b)	**Machinery**				
			Water tanker6 KL capacity	hour	2.00	764.00	1528.00
		c)	**Material**				
			Sapling 2 m high 25 mm dia	Each	10.00	28.64	286.40
			Farm yard manure	Cum	0.94	552.10	518.97
			Pesticide	Kg	0.50	89.55	44.78
			Cost of water	Kl	12.00	61.40	736.80
		d)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**1357.73**
			Cost for 10 trees = a+b+c+d+e				12219.58
			Rate per trees = (a+b+c+d+e)/10				1221.96
			Rate per tree = a+b+c+d+e=	**cum**			**1221.96**
73	**10.9**	**1700**	**Painting lines, Dashes, Arrows, etc. on Roads in Two Coats on Old Work**				
			Painting lines, dashes, arrows, etc. on roads in two coats on old work with ready mixed road marking paint conforming to IS:164 on bituminous/concrete surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per drawing and technical specification Clause 1702				
			Assuming 100 cm width				
			Unit = sqm				
			Taking output = 10 sqm				
		b)	**Labour**				
			Mate	day	0.06	437.00	26.22
			Painter (Ist class)	day	0.30	523.00	156.90
			Mazdoor (Unskilled)	day	1.25	412.00	515.00
		b)	**Material**				
			Road marking paint	litre	0.90	283.74	255.37
		c)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**119.19**
			Cost for 10 sqm = a+b+c				1072.67
			Rate per sqm = (a+b+c)/10				107.27
			Rate per cum = a+b+c+d+e=	**cum**			**107.27**
74	**10.9**	**1700**	**Metal Beam Crash Barrier**				
			Type - A, "W" : Metal Beam Crash Barrier				
			Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810				
			Unit = Running metre				
			Taking output = 4.5 metre length				
		a)	**Labour**				
			Mate	day	0.06	437.00	26.22
			Blacksmith	day	0.50	553.00	276.50
			Mazdoor	day	1.00	412.00	412.00
		b)	**Machinery**				
			Tractor-trolley	hour	1.00	688.00	688.00
		c)	**Material**				
			Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length	kg	41.21	55.45	2285.09
			Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @ 16.4 kg per metre	kg	88.56	55.45	4910.65
			Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @ 16.4 kg per metre	kg	16.24	55.45	900.51
			Nuts and bolts	kg	20.00	0.08	1.61
			Add 25 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)				809.79
		d)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**1288.80**
			Cost for 4.5 metre = a+b+c+d+e				11599.16
			Rate per metre = (a+b+c+d+e)/4.5				2577.59
			Rate per metre = a+b+c+d=	**cum**			**2577.59**
75	**10.2**	**Suggestive**	**Road Markers/Road Stud with Lens Reflector**				
			Providing and fixing of road stud 100 x 100 mm die cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling holes 30 mm upto a depth of 600 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS:873 (Part 4) 1973.				
			Unit = each				
			Taking output = 50 Nos.				
		a)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor (Unskilled)	day	1.00	412.00	412.00
		b)	**Material**				
			Aluminium studs 100x100 mm fitted with lense reflectors	litre	50.00	209.95	10497.50
			Add 10 per cent of cost of material for fixing and installation.				1049.75
		c)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**1497.09**
			Cost for 50 studs = a+b+c				13473.82
			Rate per stud = (a+b+c)/50				269.48
			Rate per stud = a+b+c+d=	**cum**			**269.48**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
76	8.15	805	**Road Delineators**				
			Supplying and installation of delineators (Road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC- 79 and the drawings.				
			Unit = Each				
			Taking output= 30 Nos.				
		a)	**Labour**				
			Mate	day	0.04	437.00	17.48
			Mazdoor for fixing	day	1.00	412.00	412.00
		b)	**Material**				
			Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	30.00	600.00	18000.00
			Add 10 per cent cost of material for installation				1800.00
		c)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**2528.69**
			Cost for 30 Nos. delineators = (a+b+ c+d)				22758.17
			Rate per delineators = (a+b+c+d) /30				758.61
			Rate per stud = a+b+c+d=	**cum**			**758.61**
77	8.44	Suggestive	**Portable Barricade in Construction Zone**				
			Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 450 C, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001				
			Unit = each				
			Taking output = one steel portable barricade				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor	day	0.25	412.00	103.00
			Painter	day	0.50	523.00	261.50
			Welder	day	0.25	370.00	92.50
		b)	**Material**				
			Angle iron 45 x 45 x 5 mm	Kg	25.00	55.45	1386.25
			MS sheet 300 mm wide,2.5 m long and 2.6 mm thick	Kg	15.00	55.45	831.75
			Paint	Litre	0.50	283.74	141.87
			Add 2 per cent of cost of steel for welding consumables, nuts & bolts and drilling holes				47.20
		c)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**359.10**
			Rate per barricade = a+b+c+d				3231.91
			Rate per stud = a+b+c+d=	**cum**			**3231.91**
78	8.36	Suggestive	**Traffic Cone**				
			Provision of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873				
			Unit = Running metre				
			Taking output = 68 Nos.				
		a)	**Labour**				
			Mate	day	0.02	437.00	8.74
			Mazdoor	day	0.50	412.00	206.00
		b)	**Material**				
			Traffic cones with 150 mm reflective sleeve	each	68.00	1,000.00	68000.00
		c)	**Machinery**				
			Tractor-trolley	hour	0.10	688.00	68.80
		d)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**8535.44**
			Cost for 68 Nos. = a+b+c+d+e				76818.98
			Rate per metre = (a+b+c+d+e)/68				1129.69
			Rate per stud = a+b+c+d=	**cum**			**1129.69**
73	**13.11**	**800**	PCC M15 Ordinary grade (1:2.5:5) levelling course below approach slab complete as per drawing and technical specifications clauses 800 and 1211.				
			Unit = cum				
		II.	**P.C.C. grade M 15**				
		(i)	**Nominal mix (1:2.5:5)**				
			Unit = cum				
		a)	**Material**				
			Cement	t	0.275	5402.40	1485.66
			Sand	cum	0.48	584.64	280.63
			40 mm aggregate	cum	0.48	1005.81	482.79
			20 mm aggregate	cum	0.24	1224.68	293.92
			10 mm aggregate	cum	0.18	602.28	108.41
		b)	**Labour**				
			Mate	day	0.08	437.00	34.96
			Mason (1st Class)	day	0.10	553.00	55.30
			Mazdoor (Unskilled)	day	1.63	412.00	671.56
			Bhisti	day	0.27	412.00	111.24
		c)	**Machinery**				

