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BASIC APPROACH AND GENERAL CONDITIONS AND ASSUMPTIONS FOR THE PREPARATION OF STANDARD DATA BOOK

ABBREVIATIONS

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Preamble

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(II) Maintenance of Culverts Slab Type

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15.14 Periodical Renewal to existing bituminous surface

BASIC RATES
(C) Material

Sl. No.	Description	Unit	Rate at Plant (Rs.)
M-001	AC pipe 100 mm	m	120.00
M-002	Aggregate - For 37.5 mm Maximum size - 22.4 mm to 5.6 mm	cum	560.00
M-003	Aggregate - For 37.5 mm Maximum size - 45 mm to 22.5 mm	cum	580.00
M-004	Aggregate - For 37.5 mm Maximum size - Below 5.6 mm	cum	485.00
M-005	Aggregate - For 53 mm Maximum size - 22.5 mm to 5.6 mm	cum	560.00
M-006	Aggregate - For 53 mm Maximum size - 63 mm to 45 mm	cum	363.00
M-007	Aggregate - For 53 mm Maximum size - Below 5.6 mm	cum	500.00
M-008	Aggregate - Grading I (40 mm nominal Size) 10 mm - 5 mm	cum	540.00
M-009	Aggregate - Grading I (40 mm nominal Size) 25 mm – 10 mm	cum	575.00
M-010	Aggregate - Grading I (40 mm nominal Size) 37.25 mm - 25 mm	cum	555.00
M-011	Aggregate - Grading I (40 mm nominal Size) 5 mm and below	cum	450.00
M-012	Aggregate - Grading II (19 mm nominal Size) 10 mm - 5 mm	cum	485.00
M-013	Aggregate - Grading II (19 mm nominal Size) 25 mm – 10 mm	cum	535.00
M-014	Aggregate - Grading II (19 mm nominal Size) 5 mm and below	cum	485.00
M-015	Aggregate 10 mm	cum	530.00
M-016	Aggregate 20 mm	cum	640.00
M-017	Aggregate 40 mm	cum	525.00
M-018	Aggregate- Crushable type such as moorum or Gravel for Grading I	cum	170.00
M-019	Aggregate- Crushable type such as moorum or Gravel for Grading II	cum	130.00
M-020	Aggregate- Crushable type such as moorum or Gravel for Grading III	cum	98.00
M-021	Aggregate-Grading I 90 mm to 45 mm	cum	400.00
M-022	Aggregate-Grading II 63 mm to 45 mm	cum	420.00
M-023	Aggregate-Grading III 53 mm to 22.4 mm	cum	566.00
M-024	Aggregates 22.4 mm to 2.36 mm for wet mix macadam	cum	Input Rate
M-025	Aggregates 45 mm to 22.4 mm for wet mix macadam	cum	Input Rate
M-025	Aluminium sheeting (1.5 mm thick)	sqm	867.00
M-026	Aluminium Studs 100 mm x 100 mm fitted with lense reflectors	Nos.	128.00
M-027	Bamboo (1st Class) 85 mm - 100 mm dia, 2.0 m long	No.	20.00
M-028	Bamboo (1st Class) 85 mm - 100 mm dia, 2.5 m long	No.	25.00

Sl. No.	Description	Unit	Rate at Plant (Rs.)
M-028	Bamboo (1st Class) 85 mm - 100 mm dia, 3.0 m long	No.	29.00
M-029	Bamboo (1st Class) 85 mm - 100 mm dia, 4.5 m - 5.5 m long	No.	50.00
M-028	Bamboo (2nd Class) 75mm dia, 1.8 m - 2.5 m long	No.	8.00
M-029	Bamboo (2nd Class) 75mm dia, 2.1 m - 3.0 m long	No.	8.00
M-030	Barbed wire	kg	60.00
M-031	Binding Material	cum	55.00
M-032	Binding wire	kg	67.00
M-033	Bitumen (Crumb Rubber Modified)	tonne	Input Rate
M-034	Bitumen (Natural Rubber Modified)	tonne	Input Rate
M-035	Bitumen (Polymer Modified)	tonne	Input Rate
M-036	Bitumen (S-65)	t	50,443.00
M-037	Bitumen (S-90)	t	49,492.00
M-038	Bitumen Emulsion (RS-1)	t	40,100.00
M-039	Bitumen Emulsion (SS-1)	t	40,110.00
M-040	Bituminous sealant	litre	107.00
M-041	Blasted rubble	cum	238.00
M-042	Blasting material	kg	136.00
M-043	Bond stone (400 mm x 150 mm x 150 mm)	No.	14.00
M-044	Brick 1st Class	No.	5.00
M-045	Cement	t	6,900.00
M-046	Cement Primer	litre	150.00
M-047	Chlorprene Elastomer or Closed Cell Foam Sealing Element	m	453.00
M-048	Compensation for earth taken from private land	cum	56.00
M-049	Compressible Fibre Board	sqm	345.00
M-050	Copper plate	kg	550.00
M-051	Corbelling Stones (300 mm x 150 mm x 150 mm)	No.	14.00
M-052	Corrosion Resistant Structural Steel Grating	kg	90.00
M-053	Credit for excavated rock found suitable for use	cum	200.00
M-054	Crow bars 40 mm dia (hire charges)	hour	20.00
M-055	Crushed Sand or Grit Passing 2.36 mm and retained on 180 micron	cum	485.00
M-056	Crushed Slag	cum	Input Rate

Sl. No.	Description	Unit	Rate at Plant (Rs.)
M-057	Crushed Stone Aggregate 26.5 mm to 75 micron	cum	480.00
M-058	Crushed Stone chipping 13.2 mm nominal size	cum	500.00
M-059	Crushed Stone Chipping 6.7 mm size 100% passing 11.2 mm and retained on 2.36 mm	cum	475.00
M-060	Crushed Stone Chipping 6.7 mm size 100% passing 9.5 mm and retained on 2.36 mm	cum	480.00
M-061	Crushed Stone chipping 9.5 mm nominal size	cum	520.00
M-062	Crushed Stone Coarse Aggregate Passing 53 mm and retained on 2.8 mm	cum	470.00
M-063	Curing compound	litre	345.00
M-064	Debonding strips	m	117.00
M-065	Edge Stone (450 mm x 350 mm x 100 mm)	No.	260.00
M-066	Edge Stone (450 mm x 350 mm x 200 mm)	No.	270.00
M-067	Elastomeric bearing assembly	Nos.	270.00
M-068	Electric Detonator	each	13.00
M-069	Epoxy Paint	litre	290.00
M-070	Epoxy Primer	litre	227.00
M-071	Farmyard manure	cum	270.00
M-072	Fevicol adhesive	kg	154.00
M-073	Filter media	cum	304.00
M-074	Fine aggregate/Crushed sand 2.36 mm to 75 micron	cum	310.00
M-075	Galvanised angle	kg	91.00
M-076	Galvanised angle Section 100 mm x 100 mm of 12 mm thickness	kg	91.00
M-077	Gelatine 80 per cent	kg	136.00
M-078	GI Pipe 100 mm dia	m	465.00
M-079	GI Pipe 50 mm dia	m	300.00
M-080	GI wires	kg	90.00
M-081	Graded stone aggregate	cum	530.00
M-082	Granular material (Natural occuring, soil gravel mixture / quarry waste, kankar, laterite, dhandla	cum	137.00
M-083	Hand Broken Metal 40 mm size	cum	510.00
M-084	Indigo	kg	140.00
M-085	Interlocking Blocks with 60 mm thickness	sqm	74.00
M-086	Interlocking Blocks with 80 mm thickness	sqm	87.00

Sl. No.	Description	Unit	Rate at Plant (Rs.)
M-087	Joint filler board	sqm	82.00
M-088	Jute netting, open weave 25 mm square opening	sqm	150.00
M-089	Jute rope 12 mm dia	m	112.00
M-090	Key Aggregates passing 22.4 mm and retained on 2.8 mm	cum	503.00
M-091	Lime	t	14,000.00
M-092	Lime putty	t	13,000.00
M-093	Local Wood Piles (1st Class) 150-200 mm dia ,6m long	No.	340.00
M-094	Local Wood Piles (1st Class) 100 mm x 75 mm	cum	8,000.00
M-095	Loose stone	cum	210.00
M-096	MS clamps	Nos.	56.00
M-097	MS Flat / Structural Steel	t	47,000.00
M-098	MS Sheet Tube (47 mm x 47 mm x 12 SWG Sheet)	kg	85.00
M-099	MS Sheet 1.5 mm thick	sqm	1,159.00
M-100	MS Sheet 2 mm thick	sqm	1,384.00
M-101	Nuts, Bolts and Rivets	t	110,000.00
M-102	Paint (Synthetic Enamel)	litre	240.00
M-103	Plasticizer	litre	500.00
M-104	Polythene sheet (125 micron)	sqm	200.00
M-105	Polythene Sheething	Nos.	229.00
M-106	Quarried Stone 150-200 mm size	cum	223.00
M-107	RCC Pipe NP3 (1200 mm dia)	m	6,400.00
M-108	RCC Pipe NP3 (1000 mm dia)	m	5,860.00
M-109	RCC Pipe NP3 (750 mm dia)	m	4,500.00
M-110	RCC Pipe NP3 (600 mm dia)	m	3,700.00
M-111	RCC Pipe NP3 (500 mm dia)	m	3,000.00
M-112	RCC Pipe NP4 (1200 mm dia)	m	Input Rate
M-113	RCC Pipe NP4 (1000 mm dia)	m	Input Rate
M-114	RCC Pipe NP4 (750 mm dia)	m	Input Rate
M-115	RCC Pipe NP4 (600 mm dia)	m	Input Rate
M-116	RCC Pipe NP4 (500 mm dia)	m	Input Rate
M-117	Red-oxide Primer	litre	200.00

Sl. No.	Description	Unit	Rate at Plant (Rs.)
M-118	Road marking paint	litre	570.00
M-119	Sand (Coarse)	cum	380.00
M-120	Sand (Fine)	cum	370.00
M-121	Seeds	kg	602.00
M-122	Steel Pipe 50 mm dia	m	365.00
M-123	Steel Reinforcement (HYSD Bars)	t	47,500.00
M-124	Steel Reinforcement (MS Round Bars)	t	45,000.00
M-125	Steel Reinforcement (TMT Bars)	t	45,000.00
M-126	Stone Boulder of size 150 mm and below	cum	220.00
M-127	Stone Chips 12 mm size	cum	540.00
M-128	Stone Chips 13.2 mm to 5.6 mm	cum	500.00
M-129	Stone Crushed Aggregate 11.2 mm to 0.09 mm	cum	480.00
M-130	Stone for Coarse Rubble Masonry 1st Sort	cum	225.00
M-131	Stone for Coarse Rubble Masonry 2nd Sort	cum	235.00
M-132	Stone for Random Rubble Masonry	cum	200.00
M-133	Stone for Stone Set Pavement (300 mm x 200 mm x 150 mm)	No.	14.00
M-134	Stone Screening - Type A 13.2 mm for Grading-1	cum	590.00
M-135	Stone Screening - Type A 13.2 mm for Grading-2	cum	585.00
M-136	Stone Screening - Type B 11.2 mm for Grading-2	cum	520.00
M-137	Stone Screening - Type B 11.2 mm for Grading-3	cum	515.00
M-138	Stone spall	cum	569.00
M-139	Traffic cones	No.	451.00
M-140	Water	kl	100.00
M-141	Well graded Granular Base Material - Grading A 2.36 mm below	cum	127.00
M-142	Well graded Granular Base Material - Grading A 26.5 mm to 4.75 mm	cum	133.00
M-143	Well graded Granular Base Material - Grading A 53 mm to 26.5 mm	cum	137.00
M-144	Well graded Granular Base Material - Grading B 2.36 mm below	cum	125.00
M-145	Well graded Granular Base Material - Grading B 26.5 mm to 4.75 mm	cum	133.00
M-146	Well graded Granular Base Material - Grading C 2.36 mm below	cum	125.00
M-147	Well graded Granular Base Material - Grading C 9.5 mm to 4.75 mm	cum	130.00
M-148	Well Graded Material for Sub-Base - Grading I 2.36 mm below	cum	115.00

Sl. No.	Description	Unit	Rate at Plant (Rs.)
M-149	Well Graded Material for Sub-Base - Grading I 53 mm to 9.5 mm	cum	137.00
M-150	Well Graded Material for Sub-Base - Grading I 9.5 mm to 2.36 mm	cum	130.00
M-151	Well Graded Material for Sub-Base - Grading II 2.36 mm below	cum	125.00
M-152	Well Graded Material for Sub-Base - Grading II 26.5 mm to 9.5 mm	cum	133.00
M-153	Well Graded Material for Sub-Base - Grading II 9.5 mm to 2.36 mm	cum	130.00
M-154	Well Graded Material for Sub-Base - Grading III 2.36 mm below	cum	127.00
M-155	Well Graded Material for Sub-Base - Grading III 4.75 mm to 2.36 mm	cum	130.00
M-156	Well Graded Material for Sub-Base - Grading III 9.5 mm to 4.75 mm	cum	140.00
M-157	Wooden sleepers (250 mm x 250 mm x 125 mm) (hire charges)	No.	13.00

BASIC APPROACH AND GENERAL CONDITIONS AND ASSUMPTIONS FOR THE PREPARATION OF STANDARD DATA BOOK

The basic approach for the preparation of Standard Data Book for Rural Roads is indicated as under:

1 Description of items: The description of items is given briefly and linked with the relevant Clauses of the Ministry of Rural Development's (MORD) Specifications wherever feasible, which may be referred for detailed description, provisions and interpretation.

2 Use of Machinery

2.1. The Standard Data Book is based on the assumption that Rural Roads in our country are to be constructed with intermediate technology, i.e., manual means with medium input of machinery, wherever required to ensure the required quality of work.

2.2. For rolling, use of static roller has been generally considered. However, use of vibratory pneumatic tyre roller has been considered wherever required as per provisions of MORD Specifications.

3 Working Conditions

3.1. Rates have been analysed for average working conditions prevailing in the country.

3.2. Average achievable outputs of machines and labour have been considered taking into account the job and management factors.

3.3. However, the output of machineries and labour reduces substantially in hilly areas as the altitude increases. Therefore, for hilly areas reduced outputs have been considered as indicated in the preamble of Chapter 8.

4 Overheads: The overheads are considered as 10 per cent for items of road works and 20 per cent for items of bridge works. This is assumed to include interalia the following elements:

i. Site accommodation, setting up plant, access road, water supply, electricity and general site arrangements.

ii. Site office infrastructure.

iii. Expenditure on

(a) Corporate office of the Contractor

(b) Site supervision by the Contractor

(c) Preparation of "as built" drawings

iv. Mobilisation/demobilisation of resources.

v. Labour camps with minimum amenities, required as per labour laws.

vi. Light vehicles for site supervision including administrative and managerial requirements.

vii. Setting up of laboratories for quality control, field and laboratory testing for control of quality of various items of work and documentation of test results as per requirements of the MORD Specifications.

viii. Minor T&P including needle vibrators required for concrete work.

ix. Survey instruments and the task of setting out of works including verification of line and dimensions (but excluding construction of bench marks and reference pillars which are separate items under setting out).

x. Taking of trial pits and bore holes, where required as per the MORD Specifications.

xi. Watch and ward.

xii. Arrangement for traffic and traffic management during construction.

xiii. Expenditure on safeguarding environment during construction.

xiv. Sundries.

xv. Financing expenditure of the Contractor.

xvi. Work insurance/compensation.

xvii. Sales/Turnover tax has been assumed at 4%. In case this tax is more than 4% in certain States the percentage of overheads should be increased correspondigly.

5 Contractor's Profit: Contractor's profit is considered @ 10 per cent uniformly and is added on Overheads also.

6 General:

6.1. The Clause numbers refer to the MORD Specifications for Rural Roads and Cross Drainage Works.

6.2. Additional assumptions made for analysing different items have been indicated in respective Chapters in the form of preamble and notes/footnotes wherever required.

6.3. For some of the items, certain size/specifications have been assumed. If size/specifications other than the same are adopted, corresponding modifications may be made in the inputs of analysis.

6.4. In the rate analysis of some items, the quantities of sub-items involved in that analysis, like excavation for foundation, foundation concrete, masonry work, painting, lettering, etc. have been given. For rate analysis of such sub-items, reference may be made to relevant Chapters dealing with the sub-items.

6.5. The sources of all materials and samples of materials are required to be approved by the Engineer before start of such work.

6.6. For pipe culverts both NP3 and NP4 pipes have been considered.

6.7. Quality control of works shall be governed by the relevant MORD Specifications.

7 Basic Inputs

7.1. The Standard Data Book is based on the requirements of basic inputs of materials, labour and machineries for various items.

7.2. The rates for material and labour for the area where the project is located are to be ascertained from local authorities/enquiries to prepare SOR for the area. However, the usage charges of machineries shall be considered as given in Chapter 15 of this Data Book.

7.3. The basic rates of materials, such as, stone boulders, stone for masonry, stone ballast (hand broken/machine broken), crushed aggregate, stone dust, moorum, gravel, lime, manure, sludge, quarry sweep, kankar, bricks, brick ballast, crushed slag, etc. at quarry/ crusher sites shall be fixed by the respective States for various zones from time to time.

7.4. While preparing estimates/Detailed Notice Inviting Tender/Analysis of rates, only the basic rates fixed by respective States for concerned zones should be adopted.

7.5. The cost of materials should include the cost at source and the cost of their carriage upto the work site.

7.6. Although market rates for supply of aggregates at site are generally adopted for estimation purpose, rates for crushing of aggregates have also been analysed as most Contractors prefer to crush their own aggregates in case of larger sized projects. The cost of materials shall be evaluated considering the cost at crushing plants and its carriage upto the work site. These should be compared with rates for own crushing and carriage by the construction agency and lesser of the rates should be adopted for estimation purpose.

8 Plants and Equipment:

8.1. Keeping in view the job and managerial factors and the age factor of machines, the output of plant and equipment is taken approximately 70 per cent of the rated capacity given by manufacturer under ideal conditions.

8.2. The requirement of machinery has been worked out assuming working period of 6 hours per shift of 8 hours.

8.3. Certain equipment, like, road rollers, are required to be available at site for complete period of the shift, though from the consideration of their output, they may be required only for 3 to 4 hours. This is necessitated to match with the output of other associated machines, like, HMP, Pavers, etc. In such cases, the hire charges of road rollers have been multiplied with a factor of 0.65 to account for the idle period wherever considered appropriate.

8.4. Though electrically operated equipment, like, concrete mixers and vibrators have been provided, diesel operated equipment can be used where electricity is not available.

8.5. Wherever electric generator has not been provided to run a plant or equipment, it is assumed that it is fitted with a diesel engine.

8.6. For small jobs where loading and unloading is required to be done manually, tractor-trolley has been considered for carriage instead of tipper.

8.7. Output of plant/equipment is considered for the compacted quantities.

8.8. A water tanker of 6 kl capacity which is commonly used at construction sites has been considered.

8.9. The usage charges for machines include ownership charges, cost of repair and maintenance including replacement of tyres and running and operating charges which includes crew, fuel and lubricants.

9 Labour:

9.1. For labour, the general classification is mazdoor, bhisti, etc. for unskilled labour and mason, fitter, blacksmith, etc. for skilled labour.

9.2. One mate has been provided for 25 labours for all items of works.

9.3. The labour wages should be as per rates fixed by State Government.

10 Materials:

10.1. Quantities of materials considered in the rate analysis are approximate for the purpose of estimation and include normal wastages. Actual consumption would depend on mix design.

10.2. The rates of material should include basic cost at locations of stone crushers/ factory/ rail head and cost of its carriage to the site of work/plant including loading, unloading and stacking.

10.3. The supply of materials will be taken either at the location of mixing plant or at the work site as per requirement of use.

10.4. Contractor will make his own arrangements for borrowing earth. However, compensation for earth taken from private land has been included in the rate analysis for construction of embankment/ sub-grade with borrowed earth.

10.5. Credit for Dismantled Material: The dismantled materials should be examined and a realistic assessment made for credit for such materials, which can be utilized for works or auctioned.

10.6. The basic rates should include all octroi charges, toll tax, sale tax, VAT, municipal taxes and other local taxes, etc.

11 Items of Culverts:

Items in Chapters 11, 12 & 13 on Foundation, Substructure and Superstructure cover both minor bridge works as well as slab culverts as per Chapter 1200 of MORD Specifications. Items of pipe culverts are, however, covered separately in Chapter 9.

