Government of Tripura
Public Works Department

ANALYSIS OF RATES

for

TRIPURA SCHEDULE OF RATES

for

ROAD & BRIDGE WORKS

(PART-II)

for

ODRs AND RURAL ROADS.

Year:- 2017

Chapter 1
LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
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	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Truck	hour	0.50	373.00	186.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**51.38**
		Cost for 5.5 cum = a+b+c+d				393.88
		Rate per cum = (a+b+c+d)/5.5				**71.61**
					say	*71.60*
	(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	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Machinery				
		Truck	hour	0.25	373.00	93.25
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**25.69**
		Cost for 5.5 cum = a+b+c+d				196.94
		Rate per cum = (a+b+c+d)/5.5				**35.81**
					say	*35.80*
	(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				
		Taking output = 5.5 cum				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Machinery				
		Truck	hour	0.25	373.00	93.25
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**25.69**
		Cost for 5.5 cum = a+b+c+d				196.94
		Rate per cum = (a+b+c+d)/5.5				**35.81**
					say	*35.80*
	(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	300.00	1.50
		Mazdoor (Unskilled)	day	0.125	300.00	37.50
		b) Machinery				
		Truck	hour	0.166	373.00	61.92
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**15.14**
		Cost for 5.5 cum = a+b+c+d				116.06
		Rate per cum = (a+b+c+d)/5.5				**21.10**
					say	*21.10*
1.2		**Loading and Unloading of 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		

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii) Waiting time, unforeseen contingencies, etc.	Min	2.00		
		Total	**Min**	**10.33**		
		a) Machinery				
		(i) Tipper 10 t capacity	hour	0.172	321.00	55.21
		(ii) Front end-loader 1 cum bucket capacity @ 45 cum per hour	hour	0.122	963.00	117.49
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**25.90**
		Cost for 5.5 cum = a+b+c				198.60
		Rate per cum = (a+b+c) /5.5				**36.11**
					say	*36.10*
	(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	321.00	33.71
		(ii) Front end-loader 1 cum bucket capacity @ 100 cum per hour	hour	0.055	963.00	52.97
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**13.00**
		Cost for 5.5 cum = a+b+c				99.67
		Rate per cum = (a+b+c)/5.5				**18.12**
					say	*18.10*
	(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				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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**		
	a)	**Machinery**				
		Tipper 10 t capacity	hour	0.08	321.00	25.68
	b)	**0**				**0.00**
	c)	**Contractor's profit and overheads @ 15 % on (a+b)**				**3.85**
		Cost for 5.5 cum = a+b+c				29.53
		Rate per cum = (a+b+c)/5.5				**5.37**
					say	*5.40*
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	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Machinery**				
		Truck	hour	0.33	373.00	123.09
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**30.16**
		Cost for 2000 Nos. = a+b+c+d				231.25
		Rate for 1000 bricks = (a+b+c+d)/2				**115.63**
					say	*115.60*
	(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	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Machinery**				
		Truck	hour	0.33	373.00	123.09
	c)	**0**				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**30.16**
		Cost for 2000 Nos. = a+b+c+d				231.25
		Rate for 1000 bricks = (a+b+c+d)/2				**115.63**
					say	*115.60*
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				
		Taking output = 10 t				
		a) Labour				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.50	300.00	450.00
		b) Machinery				
		Truck	hour	1.00	373.00	373.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**126.15**
		Cost for 10 t = a+b+c+d				967.15
		Rate per tonnes = (a+b+c+d)/10				**96.72**
					say	*96.70*
	(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	300.00	18.00
		Mazdoor (Unskilled)	day	1.50	300.00	450.00
		b) Machinery				
		Truck	hour	1.00	373.00	373.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**126.15**
		Cost for 10 t = a+b+c+d				967.15
		Rate per tonne = (a+b+c+d)/10				**96.72**
					say	*96.70*
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				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.07	300.00	21.00
		Mazdoor (Unskilled)	day	1.80	300.00	540.00
		b) Machinery				
		Truck	hour	1.00	373.00	373.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**140.10**
		Cost for 10 t = a+b+c+d				1,074.10
		Rate per tonnes = (a+b+c+d)/10				**107.41**
					say	*107.40*
	(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	300.00	21.00
		Mazdoor (Unskilled)	day	1.80	300.00	540.00
		b) Machinery				
		Truck	hour	1.00	373.00	373.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**140.10**
		Cost for 10 t = a+b+c+d				1,074.10
		Rate per t = (a+b+c+d)/10				**107.41**
					say	*107.40*
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	300.00	18.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		b) Machinery				
		Truck	hour	1.25	373.00	466.25
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**144.64**
		Cost for 10 t = a+b+c+d				1,108.89
		Rate per tonnes = (a+b+c+d)/10				**110.89**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*110.90*
		(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	300.00	15.00
		Mazdoor (Unskilled)	day	1.20	300.00	360.00
		b) Machinery				
		Truck	hour	1.25	373.00	466.25
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**126.19**
		Cost for 10 t = a+b+c+d				967.44
		Rate per t = (a+b+c+d)/10				**96.74**
					say	*96.70*
	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	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Truck	hour	1.00	373.00	373.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**102.75**
		Cost for 5 t = a+b+c+d				787.75
		Rate per t = (a+b+c+d)/5				**157.55**
					say	*157.60*
		(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	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Truck	hour	1.00	373.00	373.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**102.75**
		Cost for 5 t = a+b+c+d				787.75
		Rate per t = (a+b+c+d)/5				**157.55**
					say	*157.60*

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

Taking output = 5.5 cum

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Truck	hour	1.50	373.00	559.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**177.53**
		Cost for 5.5 cum = a+b+c+d				1,361.03
		Rate per cum = (a+b+c+d)/5.5				**247.46**
					say	*247.50*

(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

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Truck	hour	1.50	373.00	559.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**177.53**
		Cost for 5.5 cum = a+b+c+d				1,361.03

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d)/5.5				**247.46**
					say	*247.50*
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	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Truck	hour	0.33	373.00	123.09
		Crane	hour	0.33	1,050.00	346.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**93.84**
		Cost for 9 pipes = a+b+c+d				719.43
		Rate per pipe = (a+b+c+d)/9				**79.94**
					say	*79.90*
	B.	**900/ 750 mm dia Hume pipe**				
		Unit = per pipe				
		Taking output = 15 pipes				
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Truck	hour	0.33	373.00	123.09
		Crane	hour	0.33	1,050.00	346.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**93.84**
		Cost for 15 pipes = a+b+c+d				719.43
		Rate per pipe = (a+b+c+d)/15				**47.96**
					say	*48.00*
	C.	**600/450 mm dia Hume pipe**				
		Unit = per pipe				
		Taking output = 21 pipe				
		a) Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Truck	hour	0.33	373.00	123.09
		Crane	hour	0.33	1,050.00	346.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**93.84**
		Cost for 21 pipes = a+b+c+d				719.43
		Rate per pipe = (a+b+c+d)/21				**34.26**
					say	*34.30*

(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

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Truck	hour	2.00	373.00	746.00
		c) Material				
		Wooden sleepers 250mm x 250mm x125mm hire charges 3 nos sleeper	hour	2.00	18.50	37.00
		Crow bars 2 nos not less than 40 mm dia (hire-charges)	hour	2.00	11.25	22.50
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**167.63**
		Cost for 5 pipes = a+b+c+d+e/5				1,285.13
		Rate per pipe = (a+b+c+d+e)				**257.03**
					say	*257.00*

B. 900/ 750 mm dia Hume pipe

Unit = per pipe

Taking output = 6 pipes

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Truck	hour	2.00	373.00	746.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Materials				
		Wooden sleepers 250mm x250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	18.50	37.00
		Crow bars 2 nos not less than 40 mm dia	hour	2.00	11.25	22.50
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**167.63**
		Cost for 6 pipes = a+b+c+d+e				1,285.13
		Rate per pipe = (a+b+c+d+e)/6				**214.19**
					say	<u>*214.20*</u>
		C. 600/450 mm dia Hume pipe				
		Unit = per pipe				
		Taking output = 8 pipes				
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Truck	hour	2.00	373.00	746.00
		c) Materials				
		Wooden sleepers 250mm x 250mm x 125mm hire charges 3 nos. sleeper	hour	2.00	18.50	37.00
		Crow bars 2 nos not less than 40 mm dia	hour	2.00	11.25	22.50
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**167.63**
		Cost for 8 pipes = a+b+c+d+e				1,285.13
		Rate per pipe = (a+b+c+d+e)/8				**160.64**
					say	<u>*160.60*</u>
	(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	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Truck	hour	0.33	373.00	123.09
		Crane	hour	0.33	1,050.00	346.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) 0				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**93.84**
		Cost for 9 pipes = a+b+c+d				719.43
		Rate per pipe = (a+b+c+d)/9				**79.94**
		say				*79.90*
		B. **900/ 750 mm dia Hume pipe**				
		Unit = per pipe				
		Taking output = 15 pipes				
		a) **Labour**				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) **Machinery**				
		Truck	hour	0.33	373.00	123.09
		Crane	hour	0.33	1,050.00	346.50
		c) 0				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**93.84**
		Cost for 15 pipes = a+b+c+d				719.43
		Rate per pipe = (a+b+c+d)/15				**47.96**
		say				*48.00*
		C. **600/450 mm dia Hume pipe**				
		Unit = per pipe				
		Taking output = 21 pipes				
		a) **Labour**				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) **Machinery**				
		Truck	hour	0.33	373.00	123.09
		Crane	hour	0.33	1,050.00	346.50
		c) 0				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**93.84**
		Cost for 21 pipes = a+b+c+d				719.43
		Rate per pipe = (a+b+c+d)/21				**34.26**
		say				*34.30*
1.10		**Haulage excluding Loading & Unloading**				
		Haulage of materials by tipper/ truck excluding cost of loading, unloading and stacking.				
		Unit = t.km				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output 10 t load and lead 10 km = 100 t.km				
		Case-I : Surfaced Road				
		Speed with load: 20 km per hour				
		Speed while returning empty: 35 km per hour				
		(Considering hilly roads and the timing of movements in Meghalaya & Tripura on the NH)				
		a) **Machinery**				
		Tipper 10 t capacity				
		Haulage with load	hour	0.50	321.00	160.50
		Empty return trip	hour	0.29	321.00	93.09
		b) **0**				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				**38.04**
		Cost for 100 t.km = a+b+c				291.63
		Rate per t.km = (a+b+c)/100				**2.92**
					say	*2.90*

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.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Case-II: Unsurfaced Gravel Road				
		Speed with load: 15 km/hour				
		Speed for empty return trip: 30 km/hour				
		a) **Machinery**				
		Tipper 10 t capacity				
		Haulage with load	hour	0.67	321.00	215.07
		Empty return trip	hour	0.33	321.00	105.93
		b) **0**				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				**48.15**
		Cost for 100 t.km = a+b+c				369.15
		Rate per t.km = (a+b+c)/100				**3.69**
					say	*3.70*

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**

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i)	**Tipper 10 t capacity**				
			Haulage with load	hour	1.00	321.00	321.00
			Empty return trip	hour	0.67	321.00	215.07
		b)	**0**				**0.00**
		c)	**Contractor's profit and overheads @ 15 % on (a+b)**				**80.41**
			Cost for 100 t.km = a+b+c				616.48
			Rate per t.km = (a+b+c)/100				**6.16**
						say	*6.20*

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.*

Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
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	300.00	14.40
			Mazdoor (Unskilled)	day	1.20	300.00	360.00
		b)	**Material**				
			Supply of quarried stone 150-200 mm size	cum	1.10	2,603.00	2,863.30
		c)	**0**				**0.00**
		d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**485.66**
			Rate per cum = a+b+c+d				**3,723.36**
						say	*3723.40*
		(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				
			Taking output = 1 cum				
		a)	**Labour**				
			Mate	day	0.06	300.00	18.00
			Mazdoor (Unskilled)	day	1.50	300.00	450.00
		b)	**Material**				
			Supply of quarried stone 150-200 mm size	cum	1.10	2,603.00	2,863.30
		c)	**0**				**0.00**
		d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**499.70**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = a+b+c+d				**3,831.00**
					say	***3831.00***
		(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	300.00	21.60
		Mazdoor (Unskilled)	day	1.80	300.00	540.00
		b) Material				
		Supply of quarried stone 150-200 mm size	cum	1.10	2,603.00	2,863.30
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**513.74**
		Rate per cum = a+b+c+d				**3,938.64**
					say	***3938.60***
1.12		**Crushing of Stone boulders in to aggregates 100 per cent passing through 53 mm sieve as per Table 500.6 of Technical Specification.**				
		Crushing of Stone boulders of 150 mm size and below 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 Specification including cost of stones.				
		Unit = cum				
		Taking output = 750 cum at crusher location				
		a) Labour				
		Mate	day	0.76	300.00	228.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	17.00	300.00	5,100.00
		b) Material				
		Stone Boulder of size 150 mm and below	cum	800.00	2,563.00	2,050,400.00
		c) Machinery				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	14,451.00	86,706.00
		Front end loader 1 cum bucket capacity	hour	20.00	963.00	19,260.00
		Tipper 5.5 cum capacity	hour	20.00	321.00	6,420.00
		d) 0				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**325,331.10**
		Cost for 750 cum = (a+b+c+d+e)				2,494,205.10
		Rate per cum =[(a+b+c+d+e) x 0.85]/ 750				**2,826.77**
					say	*__2826.80__*

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 boulders in to aggregates 100 per cent passing through 22.4 mm sieve as per Table 500.6 of Technical Specification.**

Crushing of Stone boulders of 150 mm size and below 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 Specification including cost of stones.

