ग्रामीण कार्य विभाग

Rural Works Department, Govt of Bihar

बिहार ग्रामीण पथ विकास एजेंसी

BRRDA

BIHAR RURAL ROADS PROJECT

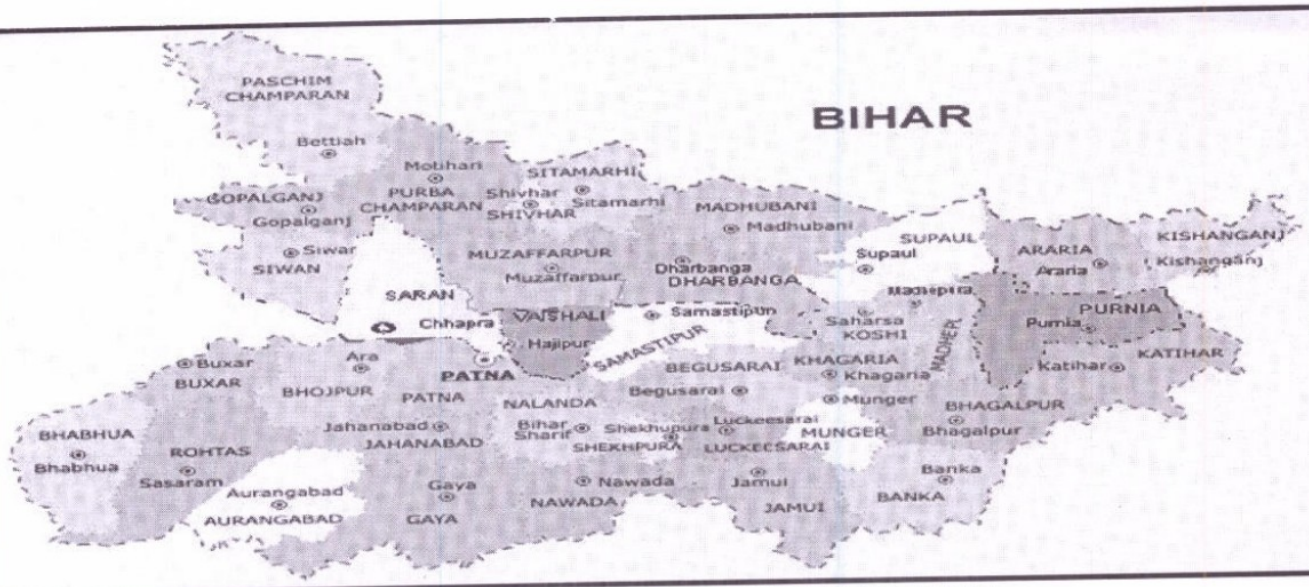
Bihar Rural Road Development Agency (BRRDA)

Govt. of Bihar

FDR

YEAR -2019-2020

DETAILED PROJECT REPORT



RESTORATION OF ROAD FROM L060 TO BARA

DISTRICT	:	AURANGABAD	
DIVISION	:	AURANGABAD	
BLOCK	:	NABINAGAR	
TOTAL LENGTH OF ROAD	:	1.600	KM
TOTAL COST OF CD WORKS	:	0.000	Lac
TOTAL COST OF PAVEMENT	:	1.176	Lac
TOTAL COST OF PROJECT	:	1.329	Lac

SUBMITTED BY:-

EXECUTIVE ENGINEER
RWD (W) DIVISION AURANGABAD
AURANGABAD

FDR

YEAR -2019-2020

GENERAL ABSTRACT OF COST

Block:-- NABINAGAR **District:- AURANGABAD**

Length of Road:-- 1.600 KM

Name of Road:-- RESTORATION OF ROAD FROM L060 TO BARA

SL. No.	Item of Work		Amount
A	CONSTRUCTION COST	:	2,75,744=00 ~~1.176 Lacs~~
	Add GST @ 12%	:	33089=00 ~~0.141 Lacs~~
	Add Labour Cess @ 1%	:	2757=00 ~~0.012 Lacs~~
	TOTAL CONSTRUCTION COST INCLUDING GST AND L.C	:	~~1.329 Lacs~~ 3,11,590=0
	TOTAL	:	~~1.329 Lacs~~ 3.115 Lacs

8/10/19
Junior Engineer

31/10/2019
Asstt. Engineer

Executive Engineer

Technically Approved for ₹ 3:115 lakh
(Rupees three lakh Eleven thousand five hundred) Only

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SUMMARY OF COST ESTIMATE FOR THE PROJECT

PACKAGE NO.