12 Concrete Items:

12.1. For concrete work, the grades of concrete covered by the Data Book in accordance with MORD Specifications are:-

i) PCC M-15 grade to M-25 for structures (For lean concrete under foundation M-10 can be used).

ii) RCC grade M-20, M-25 and M-30 for structures

iii) Design mix concrete – M-25 and M-30 for concrete pavement

12.2. The analysis of rates accounts for input of materials by weight and use of ordinary mixer.

12.3. Use of vibrators for all concreting work has been included in the items.

12.4. Ten per cent extra cement may be provided for concreting under water, where required.

12.5. Quantities of cement in various grades of cement concrete are to be as per nominal mix/ design mix. Grade of cement may also be adopted as per mix design.

12.6. Quantities of cement in various grades of cement concrete for structures have been taken as per IRC:21:2000 & IRC:78:2000.

12.7. Steel reinforcement for cement concrete work is required to be provided separately. The rate for the same has been analysed separately.

12.8. As per the MORD Specifications, the type of superstructure envisaged for rural roads are RCC slabs and box culverts not exceeding 15 m span as well brick/stone masonry arches and composite girder type of superstructure. RCC arches provided for in IRC:SP:20 have also been analysed.

13 The MORD Specifications includes specifications for the items of turfing with sods and seeding and mulching in Chapter 1600 of Hill Road Construction only. However, in view of the importance of these items for erosion control in all locations, these have also been analysed in Chapter 3 of this document.

14 Privileged Document: The Standard Data Book in for Department use ONLY. It should not be produced in any court of law as reference/authority and to that extent it is a privileged document.

Chapter 1

LOADING, UNLOADING, CARRIAGE CRUSHING OF MATERIALS AND SETTING OUT

Notes:

1 Rates are for net quantities after deduction of voids.

2 Part of km beyond 1 km will be payable for the full km.

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
1.1		**Loading and Unloading of Lime, Aggregate, Stone Boulder, Brick Aggregate, Kankar, Building Rubbish, Crushed Slag, Stone for Masonry Work by Manual Means**				
		(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	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.50	320.00	160.00
		c) Overheads @ 10% on (a+b)				**22.61**
		d) Contractor's profit @ 10% on (a+b+c)				**24.87**
		Cost for 5.5 cum = a+b+c+d				273.58
		Rate per cum = (a+b+c+d)/5.5				**49.74**
		(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	180.00	1.80
		Mazdoor (Unskilled)	day	0.25	125.00	31.25
		b) Machinery				
		Truck	hour	0.25	320.00	80.00
		c) Overheads @ 10% on (a+b)				**11.31**
		d) Contractor's profit @ 10% on (a+b+c)				**12.44**
		Cost for 5.5 cum = a+b+c+d				136.79
		Rate per cum = (a+b+c+d)/5.5				**24.87**
		(iii) Unloading 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				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 5.5 cum				
		a) Labour				
		Mate	day	0.01	180.00	1.80
		Mazdoor (Unskilled)	day	0.25	125.00	31.25
		b) Machinery				
		Truck	hour	0.25	320.00	80.00
		c) Overheads @ 10 % on (a+b)				**11.31**
		d) Contractor's profit @ 10% on (a+b+c)				**12.44**
		Cost for 5.5 cum = a+b+c+d				136.79
		Rate per cum = (a+b+c+d)/5.5				**24.87**
		(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	0.005	180.00	0.90
		Mazdoor (Unskilled)	day	0.125	125.00	15.63
		b) Machinery				
		Truck	hour	0.166	320.00	53.12
		c) Overheads @ 10% on (a+b)				**6.96**
		d) Contractor's profit @ 10% on (a+b+c)				**7.66**
		Cost for 5.5 cum = a+b+c+d				84.27
		Rate per cum = (a+b+c+d)/5.5				**15.32**
1.2		**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	1.00		
		ii) Loading by front end loader 1 cum bucket capacity @ 45 cum per hour	Min	7.33		
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
		Total	**Min**	**10.33**		

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Machinery				
		(i) Tipper 10 t capacity	hour	0.172	515.00	88.58
		(ii) Front end-loader 1 cum bucket capacity @ 45 cum per hour	hour	0.122	1,001.00	122.12
		b) Overheads @ 10% on (a)				**21.07**
		c) Contractor's profit @ 10% on (a+b)				**23.18**
		Cost for 5.5 cum = a+b+c				254.95
		Rate per cum = (a+b+c) /5.5				**46.35**
	(ii)	Loading of Earth, Sand, Moorum, Manure, Flyash 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	1.00		
		ii) Loading by front end loader 1 cum bucket capacity @ 100 cum per hour	Min	3.30		
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
		Total	**Min**	**6.30**		
		a) Machinery				
		(i) Tipper 10 t capacity	hour	0.105	515.00	54.08
		(ii) Front end-loader 1 cum bucket capacity @ 100 cum per hour	hour	0.055	1,001.00	55.06
		b) Overheads @ 10% on (a)				**10.91**
		c) Contractor's profit @ 10% on (a+b)				**12.00**
		Cost for 5.5 cum = a+b+c				132.05
		Rate per cum = (a+b+c)/5.5				**24.01**
	(iii)	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 unloading point	Min	1.00		
		ii) Manoeuvering, reversing, dumping and turning for return	Min	2.00		
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
		Total	**Min**	**5.00**		

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Machinery				
		Tipper 10 t capacity	hour	0.08	515.00	41.20
		b) Overheads @ 10% on (a)				**4.12**
		c) Contractor's profit @ 10% on (a+b)				**4.53**
		Cost for 5.5 cum = a+b+c				49.85
		Rate per cum = (a+b+c)/5.5				**9.06**
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	180.00	1.80
		Mazdoor (Unskilled)	day	0.25	125.00	31.25
		b) Machinery				
		Truck	hour	0.33	320.00	105.60
		c) Overheads @ 10% on (a+b)				**13.87**
		d) Contractor's profit @ 10% on (a+b+c)				**15.25**
		Cost for 2000 Nos. = a+b+c+d				167.77
		Rate for 1000 bricks = (a+b+c+d)/2				**83.88**
		(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	180.00	1.80
		Mazdoor (Unskilled)	day	0.25	125.00	31.25
		b) Machinery				
		Truck	hour	0.33	320.00	105.60
		c) Overheads @ 10% on (a+b)				**13.87**
		d) Contractor's profit @ 10% on (a+b+c)				**15.25**
		Cost for 2000 Nos. = a+b+c+d				167.77
		Rate for 1000 bricks = (a+b+c+d)/2				**83.88**
1.4		**Loading and Unloading of Cement by Manual Means**				
		(i) Loading of Cement by manual means including a lead upto 30 m				
		Unit = t				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 10 t				
		a) Labour				
		Mate	day	0.06	180.00	10.80
		Mazdoor (Unskilled)	day	1.50	125.00	187.50
		b) Machinery				
		Truck	hour	1.00	320.00	320.00
		c) Overheads @ 10% on (a+b)				**51.83**
		d) Contractor's profit @ 10% on (a+b+c)				**57.01**
		Cost for 10 t = a+b+c+d				627.14
		Rate per tonnes = (a+b+c+d)/10				**62.71**
		(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	180.00	10.80
		Mazdoor (Unskilled)	day	1.50	125.00	187.50
		b) Machinery				
		Truck	hour	1.00	320.00	320.00
		c) Overheads @ 10% on (a+b)				**51.83**
		d) Contractor's profit @ 10% on (a+b+c)				**57.01**
		Cost for 10 t = a+b+c+d				627.14
		Rate per tonne = (a+b+c+d)/10				**62.71**
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	180.00	12.60
		Mazdoor (Unskilled)	day	1.80	125.00	225.00
		b) Machinery				
		Truck	hour	1.00	320.00	320.00
		c) Overheads @ 10% on (a+b)				**55.76**
		d) Contractor's profit @ 10% on (a+b+c)				**61.34**
		Cost for 10 t = a+b+c+d				674.70

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Rate per tonnes = (a+b+c+d)/10				**67.47**
		(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	180.00	12.60
		Mazdoor (Unskilled)	day	1.80	125.00	225.00
		b) Machinery				
		Truck	hour	1.00	320.00	320.00
		c) Overheads @ 10% on (a+b)				**55.76**
		d) Contractor's profit @ 10% on (a+b+c)				**61.34**
		Cost for 10 t = a+b+c+d				674.70
		Rate per t = (a+b+c+d)/10				**67.47**
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	180.00	10.80
		Mazdoor (Unskilled)	day	1.60	125.00	200.00
		b) Machinery				
		Truck	hour	1.25	320.00	400.00
		c) Overheads @ 10% on (a+b)				**61.08**
		d) Contractor's profit @ 10% on (a+b+c)				**67.19**
		Cost for 10 t = a+b+c+d				739.07
		Rate per tonnes = (a+b+c+d)/10				**73.91**
		(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	180.00	9.00
		Mazdoor (Unskilled)	day	1.20	125.00	150.00
		b) Machinery				
		Truck	hour	1.25	320.00	400.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		c) Overheads @ 10% on (a+b)				**55.90**
		d) Contractor's profit @ 10% on (a+b+c)				**61.49**
		Cost for 10 t = a+b+c+d				676.39
		Rate per t = (a+b+c+d)/10				**67.64**
	Note:	The rate is inclusive of the self weight of drum				
1.7	**100**	**Loading and Unloading of Timber by Manual Means**				
		(i) Loading of Timber by manual means including a lead upto 30 m				
		Unit = t				
		Taking output = 5 t				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Truck	hour	1.00	320.00	320.00
		c) Overheads @ 10% on (a+b)				**45.22**
		d) Contractor's profit @ 10% on (a+b+c)				**49.74**
		Cost for 5 t = a+b+c+d				547.16
		Rate per t = (a+b+c+d)/5				**109.43**
		(ii) Unloading of Timber by manual means including a lead upto 30 m				
		Unit = t				
		Taking output = 5 t				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Truck	hour	1.00	320.00	320.00
		c) Overheads @ 10% on (a+b)				**45.22**
		d) Contractor's profit @ 10% on (a+b+c)				**49.74**
		Cost for 5 t = a+b+c+d				547.16
		Rate per t = (a+b+c+d)/5				**109.43**
		Note: *Density of wood has been assumed as 900 kg per cum. If the density is less the output may be reduced proportionately*				
1.8		**Loading and Unloading of C.C. Blocks, Kerb, etc.**				
		(i) Loading with care C.C. Blocks, km Stone, 200 m Stone, Boundary Pillar, Kerb, Channel, Bond Stone, etc. by manual means including a lead upto 30 m				
		Unit = cum				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 5.5 cum				
		a) Labour				
		Mate	day	0.08	180.00	14.40
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Truck	hour	1.50	320.00	480.00
		c) Overheads @ 10% on (a+b)				**74.44**
		d) Contractor's profit @ 10% on (a+b+c)				**81.88**
		Cost for 5.5 cum = a+b+c+d				900.72
		Rate per cum = (a+b+c+d)/5.5				**163.77**
		(ii) Unloading with care C.C. Blocks, km Stone, 200 m Stone, Boundary Pillar, Kerb, Channel, Bond Stone, etc. by manual means including a lead upto 30 m				
		Unit = cum				
		Taking output = 5.5 cum				
		a) Labour				
		Mate	day	0.08	180.00	14.40
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Truck	hour	1.50	320.00	480.00
		c) Overheads @ 10% on (a+b)				**74.44**
		d) Contractor's profit @ 10 % on (a+b+c)				**81.88**
		Cost for 5.5 cum = a+b+c+d				900.72
		Rate per cum = (a+b+c+d)/5.5				**163.77**
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	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.33	320.00	105.60
		Crane	hour	0.33	798.00	263.34
		c) Overheads @ 10% on (a+b)				**43.50**

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		d) Contractor's profit @ 10% on (a+b+c)				**47.85**
		Cost for 9 pipes = a+b+c+d				526.40
		Rate per pipe = (a+b+c+d)/9				**58.49**
		B. 750 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 15 pipes				
		a) Labour				
		Mate	day	0.02	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.33	320.00	105.60
		Crane	hour	0.33	798.00	263.34
		c) Overheads @ 10% on (a+b)				**43.50**
		d) Contractor's profit @ 10 % on (a+b+c)				**47.85**
		Cost for 15 pipes = a+b+c+d				526.40
		Rate per pipe = (a+b+c+d)/15				**35.09**
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 21 pipe				
		a) Labour				
		Mate	day	0.02	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.33	320.00	105.60
		Crane	hour	0.33	798.00	263.34
		c) Overheads @ 10% on (a+b)				**43.50**
		d) Contractor's profit @ 10% on (a+b+c)				**47.85**
		Cost for 21 pipes = a+b+c+d				526.40
		Rate per pipe = (a+b+c+d)/21				**25.07**
		(ii) Unloading of RCC Hume pipe by manual means including a lead upto 30 m				
		A. 1000/1200 mm dia RCC Hume pipes				
		Unit = per pipe				
		Taking output = 5 pipes				
		a) Labour				
		Mate	day	0.04	180.00	7.20

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Truck	hour	2.00	320.00	640.00
		c) Material				
		Wooden sleepers 250mm x 250mm x125mm hire charges 3 nos sleeper	hour	2.00	13.00	26.00
		Crow bars 2 nos not less than 40 mm dia (hire-charges)	hour	2.00	20.00	40.00
		d) Overheads @ 10% on (a+b+c)				**83.82**
		e) Contractors profit @ 10% on (a+b+c+d)				**92.20**
		Cost for 5 pipes = a+b+c+d+e/5				1,014.22
		Rate per pipe = (a+b+c+d+e)				**202.84**
		B. 750 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 6 pipes				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Truck	hour	2.00	320.00	640.00
		c) Materials				
		Wooden sleepers 250mm x250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	13.00	26.00
		Crow bars 2 nos not less than 40 mm dia	hour	2.00	20.00	40.00
		d) Overheads @ 10% on (a+b+c)				**83.82**
		e) Contractors profit @ 10% on (a+b+c+d)				**92.20**
		Cost for 6 pipes = a+b+c+d+e				1,014.22
		Rate per pipe = (a+b+c+d+e)/6				**169.04**
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 8 pipes				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Truck	hour	2.00	320.00	640.00
		c) Materials				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Wooden sleepers 250mm x 250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	13.00	26.00
		Crow bars 2 nos not less than 40 mm dia	hour	2.00	20.00	40.00
		d) Overheads @ 10% on (a+b+c)				**83.82**
		e) Contractors profit @ 10% on (a+b+c+d)				**92.20**
		Cost for 8 pipes = a+b+c+d+e				1,014.22
		Rate per pipe = (a+b+c+d+e)/8				**126.78**
		(iii) Unloading 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	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.20	320.00	64.00
		Crane	hour	0.20	798.00	159.60
		c) Overheads @ 10% on (a+b)				**28.97**
		d) Contractor's profit @ 10% on (a+b+c)				**31.87**
		Cost for 9 pipes = a+b+c+d				350.54
		Rate per pipe = (a+b+c+d)/9				**38.95**
		B. 750 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 15 pipes				
		a) Labour				
		Mate	day	0.02	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.20	320.00	64.00
		Crane	hour	0.20	798.00	159.60
		c) Overheads @ 10% on (a+b)				**28.97**
		d) Contractor's profit @ 10% on (a+b+c)				**31.87**
		Cost for 15 pipes = a+b+c+d				350.54
		Rate per pipe = (a+b+c+d)/15				**23.37**
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 21 pipes				
		a) Labour				
		Mate	day	0.02	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Truck	hour	0.20	320.00	64.00
		Crane	hour	0.20	798.00	159.60
		c) Overheads @ 10% on (a+b)				**28.97**
		d) Contractor's profit @ 10% on (a+b+c)				**31.87**
		Cost for 21 pipes = a+b+c+d				350.54
		Rate per pipe = (a+b+c+d)/21				**16.69**
1.10		**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	515.00	206.00
		Empty return trip	hour	0.29	515.00	149.35
		b) Overheads @ 10% on (a)				**35.54**
		c) Contractor's profit @ 10% on (a+b)				**39.09**
		Cost for 100 t.km = a+b+c				429.97
		Rate per t.km = (a+b+c)/100				**4.30**
		Note: *In case of carriage of Hume pipes, output of truck be taken as 8 t and the rate for t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.*				
		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	515.00	257.50
		Empty return trip	hour	0.33	515.00	169.95

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		b) Overheads @ 10% on (a)				**42.75**
		c) Contractor's profit @ 10% on (a+b)				**47.02**
		Cost for 100 t.km = a+b+c				517.21
		Rate per t.km = (a+b+c)/100				**5.17**
		Note: *In case of carriage of Hume pipes, output of truck be taken as 8 t and the rate per t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.*				
		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				
		i) Tipper 10 t capacity				
		Haulage with load	hour	1.00	515.00	515.00
		Empty return trip	hour	0.67	515.00	345.05
		b) Overheads @ 10% on (a)				**86.01**
		c) Contractor's profit @ 10 % on (a+b)				**94.61**
		Cost for 100 t.km = a+b+c				1,040.66
		Rate per t.km = (a+b+c)/100				**10.41**
		Note: *In case of carriage of Hume pipes, output of truck be taken as 8 t and the cost for 8 t is to be divided by number of pipes of different diameters as indicated in item 1.9 to get the rate per pipe.*				
1.11		**Supply of Quarried stone and hand breaking**				
		(i) Supply of quarried stone and hand breaking into coarse aggregate to Grading 1 (90 mm to 45 mm) as per Table 400.8 of Technical Specifications.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.048	180.00	8.64
		Mazdoor (Unskilled)	day	1.20	125.00	150.00
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	223.00	245.30
		c) Overheads @ 10% on (a+b)				**40.39**
		d) Contractor's profit @ 10% on (a+b+c)				**44.43**
		Rate per cum = a+b+c+d				**488.77**
		(ii) Supply of quarried stone and hand breaking into coarse aggregate to Grading 2 (63 mm to 45 mm) as per Table 400.8 of Technical Specifications.				
		Unit = cum				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.06	180.00	10.80
		Mazdoor (Unskilled)	day	1.50	125.00	187.50
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	223.00	245.30
		c) Overheads @ 10% on (a+b)				**44.36**
		d) Contractor's profit @ 10% on (a+b+c)				**48.80**
		Rate per cum = a+b+c+d				**536.76**
		(iii) Supply of quarried stone and hand breaking into coarse aggregate to Grading 3 (53 mm to 22.4 mm) as per Table 400.8 of Technical Specifications.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.072	180.00	12.96
		Mazdoor (Unskilled)	day	1.80	125.00	225.00
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	223.00	245.30
		c) Overheads @ 10% on (a+b)				**48.33**
		d) Contractor's profit @ 10% on (a+b+c)				**53.16**
		Rate per cum = a+b+c+d				**584.74**
1.12		**Crushing of Stone Aggregates 100 per cent passing through 53 mm sieve as per Table 500.6 of Technical Specifications.**				
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 t/h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates 100 per cent passing through 53 mm sieve as per Table 500.6 of Technical Specifications including the cost of stone.				
		Unit = cum				
		Taking output = 750 cum at crusher location				
		a) Labour				
		Mate	day	0.76	180.00	136.80
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		Mazdoor (Unskilled)	day	17.00	125.00	2,125.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	220.00	176,000.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	263.00	1,578.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Front end loader 1 cum bucket capacity	hour	20.00	1,001.00	20,020.00
		Tipper 5.5 cum capacity	hour	20.00	515.00	10,300.00
		d) Overheads @ 10% on (a+b+c)				**21,044.98**
		e) Contractor's profit @ 10% on (a+b+c+d)				**23,149.48**
		Cost for 750 cum = (a+b+c+d+e) x 0.85				216,447.62
		Rate per cum =[(a+b+c+d+e) x 0.85]/ 750				**288.60**
		Note: *1 800 cum of stone boulders are needed to get 750 cum of stone aggregates.*				
		2 85 per cent of above cost will be attributed to the production of 750 cum of stone aggregates of 40 mm size and balance 15 per cent will be for smaller size aggregates and stone dust which comes out as a by-product.				
		3 The integrated stone crusher includes primary and secondary crushing units.				
1.13		**Crushing of Stone Aggregates 100 per cent passing through 22.4 mm sieve as per Table 500.6 of Technical Specifications.**				
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 t/h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates 100 per cent passing through 22.4 mm sieve as per Table 500.6 of Technical Specifications including the cost of stone.				
		Unit = cum				
		Taking output = 670 cum at crusher location				
		a) Labour				
		Mate	day	0.76	180.00	136.80
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		Mazdoor (Unskilled)	day	17.00	125.00	2,125.00
		b) Material				
		Stone boulder of size 150 mm and below	cum	800.00	220.00	176,000.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	263.00	1,578.00
		Front end loader 1 cum bucket capacity	hour	10.00	1,001.00	10,010.00
		Tipper 5.5 cum capacity	hour	10.00	515.00	5,150.00
		d) Overheads @ 10% on (a+b+c)				**19,528.98**
		e) Contractor's profit @ 10% on (a+b+c+d)				**21,481.88**
		Cost for 670 cum = (a+b+c+d+e) x 0.90				212,670.59
		Rate per cum = [(a+b+c+d+e) x 0.90]/ 670				**285.68**
		Note: *1 800 cum of stone boulders are needed to get 670 cum of stone chips of required size.*				
		2 90 per cent of above cost will be attributed to the production of 670 cum of stone aggregate and balance 10 per cent will be for smaller size aggregates and stone dust which comes out as a by-product.				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		3 The integrated stone crusher includes primary and secondary crushing units.				
1.14		**Crushing of Stone Aggregates Nominal Size 13.2 mm as per Table 500.9 of Technical Specifications.**				
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 t/h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 13.2 mm nominal size as per Table 500.9 of Technical Specifications including the cost of stone.				
		Unit = cum				
		Taking output = 600 cum at crusher location				
		a) Labour				
		Mate	day	0.76	180.00	136.80
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		Mazdoor (Unskilled)	day	17.00	125.00	2,125.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	220.00	176,000.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	263.00	1,578.00
		Front end loader 1 cum bucket capacity	hour	10.00	1,001.00	10,010.00
		Tipper 5.5 cum capacity	hour	10.00	515.00	5,150.00
		d) Overheads @ 10% on (a+b+c)				**19,528.98**
		e) Contractor's profit @ 10 % on (a+b+c+d)				**21,481.88**
		Cost for 600 cum = (a+b+c+d+e) x 0.95				224,485.63
		Rate per cum = [(a+b+c+d+e) x 0.95]/ 600				**355.44**
		Note: *1 800 cum of stone boulders are needed to get 600 cum of stone chips of size 13.2 mm and 125 cum stone dust.*				
		2 95 per cent of above cost will be attributed to the production of 600 cum of stone chips of 13.2 mm size and balance 5 per cent to the production of stone dust which comes out as a by-product.				
		3 The integrated stone crusher includes primary and secondary crushing units.				
		4 The analysis for curshing of stone chips of size 11.2 mm will be same as for 13.2 mm				
1.15		**Crushing of Stone Aggregates 9.5 mm Nominal Size as per Table 500.9 of Technical Specifications.**				
		Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 t/h capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 9.5 mm nominal size as per Table 500.9 of Technical Specifications including the cost of stone.				
		Unit = cum				
		Taking output = 600 cum at crusher location				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Labour				
		Mate	day	0.76	180.00	136.80
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		Mazdoor (Unskilled)	day	17.00	125.00	2,125.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	220.00	176,000.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	263.00	1,578.00
		Front end loader 1 cum bucket capacity	hour	10.00	1,001.00	10,010.00
		Tipper 5.5 cum capacity	hour	10.00	515.00	5,150.00
		d) Overheads @ 10% on (a+b+c)				**19,528.98**
		e) Contractor's profit @ 10 % on (a+b+c+d)				**21,481.88**
		Cost for 600 cum = (a+b+c+d+e) x 0.95				224,485.63
		Rate per cum = [(a+b+c+d+e) x 0.95]/ 600				**374.14**