Unit = cum

Taking output = 670 cum at crusher location

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) **Labour**				
		Mate	day	0.76	300.00	228.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	17.00	300.00	5,100.00
		b) **Material**				
		Stone boulder of size 150 mm and below	cum	800.00	2,563.00	2,050,400.00
		c) **Machinery**				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	14,451.00	86,706.00
		Front end loader 1 cum bucket capacity	hour	10.00	963.00	9,630.00
		Tipper 5.5 cum capacity	hour	10.00	321.00	3,210.00
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**323,405.10**
		Cost for 670 cum = (a+b+c+d+e)				2,479,439.10
		Rate per cum = [(a+b+c+d+e) x 0.90]/ 670				**3,330.59**
					say	*__3330.60__*

Note: 1 *800 cum of stone boulders are needed to get 670 cum of stone chips of required size.*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	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.*				
	3	*The integrated stone crusher includes primary and secondary crushing units.*				
1.14		**Crushing of Stone boulders in to aggregates 100 per cent passing through 13.2 mm sieve as per Table 500.9 of Technical Specification.**				
		Crushing of Stone boulders of 150 mm size and below 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 13.2 mm sieve as per Table 500.9 of Technical Specification including cost of stones.				
		Unit = cum				
		Taking output = 600 cum at crusher location				
	a)	**Labour**				
		Mate	day	0.76	300.00	228.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	17.00	300.00	5,100.00
	b)	**Material**				
		Stone Boulder of size 150 mm and below	cum	800.00	2,563.00	2,050,400.00
	c)	**Machinery**				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	14,451.00	86,706.00
		Front end loader 1 cum bucket capacity	hour	10.00	963.00	9,630.00
		Tipper 5.5 cum capacity	hour	10.00	321.00	3,210.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**323,405.10**
		Cost for 600 cum = (a+b+c+d+e)				2,479,439.10
		Rate per cum = [(a+b+c+d+e) x 0.95]/ 600				**3,925.78**
					say	*3925.80*

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.*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	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 boulders in to aggregates 100 per cent passing through 9.5 mm sieve as per Table 500.9 of Technical Specification.**				
		Crushing of Stone boulders of 150 mm size and below 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 9.5 mm sieve as per Table 500.9 of Technical Specification including cost of stones.				
		Unit = cum				
		Taking output = 600 cum at crusher location				
	a)	**Labour**				
		Mate	day	0.76	300.00	228.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	17.00	300.00	5,100.00
	b)	**Material**				
		Stone Boulder of size 150 mm and below	cum	800.00	2,563.00	2,050,400.00
	c)	**Machinery**				
		Integrated stone crusher of 200 t/h including belt conveyor and vibrating screens	hour	6.00	14,451.00	86,706.00
		Front end loader 1 cum bucket capacity	hour	10.00	963.00	9,630.00
		Tipper 5.5 cum capacity	hour	10.00	321.00	3,210.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**323,405.10**
		Cost for 600 cum = (a+b+c+d+e)				2,479,439.10
		Rate per cum = [(a+b+c+d+e) x 0.95]/ 600				**3,925.78**
					say	*3925.80*

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.*

1.16   100   Setting Out

Unit = 1 km

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

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(i) Reference benchmark 1 (one) no.				
		(ii) Working benchmark 4 (four) 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.A.I(i) of Chapter 11	cum	0.325	287.00	93.28
		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.I(i) of Chapter 11	cum	0.10	6,890.10	689.01
		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.I of Chapter 11	cum	0.475	5,602.50	2,661.19
		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	145.60	382.93
	Note:	*Add 5 per cent cost of items No.1 to 4 for white washing, lettering and painting, etc.*				191.32
		Cost for 1 (one) no Bench Mark =				**4,017.72**
					say	*__4017.70__*
		(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.A.I(i) of Chapter 11	cum	0.192	287.00	55.10
		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.I(i) of Chapter 11	cum	0.06	6,890.10	413.41
		3. Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering as per drawing and technical specification.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.5.I of Chapter 11	cum	0.193	5,602.50	1,081.28
	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	145.60	218.40
		Add 5 per cent cost of items No.1 to 4 for white washing, lettering and painting, etc.				88.41
		Cost for 1 (one) no Bench Mark =				**1,856.60**
					say	**1856.60**

1.17   **Haulage excluding Loading & Unloading for Hume pipes.**

Haulage of materials by tipper excluding cost of loading, unloading and stacking.

Unit = t.km

Taking output 8 t load and lead 10 km = 80 t.km

Case-I : Surfaced Road

Speed with load: 25 km per hour

Speed while returning empty: 35 km per hour

a)   Machinery

Truck 10 t capacity (considering out put of 8 t for hume pipes)

		Haulage with load	hour	0.40	373.00	149.20
		Empty return trip	hour	0.29	373.00	108.17

b)   0   **0.00**

c)   Contractor's profit and overheads @ 15 % on (a+b)   **38.61**

d)   Cost for 80 t.km = a+b+c   295.98

So, Rate per Pipe per Km:-

i) For 1000/ 1200 mm dia = (d) / 3 nos / 10 km

(considering 2.85 Tonne per pipe of 2.50 mtr length)   **9.87**

                                                                                    say   **9.90**

ii) For 900/ 750 mm dia = (d) / 4 nos / 10 km

(considering 2.07 Tonne per pipe of 2.50 mtr length)   **7.40**

                                                                                    say   **7.40**

iii) For 600/ 450 mm dia = (d) / 6 nos / 10 km

(considering 1.40 Tonne per pipe of 2.50 mtr length)   **4.93**

                                                                                    say   **4.90**

Case-II: Unsurfaced Gravel Road

Speed with load: 15 km/hour

Speed for empty return trip: 20 km/hour

a)   Machinery

Truck 10 t capacity (considering out put of 8 t for hume pipes)

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Haulage with load	hour	0.67	373.00	249.91
		Empty return trip	hour	0.50	373.00	186.50
b)		0				**0.00**
c)		Contractor's profit and overheads @ 15 % on (a+b)				**65.46**
d)		Cost for 80 t.km = a+b+c				501.87

i) For 1000/ 1200 mm dia = (d) / 3 nos / 10 km

		(considering 2.85 Tonne per pipe of 2.50 mtr length)				**16.73**
					say	*16.70*

ii) For 900/ 750 mm dia = (d) / 4 nos / 10 km

		(considering 2.07 Tonne per pipe of 2.50 mtr length)				**12.55**
					say	*12.50*

iii) For 600/ 450 mm dia = (d) / 6 nos / 10 km

		(considering 1.40 Tonne per pipe of 2.50 mtr length)				**8.36**
					say	*8.40*

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) Truck 10 t capacity (considering out put of 8 t for hume pipes)

		Haulage with load	hour	1.00	373.00	373.00
		Empty return trip	hour	0.67	373.00	249.91
b)		0				**0.00**
c)		Contractor's profit and overheads @ 15 % on (a+b)				**93.44**
d)		Cost for 80 t.km = a+b+c				716.35

i) For 1000/ 1200 mm dia = (d) / 3 nos / 10 km

		(considering 2.85 Tonne per pipe of 2.50 mtr length)				**23.88**
					say	*23.90*

ii) For 900/ 750 mm dia = (d) / 4 nos / 10 km

		(considering 2.07 Tonne per pipe of 2.50 mtr length)				**17.91**
					say	*17.90*

iii) For 600/ 450 mm dia = (d) / 6 nos / 10 km

		(considering 1.40 Tonne per pipe of 2.50 mtr length)				**11.94**
					say	*11.90*

Note:-
1. 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.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2. The length of each pipe is taken as 2.50 mtr.				
		3. For 1(one) trip of truck following lengths are considered for different dia of pipe.				
		i. 1000/ 1200 mm of total 7.50 mtr length (3 nos).				
		ii. 900/ 750 mm of total 10.00 mtr length (4 nos).				
		iii. 600/ 450 mm of total 15.00 mtr length (6nos).				
		ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)				
1.18	100	**Setting Out (As per drawing 200.1 and 200.2) (using PCC with jhama brick aggregate)**				
		Unit = 1 km				
		The analysis of rate per km shall account for the following:				
		(i) Reference benchmark 1 (one) no.				
		(ii) Working benchmark 4 (four) nos per km and near all drainage structure and bridges				
		(iii) Reference Pillars/Burjees @ 50 m interval on both sides of the formation width = 40 nos				
		(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				
		A. Ordinary Soil				
		1) Construction of typical benchmark as per drawing 200.1 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	2.925	287.00	839.48
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	5.175	5,881.10	30,434.69
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	23.67	145.60	3,446.35
		2) Construction of typical refernce pillar as per drawing 200.2 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	7.680	287.00	2,204.16
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	10.12	5,881.10	59,516.73

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	60.00	145.60	8,736.00
	Note:	*Add 5 per cent cost of items No.(1) & (2) for white washing, lettering and painting, etc.*				5,258.87
		Rate Per KM				**110,436.28**
					say	*110436.30*
		B. In Ordinary Rock (not requiring blasting)				
	1)	Construction of typical benchmark as per drawing 200.1 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	2.925	358.80	1,049.49
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	5.175	5,881.10	30,434.69
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	23.67	145.60	3,446.35
	2)	Construction of typical refernce pillar as per drawing 200.2 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	7.680	358.80	2,755.58
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	10.12	5,881.10	59,516.73
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	60.00	145.60	8,736.00
	Note:	*Add 5 per cent cost of items No.(1) & (2) for white washing, lettering and painting, etc.*				5,296.94
		Rate Per KM				**111,235.79**
					say	*111235.80*
		C. In Hard Rock (blasting prohibited)				
	1)	Construction of typical benchmark as per drawing 200.1 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.III of Chapter 11	cum	2.925	548.60	1,604.66

Chapter 1
LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	5.175	5,881.10	30,434.69
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	23.67	145.60	3,446.35
	2)	Construction of typical refernce pillar as per drawing 200.2 (considering PCC M10 with jhama brick aggregate in place of brick work)				
		a. Earthwork in excavation for foundations as per drawing and technical specification.				
		As per item No.11.1.A.III of Chapter 11	cum	7.680	548.60	4,213.25
		b. Plain cement concrete work in M10 (with jhama brick aggregate)in foundation complete as per drawing and technical specification.				
		As per item No.11.9.I(ii) of Chapter 11	cum	10.12	5,881.10	59,516.73
		c. Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	60.00	145.60	8,736.00
	Note:	*Add 5 per cent cost of items No.(1) & (2) for white washing, lettering and painting, etc.*				5,397.58
		Rate Per KM				**113,349.26**
					say	*113349.30*

| 1.19 | 100 | **Setting Out (As per drawing enclosed) (using PCC with jhama brick aggregate)** | | | | |

Unit = 1 km

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

(i)   Reference benchmark 1 (one) no.

(ii)   Working benchmark 4 (four) nos per km and near all drainage structure and bridges (4 nos assumed),

Total - 9 nos.

(iii)   Reference Pillars/Burjees @ 50 m interval on both sides of the formation width **40 nos**.

(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 enclosed.

Chapter 1
LOADING, UNLOADING, CARRIAGE, CRUSHING OF MATERIALS AND SETTING OUT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

For all calss of soil
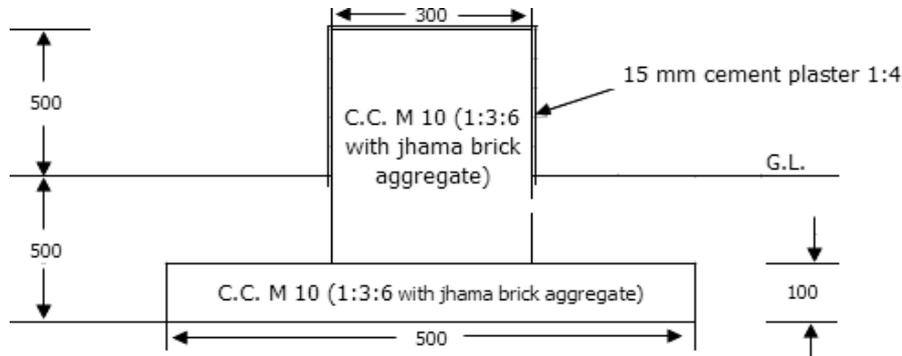
Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
1.		Excavation for structure earthwork in excavation for foundations as per drawing and technical specification including dressing of sides and bottom and backfilling in ordinary soil.				
		0.50 x 0.50 x 0.50				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.130	287.04	37.32
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.11.9.I(ii) of Chapter 11	cum	0.11	5,881.10	646.92
3.		Plastering with cement mortar 1:4 as per technical specifications.				
		As per item No.12.3 of Chapter 12	sqm	0.81	145.60	117.94
		Add 5 per cent for white washing, lettering and painting, etc.				40.11
		Cost for 1 (one) no Bench Mark/ refernce pillar =				**842.28**
		Rate per Km = 49 x 842.28 **=**				**41271.76**
		say				*41271.80*

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.1	201	**Clearing Grass and Removal of Rubbish**				
		Clearing grass and removal of rubbish up to a distance of 30 m outside the periphery of the area as per MoRD Technical Specification Clause 201.				
		By Manual Means				
		Unit = hectare				
		Taking output = 1 hectare				
		a) **Labour**				
		Mate	day	1.60	300.00	480.00
		Mazdoor (Unskilled)	day	40.00	300.00	12,000.00
		b) **0**				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				**1,872.00**
		Rate per hectare = a+b+c				**14,352.00**
					say	_**14352.00**_
2.2	201	**Clearing and Grubbing Road Land**				
		Clearing and grubbing road land including uprooting wild vegetation , grass, bushes, shrubs,saplings and trees of girth upto 300 mm , removal of stumps of such trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per MoRD Technical Specification clause 201.				
		Unit = hectare				
		Taking output = 1 hectare				
		(I) **By Manual Means**				
		(A) **In area of non-thorny jungle**				
		a) **Labour**				
		Mate	day	6.00	300.00	1,800.00
		Mazdoor (Unskilled)	day	150.00	300.00	45,000.00
		b) **Machinery**				
		Tractor with trolley	hour	1.00	303.00	303.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**7,065.45**
		Rate per hectare = a+b+c+d				**54,168.45**
					say	_**54168.50**_
		(B) **In area of thorny jungle**				
		a) **Labour**				
		Mate	day	8.00	300.00	2,400.00
		Mazdoor (Unskilled)	day	200.00	300.00	60,000.00