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount In Rs
			Concrete mixer 0.4/0.28 cum capacity	hour	0.40	351.00	140.40
		d)	**Formwork @ 10% on (a+b+c)**				**366.49**
		e)	**Overheads & CP @ 12.5% on (a+b+c+d)**				**503.92**
			Rate per cum =(a+b+c+d+e+f)				4535.28
			Carrige cost:-				
			Cement	t	0.275	427.66	117.61
			Coarse sand	cum	0.48	403.02	193.45
			Aggregate	cum	0.90	848.50	763.65
			Rate per cum including Carrige				**5609.98**
				cum			**5609.98**
74			Reinforeced Cement Concrete M30 grade approach slab including reinforcement and formwork complete as per drawing and technical specification clauses 800 & 1211				
			Unit=cum				
		a)	**Material**				
			Reinforeced Cement concrete M30 grade	cum	1.00	7212.80	7212.80
			HYSB Reinforcement	t	0.05	64058.01	3202.90
				cum			**10415.70**
33	**8.29 RCD**		**Cable Duct Across the Road**				
			Providing and laying of a reinforced cement concrete pipe duct,300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills,constructing head walls at both ends, providing a minimum fill ofgranular material over top and sides of RCC pipe as per IRC:981997,bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings.				
			Unit = Rm				
			Taking output = 20 m				
			a) Labour				
			Mate	day	0.500	437.00	218.50
			Mazdoor (skilled)	day	0.250	521.00	130.25
			Mazdoor (Unskilled)	day	1.000	412.00	412.00
			b) Material				
			Reinforced Cement Concrete pipe 300 mm dia	Rm	20.000	631.46	12629.20
			Local Sand for bedding and sides of pipe	Cum	7.200	145.87	1050.26
			Collar for joints 300 mm dia	Each	9.000	118.00	1062.00
			Cement mortar 1:4 for joints	Cum	0.020	3673.71	73.47
			c) Machinery				
			Tractor-trolley	Hour	0.500	688.00	344.00
			d) Overheads & CP @ 12.5% on (a+b+c)				**1989.96**
			(e) Contractor's profit @ 0% on (a+b+c+d)				1790.96
			Cost for 20 Rm = a+b+c+d+e				19700.61
			Rate per Rm = a+b+c+d+e)/20 Sub Total				985.03
			Carriage Cost				
			Local Sand	Cum	0.36000	163.83	58.98
			Rate per Rm = a+b+c+d+e)/20 Final				1044.01
			Total Cost	**Rm**			**1,044.01**

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
15.1	1900	**Restoration of Rain Cuts**				
		i) Restoration of rain cuts with soil, moorum gravel or a mixture of these, clearing the loose soil, benching for 300mm width laying fresh material in layers not exceeding 250 mm and compaction with plate compactor or power rammer to restore the original alignment, level and slopes as per drawings and technical specifications Clause 1902				
		A. Manual Means				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.24	437.00	104.88
		Mazdoor (Unskilled)	day	6.00	412.00	2,472.00
		b) Machinery				
		Plate compactor	hour	3.00	415.00	1,245.00
		c) Materials				
		Compensation for earth Taken from private land	cum	7.50	35.25	264.38
		d) Overheads & CP @12.5%on (a+b+c)				**510.78**
		Cost for 10 cum = a+b+c+d+e				4,597.04
		Rate per cum = a+b+c+d/10				**459.70**
		Total Cost	**cum**			**459.70**
15.2	1900	**1. Maintenance of Earthen shoulder (filling with fresh selected soil)**				
		Making up loss of material/irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per technical specification Clause 1903				
		Unit = sqm				
		Taking output = 100 sqm				
		Assuming average thickness of filling to be 150 mm				
		Quality of fresh material = 15 cum				
		a. Labour				
		Mate	day	0.20	437.00	87.40
		Mazdoor (Unskilled)	day	5.00	412.00	2,060.00
		b. Machinery				
		Hydraulic Excavator 0.9 cum bucket capacity @ 60	hour	0.25	2,288.00	
		Tipper 5.5 cum	hour	0.68	1,441.00	979.88
		Add 12.5% cost of transportation to cover cost of loading and unloading				122.49
		Plate compactor @ 25 sqm per hour	hour	4.00	415.00	1,660.00
		c. Material				
		Compensation of earth	cum	15.00	35.25	528.75
		d. Overheads & CP @12.5%on (a+b+c)				**679.81**
		Cost for 100 sqm = a+b+c+d+e				6,118.33
		Rate per sqm = (a+b+c+d+e)/100				**61.18**
		Total Cost	**Sqm**			**61.18**

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		2. Maintenance of Earhen shoulder (stripping of excess soil) Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawings and Technical Specification Clause 1903				
		Unit = sqm				
		Taking output = 100 sqm				
		Assuming height of stripping as 75 mm				
		Quantity of earth cutting involved = 7.5 cum				
		a. Labour				
		Mate	day	0.10	437.00	43.70
		Mazdoor (Unskilled)	day	2.50	412.00	1,030.00
		b. Machinery				
		Plate compactor	hour	4.00	415.00	1,660.00
		c. Overheads & CP @12.5%on (a+b+c)				**341.71**
		Cost for 100 sqm = a+b+c+d				3,075.41
		Rate per sqm = a+b+c+d/100				**30.75**
		Total Cost	**Sqm**			**30.75**
		Note: *Earth stripped from earthen shoulders to be used as shoulders or dumped on the side slopes locally for disposal.*				
15.3	**1900**	**Maintenace of bituminous surface road**				
		i. Repair to pot holes by removal of failed material, trimming the sides to vertical and levelling the bottom, cleaning the same with compressed air or any appropriate method filled with 75mm B.M, applying bitumen emulsion prime coat at the bottom and bitumen emulsion tack coat on sides and on bottom as per technical specifications Clauses 502 and 503.				
		Unit = cum				
		Taking output = 187.5x0.075 = 14.06 cum = (30.94 Tonne)				
		(5% area of one km)				
		a) Labour				
		Mate	day	0.80	437.00	349.60
		Mazdoor (Unskilled)	day	20.00	412.00	8,240.00
		b) Machinery				
		Jack hammer 25 kg with tractor	hour	4.00	1,289.00	5,156.00
		Compressor 210 cfm with tractor	hour	2.00	455.00	910.00
		Emulsion pressure distributor	hour	4.00	1,362.00	5,448.00
		Mixall 6/10 t capacity	hour	4.00	3,702.00	14,808.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	1,612.00	6,448.00
		c) Material				
		Primer with bitumen emulsion @ 9 kg/10 sqm 187.5x9 = 168.75 kg.	Tonne	0.168	52,527.35	8,824.59
		Tack coat with bitumen emulsion @ 3.0 kg/ 10 sqm				
		Bottom = 187.5				
		Sides = 28.27	Tonne	0.064	52,527.35	3,361.75
		Total = 215.77				
		Bitumen for BM @ 3.5% by weight of mix = 30.94 x 3.5 / 100 = 1.082	Tonne	1.082	50,676.60	54,832.08
		Weight of mix (BM) 14.06 cum = (30.94 tonne)				
		Weight of Bitumen = 1.082				
		Weight of aggregate 30.94 -1.082 = 29.86				
		Taking density of aggregate 1.5 t per cum				
		Volume of aggregate 29.86 / 1.5 = 19.90 cum				
		Grading (1) (40 mm nominal size)				
		37.5 - 25 mm 15%	cum	2.985	1,115.24	3,328.99