Note: *1 800 cum of stone boulders are needed to get 600 cum of stone chips of size 9.5 mm and 125 cum stone dust.*

2 95 per cent of above cost will be attributed to the production of 600 cum of stone chips of 9.5 mm size and balance 5 per cent to the production of stone dust which comes out as a by-product.

3 The integrated stone crusher includes primary and secondary crushing units.

4 Cost of crushing of stone chips of size 6.7 mm will be 10 per cent extra over that of 9.5 mm size.

1.16 100 Setting Out

Unit = 1 km

The analysis of rate per km shall account for the following:

(i) Reference benchmark one no.

(ii) Working benchmark 4 nos. per km and near all drainage structure and bridges

(iii) Reference Pillars/Burjees @ 50 m interval on both sides of the formation width

(iv) The marking of centre line setting out curves and recording of levels, etc. by the surveyor will be incidental to the work and no extra payment shall be made for the same

(v) The rate analysis for a typical benchmark as per Drawing 200.1

1. Excavation for structure earthwork in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.

As per item No.11.1 of Chapter 11	cum	0.325	139.60	45.37

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		2. Plain cement concrete M10 (1:3:6) nominal mix in levelling course below open foundation as per drawing and technical specification.				
		As per item No.11.4 of Chapter 11	cum	0.10	3,812.61	381.26
		3. Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering as per drawing and technical specification.				
		As per item No.11.5 of Chapter 11	cum	0.475	5,123.90	2,433.85
		4. Plastering with cement mortar 1:4, 15 mm thick cement plaster on brick work as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	2.63	1,329.32	3,496.12
		Note: *Add 5 per cent cost of items No.1 to 4 for white washing, lettering and painting, etc.*				
		Refer to Figure 200.1. of Standard Data Book				
		(vi) The rate analysis for a typical reference pillar as per Drawing 200.2				
		1. Excavation for structure earthwork in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		As per item No.11.1 of Chapter 11	cum	0.192	139.60	26.80
		2. Plain cement concrete M10 (1:3:6) nominal mix in levelling course below open foundation as per drawing and technical specification.				
		As per item No.11.4 of Chapter 11	cum	0.06	3,812.61	228.76
		3. Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering as per drawing and technical specification.				
		As per item No.11.5 of Chapter 11	cum	0.193	5,123.90	988.91
		4. Plastering with cement mortar 1:4, 15 mm thick cement plaster on brick work as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	1.50	1,329.32	1,993.99
		Add 5 per cent cost of items No.1 to 4 for white washing, lettering and painting, etc.				
		Refer to Figure 200.2 of Standard Data Book				
		Note: *The cross-section height and material for the Reference Benchmark, Working Benchmark and Reference Pillars shall be decided depending upon site conditions and availability of construction material. The cost thereof shall be worked out based on rates of relevant items of work to be picked up from relevant chapters of this book*				

Chapter 3

EARTHWORK, EROSION CONTROL AND DRAINAGE

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
3.1		**Preparation of Foundation for Embankment**				
	301.4	**Scarifying Existing Granular Surface to a Depth of 50 mm by Manual Means**				
		Scarifying existing granular surface to a depth of 50 mm and disposal of scarified material with a lift upto 3 m and leads upto 1000 m as per Technical Specification Clause 301.4.				
		Unit = sqm				
		Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		Tractor with trolley	hour	1.50	259.00	388.50
		c) Overheads @ 10% on (a+b)				**91.73**
		d) Contractor's profit @ 10% on (a+b+c)				**100.90**
		Cost for 100 sqm = a+b+c+d				1,109.93
		Rate per sqm = (a+b+c+d)/100				**11.10**
		Note: *In case material is to be reused at site, transportation cost catered above (Sub-item b) for disposal shall be deleted.*				
3.2		**Preparation of Foundation for Embankment**				
	301.4	**Scarifying Existing Bituminous Surface to a Depth of 150 mm by Mechanical Means**				
		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	180.00	1.80
		Mazdoor (Unskilled)	day	0.25	125.00	31.25
		b) Machinery				
		Tractor with ripper attachment @ 60 cum per hour	hour	0.25	259.00	64.75
		Front end loader 1 cum bucket capacity @ 50 cum per hour	hour	0.30	1,001.00	300.30
		Tipper 5.5 cum capacity, 4 trips per hour	hour	0.68	515.00	350.20
		c) Overheads @ 10% on (a+b)				**74.83**
		d) Contractor's profit @ 10% on (a+b+c)				**82.31**
		Cost for 100 sqm = a+b+c+d				905.44
		Rate per sqm = (a+b+c+d)/100				**9.05**

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
3.3	**301.5**	**Construction of Embankment with Material Obtained from Roadway Cutting**				
		Construction of embankment with approved materials deposited at site 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	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	2,283.00	1,141.50
		Motor grader for grading @ 200 cum per hour	hour	0.50	715.00	357.50
		Water tanker 6 kl capacity	hour	2.00	341.00	682.00
		Three wheel 80-100 kN Static Roller	hour	1.25	390.00	487.50
		c) Material				
		Water	kl	12.00	100.00	1,200.00
		d) Overheads @ 10% on (a+b+c)				**393.46**
		e) Contractor's profit @ 10% on (a+b+c+d)				**432.81**
		Rate for 100 cum = a+b+c+d+e				**4,760.87**
		Rate per cum = (a+b+c+d+e)/100				**47.61**
		Note: *In case the earth cutting is done by dozer and pushed for filling in the embankment, the input of dozer in the cost of embankment shall be deleted as the same is already provided in the cost of excavation. However, if the earth is dumped by tippers from roadway cutting, the input of dozer for spreading is required to be provided.*				
3.4	**301.5**	**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 1000 m as per Technical Specification Clause 301.5				
		Unit = cum				
		Taking output = 100 cum				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	1,001.00	1,671.67
		Tipper 5.5 cum with 10 t capacity	hour	4.50	515.00	2,317.50

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Loading of earth as per item 1.1 (ii)	cum	100.00	24.87	2,487.10
		Unloading of earth as per item 1.1 (iv)	cum	100.00	15.32	1,532.19
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	2,283.00	1,141.50
		Motor grader for grading @ 200 cum per hour	hour	0.50	715.00	357.50
		Water tanker 6 kl capacity	hour	2.00	341.00	682.00
		Three wheel 80-100 kN Static Roller @ 80 cum per hour	hour	1.25	390.00	487.50
		c) Material				
		Water	kl	12.00	100.00	1,200.00
		Compensation for earth taken from private land	cum	100.00	56.00	5,600.00
		d) Overheads @ 10% on (a+b+c)				**1,760.92**
		e) Contractor's profit @ 10% on (a+b+c+d)				**1,937.01**
		Cost for 100 cum = a+b+c+d+e				21,307.08
		Rate per cum = (a+b+c+d+e)/100				**213.07**
	Note:	*Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.*				
3.5	**302**	**(i) Excavation in Cutting in Soil by manual means with lead upto 50 m**				
		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	180.00	324.00
		Mazdoor (Unskilled)	day	45.00	125.00	5,625.00
		b) Overheads @ 10% on (a)				**594.90**
		c) Contractor's profit @ 10% on (a+b)				**654.39**
		Cost of 120 cum = a+b+c				7,198.29
		Rate per cum = (a+b+c)/120				**59.99**
		(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 upto a distance of 100 m, including trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections.				
		Unit = cum				
		Taking output = 180 cum				
		a) Labour				
		Mate	day	0.08	180.00	14.40

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Dozer D-50 @ 50 cum per hour (cutting with pushing)	hour	3.60	2,283.00	8,218.80
		c) Overheads @ 10% on (a+b)				**848.32**
		d) Contractor's profit @ 10% on (a+b+c)				**933.15**
		Cost for 180 cum = a+b+c+d				10,264.67
		Rate per cum = (a+b+c+d)/180				**57.03**
		(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	180.00	14.40
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	3.60	1,001.00	3,603.60
		Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	515.00	7,725.00
		c) Overheads @ 10% on (a+b)				**1,159.30**
		d) Contractor's profit @ 10% on (a+b+c)				**1,275.23**
		Cost for 360 cum = a+b+c+d				14,027.53
		Rate per cum = (a+b+c+d)/360				**38.97**
3.6	**302.3.6**	**Excavation in Marshy Soil**				
		Excavation for roadway in marshy soil with hydraulic excavator 0.9 cum bucket capacity including cutting and loading in tippers and disposal with a lift upto 1.5 m and lead upto 1000 m, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per Technical Specification Clause 302.3.6.				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.08	180.00	14.40
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Hydraulic excavator 0.90 cum bucket capacity @ 50 cum per hour	hour	6.00	1,001.00	6,006.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Tipper 5.5 cum capacity, 4 trips per hour.	hour	12.50	515.00	6,437.50
		c) Overheads @ 10% on (a+b)				**1,270.79**
		d) Contractor's profit @ 10% on (a+b+c)				**1,397.87**
		Cost for 300 cum = a+b+c+d				15,376.56
		Rate per cum = (a+b+c+d)/300				**42.71**
3.7	**302.3.11**	**Removal of Unsuitable Soil with Disposal upto 1000 m**				
		Removal of unsuitable soil including excavation, loading and disposal upto 1000 m lead but excluding compaction ground supporting embankment subgrade replacement by suitable soil, which shall be paid separately as per Clause 303.5.2 as per Technical Specification Clause 302.3.11				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.08	180.00	14.40
		Mazdoor	day	2.00	125.00	250.00
		b) Machinery				
		Excavator 0.90 cum bucket capacity @ 100 cum per hour	hour	3.60	1,001.00	3,603.60
		Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	515.00	7,725.00
		c) Overheads @ 10% on (a+b)				**1,159.30**
		d) Contractor's profit @ 10% on (a+b+c)				**1,275.23**
		Cost for 360 cum = a+b+c+d				14,027.53
		Rate per cum = (a+b+c+d)/360				**38.97**
		Note: *This item does not include replacement of unsuitable soil by suitable soil. Replacement, where required, is to be provided and paid separately under Clause 303.5.2.*				
3.8	**302.3.5**	**(i) Excavation in ordinary Rock by manual means**				
		Excavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with a lift upto 1.5 m and lead upto 50 m as per Technical Specification Clause 302.3.5.				
		Unit = cum				
		Taking output = 120 cum				
		a) Labour				
		Mate	day	2.80	180.00	504.00
		Mazdoor (Unskilled)	day	70.00	125.00	8,750.00
		b) Overheads @ 10% on (a)				**925.40**
		c) Contractor's profit @ 10% on (a+b)				**1,017.94**
		Cost for 120 cum = a+b+c				11,197.34
		Rate per cum = (a+b+c)/120				**93.31**
		(ii) Excavation in Ordinary Rock with Dozer with lead upto 100 m				

Sr. No.	Reference to MORD Specifications		Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
			Excavation for roadway in ordinary rock by deploying a dozer D-50 including cutting and pushing the cut earth to site of embankment upto a distance of 100 m (average lead 50 m), trimming bottom and side slopes in accordance with the requirements of lines, grades and cross-sections with lift upto 1.5 m.				
			Unit = cum				
			Taking output = 108 cum				
			a) Labour				
			Mate	day	0.12	180.00	21.60
			Mazdoor (Unskilled)	day	3.00	125.00	375.00
			b) Machinery				
			Dozer D-50 @ 50% of 100 cum per hour	hour	2.16	2,283.00	4,931.28
			c) Overheads @ 10% on (a+b)				**532.79**
			d) Contractor's profit @ 10% on (a+b+c)				**586.07**
			Cost for 108 cum = a+b+c+d				6,446.73
			Rate per cum = (a+b+c+d)/108				**59.69**
		(iii)	**Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with disposal upto 1000 m**				
			Excavation for roadway in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site with a lift upto 1.5 m and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per Technical Specification Clause 302.3.5				
			Unit = cum				
			Taking output = 240 cum				
			a) Labour				
			Mate	day	0.08	180.00	14.40
			Mazdoor (Unskilled)	day	2.00	125.00	250.00
			b) Machinery				
			Hydraulic Excavator 0.90 cum bucket capacity @ 40 cum per hour	hour	6.00	1,001.00	6,006.00
			Tipper 5.5 cum capacity, 4 trips per hour.	hour	11.00	515.00	5,665.00
			c) Overheads @ 10% on (a+b)				**1,193.54**
			d) Contractor's profit @ 10% on (a+b+c)				**1,312.89**
			Cost for 240 cum = a+b+c+d				14,441.83
			Rate per cum = (a+b+c+d)/240				**60.17**
3.9	**302.3.5**	**(i)**	**Excavation in Hard Rock (requiring blasting) with disposal upto 1000 m**				
			Excavation for roadway in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross-sections, loading and disposal of cut rock with a lift upto 1.5 m and leads upto 1000 m as per Technical Specification Clause 302.3.5				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Unit = cum				
		Taking 0utput = 180 cum				
		a) Labour				
		Mate	day	0.22	180.00	39.60
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		Driller	day	2.00	130.00	260.00
		Blaster	day	0.25	135.00	33.75
		b) Machinery				
		Dozer D-50 @ 30 cum per hour	hour	6.00	2,283.00	13,698.00
		Air compressor, 210 cfm with 2 jack hammers	hour	6.00	262.00	1,572.00
		Front end loader 1 cum bucket capacity @ 30 cum per hour	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 cum capacity, 2 trips per hour	hour	16.00	515.00	8,240.00
		c) Materials				
		Gelatine 80 per cent	kg	70.00	136.00	9,520.00
		Electric Detonators @ 1 detonator for 2 gelatine sticks of 285 gm each	each	252.00	13.00	3,276.00
		Credit for excavated rock found suitable for use @ 50 per cent quantity blasted	cum	90.00	-200.00	-18,000.00
		d) Overheads @ 10% on (a+b+c)				**2,502.04**
		e) Contractor's profit @ 10% on (a+b+c+d)				**2,752.24**
		Cost for 180 cum = a+b+c+d+e				30,274.62
		Rate per cum = (a+b+c+d+e)/180				**168.19**
		Note: *1 The quality and availability of rock shall be checked before affording credit.*				
		2 In case some rock is issued to the contractor at site, the item of carriage shall be reduced/restricted to that extent.				
		3 Credit for useful material received as per site conditions shall be taken into account. This has been assumed to be 50 per cent for the purpose of analysis.				
		(ii) Excavation in Hard Rock (blasting prohibited)				
		Excavation for roadway in hard rock (blasting prohibited) with rock breakers including breaking rock, loading in tippers and disposal with a lift upto 1.5 m and lead upto 1000 metres, trimming bottom and side slopes in accordance with requirements of lines, grades and cross- sections as per Technical Specification Clause 302.3.5				
		(A) Manual Means				
		Unit = cum				
		Taking output = 16 cum				
		a) Labour				
		Mate	day	1.64	180.00	295.20
		Mazdoor (Unskilled)	day	16.00	125.00	2,000.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Chiseller	day	24.00	160.00	3,840.00
		Blacksmith	day	1.00	190.00	190.00
		b) Machinery				
		Tipper 5.5 cum capacity, 1 trip per hour	hour	2.90	515.00	1,493.50
		Credit for excavated rock found suitable for use @ 50 per cent of excavated quantity	cum	8.00	-200.00	-1,600.00
		c) Overheads @ 10% on (a+b)				**621.87**
		d) Contractor's profit @ 10% on (a+b+c)				**684.06**
		Cost for 16 cum = a+b+c+d				7,524.63
		Rate per cum = (a+b+c+d)/16				**470.29**

Note: *1 Credit is considered for 50 per cent of quantity of work.*

2 Loading for disposal will be done manually, being small quantity.

3 In case some rock is issued to contractor at site, the item of carriage shall be omitted to the extent of quantity issued to the Contractor.

		(B) Mechanical Means				
		Unit = cum				
		Taking output = 36 cum				
		a) Labour				
		Mate	day	0.40	180.00	72.00
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		b) Machinery				
		Hydraulic excavator 0.9 cum with rock breaker attachment @ 6 cum per hour	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 cum capacity tipper, 1 trip per hour	hour	6.50	515.00	3,347.50
		Credit for excavated rock found suitable for use @ 50 per cent of excavated quantity	cum	18.00	-200.00	-3,600.00
		c) Overheads @ 10% on (a+b)				**707.55**
		d) Contractor's profit @ 10% on (a+b+c)				**778.31**
		Cost for 36 cum = a+b+c+d				8,561.36
		Rate per cum = (a+b+c+d)/36				**237.82**

Note: *1 The quality and availability of rock shall be checked before affording credit.*

2 In case some rock is issued to the contractor at site, the item of carriage shall be restricted/reduced to that extent.