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Tractor with trolley	hour	2.00	303.00	606.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**9,450.90**
		Rate per hectare = a+b+c+d				**72,456.90**
					say	**72456.90**
		(II) By Mechanical Means				
		(A) In area of non-thorny jungle				
		a) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
		b) Machinery				
		Dozer D 50 with attachment or suitable machinery for removal of trees & stumps	hour	10.00	1,463.00	14,630.00
		Tractor with Trolley	hour	1.00	303.00	303.00
		c) Overheads @ 10 % on (a+b)				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**2,427.15**
		Rate per hectare = a+b+c+d				**18,608.15**
					say	**18608.20**
		(B) In area of thorny jungle				
		a) Labour				
		Mate	day	0.24	300.00	72.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		b) Machinery				
		Dozer D 50 with attachment for removal of trees & stumps	hour	12.00	1,463.00	17,556.00
		Tractor with trolley	hour	1.50	303.00	454.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**2,982.38**
		Rate per hectare = a+b+c+d				**22,864.88**
					say	**22864.90**

Note: *The top soil removed during clearing and grubbing of site, if suitable for re-use shall be transported, conserved and stacked as directed by the Engineer and shall be incidental to the work.*

| 2.3 | 201 | **Cutting of Trees including Cutting of Trunks, Branches and Removal of Stumps** | | | | |

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cutting of trees, including cutting of trunks , branches and removal of stumps & roots, refilling, compaction of backfilling and stacking of serviceable material by manual means with all lifts as per MoRD Technical Specification Clause 201.				
		A. Lead upto 100 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate	day	0.024	300.00	7.20
		Mazdoor (Unskilled)	day	0.60	300.00	180.00
		b) Machinery				
		Tractor with trolley	hour	0.07	303.00	21.21
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**31.26**
		Rate for each tree = a+b+c+d				**239.67**
					say	*239.70*
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate	day	0.036	300.00	10.80
		Mazdoor (Unskilled)	day	0.90	300.00	270.00
		b) Machinery				
		Tractor with trolley	hour	0.21	303.00	63.63
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**51.66**
		Rate for each tree = a+b+c+d				**396.09**
					say	*396.10*
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Tractor with trolley	hour	0.28	303.00	84.84
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**106.33**
		Rate for each tree = a+b+c+d				**815.17**
					say	*815.20*
		(iv) Girth above 1800 mm to 2700 mm				

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
		b) Machinery				
		Tractor with trolley	hour	0.42	303.00	127.26
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				206.29
		Rate for each tree = a+b+c+d				1,581.55
					say	*1581.50*
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate	day	0.32	300.00	96.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) Machinery				
		Tractor with trolley	hour	1.00	303.00	303.00
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				419.85
		Rate for each tree = a+b+c+d				3,218.85
					say	*3218.90*
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate	day	1.00	300.00	300.00
		Mazdoor (Unskilled)	day	25.00	300.00	7,500.00
		b) Machinery				
		Tractor with trolley	hour	2.00	303.00	606.00
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				1,260.90
		Rate for each tree = a+b+c+d				9,666.90
					say	*9666.90*
		B. Lead upto 1000 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate	day	0.024	300.00	7.20
		Mazdoor (Unskilled)	day	0.60	300.00	180.00
		b) Machinery				

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley	hour	0.10	303.00	30.30
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**32.63**
		Rate for each tree = a+b+c+d				**250.13**
					say	*__250.10__*
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate	day	0.036	300.00	10.80
		Mazdoor (Unskilled)	day	0.90	300.00	270.00
		b) Machinery				
		Tractor with trolley	hour	0.30	303.00	90.90
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**55.76**
		Rate for each tree = a+b+c+d				**427.46**
					say	*__427.50__*
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Tractor with trolley	hour	0.40	303.00	121.20
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**111.78**
		Rate for each tree = a+b+c+d				**856.98**
					say	*__857.00__*
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
		b) Machinery				
		Tractor with trolley	hour	0.60	303.00	181.80
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**214.47**
		Rate for each tree = a+b+c+d				**1,644.27**
					say	*__1644.30__*
		(v) Girth above 2700 mm to 4500 mm				

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.32	300.00	96.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) Machinery				
		Tractor with trolley	hour	1.20	303.00	363.60
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**428.94**
		Rate for each tree = a+b+c+d				**3,288.54**
					say	*3288.50*

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate	day	1.00	300.00	300.00
		Mazdoor (Unskilled)	day	25.00	300.00	7,500.00
		b) Machinery				
		Tractor with trolley	hour	2.40	303.00	727.20
		Note:- The unit quantity of the Tractor with Trolley has been considered by comparing item 2.3.A.V & VI and 2.3.B.V & VI.				
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				1,279.08
		Rate for each tree = a+b+c+d				9,806.28
					say	*9806.30*
2.4	201	**Uprooting and Removing Stumps & Roots**				
		Uprooting and Removing Stumps & roots, compaction of backfilling and stacking of servicable material by manual means as per MoRD Technical Specification Clause 201.				
		A. Lead upto 100 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate		0.016	300.00	4.80
		Mazdoor (Unskilled)		0.40	300.00	120.00
		b) Machinery				
		Tractor with trolley		0.018	303.00	5.45
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				19.54
		Rate for each stump & root = a+b+c+d				149.79
					say	*149.80*
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate		0.024	300.00	7.20
		Mazdoor (Unskilled)		0.60	300.00	180.00
		b) Machinery				
		Tractor with trolley		0.05	303.00	15.15
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				30.35

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate for each stump & root = a+b+c+d				**232.70**
					say	*232.70*

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate		0.053	300.00	15.90
		Mazdoor (Unskilled)		1.33	300.00	399.00
		b) Machinery				
		Tractor with trolley		0.07	303.00	21.21
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**65.42**
		Rate for each stump & root = a+b+c+d				**501.53**
					say	*501.50*
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate		0.11	300.00	33.00
		Mazdoor (Unskilled)		2.66	300.00	798.00
		b) Machinery				
		Tractor with trolley		0.11	303.00	33.33
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**129.65**
		Rate for each stump & root = a+b+c+d				**993.98**
					say	*994.00*
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate		0.21	300.00	63.00
		Mazdoor (Unskilled)		5.33	300.00	1,599.00
		b) Machinery				
		Tractor with trolley		0.25	303.00	75.75
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**260.66**
		Rate for each stump & root = a+b+c+d				**1,998.41**
					say	*1998.40*
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate		0.60	300.00	180.00
		Mazdoor (Unskilled)		15.00	300.00	4,500.00
		b) Machinery				
		Tractor with trolley		0.75	303.00	227.25

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**736.09**
		Rate for each stump & root = a+b+c+d				**5,643.34**
					say	**_5643.30_**
		B. Lead upto 1000 m				
		Unit = each				
		(i) Girth above 300 mm to 600 mm				
		a) Labour				
		Mate		0.016	300.00	4.80
		Mazdoor (Unskilled)		0.40	300.00	120.00
		b) Machinery				
		Tractor with trolley		0.025	303.00	7.58
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**19.86**
		Rate for each stump & root = a+b+c+d				**152.23**
					say	**_152.20_**
		(ii) Girth above 600 mm to 900 mm				
		a) Labour				
		Mate		0.024	300.00	7.20
		Mazdoor (Unskilled)		0.60	300.00	180.00
		b) Machinery				
		Tractor with trolley		0.075	303.00	22.73
		c) Overheads @ 10 % on (a+b)				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**31.49**
		Rate for each stump & root = a+b+c+d				**241.41**
					say	**_241.40_**
		(iii) Girth above 900 mm to 1800 mm				
		a) Labour				
		Mate		0.053	300.00	15.90
		Mazdoor (Unskilled)		1.33	300.00	399.00
		b) Machinery				
		Tractor with trolley		0.10	303.00	30.30
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**66.78**
		Rate for each stump & root = a+b+c+d				**511.98**
					say	**_512.00_**

Chapter 2
SITE CLEARANCE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iv) Girth above 1800 mm to 2700 mm				
		a) Labour				
		Mate		0.11	300.00	33.00
		Mazdoor (Unskilled)		2.66	300.00	798.00
		b) Machinery				
		Tractor with trolley		0.15	303.00	45.45
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**131.47**
		Rate for each stump & root = a+b+c+d				**1,007.92**
					say	*__1007.90__*
		(v) Girth above 2700 mm to 4500 mm				
		a) Labour				
		Mate		0.21	300.00	63.00
		Mazdoor (Unskilled)		5.33	300.00	1,599.00
		b) Machinery				
		Tractor with trolley		0.30	303.00	90.90
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**262.94**
		Rate for each stump & root = a+b+c+d				**2,015.84**
					say	*__2015.80__*
		(vi) Girth above 4500 mm				
		a) Labour				
		Mate		0.60	300.00	180.00
		Mazdoor (Unskilled)		15.00	300.00	4,500.00
		b) Machinery				
		Tractor with trolley		1.00	303.00	303.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**747.45**
		Rate for each stump & root = a+b+c+d				**5,730.45**
					say	*__5730.50__*
2.5	**202**	**Dismantling of Structures**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = cum				
		Taking output = 1.25 cum				
		(I) By Manual Means				
		(A) Lime Concrete				
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**59.07**
		Cost for 1.25 cum = a+b+c+d				452.88
		Rate per cum = (a+b+c+d)/1.25				**362.31**
					say	*362.30*
		(B) Cement Concrete				
		a) Labour				
		Mate	day	0.05	300.00	15.00
		Mazdoor (Unskilled)	day	1.25	300.00	375.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**70.77**
		Cost for 1.25 cum = a+b+c+d				542.58
		Rate per cum = (a+b+c+d)/1.25				**434.07**
					say	*434.10*
		(C) Reinforced Cement Concrete				
		a) Labour				
		Mate	day	0.15	300.00	45.00
		Blacksmith	day	0.25	403.00	100.75
		Mazdoor (Unskilled)	day	3.50	300.00	1,050.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**191.63**
		Cost for 1.25 cum = a+b+c+d				1,469.19
		Rate per cum = (a+b+c+d)/1.25				**1,175.36**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*1175.40*
		(II) By Mechanical Means				
		(A) Cement Concrete				
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Air compressor 210 cfm with 2 leads of pneumatic breaker @1.5 cum per hour	hour	0.83	321.00	266.43
		Tractor with trolley	hour	0.83	303.00	**251.49**
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**101.09**
		Cost for 1.25 cum = a+b+c+d				775.01
		Rate per cum = (a+b+c+d)/1.25				**620.01**
					say	*620.00*
		(B) Reinforced Cement Concrete				
		a) Labour				
		Mate	day	0.05	300.00	15.00
		Mazdoor (Unskilled)	day	0.91	300.00	273.00
		Blacksmith	day	0.25	403.00	100.75
		b) Machinery				
		Air compressor 170-210 cfm working with 2 Jack Hammers simultaneously @1.00 cum per hour	hour	1.25	321.00	401.25
		Tractor with trolley	hour	1.25	303.00	378.75
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**175.31**
		Cost for 1.25 cum = a+b+c+d				**1,344.06**
		Rate per cum = (a+b+c+d)/1.25				**1,075.25**
					say	*1075.30*
2.6	202	**Dismantling Brick/Tile Work as per MoRD Technical Specification No. 202.**				

2.6   202   Dismantling Brick/Tile Work as per MoRD Technical Specification No. 202.

Dismantling of existing structures like culverts, bridges, retaining walls and other structures comprising of brick masonry including disposal of unserviceable material and stacking the serviceable material with all lift and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.

Unit = cum

Taking output = 1.25

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(A) Lime mortar				
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**35.67**
		Cost for 1.25 cum = a+b+c+d				273.48
		Rate per cum = (a+b+c+d) /1.25				**218.79**
					say	*218.80*
		(B) Cement mortar				
		a) Labour				
		Mate	day	0.03	300.00	9.00
		Mazdoor (Unskilled)	day	0.75	300.00	225.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**47.37**
		Cost for 1.25 cum = a+b+c+d				363.18
		Rate per cum = (a+b+c+d)/1.25				**290.55**
					say	*290.50*
		(C) Mud Mortar				
		a) Labour				
		Mate	day	0.016	300.00	4.80
		Mazdoor (Unskilled)	day	0.40	300.00	120.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**30.99**
		Cost for 1.25 cum = a+b+c+d				237.60
		Rate per cum = (a+b+c+d)/1.25				**190.08**
					say	*190.10*
		(D) Dry Brick Pitching or Brick Soling				
		a) Labour				
		Mate	day	0.014	300.00	4.20

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.35	300.00	105.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**28.65**
		Cost for 1.25 cum = a+b+c+d				219.66
		Rate per cum = (a+b+c+d)/1.25				**175.73**
					say	*175.70*

2.7   202   Dismantling Stone Masonry as per MoRD Technical Specification Clause 202.

Dismantling of existing structures like culverts, bridges, retaining walls and other structures comprising of stone masonry including disposal of unserviceable material and stacking the serviceable material with all lift and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.