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		25 - 10 mm 45%	cum	8.96	913.48	8,180.21
		10 - 5 mm 25%	cum	4.975	602.28	2,996.34
		5 mm and below 15%	cum	2.99	434.45	1,296.83
		d) Overheads & CP @12.5%on (a+b+c)				**15,522.55**
		Cost of 14.06 cum = a+b+c+d+e				1,39,702.96
		Rate per cum = a+b+c+d+e/14.06				**9,936.20**
		Carriage Cost				
		Bitumin Emulsion	tonne	0.0165007	876.46	14.46
		Bitumin 80/100	tonne	0.0769559	876.46	67.45
		Aggregate	Cum	1.4153627	848.50	1200.94
		Rate per cum with carriage				**11219.05**
		Total Cost	**Cun**			**11,219.05**
		ii. Patch repair on already filled pot holes with 75 mm BM with Mix Seal Surfacing as per drawings and technical specification Clause 1904.2				
		Unit = sqm				
		Takign output = 200 sqm				
		a) Labour				
		Mate	day	0.64	437.00	2,369.28
		Mazdoor (Unskilled)	day	16.00	412.00	6,592.00
		b) Machinery				
		Mixall 6/10 tonne	hour	2.00	3,702.00	7,404.00
		Bitumen pressure distributior	hour	2.00	1,362.00	2,724.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	1,612.00	6,448.00
		c) Material				
		Bitumen for Mix Seal Surfacing @ 19 kg/10 sqm 200x19/10 =380 kg	tonne	0.380	50,676.60	19,257.11
		Bitumen for tack coat @ 2 kg per 10 sqm 200 x 2 / 10 = 40 kg	tonne	0.04	52,527.35	2,101.09
		Crushed stone aggregate @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum 200 x 0.06 / 10 = 1.20 cum	cum	5.40	913.48	4,932.79
		d) Overheads & CP @12.5%on (a+b+c)				**6,478.53**
		Cost of 200 sqm = a+b+c+d+e				58,306.81
		Rate/sqm = a+b+c+d+e/200				**291.53**
		Carraige				
		Bitumen Emulsion	Ton	0.0002	876.46	0.18
		Bitumin 80/100	Ton	0.0019	876.46	1.67
		Aggregate	cum	0.027	848.50	22.91
		Rate per cum with carriage				**316.28**
		Total Cost	**Sqm**			**316.28**

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		iii. Repair to pot holes and removal of loose material, trimming of sides, cleaning of surface by providing tack coat, Mix Seal Surfacing specification Clause 1904.2				
		Unit = sqm				
		Taking output = 200 sqm				
		a) Labour				
		Mate	day	0.80	437.00	349.60
		Mazdoor (Unskilled)	day	20.00	412.00	8,240.00
		b) Machinery				
		Air compressor 210 cfm with tractor	hour	2.00	455.00	910.00
		Bitumen pressure distributor	hour	2.00	1,362.00	2,724.00
		Mixall 6/10t capacity	hour	2.00	3,702.00	7,404.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	1,612.00	6,448.00
		c) Material				
		Bitumen for tack coat @ 3kg per 10 sqm 200 x 3 / 10 = 60 kg	tonne	0.060	50,676.60	3,040.60
		Bitumen forMix Seal Surfacing @ 19 kg per 10 sqm = 200 x 14.6 / 10 = 380 kg	tonne	0.38	50,676.60	19,257.11
		Crushed stone aggregate @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	913.48	4,932.79
		Crushed sand passing 2.36 mm sieve and retained on 180 micron sieve @ 0.06 cum per 10 sqm 200 x 0.06 / 10 = 1.20 cum	cum	1.20	266.62	319.94
		d) Overheads & CP @12.5%on (a+b+c)				**6,703.26**
		Cost for 200 sqm = a+b+c+d+e				60,329.30
		Rate per sqm = a+b+c+d+e/200				**301.65**
		Carriage Cost				
		Bitumin Emulsion	tonne	0.0003	876.46	0.26
		Bitumin 80/100	tonne	0.0019	876.46	1.67
		Aggregate	Cum	0.033	848.50	28.00
		Rate per cum with carriage				**331.58**
		Total Cost	**Sqm**			**331.58**
15.5	1900	**Maintenance of WBM Road :--** Maintenance of WBM road including filling up of pot holes, ruts and rectifying corrugated surface, damaged edges and ravelling as per technical specification Clause 1906.				
		Unit = sqm				
		Output - Taking affected area @ 5% in 1 km				
		Quantity 187.5 x 0.075 = 14.06 cum				
		a) Rate as per item No. 4.7 of Chapter 4	cum	14.06	3,232.05	45,442.62
		b) Add 50% for Extra Efforts involved on maintenance to be done in Small reachs				22,721.31
		Cost of 187.5 Sqm = a+b				68,163.93
		Rate of per sqm a+b/187.5				**363.54**
		The cost of 25% retrived material may be deducted from rates.				90.89
						272.66
		Rate per sqm with carriage				**272.66**
		Total Cost	**Sqm**			**272.66**
15.6	1900	**Maintenance of Drains**				
		The maintenance of drains include erosion, repair, clearing, cleaning, reshaping, regrading, deepening of side drains as well as catch water drains as per technical specification Clause 1907.				
		Unit - Per Metre				
		Taking output one km = 1000 metre				
		a) Labour				
		Mate	day	0.32	437.00	139.84
		Mazdoor (Unskilled)	day	8.00	412.00	3,296.00
		b) Overheads & CP @12.5%on (a)				**429.48**
		Cost for 1000 metre = a+b+c				3,865.32
		Rate per Metre = a+b+c/1000				**3.87**
		Total Cost 3 per Metre				**3.87**

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
15.7	1900	**(I) Maintenance of Culverts**				
		Maintenance of Hume pipe Culvert by way of Clearing, Cleaning, Erosion repair, repairs to cracks, parapet wall and protection work as per drawing and technical specification Clause 1908				
		Unit = One No. Hume pipe (1000 mm dia)				
		Taking output = One No.H.P. Culvert				
		a) Labour				
		Mate	day	0.10	437.00	43.70
		Mazdoor (Unskilled)	day	1.00	412.00	412.00
		Mason 2nd Class	day	1.40	494.00	691.60
		b) Material				
		Cement, Sand, Brick, Boulder etc.	L.S			200.00
		c) Overheads & CP @12.5%on (a+b)				**168.41**
		Cost for one No. Hume pipe culvert = a+b+c+d				1,515.71
		Rate per hume pipe Culvert = a+b+c+d				**1,515.71**
				Total Cost Per hume pipe Culvert		**1,515.71**
		(II) Maintenance of Culverts Slab type				
		Maintenance of Slab type Culverts by way of clearing, Cleaning, Erosion repair, repairs to cracks, parapet walls and Protection works as per drawing and technical specification Clasue 1908				
		Unit = One No. Culvert (2 m span)				
		Taking output = one No. Slab Culvert				
		a) Labour				
		Mate	day	0.20	437.00	87.40
		Mazdoor (Unskilled)	day	4.00	412.00	1,648.00
		Mason 2nd Class	day	1.00	494.00	494.00
		b) Material				
		Cement, Sand, Bricks, Stone Boulder etc.	L.S			500.00
		c) Overheads & CP @12.5%on (a+b)				**341.18**
		Cost for One Slab Culverts =a+b+c+d				3,070.58
		Rate per Culvert = a+b+c+d				**3,070.58**
				Total Cost Per Culvert		**3,070.58**
15.9	1900	**Maintenance of Road Signs**				
		Maintenance of road signs by way of cleaning and repainting of mandatory / requlatory / cautionary / informatory and place identifications sign board as perdrawings and technical specification Clause 1910				
		Unit = 1 km				
		Taking output = one km				
		All types of signs in one Km				
		a) Labour				
		Mate	day	0.09	437.00	39.33
		Mazdoor (Unskilled)	day	2.00	412.00	824.00
		Painter 1st Class	day	0.125	523.00	65.38
		b) Material				
		Synthetic Enamel Paint, Engineering grade tape, welding machine etc. (LS Rs.300)	LS			300.00
		c) Overheads & CP @12.5%on (a+b)				**153.59**
		Cost for one Km = a+b+c+d				1,382.29
		Rate per km = a+b+c+d				**1,382.29**
				Total Cost Per Km		**1,382.29**