3 Being small quantity, manual loading will be economical in this case and has been provided accordingly.

(iii) Excavation in Hard Rock (controlled blasting) with disposal upto 1000 m

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Excavation for roadway in hard rock with controlled blasting by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross-sections, loading and disposal of cut rock with a lift upto 1.5 m and leads upto 1000 m as per Technical Specification Clause 302.3.5				
		Unit = cum				
		Taking output = 180 cum				
		a) Labour				
		Mate	day	0.22	180.00	39.60
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		Driller	day	2.00	130.00	260.00
		Blaster	day	0.50	135.00	67.50
		b) Machinery				
		Dozer D-50 @ 30 cum per hour	hour	6.00	2,283.00	13,698.00
		Air compressor, 210 cfm with 2 jack hammers	hour	6.00	262.00	1,572.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 cum capacity, 4 trips per hour	hour	8.20	515.00	4,223.00
		c) Materials				
		Gelatine 80 per cent	kg	70.00	136.00	9,520.00
		Electric detonators @ 1 detonator for 2 gelatine stick of 285 gm each	each	1,008.00	13.00	13,104.00
		Credit for excavated rock found suitable for use @ 50 per cent quantity blasted	cum	90.00	-200.00	-18,000.00
		d) Overheads @ 10% on (a+b)				**3,086.51**
		e) Contractor's profit @ 10% on (a+b+c)				**3,395.16**
		Cost for 180 cum =a+b+c+d+e				37,346.77
		Rate per cum = (a+b+c+d+e)/180				**207.48**
		Note: *1 Credit is considered for 50 per cent of quantity of blasted rock, if found suitable for construction.*				
		2 In case some rock is issued to the Contractor at site, the item of carriage shall be reduced to that extent.				
3.10	**302.3.2**	**Stripping, Storing and Relaying Top Soil from Right-of-Way (R.O.W)**				
		Stripping, storing and preservation of top soil by keeping it damp in stock piles and keep wet till it is used by road side at 15 m internal and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth as per Technical Specification Clause 302.3.2				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.20	180.00	36.00
		Mazdoor (Unskilled)	day	5.00	125.00	625.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		b) Machinery				
		Dozer D-50 @ 100 cum per hour	hour	0.10	2,283.00	228.30
		c) Overheads @ 10% on (a+b)				**889.30**
		d) Contractor's profit @ 10% on (a+b+c)				**177.86**
		Cost for 10 cum = (a+b+c+d)				1,956.46
		Rate per cum = (a+b+c+d)/10				**195.65**
3.11	**302.3.2**	**Stripping, Storing and Relaying Top Soil from Borrow Areas in Agricultural Fields**				
		Stripping of top soil from borrow areas located in agriculture fields, storing at a suitable place, spreading and relaying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels to the satisfaction of the farmer/land owner as per Technical Specification Clause 302.3.2.				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	4.00	180.00	720.00
		Mazdoor (Unskilled)	day	100.00	125.00	12,500.00
		b) Machinery				
		Dozer D-50 with 100 cum per hour output (Initially stacking and relaying)	hour	6.00	2,283.00	13,698.00
		c) Overheads @ 10% on (a+b)				**2,691.80**
		d) Contractor's profit @ 10% on (a+b+c)				**2,960.98**
		Cost for 300 cum = a+b+c+d				32,570.78
		Rate per sqm = (a+b+c+d)/300				**108.57**
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	180.00	21.60
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		b) Machinery				
		Water tanker including watering for 3 months	hour	6.00	341.00	2,046.00
		Tractor with Trolley	hour	1.00	259.00	259.00
		c) Material				
		Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	270.00	48.60
		Water	kl	36.00	100.00	3,600.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		d) Overheads @ 10% on (a+b+c)				**635.02**
		e) Contractor's profit @ 10% on (a+b+c+d)				**698.52**
		Cost for 100 sqm = a+b+c+d+e				7,683.74
		Rate per sqm = (a+b+c+d+e)/100				**76.84**
3.13	**310**	**Seeding and Mulching**				
		Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion @ 0.23 litre per sqm and laying and fixing jute netting, including watering for 3 months all as per Technical Specification Clause 310.				
		Unit = sqm				
		Taking output = 240 sqm				
		a) Labour				
		Mate	day	0.40	180.00	72.00
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		b) Machinery				
		Water tanker 6 kl capacity including watering for 3 months	hour	14.00	341.00	4,774.00
		Tractor with Trolley	hour	2.40	259.00	621.60
		c) Material				
		Seeds	kg	3.60	602.00	2,167.20
		Sludge/Farmyard manure @ 0.18 cum per 100 sqm	cum	0.43	270.00	116.10
		Bitumen Emulsion	t	0.052	40,110.00	2,085.72
		Jute netting, open weave, 25 mm square opening	sqm	264.00	150.00	39,600.00
		Water for 3 months	kl	84.00	100.00	8,400.00
		d) Overheads @ 10% on (a+b+c)				**5,908.66**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,499.53**
		Cost for 240 sqm = a+b+c+d+e				71,494.81
		Rate per sqm = (a+b+c+d+e)/240				**297.90**
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	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	1.00	1,001.00	1,001.00
		Tipper 5.5 cum capacity, 4 trips per hour	hour	4.50	515.00	2,317.50
		Add rate for loading as per item 1.1 (ii)	cum	100.00	24.87	2,487.10
		Add rate for unloading as per item 1.1 (iv)	cum	100.00	15.32	1,532.19
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	2,283.00	1,141.50
		Motor grader for grading @ 200 cum per hour	hour	0.50	715.00	357.50
		Water tanker with 6 kl capacity	hour	2.00	341.00	682.00
		Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	1.43	390.00	557.70
		c) Material				
		Water	kl	12.00	100.00	1,200.00
		Compensation for earth taken from private land	cum	100.00	56.00	5,600.00
		d) Overheads @ 10% on (a+b+c)				**1,700.87**
		e) Contractor profit @ 10% on (a+b+c+d)				**1,870.96**
		Cost for 100 cum = a+b+c+d+e				20,580.51
		Rate per cum = (a+b+c+d+e)/100				**205.81**
3.15	**301.4**	**Compacting Original Ground**				
		(i) Compacting original ground supporting embankment				
		Loosening, Levelling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Tables 300.1 and 300.2 for embankment construction as per Technical Specification Clause 301.4.1.				
		Unit = cum				
		Taking output = 600 cum				
		a) Labour				
		Mate	day	0.08	180.00	14.40
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Tractor with ripper attachment	hour	6.00	259.00	1,554.00
		Three wheel 80-100 kN Static Roller	hour	7.50	390.00	2,925.00
		Water tanker 6 kl capacity	hour	4.00	341.00	1,364.00
		c) Material				
		Water	kl	24.00	100.00	2,400.00
		d) Overheads @ 10% on (a+b+c)				**850.74**
		e) Contractor's profit @ 10% on (a+b+c+d)				**935.81**
		Cost for 600 cum = a+b+c+d+e				10,293.95
		Rate per sqm = (a+b+c+d+e)/600				**17.16**

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
	303	**(ii) Compacting original ground supporting subgrade**				
		Loosening of the ground upto a level of 300 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of Tables 300.1 and 300.2 for subgrade construction as per Technical Specification Clause 303.5.2.				
		Unit = cum				
		Taking output = 600 cum				
		a) Labour				
		Mate	day	0.24	180.00	43.20
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		b) Machinery				
		Tractor with ripper attachment	hour	10.00	259.00	2,590.00
		Motor grader for grading	hour	6.00	715.00	4,290.00
		Water tanker 6 kl capacity	hour	4.00	341.00	1,364.00
		Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	8.60	390.00	3,354.00
		c) Material				
		Water	kl	24.00	100.00	2,400.00
		d) Overheads @ 10% on (a+b+c)				**1,479.12**
		e) Contractor's profit @ 10% on (a+b+c+d)				**1,627.03**
		Cost for 600 cum = a+b+c+d+e				17,897.35
		Rate per cum = (a+b+c+d+e)/600				**29.83**
3.16	**301.5.5.1**	**Repairs of damages caused by rain/spillage of water**				
		Preparation and surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with three wheel 80-100 kN static roller, complete as per Technical Specification Clause 301.5.5.1				
		Unit = sqm				
		Taking output = 3500 sqm				
		a) Labour				
		Mate	day	0.28	180.00	50.40
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		Mazdoor skilled	day	1.00	145.00	145.00
		b) Machinery				
		Three wheel static roller 80-100 kN	hour	3.00	390.00	1,170.00
		Water tanker 6 kl, one trip per hour	hour	2.00	341.00	682.00
		c) Material				
		Water	kl	12.00	100.00	1,200.00
		d) Overheads @ 10% on (a+b+c)				**399.74**
		e) Contractor's profit @ 10% on (a+b+c+d)				**439.71**

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Cost for 3500 sqm = a+b+c+d+e				4,836.85
		Rate per sqm = (a+b+c+d+e)/3500				**1.38**
3.17	**304.3**	**Presplitting Rock Excavation Slopes**				
		Carrying out excavation in hard rock to achive a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a D-50 dozer, loading in tipper by a front end loader and disposing of the material with a lift upto 1.5 m and lead upto 1000 m as per Technical Specification Clause 304.3				
		Unit = sqm				
		Taking output = 400 sqm (120 cum considering 300 mm average depth of excavation over the existing rock face)				
		a) Labour				
		Mate	day	0.60	180.00	108.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		b) Machinery				
		Air compressor 210 cfm with 2 leads @ 20 cum per hour	hour	6.00	262.00	1,572.00
		Dozer D-50	hour	6.00	2,283.00	13,698.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 cum capacity 2 trip per hour	hour	11.00	515.00	5,665.00
		c) Material				
		Gelatine 80 per cent	kg	42.00	136.00	5,712.00
		Electric detonators @ 1 detonator for 2 gelatine sticks of 285 gm each	each	672.00	13.00	8,736.00
		d) Overheads @ 10% on (a+b+c)				**43,372.00**
		e) Contractor's profit @ 10% on (a+b+c+d)				**86,744.00**
		Cost for 400 sqm = a+b+c+d+e				173,488.00
		Rate per sqm = (a+b+c+d+e)/400				**433.72**
		Note: *In case blasted rock is issued to the Contractor against payment for construction work, the cost of carriage shall be reduced to that extent.*				
3.18	**306**	**Construction of Embankment with Flyash/Pond ash available from Coal or Lignite Burning Thermal Plants as Waste Material**				
		Construction of embankment with flyash conforming to Table 1 of IRC:SP:58 obtained from coal or lignite burning thermal power stations as waste material, spread and compacted in layer of 200 mm thickness each at OMC, all as specified in IRC:SP:58 and as per approved plans with lead upto 1000 m as per Technical Specification Clause 306.				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 cum capacity, flyash 360 x 1.2 = 432 t	hour	16.00	515.00	8,240.00
		Loading as per item 1.1 (ii)	cum	360.00	24.87	8,953.56
		Unloading as per item 1.1 (iv)	cum	360.00	15.32	5,515.88
		Dozer D-50 for spreading @ 200 cum per hour	hour	1.80	2,283.00	4,109.40
		Motor grader for grading @ 200 cum per hour	hour	1.80	715.00	1,287.00
		Water tanker 6 kl capacity	hour	9.00	341.00	3,069.00
		Three wheel 80-100 kN Static Roller	hour	4.50	390.00	1,755.00
		c) Material				
		Water	kl	54.00	100.00	5,400.00
		d) Overheads @ 10% on (a+b+c)				**4,486.46**
		e) Contractor's profit @ 10% on (a+b+c+d)				**4,935.11**
		Cost for 360 cum = a+b+c+d+e				54,286.22
		Rate per cum = (a+b+c+d+e)/360				**150.80**
		Note: *1 As flyash is available free of cost as waste material from Thermal Plants, cost of material has not been added.*				
		2 The earthcover on sides and intermediate layers of earth sandwiching the flyash have not been included in this analysis. The same are required to be provided as per approved design and priced seperately as embankment construction.				
3.19	**307**	**(i) Surface Drains in Soil**				
		Construction of unlined surface drains of average cross-sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions. Excavated material to be used in embankment with a lift upto 3m and lead of 50 m (average lead 25 m) as per Technical Specification Clause 307.				
		Unit = m				
		Taking output = 10 m				
		(A) Manual Means				
		a) Labour				
		Mate	day	0.08	180.00	14.40
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Overheads @ 10% on (a)				**26.44**
		c) Contractor's profit @ 10% on (a+b)				**29.08**
		Cost for 10 m = a+b+c				319.92
		Rate per m = (a+b+c)/10				**31.99**
		Note: *Where lining of drain is provided, quantity shall be worked out based on approved design and drawing and priced on rate of cement concrete of approved grade or stone/brick masonary as the case may be.*				
		(B) Mechanical Means				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Labour				
		Mate	day	0.01	180.00	1.80
		Mazdoor (Unskilled)	day	0.25	125.00	31.25
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	0.04	1,001.00	40.04
		c) Overheads @ 10% on (a+b)				**7.31**
		d) Contractor's profit @ 10% on (a+b+c)				**8.04**
		Cost for 10 m = a+b+c+d				88.44
		Rate per m = (a+b+c+d)/10				**8.84**
		(ii) Surface Drains in Ordinary Rock				
		Construction of unlined surface drain of average cross-sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and Technical Specification Clause 307. Excavated material to be used in embankment at site.				
		Unit = m				
		Taking output = 10 m				
		(A) Manual Means				
		a) Labour				
		Mate	day	0.12	180.00	21.60
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		b) Overheads @ 10% on (a)				**39.66**
		c) Contractor's profit @ 10% on (a+b)				**43.63**
		Cost for 10 m = a+b+c				479.89
		Rate per m = (a+b+c)/10				**47.99**
		(B) Mechanical Means				
		a) Labour				
		Mate	day	0.02	180.00	3.60
		Mazdoor (Unskilled)	day	0.50	125.00	62.50
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 40 m per hour	hour	0.10	1,001.00	100.10
		c) Overheads @ 10% on (a+b)				**16.62**
		d) Contractor's profit @ 10% on (a+b+c)				**18.28**
		Cost for 10 m = a+b+c+d				201.10
		Rate per m = (a+b+c+d)/10				**20.11**
		(iii) Surface Drains in Hard Rock				
		Rate per m may be worked out based on quantity of hard rock as per design.				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		For rate of hard rock cutting, refer relevant item in this Chapter				
3.20	**307**	**Chute Drains**				
		A. Providing chute drains across embankment slopes in approches of bridges and on horizontal curves as per drawings.				
		Unit = 1 m				
		(a) Earthwork in excavation for foundations of structures as per drawings and technical specifications Clause 307 including setting out construction of shoring and bracing deleterious matter, dressings of sides and bottom and backfilling with approved material (By manual means).				
		Rate as per item No.11.1 of Chapter 11.	cum		139.60	0.00
		(b) Providing and laying plain cement concrete M15 grade.				
		Rate as per item No.12.5 of Chapter 12.	cum		4,152.94	0.00
		(c) Brick Masonry in cement mortar 1:5.				
		Rate as per item No. 12.1(III) of Chapter 12.	cum		4,921.05	0.00
		(d) Plastering with cement mortar 1:4.				
		Rate as per item No. 12.3 of Chapter 12.	sqm		132.93	0.00
		(e) Providing P.C.C. M.20 coping on the top of chute walls.				
		As per item No. 12.13 of Chapter 12.	m		667.26	0.00
		Rate per m = a+b+c+d+e				**0.00**
		B. Providing chute drains across embankment slopes in approches of bridges and on horizontal curves as per drawings.				
		Unit = 1 m				
		(a) Earthwork in excavation for foundations of structures as per drawings and technical specifications Clause 307 including setting out construction of shoring and bracing deleterious matter, dressings of sides and bottom and backfilling with approved material (By manual means).				
		Rate as per item No.11.1 of Chapter 11.	cum		139.60	0.00
		(b) Providing and laying plain cement concrete M15 grade.				
		Rate as per item No.12.5 of Chapter 12.	cum		4,152.94	0.00
		(c) Coursed rubble stone masonry (2nd Sort) in cement mortar 1:4				
		Rate as per item No. 12.4 II (ii) of Chapter 12.	cum		2,703.34	0.00
		(d) Plastering with cement mortar 1:4.				
		Rate as per item No. 12.3 of Chapter 12.	sqm		1,329.32	0.00
		(e) Providing P.C.C. M.20 coping on the top of chute walls.				
		As per item No. 12.13 of Chapter 12.	m		667.26	0.00
		Rate per m = a+b+c+d+e				**0.00**

Note: *Quantities are to be taken as per the designs and drawings.*

Chapter 5

BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
5.1	**502**	**Prime Coat**				
		(i) 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	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	840.00	840.00
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	341.00	170.50
		c) Material				
		Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	40,110.00	59,362.80
		Water	kl	3.00	100.00	300.00
		d) Overheads @ 10% on (a+b+c)				**6,167.63**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,784.39**
		Cost of 1750 sqm = a+b+c+d+e				74,628.32
		Rate per sqm = (a+b+c+d+e)/1750				**42.64**
		(ii) Medium 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 0.90- 1.2 kg/sqm using mechanical means as per Technical Specification Clause 502.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.10	180.00	18.00
		Mazdoor (Unskilled)	day	2.00	125.00	250.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	840.00	840.00
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	341.00	170.50
		c) Material				
		Bitumen emulsion (SS-1) @ 1.05 kg per sqm	t	1.83	40,110.00	73,401.30
		Water	kl	3.00	100.00	300.00
		d) Overheads @ 10% on (a+b+c)				**7,585.06**
		e) Contractor's profit @ 10% on (a+b+c+d)				**8,343.57**
		Cost of 1750 sqm = a+b+c+d+e				91,779.23
		Rate per sqm = (a+b+c+d+e)/1750				**52.45**
		(iii) High 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 1.2-1.5 kg/sqm using mechanical means as per Technical Specification Clause 502.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.12	180.00	21.60
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	840.00	840.00
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	341.00	170.50
		c) Material				
		Bitumen emulsion (SS-1) @ 1.35 kg per sqm	t	2.36	40,110.00	94,659.60
		Water	kl	3.00	100.00	300.00
		d) Overheads @ 10% on (a+b+c)				**9,723.75**
		e) Contractor's profit @ 10% on (a+b+c+d)				**10,696.13**
		Cost of 1750 sqm = (a+b+c+d+e)				117,657.38
		Rate per sqm = a+b+c+d+e/1750				**67.23**
5.2	**503**	**Tack Coat**				
		(i) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.20 to 0.25 kg per sqm on the prepared bituminous surface cleaned with Hydraulic broom as per Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	840.00	840.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.225 kg per sqm	t	0.39	40,100.00	15,639.00
		d) Overheads @ 10% on (a+b+c)				**1,748.20**
		e) Contractor's profit @ 10% on (a+b+c+d)				**1,923.02**
		Cost of 1750 sqm = a+b+c+d+e				21,153.22
		Rate per sqm = (a+b+c+d+e)/1750				**12.09**
	(ii)	Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared dry and hungry bituminous surface cleaned with Hydraulic broom as per Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	840.00	840.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	40,100.00	19,248.00
		d) Overheads @ 10% on (a+b+c)				**2,109.10**
		e) Contractor's profit @ 10% on (a+b+c+d)				**2,320.01**
		Cost of 1750 sqm = a+b+c+d+e				25,520.11
		Rate per sqm = (a+b+c+d+e)/1750				**14.58**
	(iii)	Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surfaces treated with primer & cleaned with Hydraulic broom as per Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	840.00	840.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	40,100.00	19,248.00
		d) Overheads @ 10% on (a+b+c)				**2,109.10**
		e) Contractor's profit @ 10% on (a+b+c+d)				**2,320.01**
		Cost of 1750 sqm = a+b+c+d+e				25,520.11
		Rate per sqm = (a+b+c+d+e)/1750				**14.58**
		(iv) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion pressure distributor at the rate of 0.30 to 0.35 kg per sqm on the prepared non-bituminous surfaces (cement concrete pavement) cleaned with Hydraulic broom as per Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	180.00	7.20
		Mazdoor (Unskilled)	day	1.00	125.00	125.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	360.00	504.00
		Air compressor 210 cfm	hour	1.40	262.00	366.80
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	840.00	840.00
		c) Material				
		Bitumen emulsion (RS-1) @ 0.325 kg per sqm	t	0.57	40,100.00	22,857.00
		d) Overheads @ 10% on (a+b+c)				**2,470.00**
		e) Contractor's profit @ 10% on (a+b+c+d)				**2,717.00**
		Cost of 1750 sqm = a+b+c+d+e				29,887.00
		Rate per sqm = (a+b+c+d+e) / 1750				**17.08**
		Note: *(i) An output of 1750 sqm has been considered in case of tack coat which can be covered by bituminous courses on the same day.*				
		(ii) The use of cutback bitumen (Medium Curing grade) as per IS:217 shall be restricted only for sites at sub-zero temperature or for emergency applications as directed by the Engineer.				
5.3	**504**	**Bituminous Macadam**				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Providing and laying bituminous macadam with hot mix plant using crushed aggregates of grading as per Table 500.4 premixed with bituminous binder, transported to site upto a lead of 1000 m laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled to achieve the desired compaction as per Technical Specification Clause 504.				
		Unit = cum				
		Taking output = 102.5 cum (225 t)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		Batch mix HMP 40-60 THP @ 40 t per hour actual output	hour	6.00	8,931.00	53,586.00
		Hydraulic broom @ 1250 sqm per hour	hour	1.10	360.00	396.00
		Air compressor 210 cfm	hour	1.10	262.00	288.20
		Paver finisher	hour	6.00	707.00	4,242.00
		Generator 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 cum, 10 t capacity	hour	6.21	515.00	3,198.15
		Three wheel 80-100 kN static roller for intial break down rolling, final and finishing rolling	hour	12.00	390.00	4,680.00
		Vibratory roller 80-100 kN for intermediate rolling	hour	6.00	875.00	5,250.00
		c) Material				
		i) Bitumen @ 3.3 per cent of mix (Weight of mix = 102.5 x 2.2 = 225 t)	t	7.425	49,492.00	367,478.10
		ii) Aggregate				
		Total weight of mix = 225 t				
		Weight of bitumen = 7.425 t				
		Weight of aggregate = 225 – 7.425 = 217.575 t				
		Taking density of aggregate = 1.5 t/cum				
		Volume of aggregate = 145.05 cum				
		(19 mm nominal size)				
		25 -10 mm - 40 per cent	cum	58.02	535.00	31,040.70
		10– 5 mm - 40 per cent	cum	58.02	485.00	28,139.70
		5 mm and below - 20 per cent	cum	29.01	485.00	14,069.85
		d) Overheads @ 10% on (a+b+c)				**52,310.53**
		e) Contractor's profit @ 10% on (a+b+c+d)				**57,541.58**
		Cost of 102.5 cum = a+b+c+d+e				632,957.41
		Rate per cum = a+b+c+d+e/102.5				**6,175.19**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

Note: *1 Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 225 t considered in these analysis. To cater for the idle period of these rollers, their usage rates may be multiplied by a factor of 0.65.*

2 Quantity of bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.

3 Labour for traffic control, watch and ward and other miscellaneous duties at site, including sundries have been included in administrative overheads of the contractor.