Unit = cum

Taking ouput = 1.25 cum

(A) Rubble Stone Masonry in Lime Mortar

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.024	300.00	7.20
		Mazdoor (Unskilled)	day	0.60	300.00	180.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**40.35**
		Cost for 1.25 cum = a+b+c+d				309.36
		Rate per cum = (a+b+c+d)/1.25				**247.49**
					say	*247.50*

(B) Rubble Stone Masonry in Cement Mortar

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.03	300.00	9.00
		Mazdoor (Unskilled)	day	0.75	300.00	225.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**47.37**
		Cost for 1.25 cum = a+b+c+d				363.18
		Rate per cum = (a+b+c+d)/1.25				**290.55**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*290.50*
		(C) Rubble Stone Masonry in Mud Mortar				
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**35.67**
		Cost for 1.25 cum = a+b+c+d				273.48
		Rate per cum = (a+b+c+d)/1.25				**218.79**
					say	*218.80*
		(D) Dry Rubble Masonry				
		a) Labour				
		Mate	day	0.018	300.00	5.40
		Mazdoor (Unskilled)	day	0.45	300.00	135.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**33.33**
		Cost for 1.25 cum = a+b+c+d				255.54
		Rate per cum = (a+b+c+d)/1.25				**204.43**
					say	*204.40*
		(E) Dismantling Stone Pitching / Dry Stone Spalls				
		a) Labour				
		Mate	day	0.016	300.00	4.80
		Mazdoor (Unskilled)	day	0.40	300.00	120.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**30.99**
		Cost for 1.25 cum = a+b+c+d				237.60
		Rate per cum = (a+b+c+d)/1.25				**190.08**
					say	*190.10*
		(F) Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**35.67**
		Cost for 1.25 cum = a+b+c+d				273.48
		Rate per cum = (a+b+c+d)/1.25				**218.79**
					say	*218.80*
2.8	202	**Dismantling Wood Work Wrought and Planed Fixed in Frames of Trusses upto a height of 5 m above Plinth Level as per MoRD Technical Specification Clause 202.**				
		Dismantling of existing Wood work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1.25 cum				
		a) Labour				
		Mate	day	0.06	300.00	18.00
		Carpenter 1st Class	day	0.50	425.00	212.50
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Tractor with trolley	hour	0.27	303.00	81.81
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**91.85**
		Cost for 1.25 cum = a+b+c+d				704.16
		Rate per cum = (a+b+c+d)/1.25				**563.33**
					say	*563.30*
2.9	202	**Dismantling Steel Work in all Types of Sections upto a height of 5 m above Plinth Level excluding Cutting of rivet as per MoRD Technical Specification Clause 202.**				
		Dismantling of existing Steel work, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = t				
		Taking output = 1				
		(A) Including dismembering				
		a) Labour				
		Mate	day	0.14	300.00	42.00
		Blacksmith	day	1.00	403.00	403.00
		Mazdoor (Unskilled)	day	2.50	300.00	750.00
		Add 2.50 per cent of cost of labour for gas cutting, ropes, pulleys, etc.				29.88
		b) Machinery				
		Tractor with trolley	hour	0.17	303.00	51.51
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**191.46**
		Rate per t = a+b+c+d				**1,467.84**
					say	*1467.80*
		(B) Excluding dismembering				
		a) Labour				
		Mate	day	0.10	300.00	30.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Blacksmith	day	0.50	403.00	201.50
		Add 2.50 per cent of cost of labour for gas cutting, ropes, pulleys, etc.				20.79
		b) Machinery				
		Tractor with trolley	hour	0.17	303.00	51.51
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**135.57**
		Rate per t = a+b+c+d				**1,039.37**
					say	*1039.40*
		(C) Extra over Items (A) and (B) for cutting rivets				
		Unit = each				
		Taking output = 10 rivets				
		a) Labour				
		Mate	day	0.01	300.00	3.00
		Blacksmith	day	0.13	403.00	52.39
		Mazdoor (Unskilled)	day	0.13	300.00	39.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**14.16**
		Cost for 10 rivets = a+b+c				108.55

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate for each rivet = (a+b+c) /10				**10.85**
					say	*10.90*
2.10	202	**Scraping of bricks dismantled from brick work including stacking as per MoRD Technical Specification Clause 202.** Scraping of bricks from dismantled brick work, including T & P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = Nos.				
		Taking output = 1000 Nos.				
		In Lime/ Cement Mortar				
		a) **Labour**				
		Mate	day	0.14	300.00	42.00
		Mazdoor (Unskilled)	day	3.50	300.00	1,050.00
		b) **0**				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				163.80
		Rate per 1000 Nos. = a+b+c				**1,255.80**
					say	*1255.80*
2.11	202	**Scraping of Stone from Dismantled Stone Masonry as per MoRD Technical Specification Clause 202.** Scraping of stone from dismantled stone masonry, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1 cum				
		In Cement or Lime Mortar				
		a) **Labour**				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.40	300.00	420.00
		b) **0**				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				65.70
		Rate per cum = a+b+c				**503.70**
					say	*503.70*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.12	202	**Scraping Plaster in Lime or Cement Mortar from Brick / Stone Masonry as per MoRD Technical Specification Clause 202.**				
		Scraping plaster in Lime or Cement Mortar from Brick / stone masonry, including T&P and scaffolding whenever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = sqm				
		Taking ouput = 100 sqm				
		a) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**187.20**
		Cost for 100 sqm = a+b+c				1,435.20
		Rate per sqm = (a+b+c)/100				**14.35**
					say	*14.40*
2.13	202	**Removing all types of Hume pipes.**				
		Removing all types of Hume pipes and stacking within a lead of 1000 m excluding Earthwork and Dismantling of Masonry Works as per MoRD Technical Specification Clause 202 .				
		Unit = m				
		Taking output = 1 m				
		(A) Upto 600 mm dia Hume pipe				
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.52	300.00	156.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**24.30**
		Rate per m = a+b+c				**186.30**
					say	*186.30*
		(B) Above 600 mm to 900 mm dia Hume pipe				
		a) Labour				
		Mate	day	0.03	300.00	9.00
		Mazdoor (Unskilled)	day	0.70	300.00	210.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**32.85**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per m = a+b+c				**251.85**
					say	*251.90*
		(C) Above 900 mm dia Hume pipe				
		a) Labour				
		Mate	day	0.05	300.00	15.00
		Mazdoor (Unskilled)	day	1.20	300.00	360.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**56.25**
		Rate per m = a+b+c				**431.25**
					say	*431.30*

Note: 1 *The excavation of earth, dismantling of stone masonry work in head walls and protection works is not included which is to be measured and paid separately.*

2 *Credit for retrieved stone from masonry work may be taken as per actual availability.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.14	**202**	**Dismantling of Flexible Pavements**				

Dismantling of flexible pavements and disposal of dismantled materials with all lifts and upto a lead of 100 m, stacking serviceable materials and unserviceable materials separately as per MoRD Technical Specification Clause 202.

Unit = cum

Taking output = 1 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(I) By Manual Means				
		(A) Bituminous Courses				
		a) Labour				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.50	300.00	450.00
		b) Machinery				
		Tractor with trolley	hour	0.38	303.00	115.14
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**87.47**
		Rate per cum = a+b+c+d				**670.61**
					say	*670.60*
		(B) Granular Courses				
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley	hour	0.33	303.00	99.99
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**61.80**
		Rate per cum = a+b+c+d				**473.79**
					say	*473.80*
		(II) By Mechanical Means				
		(A) Bituminous Courses				
		a) Labour				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.30	300.00	90.00
		b) Machinery				
		Tractor with trolley	hour	0.38	303.00	115.14
		Tractor with ripper @ 60 cum per hour	hour	0.016	378.00	6.05
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**32.13**
		Rate per cum = a+b+c+d				**246.32**
					say	*246.30*
2.15	**202**	**Dismantling of Cement Concrete Pavements as per MoRD Technical Specification Clause 202.**				
		Dismantling of cement concrete pavements by mechanical means using pneumatic tools breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials with all lifts and upto a lead of 1000 m, stacking serviceable materials and unserviceable materials separately as per MoRD Technical Specification Clause 202.				
		Unit = cum				
		Taking output = 1 cum				
		a) Labour				
		Mate	day	0.03	300.00	9.00
		Mazdoor (Semi-skilled)	day	0.50	340.00	170.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Air compressor 210 cfm with two leads for pneumatic cutters / hammers @ 1 cum per hour	hour	1.00	321.00	321.00
		Tractor with trolley	hour	0.40	303.00	121.20
		Joint Cutting Machine with 2-3 blades	hour	1.00	257.00	257.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**154.23**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = a+b+c+d				**1,182.43**
					say	*1182.40*

Note: *The above analysis is for removal of complete pavement. In case full depth repair work is required to be done after dismantling, provision of a concrete saw cutter may be added for 0.25h.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.16	**202**	**Dismantling Guard Rails**				
		Dismantling of Guard rails by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m, stacking serviceable materials and unserviceable materials separately as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking Output = 1 m				
		a) **Labour**				
		Mate	day	0.006	300.00	1.80
		Mazdoor (Unskilled)	day	0.15	300.00	45.00
		b) **Machinery**				
		Tractor with trolley	hour	0.05	303.00	15.15
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**9.29**
		Rate per m = a+b+c+d				**71.24**
					say	*71.20*
2.17	**202**	**Dismantling Kerb Stones**				
		Dismantling of Kerb Stones by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 10 m				
		a) **Labour**				
		Mate	day	0.006	300.00	1.80
		Mazdoor (Unskilled)	day	0.15	300.00	45.00
		b) **Machinery**				
		Tractor with trolley	hour	0.20	303.00	60.60
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**16.11**
		Cost of 10 m = a+b+c+d				123.51
		Rate per m = (a+b+c+d)/10				**12.35**
					say	*12.40*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.18	202	**Dismantling Kerb Stone Channels**				
		Dismantling of Kerb Stone channels by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 10 m				
		a) **Labour**				
		Mate	day	0.015	300.00	4.50
		Mazdoor (Unskilled)	day	0.225	300.00	67.50
		b) **Machinery**				
		Tractor with trolley	hour	0.30	303.00	90.90
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**24.44**
		Cost of 10 m = a+b+c+d				187.34
		Rate per m = (a+b+c+d)/10				**18.73**
					say	*18.70*
2.19	202	**Dismantling Kilometre Stones**				
		Dismantling of Kilometre Stones including cutting of earth, and disposal of dismantled material with all lifts and upto a lead of 1000 m and backfilling of pit as per MoRD Technical Specification Clause 202.				
		Unit = each				
		Taking output = 1 km stone				
		(A) 5th km Stone				
		Quantity of cement concrete = 0.392 cum				
		a) **Labour**				
		Mate	day	0.03	300.00	9.00
		Mazdoor (Unskilled)	day	0.75	300.00	225.00
		b) **Machinery**				
		Tractor with trolley	hour	0.15	303.00	45.45
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**41.92**
		Rate for one 5th km stone = a+b+c+d				**321.37**
					say	*321.40*
		(B) Ordinary km Stones				
		Quantity of cement concrete = 0.269 cum				
		a) **Labour**				
		Mate	day	0.02	300.00	6.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Tractor with trolley	hour	0.08	303.00	22.73
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**26.81**
		Rate for one ordinary km stone = a+b+c+d				**205.53**
					say	*205.50*
		(C) 200 m Stones				
		Quantity of cement concrete = 0.048 cum				
		a) Labour				
		Mate	day	0.004	300.00	1.20
		Mazdoor (Unskilled)	day	0.10	300.00	30.00
		b) Machinery				
		Tractor with trolley	hour	0.02	303.00	6.06
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**5.59**
		Rate for one 200 m stone = a+b+c+d				**42.85**
					say	*42.80*
2.20	**202**	**Dismantling of Fencing**				
		Dismantling of barbed wire fencing / wire mesh fencing including posts, foundation concrete, backfilling of pit by manual means including disposal of dismantled material with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 30 m				
		a) Labour				
		Mate	day	0.15	300.00	45.00
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
		Blacksmith	day	0.75	403.00	302.25
		b) Machinery				
		Tractor with trolley	hour	0.15	303.00	45.45
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**193.91**
		Cost of 30 m = a+b+c+d				1,486.61
		Rate per m = (a+b+c+d)/30				**49.55**
					say	*49.60*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.21	202	**Dismantling of CI Water Pipe Line**				
		Dismantling of CI water pipe line 600 mm dia including disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately under supervision of the concerned department but excluding earth excavation and dismantling of masonry works as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 10 m				
		a) Labour				
		Mate	day	0.09	300.00	27.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Plumber	day	0.25	380.00	95.00
		b) Machinery				
		Truck 10 t capacity	hour	0.25	373.00	93.25
		Crane with 3 t capacity	hour	0.50	355.00	177.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**148.91**
		Cost for 10 m = a+b+c+d				1,141.66
		Rate per m = (a+b+c+d)/10				**114.17**
					say	*114.20*

Note: The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2.22	202	**Removal of Cement Concrete Pipe of Sewer Gutter**				
		Removal of Cement Concrete Pipe of Sewer Gutter 1500 mm dia under the supervision of the concerned department including disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works as per MoRD Technical Specification Clause 202.				
		Unit = running m				
		Taking output = 10 m				
		a) Labour				
		Mate	day	0.10	300.00	30.00
		Mazdoor (Unskilled)	day	2.50	300.00	750.00
		b) Machinery				
		Crane upto 8 t capacity	hour	0.30	1,050.00	315.00
		Truck 10 t capacity flat body	hour	1.00	373.00	373.00
		c) 0				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**220.20**
		Cost for 10 m = a+b+c+d				1,688.20
		Rate per m = (a+b+c+d)/10				**168.82**
					say	*168.80*

Note: *The rate analysis does not include any excavation in earth or dismantling of masonry works which are to be measured and paid separately.*

2.23	**202**	**Removal of Telephone/Electric Poles and Lines**				

Removal of telephone / electric poles with wires including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and upto a lead of 1000 m and stacking the serviceable and unserviceable material separately as per MoRD Technical Specification Clause 202.