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
15.10	1900	**Maintenance of steel and RCC Railing**				
		(ii) Repair of RCC railing to bring it to the original shape, cleaning and repainting as per drawings and technical specification Clause 1911				
		RCC Railing				
		Unit = running metre				
		Taking output = 1 metre				
		It is assumed that damage is to the extent of 10%				
		a) Labour				
		Mate	day	0.012	437.00	5.24
		Mazdoor (Unskilled)	day	0.20	412.00	82.40
		Mason 1st Class	day	0.10	553.00	55.30
		b) Materials				
		M 25 grade cement concrete				
		Rate as per item no. 13.1 (III) of Chapter 13	cum	0.10	6,521.37	652.14
		Steel bars reinforcement				
		Rate as per item no.13.2 of Chapter 13	t	0.013	64,058.01	832.75
		c) Overheads & CP @12.5%on (a+b)				**203.48**
		Rate per metre = a+b+c+d				**1,831.31**
				Total Cost Per metre		**1,831.31**
15.11	1900	**Maintenance of 200 metre and km stones**				
		Maintenance of 200 metre km stone by way of refiting of tilted stones repairing with cement mortar, cleaning, repairing and lettering on 200 metre km stone and 5th km stone as per drawing and technical specification Clause 1912				
		Unit = 1 km				
		Assuming 1 km stone, 4 nos 200 metre stone and 1/5th 5km stone				
		(i) Painting two coats with synthetic enamel paint				
		200 m stone 4 nos = 0.760 sqm.				
		One km stone = 0.815 sqm.				
		5th km stone 1x1/5 = 0.320 sqm.				
		Total = 1.895 sqm.				
		As per item No. 10.5 of chapter 10	sqm	1.895	128.93	244.32
		(ii) Printing letters and figures of any shade with synthtic enamel paint of any approved colour to give an even shade				
		200 m stone 4 Nos. = 40 per cm height per letter				
		One no km stone = 120 per cm height per letter				
		5th km stones 1/5th = 60 per cm height per letter				
		Total = 220 per cm height per letter				
		Rate as per item no 10.1 of chapter 10	per cm	220.00	0.73	160.60
		a) Labour				
		Mate	day	0.024	437.00	10.49
		Mazdoor	day	0.50	412.00	206.00
		Mason 1st Class	day	0.10	553.00	55.30
		b) Materials				
		Cement, sand, aggregates etc.	LS			100.00
		(LS = Rs.100.00)				
		c) Overheads & CP @12.5%on (a+b)				**46.47**
		Cost for one km = (i+ii+a+b+c+d)				823.18
		Rate per/km = (i+ii+a+b+c+d)				**823.18**
				Total Cost Per Km		**823.18**

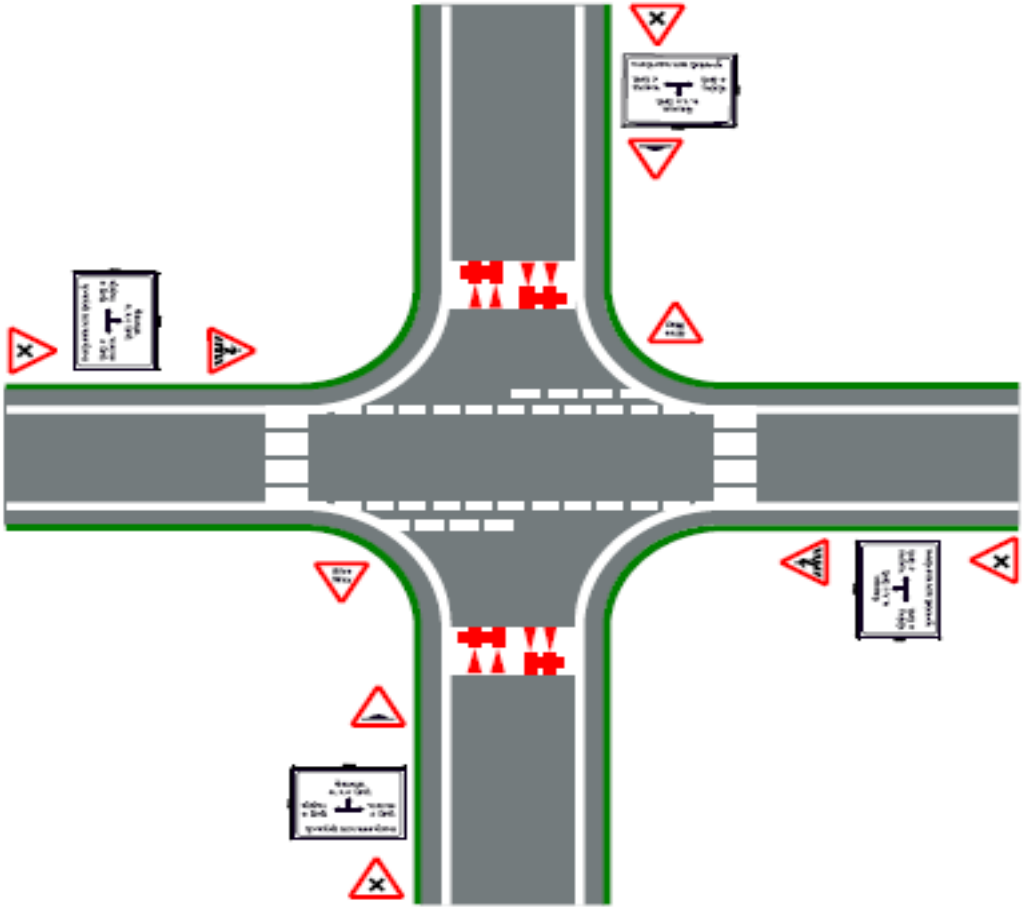
Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
15.12	1900	**Cutting of branches of trees shrubs and trimming of grass and weeds**				
		(i) Cutting of branches of trees and shrubs from the road way or with in R.O.W including disposal of wood and leaves to suitable location as per technical specification Clause 1914				
		Unit = one tree				
		Taking output = 10 trees of 900 mm average girth				
		a) Labour				
		Mate	day	0.12	437.00	52.44
		Mazdoor (Skilled)	day	1.00	521.00	521.00
		Mazdoor (Unskilled)	day	2.00	412.00	824.00
		b) Overheads & CP @12.5%on (a)				**174.68**
		Cost for 10 trees = (a+b+c)				1,572.12
		Rate per tree = (a+b+c)/10				**157.21**
		Total Cost Per tree				**157.21**
		(ii) Cutting of shrubs from the road way or with in R.O.W and disposal of shrubs to suitable locations as per technical specifications Clause 1914				
		Unit=Each				
		Taking output = 100 nos shrubs				
		a) Labour				
		Mate	day	0.08	437.00	34.96
		Mazdoor (Unskilled)	day	2.00	412.00	824.00
		b) Overheads & CP @12.5%on (a)				**107.37**
		Cost for 100 shurbs = a+b+c				966.33
		Rate per shurb = a+b+c/100				**9.66**
		Total Cost Per shurb				**9.66**
		(iii) Trimming of grass and weeds from the shoulders/berms and disposing off the same to suitable locations as per technical specifications Clause 1914				
		Unit = sqm				
		Taking output = 1500 sqm				
		a) Labour				
		Mate	day	0.40	437.00	174.80
		Mazdoor (Unskilled)	day	10.00	412.00	4,120.00
		b) Overheads & CP @12.5%on (a)				**536.85**
		Cost for 1500 sqm = a+b+c				4,831.65
		Rate per sqm = a+b+c/1500				**3.22**
		Total Cost Per sqm				**3.22**