4 In case BM is laid over freshly laid tack coat, provision of Hydraulic broom and 2 mazdoor for the same shall be detected as the same has been included in the cost of tack coat.

5 Analysis is based on 1000 m lead of mixed material. Cost of additional cartage may be added as per site requirements.

5.4 505 Built-Up Spray Grout

Providing, laying and rolling of built-up spray grout layer over prepared base consisting of a two layer composite construction of crushed coarse aggregates using motor grader for aggregates. Key stone chips spreader may be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a base, conforming to the line, grades and cross-section specified, the compacted layer thickness being 75 mm as per Technical Specification Clause 505.

(A) By Manual Means

Unit = sqm

Taking output = 800 sqm (60 cum)

(I) Bitumen (S-90)

a)	**Labour**				
	Mate	day	5.50	180.00	990.00
	Mazdoor (Unskilled)	day	100.50	125.00	12,562.50
	Chips spreader	day	10.00	135.00	1,350.00
	Bitumen Sprayer	day	2.50	135.00	337.50
	Mazdoor (Semi-Skilled)	day	25.50	135.00	3,442.50
b)	**Machinery**				
	Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	6.00	1,116.00	6,696.00
	Three wheel 80-100 kN static Roller	hour	6.00	390.00	2,340.00
c)	**Material**				
	Bitumen 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	2.40	49,492.00	118,780.80
	Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 0.5 cum per 10 sqm for each layer	cum	80.00	470.00	37,600.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	10.40	503.00	5,231.20
		d) Overheads @ 10% on (a+b+c)				**18,933.05**
		e) Contractor's profit @ 10% on (a+b+c+d)				**20,826.36**
		Cost of 800 sqm = a+b+c+d+e				229,089.91
		Rate per sqm = (a+b+c+d+e)/800				**286.36**
		(II) Bitumen (S-65)				
		a) Labour				
		Mate	day	5.50	180.00	990.00
		Mazdoor (Unskilled)	day	100.50	125.00	12,562.50
		Chips spreader	day	10.00	135.00	1,350.00
		Bitumen Sprayer	day	2.50	135.00	337.50
		Mazdoor (Semi-Skilled)	day	25.50	135.00	3,442.50
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static Roller	hour	6.00	390.00	2,340.00
		c) Material				
		Bitumen 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	2.40	50,443.00	121,063.20
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 0.5 cum per 10 sqm for each layer	cum	80.00	470.00	37,600.00
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	10.40	503.00	5,231.20
		d) Overheads @ 10% on (a+b+c)				**19,161.29**
		e) Contractor's profit @ 10% on (a+b+c+d)				**21,077.42**
		Cost of 800 sqm = a+b+c+d+e				231,851.61
		Rate per sqm = (a+b+c+d+e)/800				**289.81**
		(B) By Mechanical Means				
		Unit = sqm				
		Taking output = 3000 sqm (225 cum)				
		a) Labour				
		Mate	day	0.40	180.00	72.00
		Mazdoor (Unskilled)	day	8.00	125.00	1,000.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic self propelled chip spreader both for aggregates and key aggregates @ 1500 sqm per hour for 3000 x 3 sqm	hour	6.00	2,350.00	14,100.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Bitumen presssure distributor for 3000x 2 sqm @ 1750 sqm per hour	hour	3.43	840.00	2,881.20
		Tipper 5.5 cum capacity	hour	10.00	515.00	5,150.00
		Three wheel 80-100 kN Static Roller @ 10 cum per hour	hour	22.50	390.00	8,775.00
		Front end loader 1 cum bucket capacity	hour	5.00	1,001.00	5,005.00
		c) Material				
		Bitumen 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	9.00	49,492.00	445,428.00
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 0.5 cum per 10 sqm for each layer	cum	300.00	470.00	141,000.00
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	39.00	503.00	19,617.00
		d) Overheads @ 10% on (a+b+c)				**64,331.82**
		e) Contractor's profit @ 10% on (a+b+c+d)				**70,765.00**
		Cost of 3000 sqm = a+b+c+d+e				778,415.02
		Rate per sqm = (a+b+c+d+e)/3000				**259.47**
		Note: *2 tippers will be needed to match the capacity of hydraulic chip spreader and front end loader.*				
5.5	**506**	**Modified Penetration Macadam**				
		Construction of penetration macadam over prepared base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with a three wheel 80-100 kN static roller to achieve the desired degree of compaction as per Technical Specification Clause 506.				
		(A) 50 mm thick				
		Unit = sqm				
		Taking output = 4500 sqm (225 cum)				
		(I) Bitumen (S-90)				
		a) Labour				
		Mate	day	0.32	180.00	57.60
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic self propelled chip spreader both for aggregates and key aggregates @ 1500 sqm per hour for 4500 x 2 sqm = 9000 sqm	hour	6.00	2,350.00	14,100.00
		Bitumen pressure distributor for @ 1750 sqm per hour	hour	2.57	840.00	2,158.80
		Tipper 5.5 cum capacity for carriage of aggregates from stockpile to chip spreader	hour	10.00	515.00	5,150.00
		Three wheel 80-100 kN Static Roller	hour	22.50	390.00	8,775.00
		Front end loader 1 cum bucked capacity	hour	6.00	1,001.00	6,006.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		c) Material				
		Bitumen @ 1.75 kg per sqm	t	7.87	49,492.00	389,502.04
		40 mm size hand broken metal @ 0.06 cum per sqm	cum	270.00	510.00	137,700.00
		12 mm size stone chips @ 0.018 cum per sqm	cum	81.00	540.00	43,740.00
		d) Overheads @ 10% on (a+b+c)				**60,822.94**
		e) Contractor's profit @ 10% on (a+b+c+d)				**66,905.24**
		Cost of 4500 sqm = a+b+c+d+e				735,957.62
		Rate per sqm = (a+b+c+d+e)/4500				**163.55**
		(B) 75 mm thick				
		Unit = sqm				
		Taking output = 4500 sqm (337.5 cum)				
		(I) Bitumen (S-90)				
		a) Labour				
		Mate	day	0.40	180.00	72.00
		Mazdoor (Unskilled)	day	8.00	125.00	1,000.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic self propelled chips spreader both for aggregates and key aggregates @ 1500 sqm per hour for 4500 x 2 sqm	hour	6.00	2,350.00	14,100.00
		Bitumen presssure distributor for @ 1750 sqm per hour	hour	2.57	840.00	2,158.80
		Tipper 5.5 cum capacity for carriage of aggregates from stockpile to chip spreader	hour	10.00	515.00	5,150.00
		Three wheel 80-100 kN static roller	hour	33.75	390.00	13,162.50
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		c) Material				
		Bitumen @ 2 kg per sqm	t	9.00	49,492.00	445,428.00
		40 mm size hand broken metal @ 0.09 cum per sqm	cum	405.00	510.00	206,550.00
		12 mm size stone chips @ 0.018 cum per sqm	cum	81.00	540.00	43,740.00
		d) Overheads @ 10% on (a+b+c)				**73,765.73**
		e) Contractor's profit @ 10% on (a+b+c+d)				**81,142.30**
		Cost of 4500 sqm = a+b+c+d+e				892,565.33
		Rate per sqm = (a+b+c+d+e)/4500				**198.35**
		(II) Bitumen (S-65)				
		a) Labour				
		Mate	day	0.40	180.00	72.00
		Mazdoor (Unskilled)	day	8.00	125.00	1,000.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic self propelled chips spreader both for aggregates and key aggregates @ 1500 sqm per hour for 4500 x 2 sqm	hour	6.00	2,350.00	14,100.00
		Bitumen presssure distributor for @ 1750 sqm per hour	hour	2.57	840.00	2,158.80
		Tipper 5.5 cum capacity for carriage of aggregates from stockpile to chip spreader	hour	10.00	515.00	5,150.00
		Three wheel 80-100 kN static roller	hour	33.75	390.00	13,162.50
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		c) Material				
		Bitumen @ 2 kg per sqm	t	9.00	50,443.00	453,987.00
		40 mm size hand broken metal @ 0.09 cum per sqm	cum	405.00	510.00	206,550.00
		12 mm size stone chips @ 0.018 cum per sqm	cum	81.00	540.00	43,740.00
		d) Overheads @ 10% on (a+b+c)				**74,621.63**
		e) Contractor's profit @ 10% on (a+b+c+d)				**82,083.79**
		Cost of 4500 sqm = a+b+c+d+e				902,921.72
		Rate per sqm = (a+b+c+d+e)/4500				**200.65**
5.6	**507**	**Surface Dressing using Bituminous (Penetrations grade / modified bitumen) Binder**				
		Providing and laying surface dressing as wearing course consisting of a layer of bituminous binder laid on the prepared surface, followed by a cover of crushed stone aggregates of specified size and rolling with three wheel 80-100 kN static roller including cleaning the road surface as per Technical Specification Clause 507.				
		(A) By Manual Means				
		Case – I: Nominal chipping size 13.2 mm				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	1,116.00	2,511.00
		Three wheel 80-100 kN static roller	hour	2.25	390.00	877.50
		Add: 0.5 per cent of (a) Labour for sundries	L.S.			43.32

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		c) Material				
		Bitumen (S-90) @ 1.00 kg per sqm	t	0.90	49,492.00	44,542.80
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	500.00	4,500.00
		d) Overheads @ 10% on (a+b+c)				**6,113.76**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,725.14**
		Cost of 900 sqm = a+b+c+d+e				73,976.51
		Rate per sqm = (a+b+c+d+e)/900				**82.20**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	1,116.00	2,511.00
		Three wheel 80-100 kN static roller	hour	2.25	390.00	877.50
		Add: 0.5 per cent of (a) Labour for sundries	L.S.			43.315
		c) Material				
		Bitumen (S-65) @ 1.00 kg per sqm	t	0.90	50,443.00	45,398.70
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	500.00	4,500.00
		d) Overheads @ 10% on (a+b+c)				**6,199.35**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,819.29**
		Cost of 900 sqm = a+b+c+d+e				75,012.15
		Rate per sqm = (a+b+c+d+e)/900				**83.35**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	1,116.00	2,511.00
		Three wheel 80-100 kN static roller	hour	2.25	390.00	877.50
		Add: 0.5 per cent of (a) Labour for sundries	L.S.			43.315
		c) Material				
		Polymer Modified Bitumen @ 1.00 kg per sqm	t	0.90	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	500.00	4,500.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 900 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/900				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	1,116.00	2,511.00
		Three wheel 80-100 kN static roller	hour	2.25	390.00	877.50
		Add: 0.5 per cent of (a) Labour for sundries	L.S.			43.315
		c) Material				
		Crumb Rubber Modified Bitumen @ 1.00 kg per sqm	t	0.90	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	500.00	4,500.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 900 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/900				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	1,116.00	2,511.00
		Three wheel 80-100 kN static roller	hour	2.25	390.00	877.50
		Add: 0.5 per cent of (a) Labour for sundries	L.S.			43.32
		c) Material				
		Natural Rubber Modified Bitumen @ 1.00 kg per sqm	t	0.90	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	500.00	4,500.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 900 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/900				**#VALUE!**
		Case – II: Nominal chipping size 9.5 mm				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	1,116.00	2,232.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Bitumen (S-90) @ 0.90 kg per sqm	t	0.90	49,492.00	44,542.80
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	520.00	4,160.00
		d) Overheads @ 10% on (a+b+c)				**6,037.78**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,641.56**
		Cost of 1000 sqm = a+b+c+d+e				73,057.14
		Rate per sqm = (a+b+c+d+e)/1000				**73.06**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	1,116.00	2,232.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Bitumen (S-65) @ 0.90 kg per sqm	t	0.90	50,443.00	45,398.70
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	520.00	4,160.00
		d) Overheads @ 10% on (a+b+c)				**6,123.37**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,735.71**
		Cost of 1000 sqm = a+b+c+d+e				74,092.78
		Rate per sqm = (a+b+c+d+e)/1000				**74.09**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	125.00	750.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	1,116.00	2,232.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Polymer Modified Bitumen @ 0.90 kg per sqm	t	0.90	Input Rate	#VALUE!
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	520.00	4,160.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1000				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	1,116.00	2,232.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 0.90 kg per sqm	t	0.90	Input Rate	#VALUE!
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	520.00	4,160.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1000				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	180.00	468.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	1,116.00	2,232.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Natural Rubber Modified Bitumen @ 0.90 kg per sqm	t	0.90	Input Rate	#VALUE!

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	520.00	4,160.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1000				**#VALUE!**
		(B) By Mechanical Means				
		Case – I: Nominal chipping size 13.2 mm				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	18.75	390.00	7,312.50
		c) Material				
		Bitumen (S-90) @ 1.00 kg per sqm	t	7.50	49,492.00	371,190.00
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	500.00	37,500.00
		d) Overheads @ 10% on (a+b+c)				**44,946.47**
		e) Contractor's profit @ 10% on (a+b+c+d)				**49,441.12**
		Cost of 7500 sqm = a+b+c+d+e				543,852.29
		Rate per sqm = (a+b+c+d+e)/7500				**72.51**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	18.75	390.00	7,312.50
		c) Material				
		Bitumen (S-65) @ 1.00 kg per sqm	t	7.50	50,443.00	378,322.50
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	500.00	37,500.00
		d) Overheads @ 10% on (a+b+c)				**45,659.72**
		e) Contractor's profit @ 10% on (a+b+c+d)				**50,225.69**
		Cost of 7500 sqm = a+b+c+d+e				552,482.61
		Rate per sqm = (a+b+c+d+e)/7500				**73.66**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Three wheel 80-100 kN static roller weight	hour	18.75	390.00	7,312.50
		c) Material				
		Polymer Modified Bitumen @ 1.00 kg per sqm	t	7.50	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	500.00	37,500.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	18.75	390.00	7,312.50
		c) Material				
		Crumb Rubber Modified Bitumen @ 1.00 kg per sqm	t	7.50	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	500.00	37,500.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	18.75	390.00	7,312.50
		c) Material				
		Natural Rubber Modified Bitumen @ 1.00 kg per sqm	t	7.50	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	500.00	37,500.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		Case – II: Nominal chipping size 9.5 mm				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	515.00	3,090.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen (S-90) @ 0.90 kg per sqm	t	6.75	49,492.00	334,071.00
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	520.00	31,200.00
		d) Overheads @ 10% on (a+b+c)				**40,458.32**
		e) Contractor's profit @ 10% on (a+b+c+d)				**44,504.15**
		Cost of 7500 sqm = a+b+c+d+e				489,545.67
		Rate per sqm = (a+b+c+d+e)/7500				**65.27**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen (S-65) @ 0.90 kg per sqm	t	6.75	50,443.00	340,490.25
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	520.00	31,200.00
		d) Overheads @ 10% on (a+b+c)				**41,100.25**
		e) Contractor's profit @ 10% on (a+b+c+d)				**45,210.27**
		Cost of 7500 sqm = a+b+c+d+e				497,312.96
		Rate per sqm = (a+b+c+d+e)/7500				**66.31**
		(III) Polymer Modified Bitumen				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	15.00	390.00	5,850.00
		c) Material				
		Polymer Modified Bitumen @ 0.90 kg per sqm	t	6.75	Input Rate	#VALUE!
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	520.00	31,200.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	15.00	390.00	5,850.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 0.90 kg per sqm	t	6.75	Input Rate	#VALUE!
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	520.00	31,200.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller weight	hour	15.00	390.00	5,850.00
		c) Material				
		Natural Rubber Modified Bitumen @ 0.90 kg per sqm	t	6.75	Input Rate	#VALUE!
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	520.00	31,200.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
5.7	**507**	**Surface Dressing using Bitumen Emulsion**				
		Providing and laying surface dressing as wearing course consisting of a layer of bitumen emulsion laid on the prepared surface, followed by a cover of crushed stone chippings of specified size and rolling with 80-100 kN roller including cleaning the road surface as per Technical Specification Clause 507.				
		(A) By Manual Means				
		Case – I: Nominal aggregate size 13.2 mm				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.36	180.00	424.80
		Bitumen Emulsion Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		b) Machinery				
		Emulsion sprayer, capacity 1000 litre fitted with spray set	hour	2.25	840.00	1,890.00
		Three wheel 80-100 kN static roller	hour	2.25	390.00	877.50
		Add: 0.5 per cent of (a) Labour for sundries	L.S.			0.5/100
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.50 kg per sqm	t	1.35	40,100.00	54,135.00
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	500.00	4,500.00
		d) Overheads @ 10% on (a+b+c)				**6,921.23**
		e) Contractor's profit @ 10% on (a+b+c+d)				**7,613.35**
		Cost of 900 sqm = a+b+c+d+e				83,746.88
		Rate per sqm = (a+b+c+d+e)/900				**93.05**
		Case – II: Nominal chipping size 9.5 mm				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.36	180.00	424.80
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	58.00	125.00	7,250.00
		b) Machinery				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Emulsion sprayer, capacity 1000 litre fitted with spray set	hour	2.00	840.00	1,680.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.40 kg per sqm	t	1.40	40,100.00	56,140.00
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	520.00	4,160.00
		d) Overheads @ 10% on (a+b+c)				**7,056.98**
		e) Contractor's profit @ 10% on (a+b+c+d)				**7,762.68**
		Cost of 1000 sqm = a+b+c+d+e				85,389.46
		Rate per sqm = (a+b+c+d+e)/1000				**85.39**
		(B) By Mechanical Means				
		Case – I: Nominal chipping size 13.2 mm				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen Emulsion pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	18.75	390.00	7,312.50
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.50 kg per sqm	t	11.25	40,100.00	451,125.00
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	520.00	39,000.00
		d) Overheads @ 10% on (a+b+c)				**53,089.97**
		e) Contractor's profit @ 10% on (a+b+c+d)				**58,398.97**
		Cost of 7500 sqm = a+b+c+d+e				642,388.64
		Rate per sqm = (a+b+c+d+e)/7500				**85.65**
		Case – II: Nominal chipping size 9.5 mm				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	180.00	79.20
		Mazdoor (Unskilled)	day	9.00	125.00	1,125.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	360.00	2,160.00
		Air compressor 210 cfm	hour	6.00	262.00	1,572.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.40 kg per sqm	t	10.50	40,100.00	421,050.00
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	520.00	31,200.00
		d) Overheads @ 10% on (a+b+c)				**49,156.22**
		e) Contractor's profit @ 10% on (a+b+c+d)				**54,071.84**
		Cost of 7500 sqm = a+b+c+d+e				594,790.26
		Rate per sqm = (a+b+c+d+e)/7500				**79.31**
		Note: *Where the proposed aggregate fails to pass the stripping value test, an approved adhesion agent may be added to the binder as per Clause 507.24. Alternatively, chips may be pre-coated as per Clause 507.25.*				
5.8	**507.2.5**	**Pre-coating Chips**				
		Pre-coating of chips with 1 per cent of paving bitumen by weight of chips in a suitable mixer duly heated to 160 degree C as per Technical Specification Clause 507.2.5				
		Unit = cum				
		Taking output = 30 cum				
		(I) Bitumen (S-90)				
		a) Labour				
		Mate	day	0.60	180.00	108.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		b) Machinery				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Bitumen boiler oil fired, capacity 1000 litre itre	hour	6.00	1,116.00	6,696.00
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		c) Material				
		Bitumen @1 per cent by weight of chips (30x1.6)/100	t	0.48	49,492.00	23,756.16
		d) Overheads @ 10% on (a+b+c)				**4,195.72**
		e) Contractor's profit @ 10% on (a+b+c+d)				**4,615.29**
		Cost of 30 cum = a+b+c+d+e				50,768.16
		Rate per cum = (a+b+c+d+e)/30				**1,692.27**
		(II) Bitumen (S-65)				
		a) Labour				
		Mate	day	0.60	180.00	108.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre itre	hour	6.00	1,116.00	6,696.00
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		c) Material				
		Bitumen @1 per cent by weight of chips (30x1.6)/100	t	0.48	50,443.00	24,212.64
		d) Overheads @ 10% on (a+b+c)				**4,241.36**
		e) Contractor's profit @ 10% on (a+b+c+d)				**4,665.50**
		Cost of 30 cum = a+b+c+d+e				51,320.50
		Rate per cum = (a+b+c+d+e)/30				**1,710.68**
5.9	**508**	**20mm thick Open-Graded Premix Carpet using Bituminous (penetration grade/modified bitumen) Binder**				
		Providing, laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or emulsion 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 80-100 kN static roller capacity, finished to required level and grades to be followed by seal coat of either Type A or Type B or Type C as per Technical Specification Clause 508.				
		Case - I By Manual Means				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	180.00	194.40
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	1,587.00	6,348.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	1,116.00	4,464.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Bitumen (S-90) @ 14.60 kg per 10 sqm	t	0.73	49,492.00	36,129.16
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	500.00	6,750.00
		d) Overheads @ 10% on (a+b+c)				**5,810.06**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,391.06**
		Cost of 500 sqm = a+b+c+d+e				70,301.68
		Rate per sqm = (a+b+c+d+e)/500				**140.60**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	180.00	194.40
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	1,587.00	6,348.00
		Bitumen boiler oil fired1000 litre capacity fitted with spray set	hour	4.00	1,116.00	4,464.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Bitumen (S-65) @ 14.60 kg per 10 sqm	t	0.73	50,443.00	36,823.39
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	500.00	6,750.00
		d) Overheads @ 10% on (a+b+c)				**5,879.48**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,467.43**
		Cost of 500 sqm = a+b+c+d+e				71,141.70
		Rate per sqm = (a+b+c+d+e)/500				**142.28**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mate	day	1.08	180.00	194.40
		Mazdoor (Skilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	1,587.00	6,348.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	1,116.00	4,464.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Polymer Modified Bitumen @ 14.60 kg per 10 sqm	t	0.73	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	500.00	6,750.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	180.00	194.40
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	6.00	125.00	750.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	1,587.00	6,348.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	1,116.00	4,464.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 14.60 kg per 10 sqm	t	0.73	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	500.00	6,750.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Labour				
		Mate	day	1.08	180.00	194.40
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	6.00	125.00	750.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	1,587.00	6,348.00
		Bitumen boiler oil fired1000 litre capacity fitted with spray set	hour	4.00	1,116.00	4,464.00
		Three wheel 80-100 kN static roller	hour	2.00	390.00	780.00
		c) Material				
		Natural Rubber Modified Bitumen @ 14.60 kg per 10 sqm	t	0.73	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	500.00	6,750.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		Case - II By Mechanical Means				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.64	515.00	1,874.60
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	16.00	390.00	6,240.00
		c) Material				
		Bitumen (S-90) @ 14.60 kg per 10 sqm	t	5.84	49,492.00	289,033.28
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	500.00	54,000.00
		d) Overheads @ 10% on (a+b+c)				**40,690.85**
		e) Contractor's profit @ 10% on (a+b+c+d)				**44,759.93**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Cost of 4000 sqm = a+b+c+d+e				492,359.26
		Rate per sqm = (a+b+c+d+e)/4000				**123.09**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.64	515.00	1,874.60
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	16.00	390.00	6,240.00
		c) Material				
		Bitumen (S-65) @ 14.60 kg per 10 sqm	t	5.84	50,443.00	294,587.12
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	500.00	54,000.00
		d) Overheads @ 10% on (a+b+c)				**41,246.23**
		e) Contractor's profit @ 10% on (a+b+c+d)				**45,370.86**
		Cost of 4000 sqm = a+b+c+d+e				499,079.41
		Rate per sqm = (a+b+c+d+e)/4000				**124.77**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor skilled for checking line and levels	day	3.00	145.00	435.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.64	515.00	1,874.60