Unit = each

Taking output = 30 Nos.

		a) Labour				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Electrician/Lineman	day	2.00	380.00	760.00
		b) Machinery				
		Tractor with trolley	hour	1.50	303.00	454.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**653.78**
		Cost for 30 poles = a+b+c+d				5,012.28
		Rate per pole = (a+b+c+d)/30				**167.08**
					say	*167.10*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
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 by manual means to a depth of 50 mm and disposal of scarified material with a lift upto 3 m and leads upto 1000 m as per MoRD Technical Specification Clause 301.4.				
		Unit = sqm				
		Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
		b) Machinery				
		Tractor with trolley	hour	1.50	303.00	454.50
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**255.38**
		Cost for 100 sqm = a+b+c+d				1,957.88
		Rate per sqm = (a+b+c+d)/100				**19.58**
					say	*__19.60__*
3.2		**Preparation of Foundation for Embankment**				
	301.4	**Scarifying Existing Bituminous Surface to a depth of 150 mm by Mechanical Means** Scarifying Existing bituminous Road Surface by mechanical means to a Depth of 150 mm and disposal of scarified material with a lift upto 3 m and leads upto 1000 m as per MoRD Technical Specification Clause 301.4.				
		Unit = sqm				
		Taking output = 100 sqm				
		a) Labour				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Machinery				
		Tractor with ripper attachment @ 60 cum per hour	hour	0.25	378.00	94.50
		Front end loader 1 cum bucket capacity @ 50 cum per hour	hour	0.30	963.00	288.90
		Tipper 5.5 cum capacity, 4 trips per hour	hour	0.68	321.00	218.28
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**101.95**
		Cost for 100 sqm = a+b+c+d				781.63
		Rate per sqm = (a+b+c+d)/100				**7.82**
					say	*__7.80__*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
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 MoRD Technical Specification Clause 301.5.				
		Unit = cum				
		Taking output = 100 cum				
A		**For Spreading beyond 100 m**				
	a)	**Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
	b)	**Machinery**				
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	1,463.00	731.50
		Tractor with attachment for grading @ 25 cum per hour	hour	4.00	322.00	1,288.00
		Water tanker 6 kl capacity	hour	2.00	310.00	620.00
		Three wheel 80-100 kN Static Roller	hour	1.25	379.00	473.75
	c)	**Material**				
		Water	kl	12.00	135.00	1,620.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				756.79
		Rate for 100 cum = a+b+c+d+e				5,802.04
		Rate per cum = (a+b+c+d+e)/100				58.02
					say	*58.00*
B		**For Spreading within 100 m**				
	a)	**Labour**				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
	b)	**Machinery**				
		Tractor with attachment for grading @ 25 cum per hour	hour	4.00	322.00	1,288.00
		Water tanker 6 kl capacity	hour	2.00	310.00	620.00
		Three wheel 80-100 kN Static Roller	hour	1.25	379.00	473.75
	c)	**Material**				
		Water	kl	12.00	135.00	1,620.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				623.66
		Rate for 100 cum = a+b+c+d+e				4,781.41

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d+e)/100				47.81
					say	47.80

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.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
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 MoRD Technical Specification Clause 301.5.				
		Unit = cum				
		Taking output = 100 cum				
		a) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) **Machinery**				
		Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	1.67	1,296.00	2,164.32
		Tipper 5.5 cum with 10 t capacity	hour	4.50	321.00	1,444.50
		Loading of earth as per item 1.1 (ii)	cum	100.00	35.81	3,580.68
		Unloading of earth as per item 1.1 (iv)	cum	100.00	21.10	2,110.10
		Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	1,463.00	731.50
		Tractor with attachment for grading @ 25 cum per hour	hour	4.00	322.00	1,288.00
		Water tanker 6 kl capacity	hour	2.00	310.00	620.00
		Three wheel 80-100 kN Static Roller @ 80 cum per hour	hour	1.25	379.00	473.75
		c) **Material**				
		Water	kl	12.00	135.00	1,620.00
		Compensation for earth taken from private land	cum	100.00	18.00	1,800.00
		d) **0**				0.00
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				2,421.73
		Cost for 100 cum = a+b+c+d+e				18,566.58
		Rate per cum = (a+b+c+d+e)/100				**185.67**
					say	185.70

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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	302.3	**(i) Excavation in Cutting in Soil by manual means with lead upto 50 m**				
		Excavation in Roadway cutting in soil by using manual means for carrying of cut earth to embankment site with all lifts and lead upto 50 m as per MoRD Technical Specification Clause 302.3.				
		Unit = cum				
		Taking output = 120 cum				
		a) Labour				
		Mate	day	1.80	300.00	540.00
		Mazdoor (Unskilled)	day	45.00	300.00	13,500.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**2,106.00**
		Cost of 120 cum = a+b+c				16,146.00
		Rate per cum = (a+b+c)/120				**134.55**
					say	*134.60*
		(ii) Excavation in Soil with Dozer with lead upto 100 m				
		Excavation for roadway in soil by mechanical means with Dozer 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 as per MoRD Technical Specification Clause 302.3.				
		Unit = cum				
		Taking output = 180 cum				
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Dozer D-50 @ 50 cum per hour (cutting with pushing)	hour	3.60	1,463.00	5,266.80
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**883.62**
		Cost for 180 cum = a+b+c+d				6,774.42
		Rate per cum = (a+b+c+d)/180				**37.64**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*37.60*
		(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 all lifts and lead upto 1000 m as per MoRD Technical Specification Clause 302.3.				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	3.60	1,296.00	4,665.60
		Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	321.00	4,815.00
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				1,515.69
		Cost for 360 cum = a+b+c+d				11,620.29
		Rate per cum = (a+b+c+d)/360				**32.28**
					say	*32.30*

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 all lifts and lead upto 1000 m trimming of bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per MoRD Technical Specification Clause 302.3.6.

Unit = cum

Taking output = 300 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Hydraulic excavator 0.90 cum bucket capacity @ 50 cum per hour	hour	6.00	1,296.00	7,776.00
		Tipper 5.5 cum capacity, 4 trips per hour.	hour	12.50	321.00	4,012.50
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				1,861.88

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 300 cum = a+b+c+d				14,274.38
		Rate per cum = (a+b+c+d)/300				**47.58**
					say	*47.60*

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 MoRD Technical Specification Clause 303.5.2 and as per MoRD Technical Specification Clause 302.3.11.

Unit = cum

Taking output = 360 cum

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.08	300.00	24.00
		Mazdoor	day	2.00	300.00	600.00
	b)	**Machinery**				
		Excavator 0.90 cum bucket capacity @ 100 cum per hour	hour	3.60	1,296.00	4,665.60
		Tipper 5.5 cum capacity, 4 trips per hour	hour	15.00	321.00	4,815.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**1,515.69**
		Cost for 360 cum = a+b+c+d				11,620.29
		Rate per cum = (a+b+c+d)/360				**32.28**
					say	*32.30*

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 carrying of excavated material to embankment site with all lifts and lead upto 50 m as per MoRD Technical Specification Clause 302.3.5.

Unit = cum

Taking output = 120 cum

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	2.80	300.00	840.00
		Mazdoor (Unskilled)	day	70.00	300.00	21,000.00
	b)	**0**				**0.00**
	c)	**Contractor's profit and overheads @ 15 % on (a+b)**				**3,276.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 120 cum = a+b+c				25,116.00
		Rate per cum = (a+b+c)/120				**209.30**
					say	*209.30*
(ii)		**Excavation in Ordinary Rock with Dozer with lead upto 100 m**				
		Excavation for roadway in ordinary rock by mechanical means with dozer including cutting and pushing the cut earth to site of embankment upto a distance of 100 m, including trimming bottom and side slopes in accordance with the requirements of lines, grades and cross-sections as per MoRD Technical Specification Clause 302.3.5.				
		Unit = cum				
		Taking output = 108 cum				
		a) Labour				
		Mate	day	0.12	300.00	36.00
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
		b) Machinery				
		Dozer D-50 @ 50% of 50 cum per hour	hour	2.16	1,463.00	3,160.08
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b)				**614.41**
		Cost for 108 cum = a+b+c+d				4,710.49
		Rate per cum = (a+b+c+d)/108				**43.62**
					say	*43.60*
(iii)		**Excavation in Ordinary Rock using Hydraulic Excavator and Tippers with disposal upto 1000 m**				
		Excavation for roadwork in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site with all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections and as per MoRD Technical Specification Clause 302.3.5.				
		Unit = cum				
		Taking output = 240 cum				
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Machinery				
		Hydraulic Excavator 0.90 cum bucket capacity @ 40 cum per hour	hour	6.00	1,296.00	7,776.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tipper 5.5 cum with 10t capacity, 4 trips per hour.	hour	11.00	321.00	3,531.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**1,789.65**
		Cost for 240 cum = a+b+c+d				13,720.65
		Rate per cum = (a+b+c+d)/240				**57.17**
					say	*57.20*
3.9	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 interval 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 MoRD Technical Specification Clause 302.3.2.				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	5.00	300.00	1,500.00
		b) Machinery				
		Dozer D-50 @ 100 cum per hour	hour	0.10	1,463.00	146.30
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**255.95**
		Cost for 10 cum = (a+b+c+d)				1,962.25
		Rate per cum = (a+b+c+d)/10				**196.22**
					say	*196.20*
3.10	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 owners as per MoRD Technical Specification Clause 302.3.2.				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	4.00	300.00	1,200.00
		Mazdoor (Unskilled)	day	100.00	300.00	30,000.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Dozer D-50 with 100 cum per hour output (Initially stacking and relaying)	hour	6.00	1,463.00	8,778.00
	c)	0				0.00
	d)	Contractor's profit and overheads @ 15 % on (a+b+c)				5,996.70
		Cost for 300 cum = a+b+c+d				45,974.70
		Rate per sqm = (a+b+c+d)/300				153.25
					say	153.20
3.11	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 MoRD Technical Specification Clause 309.				
		Unit = sqm				
		Talking output = 300 sqm				
	a)	Labour				
		Mate	day	0.12	300.00	36.00
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
	b)	Machinery				
		Water tanker including watering for 3 months	hour	6.00	310.00	1,860.00
		Tractor with Trolley	hour	1.00	303.00	303.00
	c)	Material				
		Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	490.00	88.20
		Water	kl	36.00	135.00	4,860.00
	d)	0				0.00
	e)	Contractor's profit and overheads @ 15 % on (a+b+c+d)				1,207.08
		Cost for 300 sqm = a+b+c+d+e				9,254.28
		Rate per sqm = (a+b+c+d+e)/300				30.85
					say	30.80
3.12	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 as per MoRD Technical Specification Clause 303.1.				
		Unit = cum				
		Taking output = 100 cum				
	a)	Labour				
		Mate	day	0.04	300.00	12.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
	b)	**Machinery**				
	i.	Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	1.00	1,296.00	1,296.00
	ii.	Tipper 5.5 cum capacity, 4 trips per hour	hour	4.50	321.00	1,444.50
	iii.	Add rate for loading as per item 1.1 (ii)	cum	100.00	35.80	3,580.00
	iv.	Add rate for unloading as per item 1.1 (iv)	cum	100.00	21.10	2,110.00
	v.	Dozer D-50 for spreading @ 200 cum per hour	hour	0.50	1,463.00	731.50
	vi.	Tractor with attachment for grading @ 25 cum per hour	hour	4.00	322.00	1,288.00
	vii.	Water tanker with 6 kl capacity	hour	2.00	310.00	620.00
	viii.	Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	1.43	379.00	541.97
	c)	**Material**				
		Water	kl	12.00	135.00	1,620.00
		Compensation for earth taken from private land	cum	100.00	18.00	1,800.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % , ex/c (b.iii) & (b.iv)**				**1,448.10**
		Cost for 100 cum = a+b+c+d+e				16,792.07
		Rate per cum = (a+b+c+d+e)/100				**167.92**
					say	*167.90*

3.13   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 MoRD Technical Specification Clause 301.4.1.

Unit = cum

Taking output = 600 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
	b)	**Machinery**				
		Tractor with ripper attachment	hour	6.00	303.00	1,818.00
		Three wheel 80-100 kN Static Roller	hour	7.50	379.00	2,842.50
		Water tanker 6 kl capacity	hour	4.00	310.00	1,240.00
	c)	**Material**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water	kl	24.00	135.00	3,240.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**1,464.68**
		Cost for 600 cum = a+b+c+d+e				11,229.18
		Rate per cum = (a+b+c+d+e)/600				**18.72**
					say	*18.70*
	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 MoRD Technical Specification Clause 303.5.2.				
		Unit = cum				
		Taking output = 600 cum				
		a) Labour				
		Mate	day	0.24	300.00	72.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		b) Machinery				
		Tractor with ripper attachment	hour	10.00	303.00	3,030.00
		Water tanker 6 kl capacity	hour	4.00	310.00	1,240.00
		Three wheel 80-100 kN Static Roller @ 70 cum per hour	hour	8.60	379.00	3,259.40
		c) Material				
		Water	kl	24.00	135.00	3,240.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**1,896.21**
		Cost for 600 cum = a+b+c+d+e				14,537.61
		Rate per cum = (a+b+c+d+e)/600				**24.23**
					say	*24.20*

3.14 301.5.5.1 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

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.28	300.00	84.00

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
			Mazdoor skilled	day	1.00	380.00	380.00
		b)	**Machinery**				
			Three wheel static roller 80-100 kN	hour	3.00	379.00	1,137.00
			Water tanker 6 kl, one trip per hour	hour	2.00	310.00	620.00
		c)	**Material**				
			Water	kl	12.00	135.00	1,620.00
		d)	**0**				**0.00**
		e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**846.15**
			Cost for 3500 sqm = a+b+c+d+e				6,487.15
			Rate per sqm = (a+b+c+d+e)/3500				**1.85**
						say	*1.90*
3.15	307	**(i)**	**Surface Drains in Soil**				

Construction of unlined surface drains of average cross-sectional area 0.40 sqm in ordinary soil to specified lines, grades, levels and dimensions. Excavated material to be used in embankment with a lift upto 3 m and lead of 50 m (average lead 25 m) as per MoRD Technical Specification Clause 307.