Sr. No.	Ref to MORD Sp.	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
15.13	1900	**White washing of parapet walls of CD work and tree truncks**				
		White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning scraping etc. as per technical specifications Clause 1915				
		Unit = sqm				
		Taking output = 9 sqm				
		a) Labour				
		Mate	day	0.01	437.00	4.37
		Mazdoor (Unskilled)	day	0.143	412.00	58.86
		White washer	day	0.143	521.00	74.43
		b) Materials				
		Lime	quintel	0.045	315.00	14.18
		Fevicol adhesive	kg	0.10	125.00	12.50
		Indigo	kg	0.013	416.00	5.41
		c) Overheads & CP @12.5%on (a+b)				**21.22**
		Cost for 9 sqm = a+b+c+d				190.96
		Rate per sqm = a+b+c+d/9				**21.22**
				Total Cost Per sqm		**21.22**
10.10	3005.2	**RCD Repair of old joints Sealant**				
		Removal of existing sealant and re sealing of construction,longitudial or expension joint in concrete pavement with fresh sealant materaial				
		Unit = running metre				
		Taking output = 10 metres				
		a) Labour				
		Mate	day	0.040	437.00	17.48
		Mazdoor (Unskilled)	day	0.500	412.00	206.00
		b) Machinery				
		Air compressor 210 cfm with tractor	hour	0.050	455.00	22.75
		c) Material				
		Primer	Kg	0.250	523.37	130.84
		Sealant	Kg	1.000	30.54	30.54
		d) Overheads & CP @12.5%on (a+b+c)				**50.95**
		Cost for 10 sqm = a+b+c+d+e				458.56
		Rate per sqm = a+b+c+d+e/10				**45.86**
				Total Cost Per sqm		**45.86**
10.6	3004.3.3	**RCD Crack Filling**				
		Filling of crack using slow-curing bitumen emulsion and applying dust in case crack are wider than 3mm.				
		Unit = running metre				
		Taking output = 500 metres				
		a) Labour				
		Mate	day	0.040	437.00	17.48
		Mazdoor (Unskilled)	day	1.000	412.00	412.00
		b) Material				
		Slow-curing bitumen emulsion	Kg	33.000	43.00	1,419.00
		Stone crusher dust	Cum	0.020	293.28	5.87
		c) Overheads & CP @12.5%on (a+b)				**231.79**
		Cost for 500 sqm = a+b+c+d				2,086.14
		Rate per sqm = a+b+c+d/500				**4.17**
				Total Cost Per sqm		**4.17**

Maintenance Of Trees For Additional Four Years								
Sl. No.	**Ref. to MoRTH Spec.**		**Description**	**Unit**	**Quantity**	**Rate**	**Amount In Rs.**	**Remarks/ Input ref.**
1	**307**	**New**	**Maintenance of Already Planted Trees for Second Year**					
			Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.					
			Unit = Each					
			Taking output = 10 trees					
		a)	**Labour**					
			Mazdoor for maintenance of already Planted Trees	day	15.000	412.00	6180.00	
		b)	**Machinery**					
			Water tanker6 KL capacity	hour	2.000	764.00	1528.00	
		c)	**Material**					
			Farm yard manure	cum	0.940	552.10	518.97	
			Pesticide	kg	0.500	89.55	44.78	
			Cost of water	KL	12.000	61.40	736.80	
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**1126.07**	
			Cost for 10 trees = a+b+c+d+e				10134.62	
			Rate per trees = (a+b+c+d+e)/10				**1013.46**	
						say	***1013.00***	
2	**307**	**New**	**Maintenance of Already Planted Trees for Third Year**					
			Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.					
			Unit = Each					
			Taking output = 10 trees					
		a)	**Labour**					
			Mazdoor for maintenance of already Planted Trees	day	12.000	412.00	4944.00	
		b)	**Machinery**					
			Water tanker6 KL capacity	hour	2.000	764.00	1528.00	
		c)	**Material**					
			Farm yard manure	cum	0.940	552.10	518.97	
			Pesticide	kg	0.500	89.55	44.78	
			Cost of water	KL	12.000	61.40	736.80	
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**971.57**	
			Cost for 10 trees = a+b+c+d+e				8744.12	
			Rate per trees = (a+b+c+d+e)/10				**874.41**	
						say	***874.00***	

3	**307**	**New**	**Maintenance of Already Planted Trees for Fourth Year**					
			Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.					
			Unit = Each					
			Taking output = 10 trees					
		a)	**Labour**					
			Mazdoor for maintenance of already Planted Trees	day	10.000	412.00	4120.00	
		b)	**Machinery**					
			Water tanker6 KL capacity	hour	2.000	764.00	1528.00	
		c)	**Material**					
			Farm yard manure	cum	0.940	552.10	518.97	
			Pesticide	kg	0.500	89.55	44.78	
			Cost of water	KL	12.000	61.40	736.80	
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**868.57**	
			Cost for 10 trees = a+b+c+d+e				7817.12	
			Rate per trees = (a+b+c+d+e)/10				**781.71**	
						say	***782.00***	
4	**307**	**New**	**Maintenance of Already Planted Trees for Fifth Year**					
			Maintenance of trees by the road side (Avenue trees) by mixing the soil with decayed farm yard/sludge manure, watering, fixing the tree guard and maintaining the plants for additional four years.					
			Unit = Each					
			Taking output = 10 trees					
		a)	**Labour**					
			Mazdoor for maintenance for additional four years	day	10.000	412.00	4120.00	
		b)	**Machinery**					
			Water tanker6 KL capacity	hour	2.000	764.00	1528.00	
		c)	**Material**					
			Farm yard manure	cum	0.940	552.10	518.97	
			Pesticide	kg	0.500	89.55	44.78	
			Cost of water	KL	12.000	61.40	736.80	
		d)	**Overheads & CP @ 12.5% on (a+b+c)**				**868.57**	
			Cost for 10 trees = a+b+c+d+e				7817.12	
			Rate per trees = (a+b+c+d+e)/10				**781.71**	
						say	***782.00***	