NAME OF ROAD : RESTORATION OF ROAD FROM L060 TO BARA

DISTRICT	AURANGABAD
BLOCK	NABINAGAR
DIVISION	AURANGABAD
LENGTH OF ROAD (in Km)	1.600
LENGTH OF BT PAVEMENT	0
LENGTH OF CC PAVEMENT	0
CD STRUCTURES	
HUME PIPE	0
RCC CULVERT	0
BOX CELL CULVERT	0
CAUSEWAY / MINOR BRIDGE	0

Sl. No.	DESCRIPTION	AMOUNT (LAKHS)
1	PREPARATORY WORKS ,SITE CLEARANCE , DISMANTLING	0.000
2	EARTHWORK	0.593
3	GSB GRADING - I	0.000
4	WBM GRADE III	0.000
4	brick bats	0.582
5	PRIME COAT	0.000
6	TACK COAT	0.000
7	MIX SEAL SURFACING	0.000
8	CEMENT CONCRETE	0.000
9	PIPE	0.000
10	SIDE DRAINS & CROSS DRAIN	0.000
11	PROTECTION WORKS	0.000
12	ROAD FURNITURES , KM STONES , TRAFFIC & DIRECTION SIGN, PMGSY LOGO	0.000
	SUB TOTAL OF PAVEMENT COST IN LACS =	**1.176**
13	**CROSS DRAINAGE STRUCTURES**	0.000
I	HUME PIPE	0.000
II	RCC	0.000
III	BOX	0.000
IV	CAUSEWAY	0.000
V	REPAIR OF CD WORK	**0.000**
	SUB TOTAL OF CD STRUCTURES COST IN LACS =	**0.141**
	ADD GST @ 12 %	**0.012**
	ADD LABOUR CESS @ 1 %	
	TOTAL COST OF PROJECT IN LACS =	**1.329**

8/11/19

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Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (in Rs.)
5	3.14	303.1	**Construction of 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 & 100 m as per Technical Specification Clause 303.1. (Including Royality & Labour Cess).								
				Cum	1	1010.0	58.0	3	50.00	296.70	14,835.00
				Cum	1	86	58	3	50.00	296.70	14,835.00
				Cum	1	56.0	58	3	50.00	296.70	14,835.00
				Cum	1	5	5	2	50.0 50.00	296.70	14,835.00
									578.0	296.70	59,340.00
			brick bats Providing and filling brick bats in ditches including cost of brick bats and labour all complete job as per								
				Cum	1	510	57	0.3	21 7.50	1,941.37	14,560.00
				Cum	1	56	57	0.3	12.6 7.50	1,941.37	14,560.00
				Cum	1	56	57	0.3	12.6 7.50	1,941.37	14,560.00
				Cum	1	5	5	0.3	7.50	1,941.37	14,560.00
										B) SUB TOTAL OF CRUST =	58,240.00
6	4.1	401	**Granular Sub-base with Well Graded Material (Table 400.1)**								
		(i)	**(By mix in place method) For Grading I Material**								
			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.								
			GSB	Cum	0.00	400.00	4.050	0.200	0.00 0.00	2,653.44	0.00