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	16.00	390.00	6,240.00
		c) Material				
		Polymer Modified Bitumen @ 14.60 kg per 10 sqm	t	5.84	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	500.00	54,000.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.64	515.00	1,874.60
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	16.00	390.00	6,240.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 14.60 kg per 10 sqm	t	5.84	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	500.00	54,000.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.64	515.00	1,874.60
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	16.00	390.00	6,240.00
		c) Material				
		Natural Rubber Modified Bitumen @ 14.60 kg per 10 sqm	t	5.84	Input Rate	#VALUE!
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	500.00	54,000.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
5.10	**508.2**	**20 mm thick Open Graded Premix Carpet using Bitumen Emulsion as per Technical Specification Clause 508.2**				
		Unit = sqm				
		Taking output = 900 sqm (24.3 cum)				
		a) Labour				
		Mate	day	0.80	180.00	144.00
		Mazdoor (Unskilled)	day	18.00	125.00	2,250.00
		Mazdoor (Skilled)	day	2.00	145.00	290.00
		b) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	6.00	145.00	870.00
		Three wheel 80-100 kN static roller	hour	3.60	390.00	1,404.00
		c) Material				
		Bitumen emulsion (RS-1) @ 21.50 kg per 10 sqm	t	1.94	40,100.00	77,794.00
		Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	24.30	500.00	12,150.00
		d) Overheads @ 10% on (a+b+c)				**9,490.20**
		e) Contractor's profit @ 10% on (a+b+c+d)				**10,439.22**
		Cost of 900 sqm = a+b+c+d+e				114,831.42
		Rate per sqm = (a+b+c+d+e)/900				**127.59**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
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				
		By Manual Means				
		Type A				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Bitumen (S-90) @ 22 kg per 10 sqm	t	1.10	49,492.00	54,441.20
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**8,330.12**
		e) Contractor's profit @ 10% on (a+b+c+d)				**9,163.13**
		Cost of 500 sqm = a+b+c+d+e				100,542.45
		Rate per sqm = (a+b+c+d+e)/500				**201.08**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Bitumen (S-65) @ 22 kg per 10 sqm	t	1.10	50,443.00	55,487.30
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**8,434.73**
		e) Contractor's profit @ 10% on (a+b+c+d)				**9,278.20**
		Cost of 500 sqm = a+b+c+d+e				101,808.23
		Rate per sqm = (a+b+c+d+e)/500				**203.62**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Polymer Modified Bitumen @ 22 kg per 10 sqm	t	1.10	Input Rate	#VALUE!
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 22 kg per 10 sqm	t	1.10	Input Rate	#VALUE!
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Natural Rubber Modified Bitumen @ 22 kg per 10 sqm	t	1.10	Input Rate	#VALUE!
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		Type B				
		(I) Bitumen (S-90)				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Bitumen (S-90) @ 19 kg per 10 sqm	t	0.95	49,492.00	47,017.40
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**7,587.74**
		e) Contractor's profit @ 10% on (a+b+c+d)				**8,346.51**
		Cost of 500 sqm = a+b+c+d+e				91,559.65
		Rate per sqm = (a+b+c+d+e)/500				**183.12**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Bitumen (S-65) @ 19 kg per 10 sqm	t	0.95	50,443.00	47,920.85
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**7,678.09**
		e) Contractor's profit @ 10% on (a+b+c+d)				**8,445.89**
		Cost of 500 sqm = a+b+c+d+e				92,652.83
		Rate per sqm = (a+b+c+d+e)/500				**185.31**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Polymer Modified Bitumen @ 19 kg per 10 sqm	t	0.95	Input Rate	#VALUE!
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 19 kg per 10 sqm	t	0.95	Input Rate	#VALUE!
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	180.00	252.00
		Mazdoor (Unskilled)	day	21.00	125.00	2,625.00
		Mazdoor (Semi-Skilled)	day	7.00	135.00	945.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	1,587.00	9,522.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	1,116.00	6,696.00
		Three wheel 80-100 kN static roller	hour	6.00	390.00	2,340.00
		c) Material				
		Natural Rubber Modified Bitumen @ 19 kg per 10 sqm	t	0.95	Input Rate	#VALUE!
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	480.00	6,480.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/500				**#VALUE!**
		By Mechanical Means				
		Type A				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		c) Material				
		Bitumen (S-90) @ 22 kg per 10 sqm	t	8.80	49,492.00	435,529.60
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**55,200.42**
		e) Contractor's profit @ 10% on (a+b+c+d)				**60,720.46**
		Cost of 4000 sqm = a+b+c+d+e				667,925.08
		Rate per sqm = (a+b+c+d+e)/4000				**166.98**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Bitumen (S-65) @ 22 kg per 10 sqm	t	8.80	50,443.00	443,898.40
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**56,037.30**
		e) Contractor's profit @ 10% on (a+b+c+d)				**61,641.03**
		Cost of 4000 sqm = a+b+c+d+e				678,051.33
		Rate per sqm = (a+b+c+d+e)/4000				**169.51**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Polymer Modified Bitumen @ 22 kg per 10 sqm	t	8.80	Input Rate	#VALUE!
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 22 kg per 10 sqm	t	8.80	Input Rate	#VALUE!
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		* Natural Rubber Modified Bitumen @ 22 kg per 10 sqm	t	8.80	Input Rate	#VALUE!
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
		Type B				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Add 10 per cent of cost of carriage to cover cost of loading and unloading				185.40
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Bitumen (S-90) @ 19 kg per 10 sqm	t	7.60	49,492.00	376,139.20
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**49,279.92**
		e) Contractor's profit @ 10% on (a+b+c+d)				**54,207.91**
		Cost of 4000 sqm = a+b+c+d+e				596,287.03
		Rate per sqm = (a+b+c+d+e)/4000				**149.07**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Bitumen (S-65) @ 19 kg per 10 sqm	t	7.60	50,443.00	383,366.80
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**49,984.14**
		e) Contractor's profit @ 10% on (a+b+c+d)				**54,982.55**
		Cost of 4000 sqm = a+b+c+d+e				604,808.09
		Rate per sqm = (a+b+c+d+e)/4000				**151.20**
		(III) Polymer Modified Bitumen				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Polymer Modified Bitumen @ 19 kg per 10 sqm	t	7.60	Input Rate	#VALUE!
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
	(IV)	**Crumb Rubber Modified Bitumen**				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		c) Material				
		Crumb Rubber Modified Bitumen @ 19 kg per 10 sqm	t	7.60	Input Rate	#VALUE!
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
		a) Labour				
		Mate	day	0.52	180.00	93.60
		Mazdoor (Unskilled)	day	10.00	125.00	1,250.00
		Mazdoor (Skilled)	day	3.00	145.00	435.00
		b) Machinery				
		HMP of appropriate capacity	hour	6.00	6,797.00	40,782.00
		Electric generator set 125 KVA	hour	6.00	492.00	2,952.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Tipper 5.5 10 t capacity	hour	3.60	515.00	1,854.00
		Paver finisher	hour	6.00	707.00	4,242.00
		Three wheel 80-100 kN static roller	hour	18.00	390.00	7,020.00
		c) Material				
		Natural Rubber Modified Bitumen @ 19 kg per 10 sqm	t	7.60	Input Rate	#VALUE!
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	480.00	51,840.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 4000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/4000				**#VALUE!**
		** Any one of the above alternatives may be adopted.*				
5.12	**510**	**Seal Coat**				
		Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A, Type B and Type C as per Technical Specification Clause 510				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		A. By Manual Means				
		Case - I : Type A				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	153.00	336.60
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Bitumen (S-90) @ 9.80 kg per 10 sqm	t	1.078	49,492.00	53,352.38
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				**6,315.15**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,946.66**
		Cost of 1100 sqm = a+b+c+d+e				76,413.29
		Rate per sqm = (a+b+c+d+e)/1100				**69.47**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	153.00	336.60
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Bitumen (S-65) @ 9.80 kg per 10 sqm	t	1.078	50,443.00	54,377.55

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				**6,417.67**
		e) Contractor's profit @ 10% on (a+b+c+d)				**7,059.43**
		Cost of 1100 sqm = a+b+c+d+e				77,653.75
		Rate per sqm = (a+b+c+d+e)/1100				**70.59**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	153.00	336.60
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Polymer Modified Bitumen @ 9.80 kg per 10 sqm	t	1.078	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1100 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1100				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	153.00	336.60

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 9.80 kg per 10 sqm	t	1.078	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1100 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1100				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	153.00	336.60
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Natural Rubber Modified Bitumen @ 9.80 kg per 10 sqm	t	1.078	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1100 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1100				**#VALUE!**
		Case - II : Type B				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	180.00	153.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Mazdoor (Semi-Skilled)	day	2.00	135.00	270.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	1,587.00	3,967.50
		Three wheel 80-100 kN static roller	hour	2.50	390.00	975.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	1,116.00	2,790.00
		c) Material				
		Bitumen (S-90) @ 6.80 kg per 10 sqm	t	0.85	49,492.00	42,068.20
		Crushed sand or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	485.00	3,637.50
		d) Overheads @ 10% on (a+b+c)				**5,573.62**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,130.98**
		Cost of 1250 sqm = a+b+c+d+e				67,440.80
		Rate per sqm = (a+b+c+d+e)/1250				**53.95**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	180.00	153.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		Mazdoor (Semi-Skilled)	day	2.00	135.00	270.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	1,587.00	3,967.50
		Three wheel 80-100 kN static roller	hour	2.50	390.00	975.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	1,116.00	2,790.00
		c) Material				
		Bitumen (S-65) @ 6.80 kg per 10 sqm	t	0.85	50,443.00	42,876.55
		Crushed sand or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	485.00	3,637.50
		d) Overheads @ 10% on (a+b+c)				**5,654.46**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,219.90**
		Cost of 1250 sqm = a+b+c+d+e				68,418.91
		Rate per sqm = (a+b+c+d+e)/1250				**54.74**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 1250 sqm				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Labour				
		Mate	day	0.85	180.00	153.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		Mazdoor (Semi-Skilled)	day	2.00	135.00	270.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	1,587.00	3,967.50
		Three wheel 80-100 kN static roller	hour	2.50	390.00	975.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	1,116.00	2,790.00
		c) Material				
		Polymer Modified Bitumen @ 6.80 kg per 10 sqm	t	0.85	Input Rate	#VALUE!
		Crushed sand or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	485.00	3,637.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1250 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1250				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	180.00	153.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		Mazdoor (Semi-Skilled)	day	2.00	135.00	270.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	1,587.00	3,967.50
		Three wheel 80-100 kN static roller	hour	2.50	390.00	975.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	1,116.00	2,790.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 6.80 kg per 10 sqm	t	0.85	Input Rate	#VALUE!
		Crushed sand or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	485.00	3,637.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1250 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1250				**#VALUE!**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	180.00	153.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		Mazdoor (Semi-Skilled)	day	2.00	135.00	270.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	1,587.00	3,967.50
		Three wheel 80-100 kN static roller	hour	2.50	390.00	975.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	1,116.00	2,790.00
		c) Material				
		Natural Rubber Modified Bitumen @ 6.80 kg per 10 sqm	t	0.85	Input Rate	#VALUE!
		Crushed sand or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	485.00	3,637.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 1250 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1250				**#VALUE!**
		Case - III : Type C				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled) for carrying of chips & spraying	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	5.00	135.00	675.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	1,116.00	2,455.20
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Bitumen (S-90) @ 6.50 kg per 10 sqm	t	0.715	49,492.00	35,386.78
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum.	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				4,716.95

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		e) Contractor's profit @ 10% on (a+b+c+d)				5,188.64
		Cost of 1100 sqm = a+b+c+d+e				57,075.07
		Rate per sqm = (a+b+c+d+e)/1100				**51.89**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	5.00	135.00	675.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	1,116.00	2,455.20
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Bitumen (S-65) @ 6.50 kg per 10 sqm	t	0.715	50,443.00	36,066.75
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum.	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				4,784.94
		e) Contractor's profit @ 10% on (a+b+c+d)				5,263.44
		Cost of 1100 sqm = a+b+c+d+e				57,897.83
		Rate per sqm = (a+b+c+d+e)/1100				**52.63**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	5.00	135.00	675.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	1,116.00	2,455.20
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Polymer Modified Bitumen @ 6.50 kg per 10 sqm	t	0.715	Input Rate	#VALUE!

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum.	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				#VALUE!
		e) Contractor's profit @ 10% on (a+b+c+d)				#VALUE!
		Cost of 1100 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm =(a+b+c+d+e)/1100				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	5.00	135.00	675.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	1,116.00	2,455.20
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 6.50 kg per 10 sqm	t	0.715	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum.	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				#VALUE!
		e) Contractor's profit @ 10% on (a+b+c+d)				#VALUE!
		Cost of 1100 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1100				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	180.00	207.00
		Bitumen Sprayer	day	1.00	135.00	135.00
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Mazdoor (Semi-Skilled)	day	5.00	135.00	675.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	1,116.00	2,455.20

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Three wheel 80-100 kN static roller	hour	2.20	390.00	858.00
		c) Material				
		Natural Rubber Modified Bitumen @ 6.50 kg per 10 sqm	t	0.715	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size defined as 100% passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum.	cum	9.90	475.00	4,702.50
		d) Overheads @ 10% on (a+b+c)				#VALUE!
		e) Contractor's profit @ 10% on (a+b+c+d)				#VALUE!
		Cost of 1100 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/1100				**#VALUE!**
		Note: *Since seal coat is provided immediately over the bituminous layers, hydraulic broom for cleaning has not been catered.*				
		B. By Mechanical Means				
		Case - I : Type A				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	180.00	43.20
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen (S-90) @ 9.80 kg per 10 sqm	t	7.35	49,492.00	363,766.20
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	475.00	32,062.50
		d) Overheads @ 10% on (a+b+c)				**43,070.79**
		e) Contractor's profit @ 10% on (a+b+c+d)				**47,377.87**
		Cost of 7500 sqm = a+b+c+d+e				521,156.56
		Rate per sqm = (a+b+c+d+e)/7500				**69.49**
		(II) Bitumen (S-65)				
		Unit = sqm				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	180.00	43.20
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen (S-65) @ 9.80 kg per 10 sqm	t	7.35	50,443.00	370,756.05
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	475.00	32,062.50
		d) Overheads @ 10% on (a+b+c)				**43,769.78**
		e) Contractor's profit @ 10% on (a+b+c+d)				**48,146.75**
		Cost of 7500 sqm = a+b+c+d+e				529,614.28
		Rate per sqm = (a+b+c+d+e)/7500				**70.62**
	(III)	**Polymer Modified Bitumen**				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	180.00	43.20
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Polymer Modified Bitumen @ 9.80 kg per 10 sqm	t	7.35	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	475.00	32,062.50