Unit = m

Taking output = 10 m

(A) Manual Means

			Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a)	**Labour**				
			Mate	day	0.08	300.00	24.00
			Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b)	**0**				**0.00**
		c)	**Contractor's profit and overheads @ 15 % on (a+b)**				**93.60**
			Cost for 10 m = a+b+c				717.60
			Rate per m = (a+b+c)/10				**71.76**
						say	*71.80*

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

			Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a)	**Labour**				
			Mate	day	0.01	300.00	3.00
			Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b)	**Machinery**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Hydraulic excavator 0.9 cum bucket capacity @ 100 cum per hour	hour	0.04	1,296.00	51.84
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**19.48**
		Cost for 10 m = a+b+c+d				149.32
		Rate per m = (a+b+c+d)/10				**14.93**
					say	*14.90*
(ii)		**Surface Drains in Ordinary Rock**				
		Construction of unlined surface drain of average cross-sectional area 0.40 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and MoRD 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	300.00	36.00
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**140.40**
		Cost for 10 m = a+b+c				1,076.40
		Rate per m = (a+b+c)/10				**107.64**
					say	*107.60*
		(B) Mechanical Means				
		a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Machinery				
		Hydraulic excavator 0.9 cum bucket capacity @ 40 m per hour	hour	0.10	1,296.00	129.60
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**42.84**
		Cost for 10 m = a+b+c+d				328.44
		Rate per m = (a+b+c+d)/10				**32.84**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	<u>*32.80*</u>

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)				
3.16	307 & 1606	**(i) Road side Pucca Drains**				
		Construction of road side pucca drain with M10 (1:3:6 with jhama brick aggregate) to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307, 1606. Excavated material to be used in embankment at site. (including centering, shuttering, etc. but excluding reinforcement)				
		(A) Kerb & Channel drain (top clear width 600 mm, bottom clear width 150 mm and clear depth of 200 mm)				
		I. In Ordinary Soil				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work 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.A.I(i) of Chapter 11)	cum	0.26	287.00	74.62
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.19	5,837.10	1,109.05
		Cost per m = (1+2)				**1,183.67**
					say	*1183.70*
		II. In Ordinary rock (not requiring blasting)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work 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.A.II(i) of Chapter 11)	cum	0.26	358.80	93.29
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.19	5,837.10	1,109.05
		Cost per m = (1+2)				**1,202.34**
					say	*1202.30*
		III. In Hard rock (blasting prohibited)				
		Unit = per metre				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 1.00 m				
	1	Excavation for structure earth work 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.A.III of Chapter 11)	cum	0.26	548.60	142.64
	2	Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.19	5,837.10	1,109.05
		Cost per m = (1+2)				**1,251.69**
					say	*1251.70*
	(B)	**Trapezoidal drain (top clear width 600 mm, bottom clear width 300 mm and clear depth of 400 mm)**				
		I. In Ordinary Soil				
		Unit = per metre				
		Taking output = 1.00 m				
	1	Excavation for structure earth work 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.A.I(i) of Chapter 11)	cum	0.52	287.00	149.24
	2	Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.31	5,837.10	1,809.50
		1.00 x {(2 x 0.427m x 0.20m) + (0.68 x 0.20m)}				
	3	12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.564	148.60	232.41
		(0.205 m + 0.427 m + 0.3 m + 0.427 m +0.205 m)				
		Cost per m = (1+2+3)				**2,191.15**
					say	*2191.20*
		II. In Ordinary rock (not requiring blasting)				
		Unit = per metre				
		Taking output = 1.00 m				
	1	Excavation for structure earth work 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.A.II(i) of Chapter 11)	cum	0.52	358.80	186.58

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
2		Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.31	5,837.10	1,809.50
		1.00 x {(2 x 0.427m x 0.20m) + (0.68 x 0.20m)}				
3		12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.564	148.60	232.41
		(0.205 m + 0.427 m + 0.3 m + 0.427 m +0.205 m)				
		Cost per m = (1+2+3)				**2,228.49**
					say	*2228.50*

III. In Hard rock (blasting prohibited)

Unit = per metre

Taking output = 1.00 m

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
1		Excavation for structure earth work 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.A.III of Chapter 11)	cum	0.52	548.60	285.27
2		Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.31	5,837.10	1,809.50
		1.00 x {(2 x 0.427m x 0.20m) + (0.68 x 0.20m)}				
3		12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.564	148.60	232.41
		(0.205 m + 0.427 m + 0.3 m + 0.427 m +0.205 m)				
		Cost per m = (1+2+3)				**2,327.18**
					say	*2327.20*

(C) Trapezoidal drain (top clear width 600 mm, bottom clear width 300 mm and clear depth of 600 mm)

I.   In Ordinary Soil

Unit = per metre

Taking output = 1.00 m

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
1		Excavation for structure earth work 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.A.I(i) of Chapter 11)	cum	0.69	287.00	198.03
2		Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.38	5,837.10	2,218.10
		1.00 x {(2 x 0.618m x 0.20m) + (0.68 x 0.20m)}				
3		12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.964	148.60	291.85
		(0.205 m + 0.618 m + 0.3 m + 0.618 m +0.205 m)				
		Cost per m = (1+2+3)				**2,707.98**
					say	*2708.00*

II. In Ordinary rock (not requiring blasting)

Unit = per metre

Taking output = 1.00 m

1		Excavation for structure earth work 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.A.II(i) of Chapter 11)	cum	0.69	358.80	247.57
2		Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.38	5,837.10	2,218.10
		1.00 x {(2 x 0.618m x 0.20m) + (0.68 x 0.20m)}				
3		12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.964	148.60	291.85
		(0.205 m + 0.618 m + 0.3 m + 0.618 m +0.205 m)				
		Cost per m = (1+2+3)				**2,757.52**
					say	*2757.50*

III. In Hard rock (blasting prohibited)

Unit = per metre

Taking output = 1.00 m

1		Excavation for structure earth work 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.A.III of Chapter 11)	cum	0.69	548.60	378.53
2		Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.38	5,837.10	2,218.10
		1.00 x {(2 x 0.618m x 0.20m) + (0.68 x 0.20m)}				
3		12 mm cement plaster 1:4 with neat cement punning				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(Rate as per item no. 12.16 of chapter 12)	sqm	1.964	148.60	291.85
		(0.205 m + 0.618 m + 0.3 m + 0.618 m +0.205 m)				
		Cost per m = (1+2+3)				**2,888.48**
					say	**2888.50**
		(D) U shaped drain (top clear width 600 mm, bottom clear width 600 mm and clear depth of 600 mm)				
		I. In Ordinary Soil				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work 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.A.I(i) of Chapter 11)	cum	0.80	287.00	229.60
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.44	5,837.10	2,568.32
		1.00x[(2 x 0.60m x 0.20m)+{(0.20m+0.60m+ 0.20m)x0.20}]				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	2.210	148.60	328.41
		(0.205 m + 0.600 m + 0.3 m + 0.600 m +0.205 m)				
		Cost per m = (1+2+3)				**3,126.33**
					say	**3126.30**
		II. In Ordinary rock (not requiring blasting)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work 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.A.II(i) of Chapter 11)	cum	0.80	358.80	287.04
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.44	5,837.10	2,568.32
		1.00x[(2 x 0.60m x 0.20m)+{(0.20m+0.60m+ 0.20m)x0.20}]				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	2.210	148.60	328.41

Chapter 3
EARTHWORK, EROSION CONTROL AND DRAINAGE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(0.205 m + 0.600 m + 0.3 m + 0.600 m +0.205 m)				
		Cost per m = (1+2+3)				**3,183.77**
					say	*3183.80*
		III. In Hard rock (blasting prohibited)				
		Unit = per metre				
		Taking output = 1.00 m				
		1 Excavation for structure earth work 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.A.III of Chapter 11)	cum	0.80	548.60	438.88
		2 Plain cement concrete M10 (1:3:6) nominal mix concrete mixture as per techinical specification.				
		(As per item No.11.9.I(i) of Chapter 11)	cum	0.44	5,837.10	2,568.32
		1.00x[(2 x 0.60m x 0.20m)+{(0.20m+0.60m+ 0.20m)x0.20}]				
		3 12 mm cement plaster 1:4 with neat cement punning				
		(Rate as per item no. 12.16 of chapter 12)	sqm	2.210	148.60	328.41
		(0.205 m + 0.600 m + 0.3 m + 0.600 m +0.205 m)				
		Cost per m = (1+2+3)				**3,335.61**
					say	*3335.60*
3.17	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 foundation of structures as per drawings and MoRD 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			
		(b) Providing and laying plain cement concrete M15 grade.				
		Rate as per item No.12.14.I of Chapter 12.	cum			
		(c) Brick Masonry in cement mortar 1:5.				
		Rate as per item No. 12.1(III) of Chapter 12.	cum			
		(d) Plastering with cement mortar 1:4.				
		Rate as per item No. 12.3 of Chapter 12.	sqm			
		(e) Providing P.C.C. M.20 coping on the top of chute walls.				
		As per item No. 12.15 of Chapter 12.	m			

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Rate per m = a+b+c+d+e

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

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
3.18	307 & 1606	**Road side 'V' shaped Pucca Drains**				
		Construction of 'V' shaped road side pucca drain with 1st class brick work in cement Mortar 1 : 4 (1 cement : 4 river sand) laid brick on edge to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307, 1606. (Excluding the cost of excavation which would be paid separately)				
		Unit = sqm				
		Taking output = 8.00 sqm				
		a) Material				
		Brick	Nos.	413.00	8.03	3,316.39
		Cement mortar (1:4), Rates as per sub-analysis	cum	0.24	3,012.50	723.00
		b) Labour				
		Mate	day	0.07	300.00	21.00
		Mason (1st Class)	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	**60.00**
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**741.06**
		Cost for 8 sqm = a+b+c+d				5,681.45
		Rate per cum = (a+b+c+d)/ 8				**710.18**
					say	**_710.20_**

Sub-analysis

Cement mortar 1:4 (1 cement : 4 sand)

Unit = cum

		a) Material				
		Cement	*t*	*0.38*	*6,100.00*	*2,318.00*
		Sand	*cum*	*1.05*	*370.00*	*388.50*
		b) Labour				
		Mate	*day*	*0.04*	*300.00*	*12.00*
		Mazdoor (Unskilled)	*day*	*0.90*	*300.00*	*270.00*
		Bhisti	*day*	*0.08*	*300.00*	*24.00*
		Total material and labour = (a+b)				*3,012.50*
3.19	307 & 1606	**Dry brick pitching in road side drains**				
		Providing dry brick pitching in road side drain with 1st class brick laid on edge to specified lines, grades, levels and dimensions as per approved design and MoRD Technical Specification Clause 307, 1606. (Excluding the cost of excavation which would be paid separately)				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = sqm				
		Taking output = 80.00 sqm				
		a) **Material**				
		Brick	Nos.	4,128.00	8.03	33,147.84
		b) **Labour**				
		Mate	day	0.24	300.00	72.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**5,252.98**
		Cost for 80 sqm = a+b+c+d				40,272.82
		Rate per cum = (a+b+c+d)/ 80				**503.41**
					say	*503.40*

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GRANULAR SUB-BASES, BASES (NON-BITUMINOUS) AND SHOULDERS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
4.1	401	**Granular Sub-base with Well Graded Material (Table 400.1)**				
		(A) By Mix in Place Method				
		Construction of granular sub-base by providing well graded material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.				
		(i) For Grading I Material				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	379.00	11,370.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	322.00	3,864.00
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		53 mm to 9.5 mm @ 50 per cent	cum	192.00	3,444.00	661,248.00
		9.5 mm to 2.36 mm @ 20 per cent	cum	77.00	4,005.00	308,385.00
		2.36 mm below @ 30 per cent	cum	115.00	2,523.00	290,145.00
		Water	kl	30.00	135.00	4,050.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**192,677.40**
		Cost for 300 cum = a+b+c+d+e				**1,477,193.40**
		Rate per cum = (a+b+c+d+e)/300				**4,923.98**
					say	*4924.00*
		(ii) For Grading II Material				
		Unit = cum				
		Taking output = 300 cum				
		a) Labour				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Machinery				
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	379.00	11,370.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	322.00	3,864.00
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		26.5 mm to 9.5 mm @ 35 per cent	cum	134.00	3,605.00	483,070.00
		9.5 mm to 2.36 mm @ 25 per cent	cum	96.00	4,005.00	384,480.00
		2.36 mm below @ 40 per cent	cum	153.00	2,523.00	386,019.00
		Water	kl	30.00	135.00	4,050.00
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				191,746.05
		Cost for 300 cum = a+b+c+d+e				1,470,053.05
		Rate per cum = (a+b+c+d+e)/300				4,900.18
					say	*4900.20*

(iii) For Grading III Material

Unit = cum

Taking output = 300 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	379.00	11,370.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	322.00	3,864.00
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		9.5 mm to 4.75 mm @ 35 per cent	cum	134.00	4,005.00	536,670.00
		4.75 mm to 2.36 mm @ 12.5 per cent	cum	48.00	4,085.00	196,080.00
		2.36 mm below @ 52.5 per cent	cum	201.60	2,523.00	508,636.80
		Water	kl	30.00	135.00	4,050.00
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				189,918.72

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 300 cum = a+b+c+d+e				**1,456,043.52**
		Rate per cum = (a+b+c+d+e)/300				**4,853.48**
					say	*4853.50*

401 (B) Plant Mix Method

Construction of granular sub-base by providing well graded material, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site upto lead of 1000 m spreading in uniform layers with motor grader on prepared surface and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.

(i) For Grading I Material

Unit = cum

Taking output = 225 cum (450 t)

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
	b)	**Machinery**				
		Wet mix plant @ 60 t capacity per hour	hour	7.50	1,096.00	8,220.00
		Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	310.00	1,240.00
		Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	963.00	8,667.00
		Tipper 5.5 cum @ 3 trips per hour	hour	13.60	321.00	4,365.60
		Tractor with Rotavator	hour	9.00	322.00	2,898.00
		Three wheel 80-100 KN static roller 10 cum per hour	hour	22.50	379.00	8,527.50
	c)	**Material**				
		Well graded granular sub-base material as per Table 400.1				
		53 mm to 9.5 mm @ 50 per cent	cum	144.00	3,444.00	495,936.00
		9.5 mm to 2.36 mm @ 20 per cent	cum	57.00	4,005.00	228,285.00
		2.36 mm below @ 30 per cent	cum	86.40	2,523.00	217,987.20
		Water	kl	24.00	135.00	3,240.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				147,396.95
		Cost for 225 cum = a+b+c+d+e				1,130,043.25
		Rate per cum = (a+b+c+d+e)/225				**5,022.41**
					say	*5022.40*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
(ii)		**For Grading II Material**				
		Unit = cum				
		Taking output = 225 cum (450 t)				
		a) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) Machinery				
		Wet mix plant @ 60 t capacity per hour	hour	7.50	1,096.00	8,220.00
		Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	310.00	1,240.00
		Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	963.00	8,667.00
		Tipper 5.5 cum, 3 trips per hour	hour	13.60	321.00	4,365.60
		Tractor with Rotavator	hour	9.00	322.00	2,898.00
		Three wheel 80-100 KN static roller 10 cum per hour	hour	22.50	379.00	8,527.50
		c) Material				
		Well graded granular sub-base material as per Table 400.1				
		26.5 mm to 9.5 mm @ 35 per cent	cum	100.80	3,605.00	363,384.00
		9.5 mm to 2.36 mm @ 25 per cent	cum	72.00	4,005.00	288,360.00
		2.36 mm below @ 40 per cent	cum	115.20	2,523.00	290,649.60
		Water	kl	24.00	135.00	3,240.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**147,424.76**
		Cost for 225 cum = a+b+c+d+e				1,130,256.46
		Rate per cum = (a+b+c+d+e)/225				**5,023.36**
					say	*5023.40*
(iii)		**For Grading III Material**				
		Unit = cum				
		Taking output = 225 cum (450 t)				
		a) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) Machinery				
		Wet mix plant @ 60 t capacity per hour	hour	7.50	1,096.00	8,220.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water tanker 6 kl capacity 5 km lead with one trip per hour	hour	4.00	310.00	1,240.00
		Front end loader 0.9 cum bucket capacity 25 cum per hour	hour	9.00	963.00	8,667.00
		Tipper 5.5 cum, 3 trips per hour	hour	13.60	321.00	4,365.60
		Tractor with Rotavator	hour	9.00	322.00	2,898.00
		Three wheel 80-100 KN static roller 10 cum per hour	hour	22.50	379.00	8,527.50
	c)	**Material**				
		Well graded granular sub-base material as per Table 400.1				
		9.5 mm to 4.75 mm @ 35 per cent	cum	100.80	4,005.00	403,704.00
		4.75 mm to 2.36 mm @ 12.5 per cent	cum	36.00	4,085.00	147,060.00
		2.36 mm below @ 52.5 per cent	cum	151.20	2,523.00	381,477.60
		Water	kl	24.00	135.00	3,240.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**145,901.96**
		Cost for 225 cum = a+b+c+d+e				1,118,581.66
		Rate per cum = (a+b+c+d+e)/225				**4,971.47**
					say	**_4971.50_**

4.2   405   Water Bound Macadam Sub-base/base

1)   WBM Grading 1

Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thicKNess, hand packing, rolling with three wheel 80-100 KN static roller in stages to proper grade and camber, applying and brooming, stone screening / binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density 'Grading 1' as per MoRD Technical Specification Clause 404.