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YEAR -2019-2020

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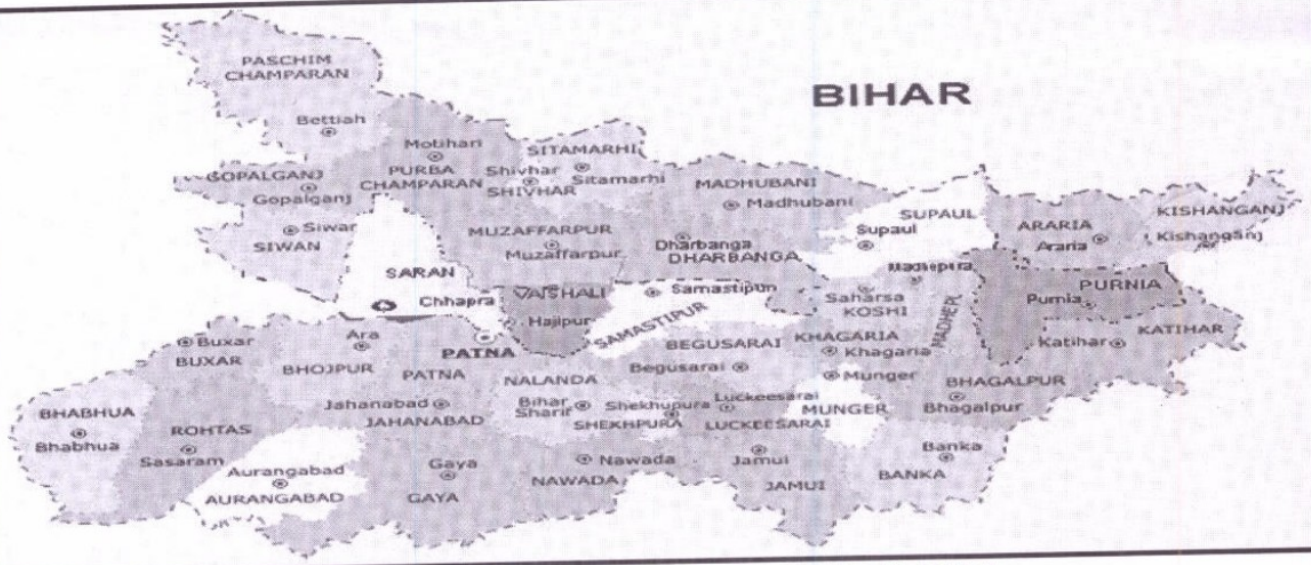

RESTORATION OF ROAD FROM L060 TO BARA

DISTRICT	:	AURANGABAD	
DIVISION	:	AURANGABAD	
BLOCK	:	NABINAGAR	
TOTAL LENGTH OF ROAD	:	~~1.600~~	KM
TOTAL COST OF CD WORKS	:	0.000	Lac
TOTAL COST OF PAVEMENT	:	34.310	Lac
TOTAL COST OF PROJECT	:	38.770	Lac

SUBMITTED BY:-

EXECUTIVE ENGINEER
RWD (W) DIVISION AURANGABAD
AURANGABAD

FDR

YEAR -2019-2020

GENERAL ABSTRACT OF COST

Block:-- NABINAGAR

District:- AURANGABAD

Length of Road:-- 1.600 KM

Name of Road:-- RESTORATION OF ROAD FROM L060 TO BARA

SL. No.	Item of Work		Amount
A	CONSTRUCTION COST	:	34.310 Lacs
	Add GST @ 12%	:	4.117 Lacs
	Add Labour Cess @ 1%	:	0.343 Lacs
	TOTAL CONSTRUCTION COST INCLUDING GST AND L.C	:	38.770 Lacs
	TOTAL	:	**38.770 Lacs**

Junior Engineer

Asstt. Engineer

Executive Engineer

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SUMMARY OF COST ESTIMATE FOR THE PROJECT

PACKAGE NO.

NAME OF ROAD : RESTORATION OF ROAD FROM L060 TO BARA

DISTRICT	AURANGABAD
BLOCK	NABINAGAR
DIVISION	AURANGABAD
LENGTH OF ROAD (in Km)	1.600
LENGTH OF BT PAVEMENT	0
LENGTH OF CC PAVEMENT	0
CD STRUCTURES	
HUME PIPE	0
RCC CULVERT	0
BOX CELL CULVERT	0
CAUSEWAY / MINOR BRIDGE	0