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	180.00	43.20
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 9.80 kg per 10 sqm	t	7.35	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	475.00	32,062.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.24	180.00	43.20
		Mazdoor (Unskilled)	day	6.00	125.00	750.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Natural Rubber Modified Bitumen @ 9.80 kg per 10 sqm	t	7.35	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 11.2 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	475.00	32,062.50
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		Note: *Since seal coat is provided immediately over the bituminous layers, Hydraulic broom for cleaning has not been catered.*				
510		**Case - II : Type B**				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	6,797.00	13,594.00
		Electric generator set 125 KVA	hour	2.00	492.00	984.00
		Front end loader 1 cum bucket capacity	hour	2.00	1,001.00	2,002.00
		Tipper 5.5 10 t capacity	hour	1.36	515.00	700.40
		Paver finisher	hour	2.00	707.00	1,414.00
		Three wheel 80-100 kN static roller	hour	10.00	390.00	3,900.00
		c) Material				
		Bitumen (S-90) @ 6.80 kg per 10 sqm	t	3.40	49,492.00	168,272.80
		Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	485.00	14,550.00
		d) Overheads @ 10% on (a+b+c)				**20,594.60**
		e) Contractor's profit @ 10% on (a+b+c+d)				**22,654.06**
		Cost of 5000 sqm = a+b+c+d+e				249,194.66
		Rate per sqm = (a+b+c+d+e)/5000				**49.84**
		(II) Bitumen (S-65)				
		Unit = sqm				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	6,797.00	13,594.00
		Electric generator set 125 KVA	hour	2.00	492.00	984.00
		Front end loader 1 cum bucket capacity	hour	2.00	1,001.00	2,002.00
		Tipper 5.5 10 t capacity	hour	1.36	515.00	700.40
		Paver finisher	hour	2.00	707.00	1,414.00
		Three wheel 80-100 kN static roller	hour	10.00	390.00	3,900.00
		c) Material				
		Bitumen (S-65) @ 6.80 kg per 10 sqm	t	3.40	50,443.00	171,506.20
		Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	485.00	14,550.00
		d) Overheads @ 10% on (a+b+c)				**20,917.94**
		e) Contractor's profit @ 10% on (a+b+c+d)				**23,009.73**
		Cost of 5000 sqm = a+b+c+d+e				253,107.07
		Rate per sqm = (a+b+c+d+e)/5000				**50.62**
	(III)	**Polymer Modified Bitumen**				
		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	6,797.00	13,594.00
		Electric generator set 125 KVA	hour	2.00	492.00	984.00
		Front end loader 1 cum bucket capacity	hour	2.00	1,001.00	2,002.00
		Tipper 5.5 10 t capacity	hour	1.36	515.00	700.40
		Paver finisher	hour	2.00	707.00	1,414.00
		Three wheel 80-100 kN static roller	hour	10.00	390.00	3,900.00
		c) Material				
		Polymer Modified Bitumen @ 6.80 kg per 10 sqm	t	3.40	Input Rate	#VALUE!
		Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	485.00	14,550.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 5000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/5000				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		HMP of 30 / 40 t per hour	hour	2.00	6,797.00	13,594.00
		Electric generator set 125 KVA	hour	2.00	492.00	984.00
		Front end loader 1 cum bucket capacity	hour	2.00	1,001.00	2,002.00
		Tipper 5.5 10 t capacity	hour	1.36	515.00	700.40
		Paver finisher	hour	2.00	707.00	1,414.00
		Three wheel 80-100 kN static roller	hour	10.00	390.00	3,900.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 6.80 kg per 10 sqm	t	3.40	Input Rate	#VALUE!
		Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	485.00	14,550.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 5000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/5000				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	6,797.00	13,594.00
		Electric generator set 125 KVA	hour	2.00	492.00	984.00
		Front end loader 1 cum bucket capacity	hour	2.00	1,001.00	2,002.00
		Tipper 5.5 10 t capacity	hour	1.36	515.00	700.40

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Paver finisher	hour	2.00	707.00	1,414.00
		Three wheel 80-100 kN static roller	hour	10.00	390.00	3,900.00
		c) Material				
		Natural Rubber Modified Bitumen @ 6.80 kg per 10 sqm	t	3.40	Input Rate	#VALUE!
		Crushed sand defined as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	485.00	14,550.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractor's profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 5000 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/5000				**#VALUE!**
		Note: *Since seal coat is required to be provided over the premix carpet on the same day, out of the 6 working hours of the HMP, 4.00 hours are proposed to be utilised for the premix carpet and the balance 2.00 hours have been considered for this case.*				
		Case - III : Type C				
		(I) Bitumen (S-90)				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	180.00	36.00
		Mazdoor (Unskilled)	day	5.00	125.00	625.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen (S-90) @ 6.50 kg per 10 sqm	t	4.88	49,492.00	241,520.96
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	480.00	32,400.00
		d) Overheads @ 10% on (a+b+c)				**30,866.80**
		e) Contractors Profit @ 10% on (a+b+c+d)				**33,953.48**
		Cost of 7500 sqm = a+b+c+d+e				373,488.23
		Rate per sqm = (a+b+c+d+e)/7500				**49.80**
		(II) Bitumen (S-65)				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		a) Labour				
		Mate	day	0.20	180.00	36.00
		Mazdoor (Unskilled)	day	5.00	125.00	625.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Bitumen (S-65) @ 6.50 kg per 10 sqm	t	4.88	50,443.00	246,161.84
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	480.00	32,400.00
		d) Overheads @ 10% on (a+b+c)				**31,330.88**
		e) Contractors Profit @ 10% on (a+b+c+d)				**34,463.97**
		Cost of 7500 sqm = a+b+c+d+e				379,103.70
		Rate per sqm = (a+b+c+d+e)/7500				**50.55**
		(III) Polymer Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	180.00	36.00
		Mazdoor (Unskilled)	day	5.00	125.00	625.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Polymer Modified Bitumen @ 6.50 kg per 10 sqm	t	4.88	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	480.00	32,400.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractors Profit @ 10% on (a+b+c+d)				**#VALUE!**

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		(IV) Crumb Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	180.00	36.00
		Mazdoor (Unskilled)	day	5.00	125.00	625.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Crumb Rubber Modified Bitumen @ 6.50 kg per 10 sqm	t	4.88	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	480.00	32,400.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractors Profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm =(a+b+c+d+e)/7500				**#VALUE!**
		(V) Natural Rubber Modified Bitumen				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	180.00	36.00
		Mazdoor (Unskilled)	day	5.00	125.00	625.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,350.00	14,100.00
		Tipper 5.5 cum capacity	hour	6.00	515.00	3,090.00
		Front end loader 1 cum bucket capacity	hour	6.00	1,001.00	6,006.00
		Bitumen pressure distributor	hour	6.00	840.00	5,040.00

Sr. No.	Reference of MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Three wheel 80-100 kN static roller	hour	15.00	390.00	5,850.00
		c) Material				
		Natural Rubber Modified Bitumen @ 6.50 kg per 10 sqm	t	4.88	Input Rate	#VALUE!
		Crushed stone chipping of 6.7 mm size 100 per cent passing 9.5 mm sieve and retained on 2.36 mm sieve applied @ 0.09 cum per 10 sqm	cum	67.50	480.00	32,400.00
		d) Overheads @ 10% on (a+b+c)				**#VALUE!**
		e) Contractors Profit @ 10% on (a+b+c+d)				**#VALUE!**
		Cost of 7500 sqm = a+b+c+d+e				#VALUE!
		Rate per sqm = (a+b+c+d+e)/7500				**#VALUE!**
		Note: *Since seal coat is provided immediately over the bituminous layers, Hydraulic broom for cleaning has not been catered.*				
5.13	**511**	**Supply of Stone Aggregates for Pavement Courses**				
		Supply of stone aggregates from approved sources conforming to the physical requirement, specified in the respective clauses, including royalties, fees rents, collection, transportation, stacking and testing and measured in cum as per Clause 511.5.				
		Note: *Competitive market rates to be ascertained. Alternatively, rates for stone crushing given in Chapter 1 may be adopted, if found economical. In case for supply of aggregates at site are not available, nearest crusher site may be ascertained. Loading and unloading charges and cost of carriage may be added to these rates to arrive at the cost at site.*				

Chapter 6

CEMENT CONCRETE PAVEMENT

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
6.1	**400**	**Granual Sub-base**				
		Rate as per item No.4.1 of Chapter 4				
6.2	**400**	**Lime Treated Soil**				
		Rate as per item No.4.5 of Chapter 4				
6.3	**1500 & 400**	**Water Bound Macadam (WBM) - Sub-base**				
		(A) By Manual Means				
		As per item No.4.7 of Chapter 4				
		(B) By Mechnical Means				
		As per item No.4.7 of Chapter 4				
6.4	**1500**	**Cement Concrete Pavement**				
		Construction of un-reinforced, dowel jointed at expansion and construction joint only, plain cement concrete pavement, thickness as per design, over a prepared sub base, with 43 grade cement or any other type as per Clause 1501.2.2 M30 (Grade), coarse and fine aggregates conforming to IS:383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the formwork as per drawing), spreading the concrete with shovels, rakes, compacted using needle, screed and plate vibrators and finished in continuous operation including provision of contraction and expansion, construction joints, applying debonding strips, primer, sealant, dowel bars, near approaches to bridge/culvert and construction joints, admixtures as approved, curing of concrete slabs for 14-days,				
		using curing compound (where specified) and water finishing to lines and grade as per drawing and Technical Specification Clause 1501				
		Unit = cum				
		Taking output = 75 cum (172.50 t)				
		(100 x 3.75 x 0.200)				
		a) Labour				
		Mate	day	7.00	180.00	1,260.00
		Mason (1st class)	day	5.00	210.00	1,050.00
		Mason (2nd class)	day	5.00	180.00	900.00
		Mazdoor (Unskilled)	day	129.00	125.00	16,125.00
		Mazdoor (Skilled)	day	6.00	145.00	870.00
		Surveyor	day	2.00	200.00	400.00
		Mazdoor (Semi-Skilled)	day	6.00	135.00	810.00
		Bhisti	day	14.00	130.00	1,820.00
		Blacksmith for cutting of dowel bars including removal of burrs, fabrications & fixing of dowel bars.	day	1.00	190.00	190.00
		b) Machinery				
		Concrete mixer 0.28 / 0.4 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	145.00	5,220.00
		Needle vibrator	hour	9.00	81.00	729.00
		Screed vibrator	hour	9.00	381.00	3,429.00
		Plate vibrator	hour	9.00	399.00	3,591.00
		Concrete joint cutting machine for initial & final cuts	hour	4.00	174.00	696.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Water tanker 6 kl capacity	hour	5.00	341.00	1,705.00
		Air Compressor (1 hour initial + 1 hour final)	hour	2.00	262.00	524.00
		c) Material				
		(i) Crushed stone coarse aggregates, grading will be as per Clause 1501.2.4.1 (Table 1500.1) of specifications @ 0.90 cum/cum of concrete	cum	67.50	560.00	37,800.00
		(ii) Sand as per IS:383 and conforming to Clause 1500.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	380.00	12,825.00
		(iii) Cement @ 310 kg/cum of concrete	t	26.25	6,900.00	181,125.00
		(iv) Polythene sheet 125 micron	sqm	412.50	200.00	82,500.00
		(v) Mild steel dowel bar 25 mm dia of grade S 240. 500 mm long 20 Nos. at culvert/bridge slab and at construction joint including 5 per cent wastage.				
		(4 x 20 x 0.500) + 5 per cent wastage = 42 m @ 2.80 kg per m = 117.6 kg.	kg	117.60	45.00	5,292.00
		Bitumen primer @ 200 ml per joint for 23 joints	t	0.005	40,110.00	200.55
		Bituminous sealant 800 ml per joint for 23 joints	litre	19.00	107.00	2,033.00
		Jute rope 12 mm dia including 5 per cent wastage	m	90.00	112.00	10,080.00
		Debonding strips 3.75 m (length) x 10 mm (width) x 5 mm (thick) cut-out of rubber filler board or similar material including 5 per cent wastage	m	90.00	117.00	10,530.00
		Polythene sheathing, covering 2/3rd dowel bars (20x23) and tight fit including 5 per cent wastage	No.	483.00	229.00	110,607.00
		Plasticizer 0.5 per cent by weight of cement	litre	122.00	500.00	61,000.00
		Curing compound (if used) @ 0.33 litre per sqm	litre	131.25	345.00	45,281.25
		Water for curing	kl	18.00	100.00	1,800.00
		Joint filler board 20 mm thick as per IS:1838 (4 x 3.75 x 0.200 = 3 sqm)	sqm	3.00	82.00	246.00
		d) Formwork @ 3% of (a+b+c)				**18,011.78**
		e) Overheads @ 10% on (a+b+c+d)				**61,865.06**
		f) Contractor's profit @ 10% on (a+b+c+d+e)				**68,051.56**
		Cost for 75 cum = a+b+c+d+e+f				748,567.21
		Rate per cum = (a+b+c+d+e+f)/75				**9,980.90**
6.5	**1500**	**Roller Compacted Concrete Pavement**				
		Construction of Roller Compacted Concrete Pavement (RCCP) with coarse and fine aggregates conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum aggregate cement ratio of 5:1 mm and with minimum cemnt content of 310 kg per cum, aggregate gradation to be as per Table 602.2 after blending, mixing in concrete mixer at optimum moisture content, transporting to site, laying with wheel barrows or steel pans or with mechanical paver, compacting with 80-100 kN smooth wheel, tandem vibratory roller, to achieve, the designed flexural strength, finishing and curing as per drawings and Technical Specification Clause 1502				
		Unit = cum				
		Taking output = 75 cum				
		a) Labour				
		(i) Mate	day	6.00	180.00	1,080.00
		(ii) Mazdoor (Unskilled)	day	132.00	125.00	16,500.00
		(iii) Mason (1st class)	day	4.00	210.00	840.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(iv) Mason (2nd class)	day	4.00	180.00	720.00
		(v) Surveyor	day	2.00	200.00	400.00
		(vi) Bhisti	day	14.00	130.00	1,820.00
		b) Machinery				
		(i) Concrete mixer 0.28 / 0.04 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	145.00	5,220.00
		(ii) Vibratory/80-100 kN Static Roller	hour	6.00	875.00	5,250.00
		(iii) Concrete joint cutting machine for day's end work and regular joint cutting.	hour	6.00	174.00	1,044.00
		(iv) Water tanker 6 kl capacity	hour	6.00	341.00	2,046.00
		(v) Air compressor (1 hour initial + 1 hour final)	hour	2.00	262.00	524.00
		c) Material				
		(i) Crushed stone coarse aggregates grading as per Clause 1501.2.4.1 (Table 1500.3) @ 0.90 cum/cum of concrete conforming to Clause 600.4.4	cum	67.50	560.00	37,800.00
		(ii) Sand as per IS:383 and conforming to Clause 1501.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	380.00	12,825.00
		(iii) Cement @ 310 kg/cum of concrete	t	23.25	6,900.00	160,425.00
		(iv) Bitminous primer @ 200 ml per joint for 21 joints	t	0.004	40,110.00	160.44
		(v) Jute rope 10 mm dia including 5 per cent wastage	m	90.00	112.00	10,080.00
		(vi) Bituminous sealant @ 800 ml per joint for 21 joints	kg	16.80	107.00	1,797.60
		(vii) Curing compound @ 0.33 litre per sqm	l	131.25	345.00	45,281.25
		(viii) Water for mixing and curing for 14-days	day	18.00	100.00	1,800.00
		d) Formwork @ 2% of (a+b+c)				**6,112.27**
		e) Overheads @ 10% on (a+b+c+d)				**31,172.56**
		f) Contractor's profit @ 10% on (a+b+c+d+e)				**34,289.81**
		Cost for 75 cum = a+b+c+d+e+f				377,187.92
		Rate per cum = (a+b+c+d+e+f)/75				**5,029.17**
		Note: *When curing compound is used 4-days water curing will be done*				
6.6	**1500**	**Rectangular Concrete Block Pavement**				
		Manufacturing, laying of cement concrete blocks of size 0.450 m x 0.300 m x 0.15 m of Cement Concrete (C.C.) M30 garde and spreading 25 mm thick sand under neath and filling joints with sand on existing W.B.M. base as per Technical Specification Clause 1503.				
		Unit = sqm				
		Taking output = 112.5 sqm				
		Concrete M30 grade for block, 400 x (0.450 x 0.300 x 0.150)	cum	8.10	1,836.24	14,873.54
		Concrete M30 for edge block, 2 x 50 x (0.300 x 0.300 x 0.150)	cum	1.35	1,836.24	2,478.92
		TOTAL	**cum**	**9.45**		
		a) Labour				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Labour for Manufacturing the Cement Concrete Block :				
		(i) Mate	day	1.70	180.00	306.00
		(ii) Mazdoor (Unskilled)	day	41.00	125.00	5,125.00
		(iii) Mason (2nd class)	day	6.00	180.00	1,080.00
		(iv) Bhisti	day	1.40	130.00	182.00
		b) Machinery				
		Concrete mixer 0.28 / 0.4 cum	hour	6.00	145.00	870.00
		Plate vibrator	hour	12.00	399.00	4,788.00
		Water tanker 6 kl capacity	hour	2.00	341.00	682.00
		c) Material				
		(i) Coarse aggregates (9.450 x 0.84)	cum	7.94	640.00	5,081.60
		(ii) Sand (9.450 x 0.42)	cum	3.97	380.00	1,508.60
		(iii) Cement	t	3.80	6,900.00	26,220.00
		(iv) Sand as per Table 1500.5	cum	1.725	380.00	655.50
		Bed = 60*0.025 = 1.5 cum				
		Joints = 1.5*0.15 = 0.225 cum				
		(v) Cost of water	kl	6.00	100.00	600.00
		d) Formwork @ 3% of (a+b+c)				**1,412.96**
		e) Overheads @ 10% on (a+b+c+d)				**4,851.17**
		f) Contractor's profit @ 10% on (a+b+c+d+e)				**5,336.28**
		Cost for 112.5 sqm = a+b+c+d+e+f				58,699.11
		Rate per sqm = (a+b+c+d+e+f)/112.5				**521.77**
		Note: *i. In case curing compound is used in places where there is scarcity of water, the water curing will be used for 4-days and rate analysis will be amended accordingly*				
		ii. Carriage of C.C. block to site of is payable seperately as per Chapter of carriage of material from manufacturing site to the site of work.				
6.7	**1500**	**Interlocking Concrete Block Pavement**				
		(1) 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				
		a) Labour				
		Mate	day	1.00	180.00	180.00
		Mazdoor (Unskilled)	day	17.00	125.00	2,125.00
		Mason (2nd class)	day	8.00	180.00	1,440.00
		b) Machinery				
		Water tanker 6 kl capacity	hour	2.00	341.00	682.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		c) Material				
		(i) Providing inter-locking blocks of approved shape, thickness and size.	sqm	225.00	87.00	19,575.00
		(ii) Edge blocks 60 mx2	m	120.00	13.05	1,566.00
		(iii) Sand as per Table 1500.5	cum	7.23	380.00	2,747.40
		Bed = 603x75x 0.03 = 6.75 cum				
		Joints = 60x0.08 = 0.48 cum				
		(iv) Water for wetting of bedding sand	kl	3.00	100.00	300.00
		d) Overheads @ 10% on (a+b+c)				**2,861.54**
		e) Contractor's profit @ 10% on (a+b+c+d)				**3,147.69**
		Cost for 225 sqm = a+b+c+d+e				34,624.63
		Rate per sqm = (a+b+c+d+e)/225				**153.89**
		(2) Providing and Laying of Interlocking Concrete Blcok Pavements having thickness 60 mm as per drawing and Technical Specification Clause 1504				
		Unit = sqm				
		Taking output = 225 sqm				
		a) Labour				
		Mate	day	0.90	180.00	162.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		Mason (2nd class)	day	7.00	180.00	1,260.00
		b) Machinery				
		Water tanker 6 kl capacity	hour	2.00	341.00	682.00
		c) Material				
		(i) Providing inter-locking blocks	sqm	225.00	74.00	16,650.00
		(ii) Edge blocks	m	120.00	11.10	1,332.00
		(iii) Sand as per Table 1500.5	cum	5.42	380.00	2,059.60
		(iv) Water	kl	3.00	100.00	300.00
		d) Overheads @ 10% on (a+b+c)				**2,432.06**
		e) Contractor's profit @ 10% on (a+b+c+d)				**2,675.27**
		Cost for 225 sqm = a+b+c+d+e				29,427.93
		Rate per sqm = (a+b+c+d+e)/225				**130.79**

Note: *i. Carriage of interlocking blocks is payable seperately as per Chapter of carriage of material from manufacturing site to the site of work.*

ii. Edge blocks may be cast-in-situ. Brick masonry toe wall or CC block 300 mm x 300 mm x 150 mm or any other shape can also be used and their cost shall be analysed/included accordingly

iii. The rates for sub-grade, sub-base and base course can be taken from Chapters 3 and 4

Chapter 8

HILL ROADS

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
8.1	**200**	**Site Clearance**				
		As per Chapter 2				
8.2	**1600**	**Setting Out**				
		Unit = 1km				
		The analysis of rate per km shall account for the following:				
		(1) Construction of reference pillars (burjee) @ 20 m on both sides as per Fig. 1600.1 (b) and @ 8.33 m interval on curves				
		(2) Construction of back pillars in front of each reference pillar as per Fig. 1600.1 (c)				
		(3) Construction of job pillars as per Fig. 1600.1 (d)				
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and Technical Specification Clause 1602.1				
		(a) Earthwork in excavation for foundation as per drawing and technical specifications.				
		Rate as per item No.11.1 of Chapter 11	cum	1.2	139.60	167.52
		(b) Stone masonry work in cement mortar 1:4 in foundation complete as per drawing and technical specifications				
		Rate as per item No.11.6 of Chapter 11	cum	1.2	2,513.19	3,015.83
		(c) Plaster with cement mortar 1:4 as per technical specifications				
		Rate as per item No.12.3 of Chapter 12	sqm	4.00	132.93	531.73
		Add 5% of (a+b+c) for white washing, lettering and painting, etc.				185.75
		Total Cost for each Reference Pillar				**3,900.83**
		(2) Construction of back piller as per Fig. 1600.1(c) as per drawing and Technical Specification Clause 1602.3				
		(a) Earthwork in excavation for foundation as per drawing and technical specifications				
		Rate as per item No. 11.1 of Chapter 11	cum	3.6	139.60	502.57
		(b) Stone masonary work in cement mortar 1:4 in foundation complete as per drawing and technical specifications				
		Rate as per itme No. 11.6 Chapter 11	cum	3.6	2,513.19	9,047.48
		(c) Plaster with cement mortar 1:4 as per technical specifications				
		Rate as per item No. 12.3 of Chapter 12	sqm	45.00	24.75	1,113.75
		Add 5% of (a+b+c) for white washing, lettering and painting, etc.				533.19
		Total Cost for each back Pillar				**11,196.99**
		(3) Construction of Job pillers as per Fig. 1600.1 (d) and Technical Specification Clause 1602.4				
		(a) Earthwork in excavation for foundation as per drawing and technical specification				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Rate as per item No.11.1 of Chapter	cum	0.096	139.60	13.40
		(b) Stone masonary work in cement mortar in foundation complete as per drawing and technical specification				
		Rate as per item No. 11.6 of Chapter 11	cum	0.096	2,513.19	241.27
		(c) Plaster with cement mortar 1:4 as per drawing and technical specification				
		Rate as per Item No.12.3 of Chapter 12	sqm	0.96	45.63	43.81
		Add 5% of (a+b+c) for white washing, lettering and painting, etc.				14.92
		Total Cost for each Job Pillar				**313.40**

Note: *(i) The dimensions of reference pillars, back pillars and job pillars are as per figure/site conditions. The above items are covered under different Chapters of MORD Specifications for payment.*

(ii) The marking of centre line, setting out, curves, recording of levels, etc. by the surveyor will be incidental to work and no extra payment shall be made for the same.