Layout of 4 Arm Junction



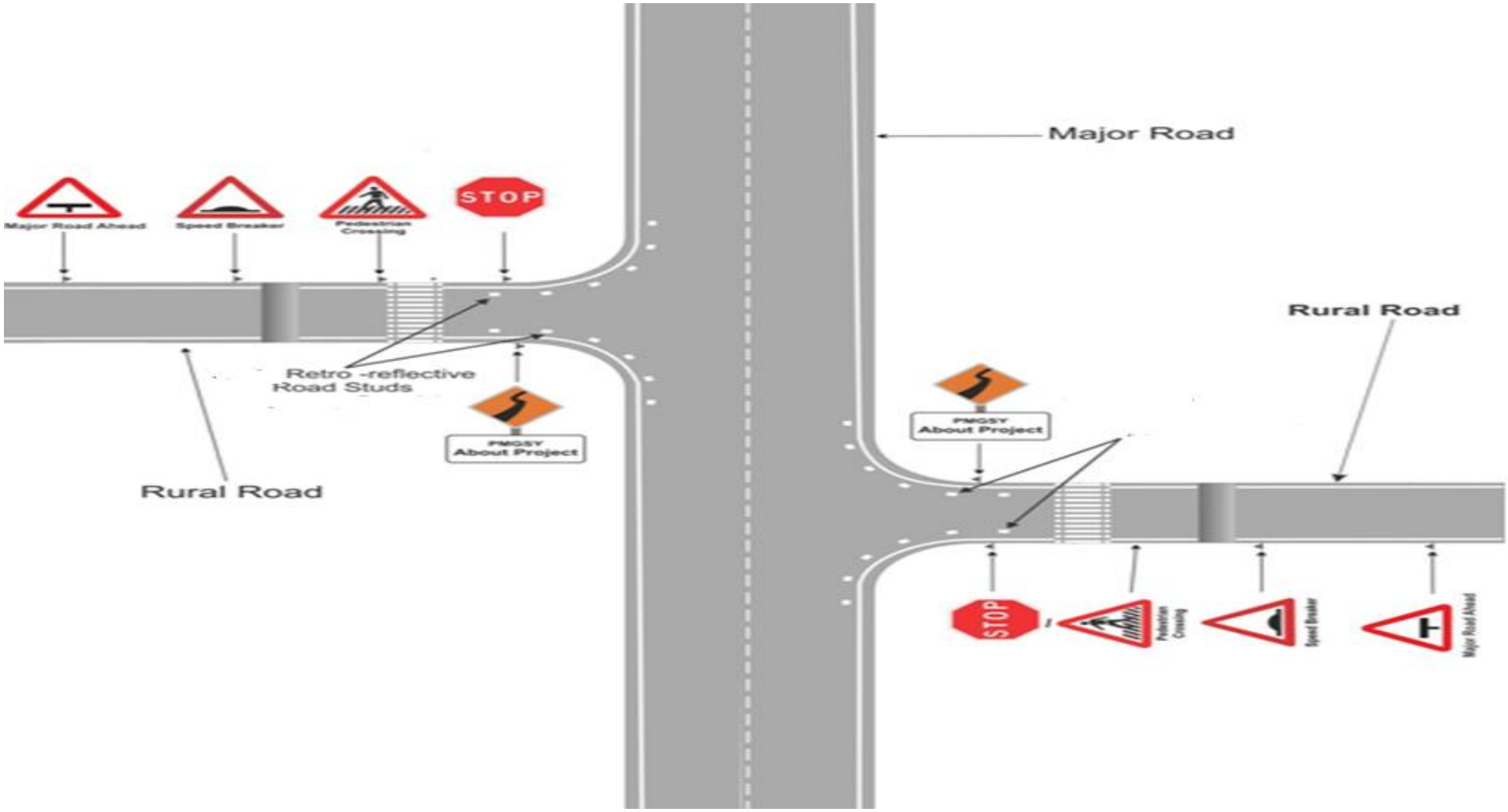
Notes–

1. THE SIGN PANELS TO BE MADE OF ALUMINUM COMPOSITE PANEL (ACP) OF 3MM / 4MM AS PER SECTION 1700 OF MORD AND IRC 67
2. REFLECTIVE SHEETING FOR SIGNS SHOULD BE OF CLASS-B HIGH INTENSITY GRADE ONLY.
3. THE SIGNAGES SHOWN ARE AS PER IRC 67. ADDITIONAL SIGNS CAN BE PLACED BASED ON THE SITE SITUATION IF REQUIRED.
4. RUMBLE STRIPS OR SPEED BREAKERS MAY BE PROVIDED ON THE MINOR ROAD APPROACHES TO GIVE ADDITONAL WARNING
5. THIS DRAWING IS INTENDED TO SHOW TRAFFIC SIGNAGE TO ENHANCE NIGHT TIME VISIBILITY AND TO SUPPLEMENT THE STANDARD ROAD SIGNS.

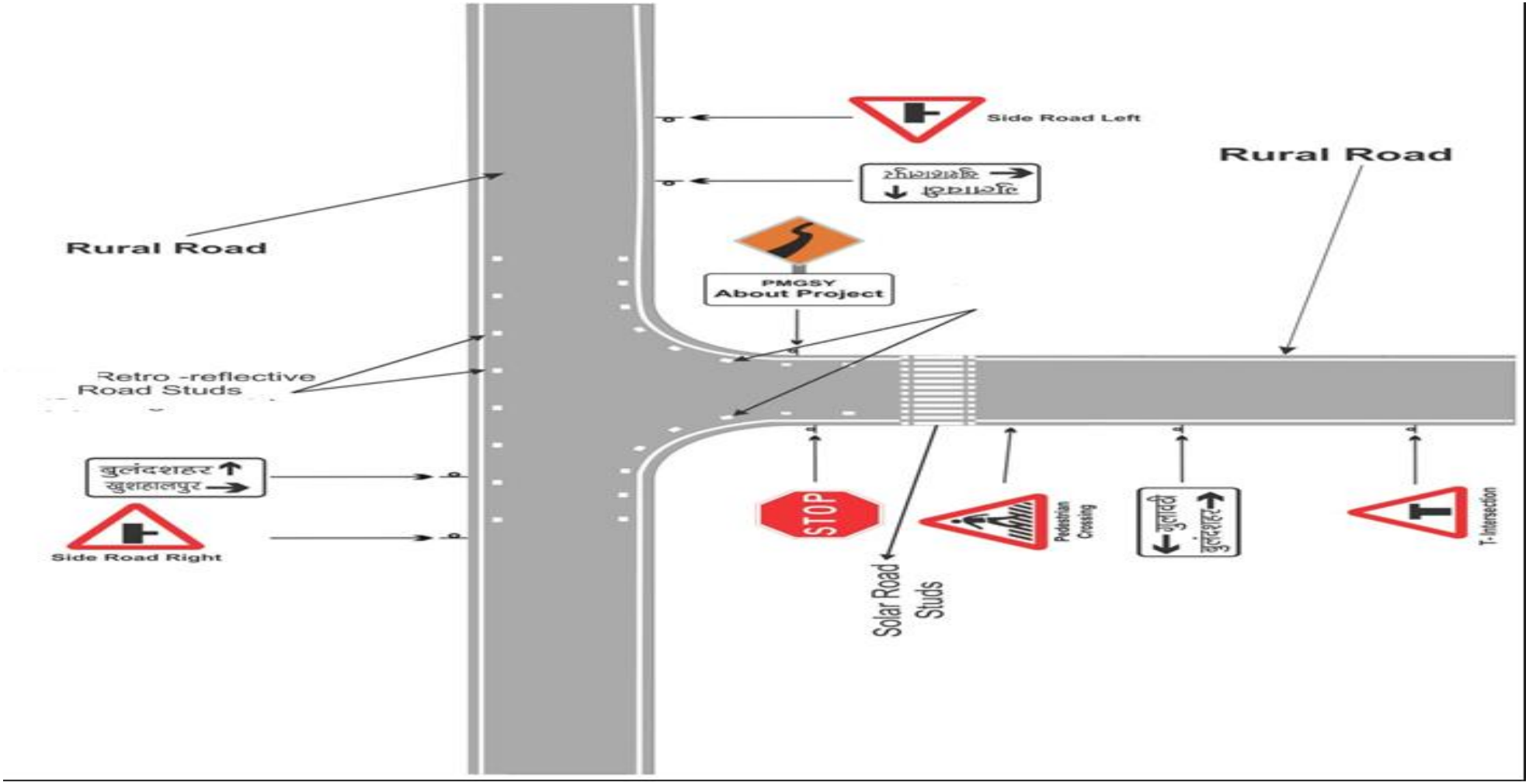
SIGNAGE BILL OF QUANTITY FOR
4 - ARM (CROSS ROAD) JUNCTION

Sr.No.	Sign description	Size in MM	QTY.	Color Code
1	Cross road Ahead	900x900x900	4	Triangular with White Background with Red Border
2	Junction Board	900x1200	4	Rectangle with White Background and Black Letters
3	Give Way	900x900x900	2	Triangular with White Background with Red Border
4	Pedestrian Crossing	900x900x900	2	Triangular with White Background with Red Border
5	Bump Ahead	900x900x900	2	Triangular with White Background with Red Border