Sl. No.	DESCRIPTION	AMOUNT (LAKHS)
1	PREPARATORY WORKS ,SITE CLEARANCE , DISMANTLING	0.000
2	EARTHWORK	2.099
3	GSB GRADING - I	0.000
4	WBM GRADE III	16.341
4	brick bats	0.000
5	PRIME COAT	2.702
6	TACK COAT	0.919
7	MIX SEAL SURFACING	12.249
8	CEMENT CONCRETE	0.000
9	PIPE	0.000
10	SIDE DRAINS & CROSS DRAIN	0.000
11	PROTECTION WORKS	0.000
12	ROAD FURNITURES , KM STONES , TRAFFIC & DIRECTION SIGN, PMGSY LOGO	0.000
	SUB TOTAL OF PAVEMENT COST IN LACS =	**34.310**
13	**CROSS DRAINAGE STRUCTURES**	0.000
I	HUME PIPE	0.000
II	RCC	0.000
III	BOX	0.000
IV	CAUSEWAY	0.000
V	REPAIR OF CD WORK	**0.000**
	SUB TOTAL OF CD STRUCTURES COST IN LACS =	**4.117**
	ADD GST @ 12 %	**0.343**
	ADD LABOUR CESS @ 1 %	
	TOTAL COST OF PROJECT IN LACS =	**38.770**

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Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (in Rs.)
5	3.14	303.1	**Construction of 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 & 100 m as per Technical Specification Clause 303.1. (Including Royality & Labour Cess).								
				Cum	2	1600	1.25	0.3	1,200.00	174.94	2,09,928.00
									B) SUB TOTAL OF CRUST =		**2,09,928.00**

Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (in Rs.)
7	4.7 (3-A)	405	**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.								
				Cum	1.00	1,600.00	3.750	0.075	450.00		
			Add for extra widening on curve (1%)						0.00		
			Net WBM -3 Qty						450.00	3,631.42	16,34,139.00
									C) SUB TOTAL OF CRUST =		**16,34,139.00**
			SUB HEAD : BITUMINOUS ITEMS								
8	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.								
				Sqm	1.00	1,600.00	3.750		6,000.00		
			Add for extra widening on curve (1%)	Sqm					0.00		
			Net Area	Sqm					6,000.00	45.03	2,70,180.00
9	5.2	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.								
				Sqm	1.00	1,600.00	3.750		6,000.00		
			Add for extra widening on curve (1%)	Sqm					0.00		
			Net Area	Sqm					6,000.00	15.31	91,860.00

Sl. No.	SDB SL .NO	MORD Ref.No	Description	Unit	NOS	LENGTH	WIDTH	HEIGHT	QUANTITY	RATE	AMOUNT (in Rs.)
10	5.11	509	**Mix Seal Surfacing**								
			Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.9 mm (Type-A) or 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.								
				Sqm	1.00	1,600.00	3.750		6,000.00		
			Add for extra widening on curve (1%)	Sqm					0.00		
			Net Area	Sqm					6,000.00	204.15	12,24,900.00
11	5.12	510 (II)	**Seal Coat- Type B**								
			Providing , laying seal coat sealing the voids in a bituminous surface laid to the specified levels ,grades and cross fall using Type B as per the specification in clause 510 (With Bituminous Binder S-90)								
				Sqm	0.00	1,600.00	3.750		0.00		
			Add for extra widening on curve (1%)	Sqm					0.00		
			Net Area	Sqm					0.00	52.68	0.00
									D) SUB TOTAL OF BITUMINOUD ITEM =		**15,86,940.00**
									TOTAL COST OF PAVEMENT IN RS. (A+B+C+D+E+F)=		**34,31,007.00**

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Analysis for Carriage by Road & Rail