8.3 1600 & 300 Earthwork in Hill Road

(i) Excavation in Hilly Areas in Soil by manual means.

A) Excavation in soil in Hilly Area by manual means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.5 m and a lead upto 20 m as per drawing and Technical Specification Clause 1603.1

Unit = cum

Taking output = 120 cum

a) Labour				
Mate	day	2.40	180.00	432.00
Mazdoor (Unskilled)	day	60.00	125.00	7,500.00
b) Overheads @ 10% on (a)				**793.20**
c) Contractor's profit @ 10% on (a+b)				**872.52**
Cost for 120 cum = (a+b+c)				9,597.72
Rate per cum = (a+b+c)/120				**79.98**

B) Extra for Every Additional Lift of 1.5 m or Part thereof

Excavation in Soil

Unit = cum

Taking output = 10 cum

a) Labour				
Mazdoor (Unskilled)	day	0.55	125.00	68.75
b) Overheads @ 10% on (a)				**6.88**
c) Contractor's profit @ 10% on (a+b)				**7.56**
Cost for 10 cum = (a+b+c)				83.19
Rate per cum = (a+b+c)/10				**8.32**

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(ii) Excavation in Hilly Areas in Soil by mechanical means				
		A) Excavation in soil in Hilly Area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.5 m and a lead upto 20 m as per Technical Specification Clause 1603.1				
		Unit = cum				
		Taking output = 260 cum				
		a) Labour				
		Mate	day	0.80	180.00	144.00
		Mazdoor (Unskilled) for trimming slopes and helping in excavation, etc.	day	20.00	125.00	2,500.00
		b) Machinery				
		Dozer D-50 @ 43.28 cum per hour	hour	6.00	2,283.00	13,698.00
		Front end loader	hour	6.00	1,001.00	6,006.00
		c) Overheads @ 10% on (a+b)				**2,234.80**
		d) Contractor's profit @ 10% on (a+b+c)				**2,458.28**
		Cost for 260 cum = a+b+c+d				27,041.08
		Rate per cum = (a+b+c+d)/260				**104.00**
		B) Extra for Every Additional Lift of 1.5 m or Part thereof				
		Excavation in Soil				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mazdoor (Unskilled)	day	0.55	125.00	68.75
		b) Overheads @ 10% on (a)				**6.88**
		c) Contractor's profit @ 10% on (a+b)				**7.56**
		Cost for 10 cum = (a+b+c)				83.19
		Rate per cum = (a+b+c)/10				**8.32**
		Note: *(i) In case the land on the valley side is barren and there is no objection for disposing of excavated earth on the valley side, the provision of front end loader and tipper shall be deleted as excavated earth shall be disposed off on the valley side.*				
		(ii) For disposal of excavated surplus earth beyond 20 m, the relevant items of carriage be followed				
		(iii) In case, alternative machine like hydraulic excavator 0.9 cum bucket capacity is necessited because of site conditions, the same can be used.				
		(iii) Excavation in Hilly Area in Ordinary Rock by manual means				
		A) Excavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with a lift upto 1.5 m and lead upto 20 m as per Clause 1603.2.				
		Unit = cum				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Taking output = 120 cum				
		a) Labour				
		Mate	day	5.28	180.00	950.40
		Mazdoor (Unskilled)	day	132.00	125.00	16,500.00
		b) Overheads @ 10% on (a)				**1,745.04**
		c) Contractor's profit @ 10% on (a+b)				**1,919.54**
		Cost for 120 cum = a+b+c				21,114.98
		Rate per cum = (a+b+c)/120				**175.96**
		B) Extra for Every Additional Lift of 1.5 m or Part thereof				
		For Ordinary Rock				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mazdoor (Unskilled)	day	0.86	125.00	107.50
		b) Overheads @ 10% on (a)				**10.75**
		c) Contractor's profit @ 10% on (a+b)				**11.83**
		Cost for 10 cum = a+b+c				130.08
		Rate per cum = (a+b+c)/10				**13.01**
		(iv) Excavation in Hilly Areas in Ordinary Rock by mechanical means not requiring blasting				
		Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with a lift upto 1.5 m and lead upto 20 m as per Clause 1603.2.				
		Unit = cum				
		Taking output = 170 cum				
		a) Labour				
		Mate	day	0.68	180.00	122.40
		Mazdoor (Unskilled)	day	17.00	125.00	2,125.00
		Mazdoor for disposing of earth upto 20 m	day	9.00	125.00	1,125.00
		b) Machinery				
		Dozer D-50 @ 28.32 cum per hour	hour	6.00	2,283.00	13,698.00
		Hydraulic Excavator 0.9 cum bucket capacity @ 40 cum per hour	hour	4.25	1,001.00	4,254.25
		c) Overheads @ 10% on (a+b)				**2,132.47**
		d) Contractor's profit @ 10% on (a+b+c)				**2,345.71**
		Cost for 170 cum = a+b+c+d				25,802.83
		Rate per cum = (a+b+c+d)/170				**151.78**
		Note: *(i) In case the land on the valley side is barren and there is no objection for disposing of excavated earth on the valley side, the provision of front end loader and tipper shall be deleted as excavated earth shall be disposed off on the valley side.*				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(ii) In case, alternative machine like hydraulic excavator 0.9 cum bucket capacity is necessited because of site conditions, the same can be used.				
		(v) Excavation in Hilly Areas in Hard Rock requiring blasting				
		A) Excavation in hilly areas in hard rock requiring blasting, by mechanical means, lift upto 1.5 m and disposal of excavated rock upto a lead of 20 m as per Clause 1603.2.				
		Unit = cum				
		Taking output = 170 cum				
		a) Labour				
		Mate	day	1.36	180.00	244.80
		Mazdoor (Unskilled)	day	22.00	125.00	2,750.00
		Driller	day	2.00	130.00	260.00
		Blaster	day	10.00	135.00	1,350.00
		b) Machinery				
		Dozer D-50 @ 56.67 cum per hour (blasted rock)	hour	3.00	2,283.00	6,849.00
		Hydraulic Excavator 0.9 cum bucket capacity @ 34 cum per hour	hour	5.00	1,001.00	5,005.00
		Air compressor 210 cfm with two jack hammer @ 6 cum per hour	hour	28.00	262.00	7,336.00
		c) Materials				
		Gelatine 80 per cent	kg	67.00	136.00	9,112.00
		Electric detonators @ 1 detonator for 1 Gelatine stick of 285 gm each	nos	235.00	13.00	3,055.00
		d) Overheads @ 10% on (a+b+c)				**3,596.18**
		e) Contractor's profit @ 10% on (a+b+c+d)				**3,955.80**
		Cost for 170 cum = a+b+c+d+e				43,513.78
		Rate per cum = (a+b+c+d+e)/170				**255.96**
		B) Extra for Every Additional Lift of 1.5 m or Part thereof				
		For Hard Rock				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mazdoor (Unskilled)	day	1.08	125.00	135.00
		b) Overheads @ 10% on (a)				**13.50**
		c) Contractor's profit @ 10% on (a+b)				**14.85**
		Cost for 10 cum = a+b+c				163.35
		Rate per cum = (a+b+c)/10				**16.34**

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)

Note: *(1) In case the land on the valley side is barren and there is no objection for disposing of excavated earth on the valley side, the provision of front end loader and tipper shall be deleted as excavated earth shall be disposed off on the valley side.*

(2) In case of hill roads, the altitude effect comes into play. The output of men and machines decreases progressively after 2100 m elevation leading to increase in cost. High altitude effect has been explained in the basic approach.

(3) The arrangement for igniting the detonator is covered under overheads

8.4 1600, 600 & 700 Retaining Walls / Breast Walls

Construction of retaining walls/breast walls in cement mortar 1:5 as per drawing and technical specifications Clause 1604

(i) Earthwork in excavation for structures

Rate as per item No.11.1 of Chapter 11 — cum

(ii) Plain cement concrete M 10 grade

Rate as per item No.11.4 of Chapter 11 — cum

(iii) Stone masonry in cement mortar 1:5

Rate as per item No. 12.4 (III) (iii) of Chapter 12 — cum

(iv) Pointing with cement mortar 1:3

Rate as per item No.12.2 of Chapter 12 — sqm

(v) Providing P.C.C. M 20 architectural coping on top of retaining wall/breast wall

Rate as per item No.12.13 of Chapter 12 — m

(vi) Filter material behind retaining wall / breast wall as per Specification 1204.3.8 in a width of 600 m

Rate as per item No. 12.11 of Chapter 12 — cum

(vii) Back filling behind retaining wall/breast wall

Rate as per item No. 12.10 of Chapter 12 — cum

Note: *1 Quantities of material/work shall be as per design and drawings*

2 Earth work in excavation may be taken as per site conditions. It may comprise of a number of sub-items depending upon the type of soil/rock encountered.

8.5 1600, 700, 300 & 800 Construction of Hill Side Drain

Construction of hill side drain in accordance with the requirement of specifications true to lines and grades. Dimesions and other particulars as per drawing and Technical Specification Clause 1606.1

Unit = 1 m

(i) Earthwork in excavation for structures as per drawing and technical specification

Rate as per item No.11.1 of Chapter 11	cum		139.60	0.00

(ii) Plain cement concrete M10 grade

Rate as per item No.11.4 of Chapter 11	cum		3,812.61	0.00

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(iii) Stone masonry in cement mortar 1:5				
		Rate as per item No.12.4 (III) (iii) of Chapter 12	cum		2,373.49	0.00
		(iv) Plain cement concrete M15 grade				
		Rate as per item No.11.4 of Chapter 11	cum		3,812.61	0.00
		(v) Cement plaster 15 mm thick 1:4 on stone masonry				
		Rate as per item No.12.3 of Chapter 12	cum		132.93	0.00
		(vi) Providing P.C.C. M20 architectural coping on top of wall				
		Rate as per item No.12.13 of Chapter 12	m		667.26	0.00
		Rate per m length (i+ii+iii+iv+v+vi)				**0.00**
		Note: *1 Quantities of material/work shall be as per design and drawings*				
		2 Earth work in excavation may be taken as per site conditions. It may comprise of a number of sub-items depending upon the type of soil/rock encountered.				
8.6	**1600, 300, 700 & 800**	**Construction of Catch Water / Intercepting Drain**				
		Construction of catch water/intercepting drain in random rubble masonry in 1:5 cement mortar true to the specified lines grades levels and dimensions as per the requirement of the specifications Clause 1606.2				
		Unit = 1 m				
		(i) Earthwork in excavation for structures as per drawing and technical specification				
		Rate as per item No.11.1 of Chapter 11	cum		139.60	0.00
		(ii) Plain cement concrete M10 grade				
		Rate as per item No.11.4 of Chapter 11	cum		3,812.61	0.00
		(iii) Stone masonry in cement mortor 1:5				
		Rate as per item No.12.4 (III) (iii) of Chapter 12	cum		0.00	0.00
		(iv) Plain cement concrete M15 grade				
		Rate as per item No.11.4 of Chapter 11	cum		3,812.61	0.00
		(v) Cement plaster 15 mm thick 1:4 on stone masonry				
		Rate as per item No. 12.3 of Chapter 12	sqm		132.93	0.00
		(vi) Providing P.C.C. M 20 architectural coping on top of wall				
		Rate as per item No.12.13 of Chapter 12	m		667.26	0.00
		Rate per m length	**m**			**0.00**
		Note: *1 Quantities of material/work shall be as per design and drawings*				
		2 Earth work in excavation may be taken as per site conditions. It may comprise of a number of sub-items depending upon the type of soil/rock encountered.				
8.7	**1600, 300 & 700**	**Construction of Scupper**				
		Construction of scupper with dry stone masonry as per drawing and technical specifications as per Clause 1606.5.				
		Unit = 1 m				
		Taking output = 6 m				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		(i) Earthwork in excavation for structures as per drawing and technical specifications				
		Quantity for 6 m formation width of hill side rock cutting and foundation as per plate No. 7.27 of Rural Road Manual				
		Rate as per item No.11.1 of Chapter 11	cum	115.00	139.60	16,054.37
		Rate per m = a/6				**2,675.73**
		(ii) Random rubble dry stone masonry				
		Quantity for 6 m formation width = 38 cum				
		a) Labour				
		Mate	day	3.80	180.00	684.00
		Mason (1st Class)	day	38.00	210.00	7,980.00
		Mazdoor (Unskilled)	day	57.00	125.00	7,125.00
		b) Materials				
		Stone for RR masonary	cum	38.00	200.00	7,600.00
		Bond stone	nos	266.00	14.00	3,724.00
		c) Overheads @ 10% on (a+b)				**2,711.30**
		d) Contractor's profit @ 10% on (a+b+c)				**2,982.43**
		Cost for 6 m = a+b+c+d				32,806.73
		Rate per m = (a+b+c+d)/6				**5,467.79**
		(iii) Random course rubble dry stone masonry in corbelling				
		Quantity for 6 m formation width = 9 cum				
		a) Labour				
		Mate	day	0.72	180.00	129.60
		Mason (2nd class)	day	6.00	180.00	1,080.00
		Mazdoor (Unskilled)	day	12.00	125.00	1,500.00
		b) Materials				
		Corbelling Stones size 300 mm x 150 mm x 150 mm including wastage	nos	1,335.00	14.00	18,690.00
		c) Overheads @ 10% on (a+b)				**2,139.96**
		d) Contractor's profit @ 10% on (a+b+c)				**2,353.96**
		Cost for 6 m = a+b+c+d				25,893.52
		Rate per m = (a+b+c+d)/6				**4,315.59**
		(iv) Stone filling in foundation trenches as per drawing and technical specification				
		Quantity for 6 m formation width = 10 cum				
		a) Labour				
		Mate	day	0.12	180.00	21.60
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		b) Materials				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Loose stone	cum	12.00	210.00	2,520.00
		c) Overheads @ 10% on (a+b)				**291.66**
		d) Contractor's profit @ 10% on (a+b+c)				**320.83**
		Cost for 6 m = a+b+c+d				3,529.09
		Rate per m = (a+b+c+d)/6				**588.18**
		Rate per m length= (i + ii + iii + iv)				**13,047.28**
		Note: *1 Quantities of parapet are not included in the quantities of scupper.*				
		2 The above analysis is based on plate No.7.27 of Rural Roads Manual.				
		3 *Rates for earth work are to be taken appropriate to the type of soil/rock*				
8.8	**1400, 1700 & 800**	**Construction of RCC guide posts of 250 mm dia M15 grade cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC posts not to exceed 1 in 500 as per drawing and Technical Specification Clause 1608.2**				
		(i) Earth work in excavation for structures				
		Unit = cum				
		Rates as per item No. 11.1 of Chapter 11	cum			
		(ii) RCC M15 grade				
		Unit = cum				
		Rate as per item No. 11.4 of Chapter 11	cum			
		(iii) HYSD steel bars				
		Unit = t				
		Rate as per item No. 12.6 of Chapter 12	t			
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		Rate as per item No.10.5 of Chapter 10	sqm			
	Note:	*Quantities are to be taken as per drawing*				
8.9	**1600**	**Providing edge stones on valley side of formation as per drawing and Technical Specification Clause 1608.2.6**				
		Unit = 1 m				
		Taking Output = 45 m (100 no of edge stones of size 450 mm x 300 mm x 100 mm)				
		a) Labour				
		Mate	day	0.18	180.00	32.40
		Mazdoor (Unskilled)	day	3.00	125.00	375.00
		Mason (2nd class)	day	1.50	180.00	270.00
		b) Materials				
		Stones of size 450 mmx300 mmx100 mm	nos	100.00	260.00	26,000.00
		c) Painting two coats including priming coat on new concrete/stone surfaces				
		45 x 0.500 = 22.50				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Rate as per item No.10.5 of Chapter 10	sqm	22.50	83.33	1,874.82
		d) Overheads @ 10% on (a+b+c)				**2,855.22**
		e) Contractor's profit @ 10% on (a+b+c+d)				**3,140.74**
		Cost for 45 m = a+b+c+d+e				34,548.19
		Rate per m = (a+b+c+d+e)/45				**767.74**
8.10	**1600 & 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, stacking the sods and watering as per Clause 309				
		Unit = sqm				
		Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.16	180.00	28.80
		Mazdoor (Unskilled)	day	4.00	125.00	500.00
		b) Machinery				
		Water tanker including watering for 3 months	hour	4.00	341.00	1,364.00
		Tractor with Trolley	hour	1.00	259.00	259.00
		c) Materials				
		Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	270.00	48.60
		Water	kl	24.00	100.00	2,400.00
		d) Overheads @ 10% on (a+b+c)				**460.04**
		e) Contractor's profit @ 10% on (a+b+c+d)				**506.04**
		Cost for 100 sqm = a+b+c+d+e				5,566.48
		Rate per sqm = (a+b+c+d+e)/100				**55.66**
8.11	**1600 & 300**	**Seeding and Mulching**				
		Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, multching material, applying bituminous emulsion at the rate of 0.23 l per sqm and laying and fixing jute netting, including watering for 3 months all as per Clause 310.				
		Unit = sqm				
		Taking output = 240 sqm				
		a) Labour				
		Mate	day	0.60	180.00	108.00
		Mazdoor (Unskilled)	day	15.00	125.00	1,875.00
		b) Machinery				
		Water tanker 6 kl capacity including watering for 3 months (for one hour per week)	hour	13.00	341.00	4,433.00
		Tractor with Trolley	hour	2.40	259.00	621.60
		c) Materials				

Sr. No.	Reference to MORD Specifications	Description	Unit	Quantity	Rate (Rs.)	Amount (Rs.)
		Seeds	kg	3.60	602.00	2,167.20
		Sludge/Farm yard manure @ 0.18 cum per 100 sqm	cum	0.43	270.00	116.10
		Bitumen Emulsion	t	0.055	40,110.00	2,206.05
		Jute netting, open weave, 25 mm square opening	sqm	264.00	150.00	39,600.00
		Water for 3 months	kl	84.00	100.00	8,400.00
		d) Overheads @ 10% on (a+b+c)				**5,952.70**
		e) Contractor's profit @ 10% on (a+b+c+d)				**6,547.96**
		Cost for 240 sqm = a+b+c+d+e				72,027.61
		Rate per sqm = (a+b+c+d+e)/240				**300.12**