(A) By Manual Means

Unit = cum

Taking output = 360 cum

a) Labour

		Description	Unit	Quantity	Rate	Amount
		Mate	day	10.08	300.00	3,024.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	250.00	300.00	75,000.00

b) Machinery

		Description	Unit	Quantity	Rate	Amount
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	36.00	379.00	13,644.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) **Material (Refer Tables 400.7, 8, 9 and 10)**				
		Aggregate				
		Grading 1 90 mm to 45 mm @ 1.21 cum per 10 sqm for compacted thicKNess of 100 mm	cum	435.60	3,044.00	1,325,966.40
		Stone Screenings				
		Type A 13.2 mm for **Grading-1** @ 0.27 cum per 10 sqm	cum	97.20	3,685.00	358,182.00
		Binding Material				
		Binding Material @ 0.08 cum per 10 sqm for **grading 1** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**270,596.22**
		Cost for 360 cum = a+b+c+d+e				2,074,571.02
		Rate per cum = (a+b+c+d+e)/360				**5,762.70**
					say	*__5762.70__*
		(B) **By Mechanical Means**				
		Unit = cum				
		Taking output = 360 cum				
		a) **Labour**				
		Mate	day	0.68	300.00	204.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) **Machinery**				
		Tractor with Rotavator	hour	14.40	322.00	4,636.80
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	36.00	379.00	13,644.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) **Material (Refer Tables 400.7, 8, 9 and 10)**				
		Aggregate				
		Grading 1 90 mm to 45 mm @ 1.21 cum per 10 sqm for compacted thicKNess of 100 mm	cum	435.60	3,044.00	1,325,966.40
		Stone Screening				
		Type A 13.2 mm for **Grading-1** @ 0.27 cum per 10 sqm	cum	97.20	3,685.00	358,182.00
		Binding Material				
		Binding Material @ 0.08 cum per 10 sqm for **Grading 2** material	cum	28.80	18.00	518.40

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water	kl	144.00	135.00	19,440.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**260,293.74**
		Cost for 360 cum = a+b+c+d+e				1,995,585.34
		Rate per cum = (a+b+c+d+e)/360				**5,543.29**
					say	*__5543.30__*

2) WBM Grading 2

Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thicKNess, hand packing, rolling with smooth wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming, stone screening / binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density 'Grading 2' as per MoRD Technical Specification Clause 405.

(A) By Manual Means

Unit = cum

Taking output = 360 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	10.08	300.00	3,024.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	250.00	300.00	75,000.00
	b)	**Machinery**				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
	c)	**Material (Refer Tables 400.7, 8, 9 and 10)**				
		Aggregate				
		Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	3,044.00	1,325,966.40
		Stone Screening				
		Type B 11.2 mm for **Grading 2** @ 0.20 cum per 10 sqm	cum	96.01	4,045.00	388,360.45
		Binding Material				
		Binding Material @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**275,634.64**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 360 cum = a+b+c+d+e				2,113,198.89
		Rate per cum = (a+b+c+d+e)/360				**5,870.00**
					say	*5870.00*
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	300.00	204.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	322.00	4,636.80
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2 63 mm to 45 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	3,044.00	1,325,966.40
		Stone Screening				
		Type B 11.2 mm for **Grading 2** @ 0.20 cum per 10 sqm	cum	96.01	4,045.00	388,360.45
		Binding Material				
		Binding Material @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**265,332.16**
		Cost for 360 cum = a+b+c+d+e				2,034,213.21
		Rate per cum = (a+b+c+d+e)/360				**5,650.59**
					say	*5650.60*

Note: *Type A Screening can be used in Grading 2*

3) WBM Grading 3

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thicKNess, hand packing, rolling with smooth wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming, stone screening to fill up the interstices of coarse aggregate, watering and compacting to the required density 'Grading 3' as per MoRD Technical Specification Clause 405.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	300.00	3,024.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	250.00	300.00	75,000.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3 53 mm to 22.4 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	3,044.00	1,325,966.40
		Stone Screening				
		Type B 11.2 mm for **Grading 3** @ 0.18 cum per 10 sqm	cum	86.40	4,045.00	349,488.00
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**269,726.01**
		Cost for 360 cum = a+b+c+d+e				2,067,899.41
		Rate per cum = (a+b+c+d+e)/360				**5,744.17**
					say	*5744.20*
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	300.00	204.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with Rotavator	hour	14.40	322.00	4,636.80
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
	c)	**Material (Refer Tables 400.7, 8, 9 and 10)**				
		Aggregate				
		Grading 3 53 mm to 22.4 mm @ 0.91 cum per 10 sqm for compacted thicKNess of 75 mm	cum	435.60	3,044.00	1,325,966.40
		Stone Screening				
		Type B 11.2 mm for **Grading 3** @ 0.18 cum per 10 sqm	cum	86.40	4,045.00	349,488.00
		Water	kl	144.00	135.00	19,440.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**259,423.53**
		Cost for 360 cum = a+b+c+d+e				1,988,913.73
		Rate per cum = (a+b+c+d+e)/360				**5,524.76**
					say	*5524.80*

| 4.3 | 406 | **Wet Mix Macadam** | | | | |

Providing, laying, spreading and compacting stone aggregates to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed materials by tipper to site, laying in uniform layers in sub-base / base course on a well prepared sub-base and compacting with smooth wheel roller of three wheel 80-100 KN static roller to proper grade and camber, achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and as per MoRD Technical Specification Clause 406.

By Mechanical Means with 1.00 km lead

Unit = cum

Taking output = 100 cum

	a)	**Labour**				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
	b)	**Machinery**				
		Front end loader 1 cum capacity	hour	4.00	963.00	3,852.00
		Wet mix plant (Pug Mill)	hour	4.00	1,096.00	4,384.00
		Tipper/Dumper (10 t) capacity	hour	5.00	321.00	1,605.00
		Tractor with Rotavator	hour	6.00	322.00	1,932.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 KN static roller @ 16 cum per hour	hour	6.25	379.00	2,368.75
		Water tanker 6 kl capacity	hour	1.33	310.00	412.30
	c)	**Material**				
		Coarse aggregate 45 mm to 22.4 mm @ 30.00 %	cum	39.90	3,484.00	139,011.60
		Aggregates 22.4 mm to 2.36 mm @ 40.00 %	cum	53.20	3,484.00	185,348.80
		Fine aggregate/Crushed stones 2.36 mm to 75 micron @ 30.00 %	cum	39.90	2,643.00	105,455.70
		Water	kl	8.00	135.00	1,080.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**67,309.52**
		Cost for 100 cum = a+b+c+d+e				516,039.67
		Rate per cum = (a+b+c+d+e)/100				**5,160.40**
					say	*5160.40*

| 4.4 | 407 | **Construction of Shoulders as per Technical Specification Clause 407.** | | | | |

A. Earthen Shoulders

The rate as applicable for Sub-grade construction may be adopted.

B. Hard Shoulders

Rate as applicable for Sub-base and/or Base may be adopted as per approved design.

C. Paved Shoulders

The rates may be adopted as applicable for different layers of pavement depending upon approved design of paved shoulders.

| 4.5 | 412 | **Brick Soling** | | | | |

i) Brick on edge soling

Providing and laying brick on edge soling layer on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with sand, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.

Unit = sqm

Taking ouput = 150 sqm

(a) Labour

		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mason 1st Class	day	3.00	425.00	1,275.00

(b) Machinery

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	379.00	379.00
		Water tanker 6 kl capacity	hour	1.00	310.00	310.00
	(c)	**Material**				
		Brick 1st Class	No.	7,800.00	8.03	62,634.00
		Fine Sand (local)	cum	5.66	300.00	1,698.00
		Water	kl	6.00	135.00	810.00
	(d)	**0**				**0.00**
	(e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**10,539.30**
		Cost for 150 sqm = a+b+c+d+e				80,801.30
		Rate per sqm = (a+b+c+d+e)/150				**538.68**
					say	_**538.70**_

ii) Flat Brick soling

Providing and laying flat brick soling layer on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.

Unit = sqm

Taking ouput = 198.75 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	(a)	**Labour**				
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		Mason 1st Class	day	3.00	425.00	1,275.00
	(b)	**Machinery**				
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	1.00	379.00	379.00
		Water tanker 6 kl capacity	hour	1.00	310.00	310.00
	(c)	**Material**				
		Brick 1st Class	No.	6,161.00	8.03	49,472.83
		Earth, free from clay with a plasticity index not exceeding 6	cum	3.396	152.00	516.19
		Water	kl	3.60	135.00	486.00
	(d)	**0**				**0.00**
	(e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**8,245.65**
		Cost for 198.75 sqm = a+b+c+d+e				63,216.68
		Rate per sqm = (a+b+c+d+e)/198.75				**318.07**
					say	_**318.10**_

iii) Brick edging laid in full brick width

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing and laying brick edging on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.				
		Unit = m				
		Taking ouput = 10 m				
		(a) Labour				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.30	300.00	90.00
		Mason 1st Class	day	0.24	425.00	102.00
		(b) Machinery				
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	0.01	379.00	3.79
		Water tanker 6 kl capacity	hour	0.01	310.00	3.10
		(c) Material				
		Brick 1st Class	No.	125.00	8.03	1,003.75
		Earth, free from clay with a plasticity index not exceeding 6	cum	0.04	152.00	6.08
		Water	kl	0.04	135.00	5.40
		(d) 0				**0.00**
		(e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**183.02**
		Cost for 10 m = a+b+c+d+e				1,403.14
		Rate per m = (a+b+c+d+e)/10				**140.31**
					say	*140.30*

iv) Brick edging laid length wise

Providing and laying brick edging laid lengthwise on prepared subgrade according to lines, grades and cross-section shown on the drawing, filling joints with Earth, free from clay with a Plasticity Index not exceeding 6, watering and rolling the same with three wheeled road roller 80-100 KN as per MoRD Technical Specification Clause 412.

Unit = m

Taking ouput = 10 m

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(a) Labour				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.15	300.00	45.00
		Mason 1st Class	day	0.10	425.00	42.50
		(b) Machinery				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Three wheel 80-100 KN static roller @ 150 sqm per hour	hour	0.005	379.00	1.90
		Water tanker 6 kl capacity	hour	0.005	310.00	1.55
	(c)	**Material**				
		Brick 1st Class	No.	40.00	8.03	321.20
		Earth, free from clay with a plasticity index not exceeding 6	cum	0.02	152.00	3.04
		Water	kl	0.02	135.00	2.70
	(d)	**0**				**0.00**
	(e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**63.13**
		Cost for 10 m = a+b+c+d+e				484.02
		Rate per m = (a+b+c+d+e)/10				**48.40**
					say	*48.40*

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

4.6   401   Granular Sub-base with Well Graded Material (Table 400.1) using Jhama Brick Aggregate

(A) By Mix in Place Method

Construction of granular sub-base by providing well graded material (Jhama Brick Aggregate, Grading-I, as per Table 400.1 , spreading in uniform layers with tractor with attachments on prepared surface, mixing by mix in place method with rotavator at OMC, applying and brooming sand to fill up the interstices of coarse aggregate, watering and compacting with smooth wheel roller to achieve the desired density, complete as per MoRD Technical Specification Clause 401.

(i) For Grading I Material

Unit = cum

Taking output = 300 cum

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
	b)	**Machinery**				
		Three wheel 80-100 KN static roller @ 10 cum per hour	hour	30.00	379.00	11,370.00
		Tractor with Rotavator 25 cum per hour	hour	12.00	322.00	3,864.00
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
	c)	**Material**				
		Well graded granular sub-base material as per Table 400.1				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		53 mm to 0.075 mm @ 70 %	cum	268.80	2,559.00	687,859.20
		Fine Sand(local) @ 30 %	cum	115.00	300.00	34,500.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water	kl	30.00	135.00	4,050.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**112,064.58**
		Cost for 300 cum = a+b+c+d+e				**859,161.78**
		Rate per cum = (a+b+c+d+e)/300				**2,863.87**
					say	*2863.90*

4.7   405   Water Bound Macadam Sub-Base / Base using Jhama Brick Aggragate

1)   WBM Grading 2

Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading- 2 as per MoRD Technical Specification Clause 405.