Name of Road:-- RESTORATION OF ROAD FROM L060 TO BARA

District:- AURANGABAD **Block :-** NABINAGAR

Sl No	Item with Source	Unit	Source Up to	Carriage Cost & Lead in Km		Loading & Unloading Cost	Carriage Cost by Rail Head	Total `
				Pucka / Surface	Katcha			
1	Stone Metal Gr-I & Gr-II	Cum	KARJARA	8.00/4.59 x 7.47 x 140.00 Km = Rs 1822.75	8.00/4.59 x 18.09 x 0.00 Km = Rs 0.00	193.62	0.00	Rs. 2016.37
2	Stone Metal Gr-III / GSB	Cum	KARJARA	8.00/4.99 x 7.47 x 140.00 Km = Rs 1676.63	8.00/4.99 x 18.09 x 0.00 Km = Rs 0.00	193.62	0.00	Rs. 1870.25
3	Stone Aggregate / Chips	Cum	MANPUR	8.00/4.99 x 7.47 x 130.00 Km = Rs 1556.87	8.00/4.99 x 18.09 x 0.00 Km = Rs 0.00	193.62	0.00	Rs. 1750.49
4	Stone Boulder	Cum	KARJARA	8.00/4.80 x 7.47 x 140.00 Km = Rs 1743.00	8.00/4.80 x 18.09 x 0.00 Km = Rs 0.00	193.62	0.00	Rs. 1936.62
5	Course Sand	Cum	SONE NAGAR	8.00/4.99 x 7.47 x 35.00 Km = Rs 419.16	8.00/4.99 x 18.09 x 0.00 Km = Rs 0.00	104.88	0.00	Rs. 524.04
6	Binding Material/Moorum	Cum	KARJARA	8.00/6.00 x 7.47 x 140.00 Km = Rs 1394.40	8.00/6.00 x 18.09 x 0.00 Km = Rs 0.00	104.88	0.00	Rs. 1499.28
7	Local Sand	Cum	Local	8.00/4.99 x 7.47 x 2.00 Km = Rs 23.95	8.00/4.99 x 18.09 x 1.00 Km = Rs 29.00	104.88		Rs. 157.83
8	Brick	1000 Nos	Local	8.00/2.00 x 7.47 x 7.00 Km = Rs 209.16	8.00/2.00 x 18.09 x 1.00 Km = Rs 72.36	441.62		Rs. 723.14
9	Cement	MT	Local	8.00/8.00 x 7.47 x 15.00 Km = Rs 112.05	8.00/8.00 x 18.09 x 0.00 Km = Rs 0.00	317.64		Rs. 429.69
10	Steel	MT	Local	8.00/8.00 x 7.47 x 15.00 Km = Rs 112.05	8.00/8.00 x 18.09 x 0.00 Km = Rs 0.00	337.70		Rs. 449.75
11	Bitumen Emulsion	MT	BELA	8.00/8.00 x 7.47 x 130.00 Km = Rs 971.10	8.00/8.00 x 18.09 x 0.00 Km = Rs 0.00	365.00		Rs. 1336.10
12	Bitumen	MT	BELA	8.00/8.00 x 7.47 x 130.00 Km = Rs 971.10	8.00/8.00 x 18.09 x 0.00 Km = Rs 0.00	365.00		Rs. 1336.10
13	Hume Pipe (1000 mm)	m	SINDURIYA	8.00/10.00 x 7.47 x 40.00 Km = Rs 239.04	8.00/10.00 x 18.09 x 0.00 Km = Rs 0.00	75.69		Rs. 314.73
14	Hume Pipe (600 mm)	m	SINDURIYA	8.00/25.00 x 7.47 x 40.00 Km = Rs 95.62	8.00/25.00 x 18.09 x 0.00 Km = Rs 0.00	32.44		Rs. 128.06
15	Hume Pipe (300 mm)	m	SINDURIYA	8.00/60.00 x 7.47 x 40.00 Km = Rs 39.84	8.00/60.00 x 18.09 x 0.00 Km = Rs 0.00	32.44		Rs. 72.28

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	8.19	7.47
Unsurface Gravel Road	9.85	8.99
Kachha Road	19.82	18.09