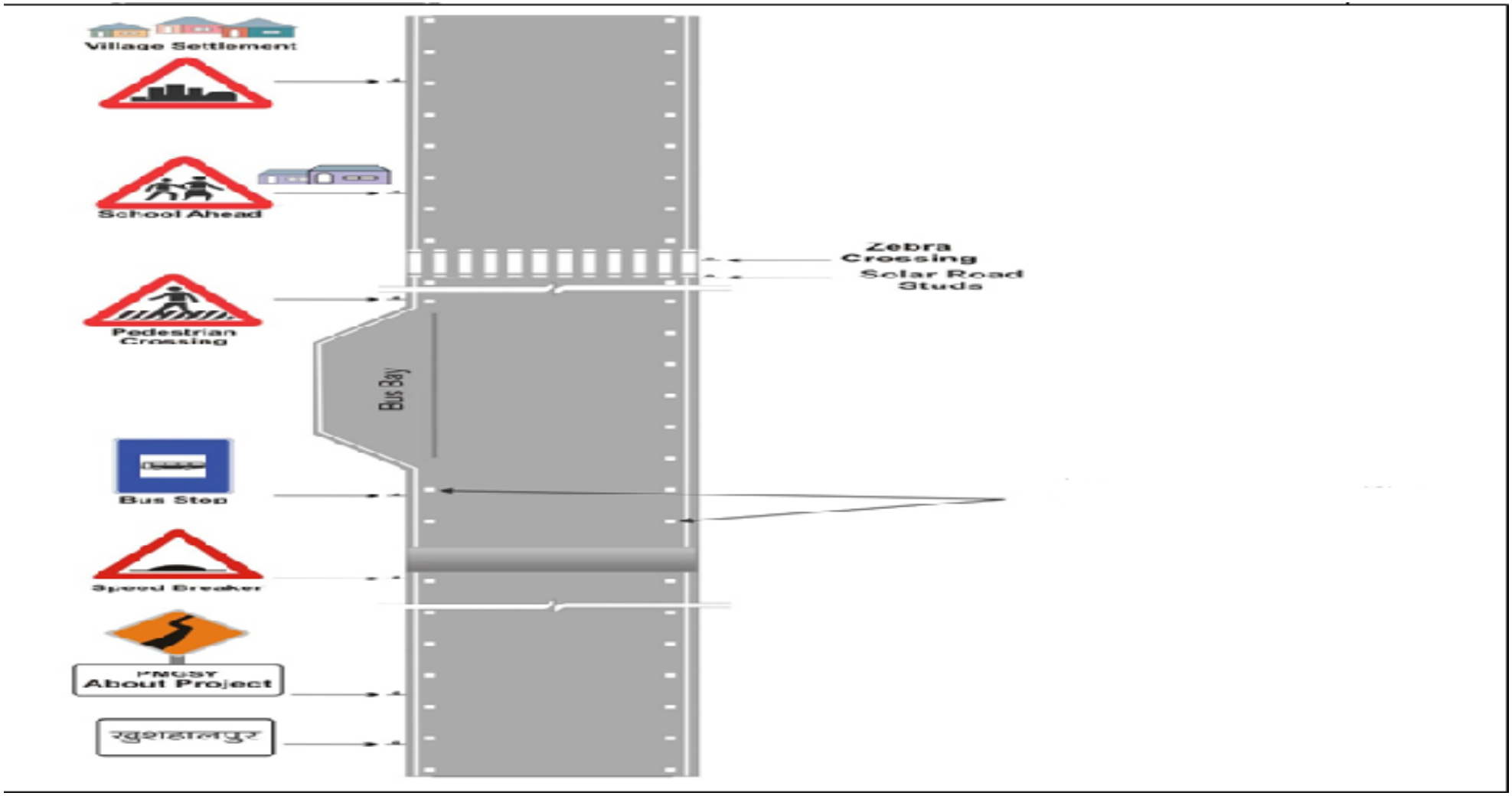
Layout of rural roads meeting to Major Road



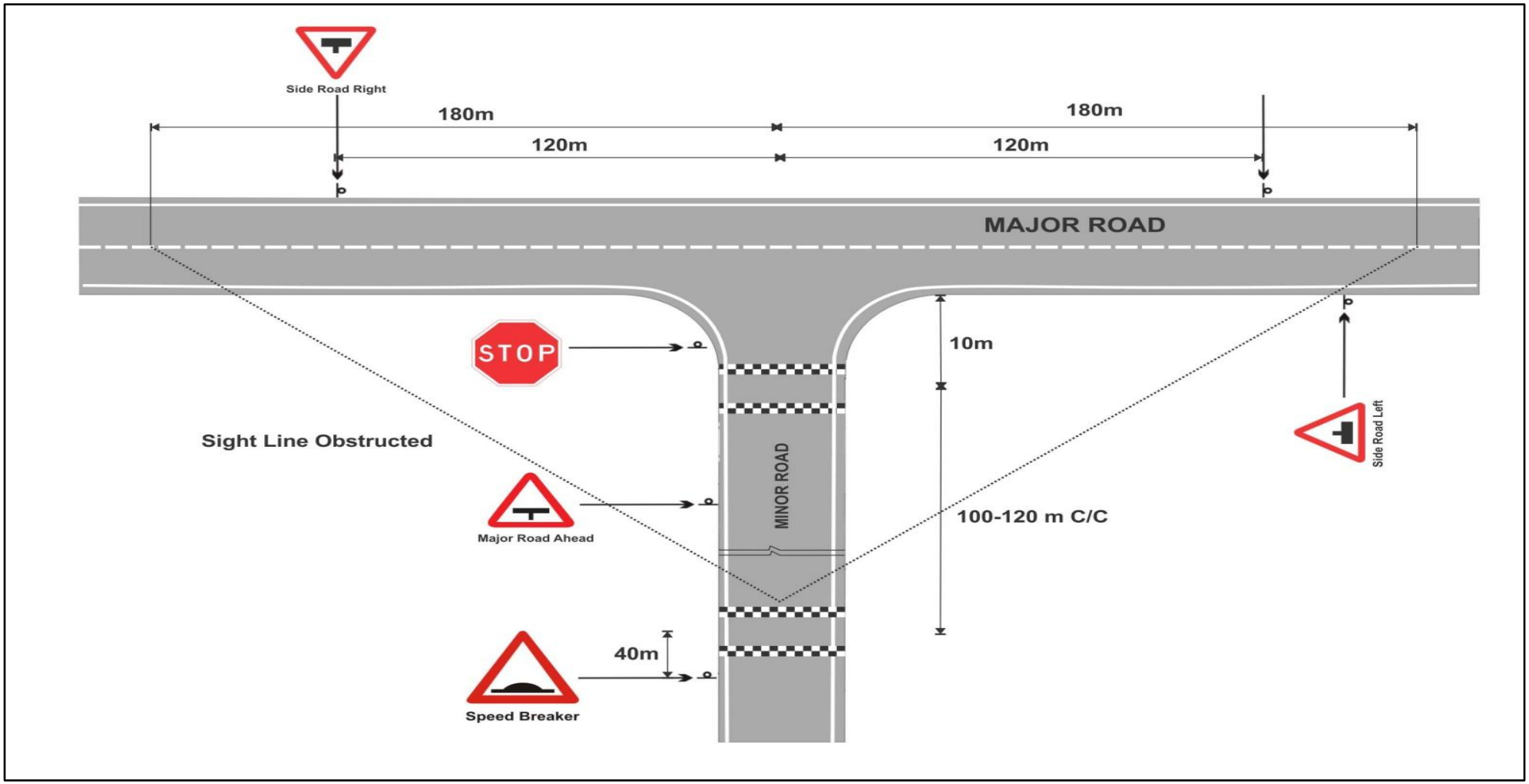
Layout of a rural road joining another Rural Road