* Subjected to Verification of Lead

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Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount in Rs
26	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)	**Labour**				
			Mate	day	0.04	293.00	11.72
			Mazdoor (Unskilled)	day	1.00	277.00	277.00
		b)	**Machinery**				
			Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	0.00	1958.00	0.00
			Tipper 5.5 cum capacity, 4 trips per hour	hour	0.00	1018.00	0.00
			Add 10 % of the cost of carriage to cover loading & unloading	cum			0.00
			Dozer D-50 for spreading @ 100 cum per hour	hour	0.00	3319.00	0.00
			Tractar mounted grader arrangement for grading @ 100 cum per hour	hour	0.00	546.00	0.00
			Water tanker with 6 kl capacity	hour	0.00	183.00	0.00
			Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	0.00	781.00	0.00
		c)	**Material**				
			Water	kl	0.00	40.00	0.00
			Compensation for earth taken from private land	cum	100.00	116.85	11685.00
		d)	Overheads @ 6 % on (a+b+c)				718.42
		e)	Contractor's profit @ 10% on (a+b+c+d)				1269.21
			Cost for 300 cum = a+b+c+d+e				13961.36
			Rate per cum = (a+b+c+d+e)/100				139.61
			Carriage Cost				157.09
			Total Cost	**sqm**			**296.70**
			PAVEMENT CRUST LAYERS				
27	4.1	401	**Granular Sub-base with Well Graded Material (Table 400.1)**				
			(By mix in place method) For Grading I Material				
			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.				
		(i)	**For Grading I Material**				
			Unit = cum				
			Taking output = 300 cum				
		a)	**Labour**				
			Mate	day	0.40	293.00	117.20
			Mazdoor (Skilled)	day	2.00	352.00	704.00
			Mazdoor (Unskilled)	day	8.00	277.00	2216.00
		b)	**Machinery**				
			Tractar mounted grader arrangement for grading @ 100 cum per	hour	6.00	570.00	3420.00
			Three wheel 80-100 kN static roller @ 10 cum per hour	hour	30.00	781.00	23430.00
			Tractor with Rotavator 25 cum per hour	hour	12.00	570.00	6840.00
			Water tanker 6 kl capacity	hour	5.00	183.00	915.00
		c)	**Material**				
			For well graded granular sub-base material as per Table 400.2				
			53 mm to 26.5 mm @ 35%	cum	126.00	458.22	57735.72
			26.5 mm to 4.75 mm @ 45%	cum	162.00	499.76	80961.12
			2.36 mm below @ 20%	cum	72.00	150.80	10857.60
			Water	kl	30.00	40.00	1200.00
		d)	Overheads @ 6 % on (a+b+c)				11303.80
		e)	Contractor's profit @ 10% on (a+b+c+d)				19970.04
			Cost of GSB without carriage				**219670.48**
			A) Cost of GSB without carriage per cum	**cum**			**732.23**
		f)	**Carriage Cost**				
			53 mm to 26.5 mm @ 35%	cum	0.420	1870.25	785.51
			26.5 mm to 4.75 mm @ 45%	cum	0.540	1870.25	1009.94
			2.36 mm below @ 20%	cum	0.240	524.04	125.77
			Rate per cum with carriage	cum			2653.44
			Total Cost	**CUM**			**2653.44**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount in Rs
28	4.7 (3-B)	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	293.00	199.24
			Mazdoor (Skilled)	day	2.00	352.00	704.00
			Mazdoor (Unskilled)	day	15.00	277.00	4155.00
		b)	**Machinery**				
			Tractor Mounted grader for grading @ 100 cum per hour	hour	7.20	570.00	4104.00
			Three wheel 80-100 kN static roller @ 8 cum per hour	hour	45.00	781.00	35145.00
			Water tanker 6 kl capacity	hour	24.00	183.00	4392.00
		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	458.22	199600.63
			Stone Screening				
			Type B 11.2 mm for Grading 3 @ 0.18 cum per 10 sqm	cum	86.40	345.52	29852.93
			Water	kl	144.00	40.00	5760.00
		d)	Overheads @ 6 % on (a+b+c)				**17034.77**
		e)	Contractor's profit @ 10% on (a+b+c+d)				**30094.76**
			Cost for 360 cum = a+b+c+d+e				**331042.32**
			Rate per cum = (a+b+c+d+e)/360				**919.56**
		f)	***CARRIAGE***				
			Stone material Grading 3 53 mm to 22.4 mm	Cum	1.210	1870.25	2263.00
			Stone Screening	Cum	0.240	1870.25	448.86
			Rate per cum with carriage				**3631.42**
			Total Cost	**cum**			**3631.42**
			BITUMINOUS ITEMS				
29	5.1 (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				
			Unit = sqm				
			Taking output = 1750 sqm				
		a)	**Labour**				
			Mate	day	0.04	293.00	11.72
			Mazdoor (Unskilled)	day	1.00	277.00	277.00
		b)	**Machinery**				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	555.00	777.00
			Air compressor 210 cfm	hour	1.40	481.00	673.40
			Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	1,203.00	1203.00
			Water tanker 6 kl capacity 1 trip per hour	hour	0.50	183.00	91.50
		c)	**Material**				
			Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	42,385.80	62730.98
			Water	kl	3.00	40.00	120.00
		d)	Overheads @ 6 % on (a+b+c)				3953.08
		e)	Contractor's profit @ 10% on (a+b+c+d)				6983.77
			Cost of 1750 sqm = a+b+c+d+e				76821.45
			Rate per sqm = (a+b+c+d+e)/1750				43.90
		f)	***Carriage Cost***				
			Bitumen Emulsion	ton	0.00085	1336.10	1.13
			Rate per sqm with carriage				**45.03**
			Total Cost	**sqm**			**45.03**

Analysis of Rates (FORMAT F8)

Sl. No.	SDB Sl. No.	MORD Ref No.	DESCRIPTION	Unit	Quantity	Rate	Amount in Rs
30	5.2 (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	293.00	11.72
			Mazdoor (Unskilled)	day	1.00	277.00	277.00
		b)	Machinery				
			Hydraulic broom @ 1250 sqm per hour	hour	1.40	555.00	777.00
			Air compressor 210 cfm	hour	1.40	481.00	673.40
			Emulsion pressure distributor @1750 sqm per hour	hour	1.00	1,203.00	1203.00
		c)	Material				
			Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	40,598.80	19487.42
		d)	Overheads @ 6 % on (a+b+c)				1345.77
		e)	Contractor's profit @ 10% on (a+b+c+d)				2377.53
			Cost of 1750 sqm = a+b+c+d+e				26152.85
			Rate per sqm = (a+b+c+d+e)/1750				14.94
			Carriage Cost				
			Bitumen Emulsion	ton	0.000274	1336.10	0.37
			Rate per sqm with carriage				**15.31**
			Total Cost	**sqm**			**15.31**
31	5.11	509	**Mix Seal Surfacing** Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.9 mm (Type-A) or 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-90)				
			Unit = sqm				
			Taking output = 4000 sqm (80 cum)				
		a)	**Labour**				
			Mate	day	0.52	293.00	152.36
			Mazdoor (Unskilled)	day	10.00	277.00	2770.00
			Mazdoor (Skilled)	day	3.00	289.00	867.00
		b)	**Machinery**				
			HMP of appropriate capacity	hour	6.00	23,018.00	138108.00
			Electric generator set 125 KVA	hour	6.00	2,637.00	15822.00
			Front end loader 1 cum bucket capacity	hour	6.00	1,373.00	8238.00
			Tipper 5.5 10 t capacity	hour	176 x L	8.86	1559.36
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				155.94
			Paver finisher	hour	6.00	1,390.00	8340.00
			Three wheel 80-100 kN static roller	hour	18.00	781.00	14058.00
		c)	**Material**				
			Bitumen (S-90) @ 19 kg per 10 sqm	t	7.60	37,981.80	288661.68
			Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	470.04	50764.32
		d)	Overheads @ 6 % on (a+b+c)				31769.80
			Contractor's profit @ 10% on (a+b+c+d)				56126.65
			Cost of 4000 sqm = a+b+c+d				617393.10
			Rate per sqm = (a+b+c+d)/4000				154.35
			Carriage Cost				
			Bitumen S-90	ton	0.0019	1,336.10	2.54
			Stone crushed aggregates 13.2 mm to 0.09 mm	cum	0.0270	1,750.49	47.26
			Rate per sqm with carriage				204.15
			Total Cost	**sqm**			**204.15**