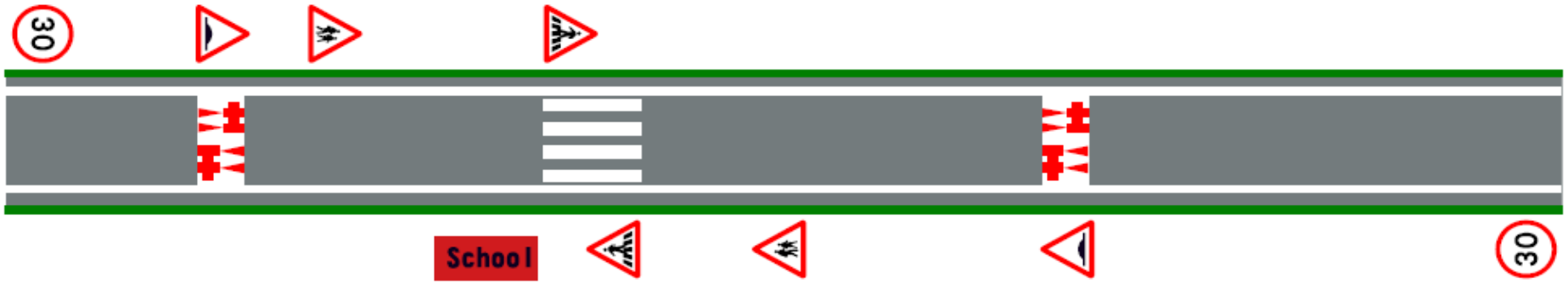
Layout to improve safety on rural road passing through village settlement area



Layout to depict Speed breaker on rural road



Straight road with school scenario - signage layout



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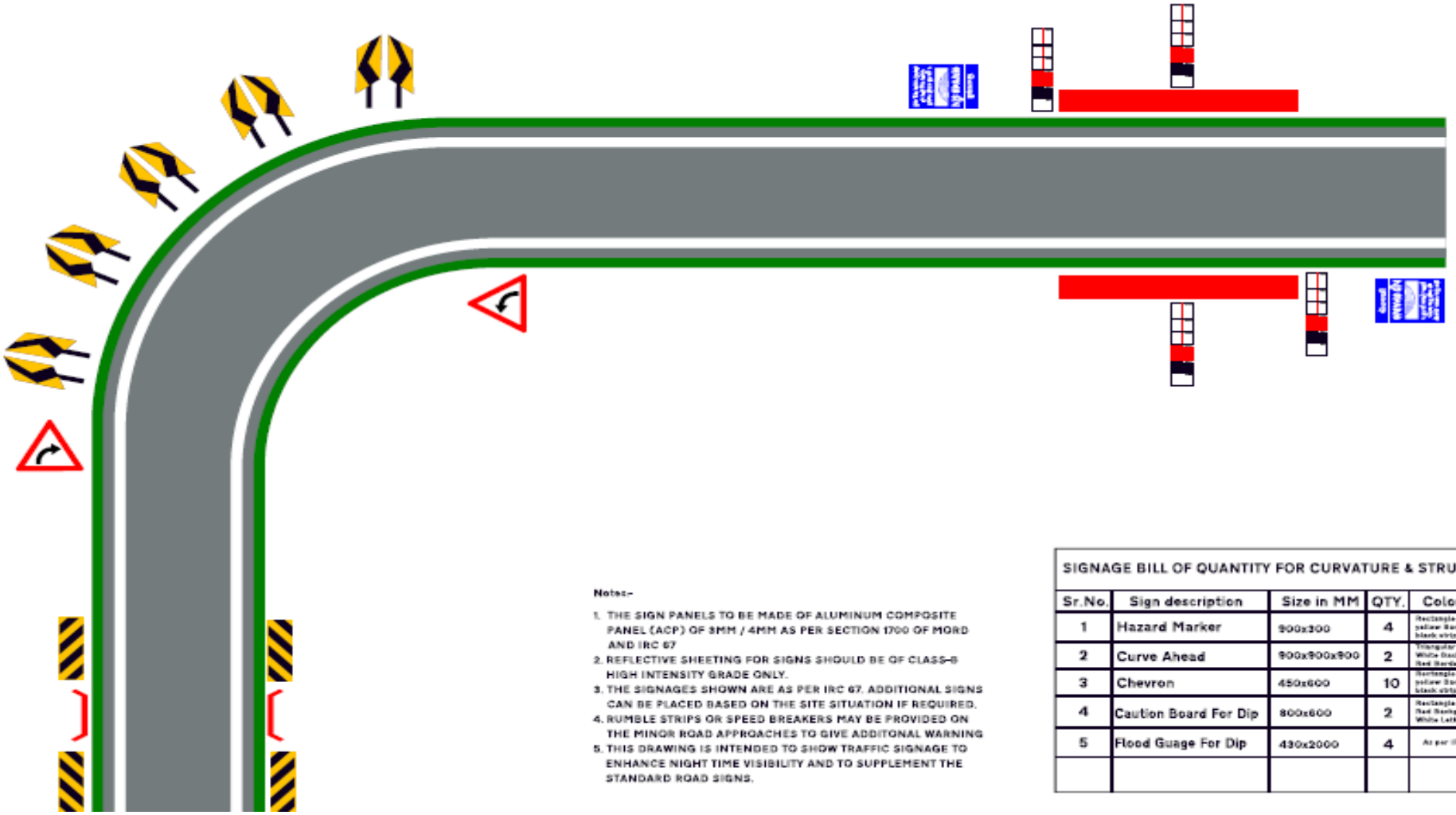
SIGNAGE BILL OF QUANTITY FOR STRAIGHT ROAD

Sr.No.	Sign description	Size in MM	QTY.	Color Code
1	School Ahead	900x900x900	2	Triangular with White Background with Red Border
2	Speed Limit	600 dia	2	Circle with White Background and Red Border
3	Pedestrian Crossing	900x900x900	2	Triangular with White Background with Red Border
4	Speed Breaker Ahead	900x900x900	2	Triangular with White Background with Red Border

Curve road, dip and culvert scenario - signage layout for undivided Carriageway



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SIGNAGE BILL OF QUANTITY FOR CURVATURE & STRUCTURE

Sr.No.	Sign description	Size in MM	QTY.	Color Code
1	Hazard Marker	900x300	4	Rectangle with yellow Background with black stripes
2	Curve Ahead	900x900x900	2	Triangular with White Background with Red Border
3	Chevron	450x600	10	Rectangle with yellow Background with black stripes
4	Caution Board For Dip	800x600	2	Rectangle with Red Background with White Letters
5	Flood Guage For Dip	430x2000	4	As per IRC-67