(A) By Manual Means

Unit = cum

Taking output = 360 cum

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	10.08	300.00	3,024.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	250.00	300.00	75,000.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2, 63 mm to 22.4 mm @ 1.11 cum per 10 sqm for compacted thickness of 75 mm	cum	532.80	2,499.00	1,331,467.20
		Binding Material				
		Binding Material (earth) @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 0 % on (a+b+c+d)				**218,205.69**
		Cost for 360 cum = a+b+c+d+e				1,672,910.29

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d+e)/360				**4,646.97**
					say	***4647.00***
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	300.00	204.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	322.00	4,636.80
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 2, 63 mm to 22.4 mm @ 1.11 cum per 10 sqm for compacted thickness of 75 mm	cum	532.80	2,499.00	1,331,467.20
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 2** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**207,903.21**
		Cost for 360 cum = a+b+c+d+e				1,593,924.61
		Rate per cum = (a+b+c+d+e)/360				**4,427.57**
					say	***4427.60***

Note: *Type A Screening can be used in Grading 2*

2) WBM Grading 3

Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading- 3 as per MoRD Technical Specification Clause 405.

(A) By Manual Means

Unit = cum

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	300.00	3,024.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	250.00	300.00	75,000.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3, 53 mm to 11.2 mm @ 1.09 cum per 10 sqm for compacted thickness of 75 mm	cum	523.20	2,559.00	1,338,868.80
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 3** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**219,315.93**
		Cost for 360 cum = a+b+c+d+e				1,681,422.13
		Rate per cum = (a+b+c+d+e)/360				**4,670.62**
					say	*4670.60*
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	300.00	204.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	322.00	4,636.80
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 3, 53 mm to 11.2 mm @ 1.09 cum per 10 sqm for compacted thickness of 75 mm	cum	523.20	2,559.00	1,338,868.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 3** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**209,013.45**
		Cost for 360 cum = a+b+c+d+e				1,602,436.45
		Rate per cum = (a+b+c+d+e)/360				**4,451.21**
					say	_**4451.20**_

4.8   406   Wet Mix Macadam

Providing, laying, spreading and compacting 53 mm to 0.075 mm jhama brick aggregates to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed materials by tipper to site, laying in uniform layers in sub-base / base course on a well prepared sub-base and compacting with smooth wheel roller of three wheel 80-100 KN static roller to proper grade and camber, achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Tables 400.11 & 400.12 and as per MoRD Technical Specification Clause 406.

By Mechanical Means with 1.00 km lead

Unit = cum

Taking output = 100 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) Machinery				
		Front end loader 1 cum capacity	hour	4.00	963.00	3,852.00
		Wet mix plant (Pug Mill)	hour	4.00	1,096.00	4,384.00
		Tipper/Dumper (10 t) capacity	hour	5.00	321.00	1,605.00
		Tractor with Rotavator	hour	6.00	322.00	1,932.00
		Three wheel 80-100 KN static roller @ 16 cum per hour	hour	6.25	379.00	2,368.75
		Water tanker 6 kl capacity	hour	1.33	310.00	412.30
		c) Material				
		Jhama brick aggregates 45 mm to 22.4 mm @ 30 per cent	cum	39.90	2,529.00	100,907.10
		Jhama brick aggregates 22.4 mm to 2.36 mm @ 40 per cent	cum	53.20	2,588.00	137,681.60
		Fine aggregate/Crushed brick 2.36 mm to 75 micron @ 30 per cent	cum	39.90	2,142.00	85,465.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Water	kl	8.00	135.00	1,080.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**51,445.28**
		Cost for 100 cum = a+b+c+d+e				394,413.83
		Rate per cum = (a+b+c+d+e)/100				**3,944.14**
					say	*3944.10*
4.9	403	**Lime Stabilisation for Improving Subgrade** Laying and spreading available soil in the subgrade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 2 per cent slaked lime having minimum 70 per cent of contents of CaO, grading with motor grader and compacting with the smooth wheel road roller at OMC to the desired density to form a layer of improved Sub-grade as per MoRD Technical Specification Cluase 403.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 150 cum (263 t)				
		a) Labour				
		Mate	day	1.44	300.00	432.00
		Mazdoor (Skilled)	day	1.00	380.00	380.00
		Mazdoor (Unskilled)	day	35.00	300.00	10,500.00
		b) Machinery				
		Three wheel 80-100 kN Static roller @ 70 cum per hour	hour	2.15	379.00	814.85
		Water tanker 6 kl capacity	hour	3.00	310.00	930.00
		c) Material				
		Lime	t	5.26	8,000.00	42,080.00
		Water	kl	18.00	135.00	2,430.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**8,635.03**
		Cost for 150 cum = a+b+c+d+e				66,201.88
		Rate per cum = (a+b+c+d+e)/150				**441.35**
					say	*441.30*
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 300 cum (525 t)				
		a) Labour				
		Mate	day	0.36	300.00	108.00
		Mazdoor (Skilled)	day	1.00	380.00	380.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) **Machinery**				
		Tractor with ripper and rotavator attachments @ 60 cum per hour for ripping and 25 cum per hour for mixing	hour	12.00	378.00	4,536.00
		Motor grader 110 HP @ 50 cum per hour	hour	6.00	2,289.00	13,734.00
		Three wheel 80-100 kN static roller @ 70 cum per hour	hour	4.30	379.00	1,629.70
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
		c) **Material**				
		Lime	t	10.50	8,000.00	84,000.00
		Water	kl	30.00	135.00	4,050.00
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**16,858.16**
		Cost for 300 cum = a+b+c+d+e				129,245.86
		Rate per cum = (a+b+c+d+e)/300				**430.82**
					say	*430.80*

Note: *The exact quantity of lime shall be as per design.*

4.10	**403**	**Lime Treated Soil for Sub-Base** Providing, laying and spreading soil on a prepared sub-grade, pulverising, mixing the spread soil in place with rotavator with 4 per cent slaked lime with minimum content of 70 per cent of CaO, grading with motor grader and compacting with the road roller at OMC to achieve atleast 98 per cent of the max dry density to form a layer of sub-base as per MoRD Technical Specification Clause 403.				
		Unit = cum				
		Taking output = 300 cum (525 t)				
		a) **Labour**				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b) **Machinery**				
		Hydraulic Excavator 0.90 cum bucket capacity	hour	5.00	1,296.00	6,480.00
		Tipper 5.5 cum 4 trips per hour	hour	14.00	321.00	4,494.00
		Motor grader 110 HP @ 50 cum per hour	hour	6.00	2,289.00	13,734.00
		Three wheel 80-100 kN Static roller @ 70 cum per ho	hour	4.30	379.00	1,629.70
		Tractor with rotavator and blade @ 25 cum per hour	hour	12.00	322.00	3,864.00
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
		c) **Material**				
		Lime	t	21.00	8,000.00	168,000.00
		Water	kl	30.00	135.00	4,050.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**31,155.86**
		Cost for 300 cum = a+b+c+d+e				238,861.56
		Rate per cum = (a+b+c+d+e)/300				**796.21**
					say	*796.20*

Note: *The exact quantity of lime shall be as per design.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
4.11	404	**Cement Treated Soil Sub-Base/Base** Providing, laying and spreading soil on a prepared sub-grade, pulverising, adding the designed quantity of cement to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per MoRD Technical Specification Clause 404.				
		Unit = cum				
		Taking output = 300 cum (525 t)				
		For 4 per cent quantity of cement by weight of soil				
		a) Labour				
		Mate	day	0.48	300.00	144.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b) Machinery				
		Hydraulic Excavator 0.90 cum bucket capacity	hour	5.00	1,296.00	6,480.00
		Tipper 5.5 cum	hour	14.00	321.00	4,494.00
		Motor grader 110 HP @ 50 cum per hour	hour	6.00	2,289.00	13,734.00
		Three wheel 80-100 kN static roller @ 70 cum per ho	hour	4.30	379.00	1,629.70
		Tractor with rotavator and blade @ 25 cum per hour	hour	12.00	322.00	3,864.00
		Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
		c) Material				
		Cement at site @ 4% (of 525 t)	t	21.00	6,100.00	128,100.00
		Water	kl	30.00	135.00	4,050.00
		d) 0				**0.00**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**25,170.86**
		Cost for 300 cum = a+b+c+d+e				192,976.56
		Rate per cum =(a+b+c+d+e)/300				**643.26**
					say	*643.30*

Note: *The exact quantity of cement shall be as per design.*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
4.12	405	**Water Bound Macadam Sub-Base / Base using Jhama Brick Aggragate**				
		1) WBM Grading 1				
		Providing, laying, spreading and compacting jhama brick aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing rolling with three wheel roller 80-100 KN in stages to proper grade and camber, applying and brooming binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density Grading- 1 as per MoRD Technical Specification Clause 405.				
		(A) By Manual Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	10.08	300.00	3,024.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	250.00	300.00	75,000.00
		b) Machinery				
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10) Aggregate				
		Grading 1, 90 mm to 22.4 mm @ 1.48 cum per 10 sqm for compacted thickness of 100 mm	cum	532.80	2,424.03	1,291,523.18
		Binding Material				
		Binding Material (earth) @ 0.06 cum per 10 sqm for **Grading 1** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**212,214.09**
		Cost for 360 cum = a+b+c+d+e				1,626,974.67
		Rate per cum = (a+b+c+d+e)/360				**4,519.37**
					say	*4519.40*
		(B) By Mechanical Means				
		Unit = cum				
		Taking output = 360 cum				
		a) Labour				
		Mate	day	0.68	300.00	204.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) Machinery				
		Tractor with Rotavator	hour	14.40	322.00	4,636.80
		Three wheel 80-100 KN static roller @ 8 cum per hour	hour	45.00	379.00	17,055.00
		Water tanker 6 kl capacity	hour	24.00	310.00	7,440.00
		c) Material (Refer Tables 400.7, 8, 9 and 10)				
		Aggregate				
		Grading 1, 90 mm to 22.4 mm @ 1.48 cum per 10 sqm for compacted thickness of 100 mm	cum	532.80	2,424.03	1,291,523.18
		Binding Material				
		Binding Material(earth) @ 0.06 cum per 10 sqm for **Grading 1** material	cum	28.80	18.00	518.40
		Water	kl	144.00	135.00	19,440.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**201,911.61**
		Cost for 360 cum = a+b+c+d+e				1,547,988.99
		Rate per cum = (a+b+c+d+e)/360				**4,299.97**
					say	**4300.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
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- 1.00 kg/sqm using mechanical means as per MoRD Technical Specification Clause 502.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) **Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20
		Air compressor 210 cfm	hour	1.40	321.00	449.40
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	735.48	735.48
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	310.00	155.00
		c) **Material**				
		Bitumen emulsion (SS-1) @ 0.85 kg per sqm	t	1.48	39,435.00	58,363.80
		Water	kl	3.00	135.00	405.00
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**9,180.28**
		Cost of 1750 sqm = a+b+c+d+e				70,382.16
		Rate per sqm = (a+b+c+d+e)/1750				**40.22**
					say	*40.20*
		(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- 1.20 kg/sqm using mechanical means as per MoRD Technical Specification Clause 502.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) **Labour**				
		Mate	day	0.10	300.00	30.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) **Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Air compressor 210 cfm	hour	1.40	321.00	449.40
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	735.48	735.48
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	310.00	155.00
	c)	**Material**				
		Bitumen emulsion (SS-1) @ 1.05 kg per sqm	t	1.83	39,435.00	72,166.05
		Water	kl	3.00	135.00	405.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**11,298.32**
		Cost of 1750 sqm = a+b+c+d+e				86,620.45
		Rate per sqm = (a+b+c+d+e)/1750				**49.50**
					say	*49.50*

(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 1.20- 1.50 kg/sqm using mechanical means as per MoRD Technical Specification Clause 502.

Unit = sqm

Taking output = 1750 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.12	300.00	36.00
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
	b)	**Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20
		Air compressor 210 cfm	hour	1.40	321.00	449.40
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	1.00	735.48	735.48
		Water tanker 6 kl capacity 1 trip per hour	hour	0.50	310.00	155.00
	c)	**Material**				
		Bitumen emulsion (SS-1) @ 1.35 kg per sqm	t	2.36	39,435.00	93,066.60
		Water	kl	3.00	135.00	405.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**14,479.30**
		Cost of 1750 sqm = (a+b+c+d+e)				111,007.98
		Rate per sqm = a+b+c+d+e/1750				**63.43**
					say	*63.40*

5.2   503   Tack Coat

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	(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 MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20
		Air compressor 210 cfm	hour	1.40	321.00	449.40
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	735.48	735.48
		c) Material				
		Bitumen emulsion (RS-1) @ 0.225 kg per sqm	t	0.39	36,443.00	14,212.77
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**2,473.63**
		Cost of 1750 sqm = a+b+c+d+e				18,964.48
		Rate per sqm = (a+b+c+d+e)/1750				**10.84**
					say	*10.80*
	(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 MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20
		Air compressor 210 cfm	hour	1.40	321.00	449.40
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	735.48	735.48
		c) Material				
		Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	36,443.00	17,492.64
		d) 0				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**2,965.61**
		Cost of 1750 sqm = a+b+c+d+e				22,736.33
		Rate per sqm = (a+b+c+d+e)/1750				**12.99**
					say	*13.00*
	(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 surface treated with primer & cleaned with Hydraulic broom as per MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) **Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20
		Air compressor 210 cfm	hour	1.40	321.00	449.40
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	735.48	735.48
		c) **Material**				
		Bitumen emulsion (RS-1) @ 0.275 kg per sqm	t	0.48	36,443.00	17,492.64
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**2,965.61**
		Cost of 1750 sqm = a+b+c+d+e				22,736.33
		Rate per sqm = (a+b+c+d+e)/1750				**12.99**
					say	*13.00*
	(iv)	Providing and applying tack coat with bitumen emulsion (RS-1) using emulsion 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 MoRD Technical Specification Clause 503.				
		Unit = sqm				
		Taking output = 1750 sqm				
		a) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) **Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	1.40	558.00	781.20
		Air compressor 210 cfm	hour	1.40	321.00	449.40

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Emulsion pressure distributor @1750 sqm per hour	hour	1.00	735.48	735.48
		c) Material				
		Bitumen emulsion (RS-1) @ 0.325 kg per sqm	t	0.57	36,443.00	20,772.51
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**3,457.59**
		Cost of 1750 sqm = a+b+c+d+e				26,508.18
		Rate per sqm = (a+b+c+d+e) / 1750				**15.15**
					say	*15.10*

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**				

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 MoRD Technical Specification Clause 504.

i. With Viscocity Graded Bitumen of VG-30.

Unit = cum

Taking output = 102.5 cum (225 t)

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
		b) Machinery				
		Batch mix HMP 40-60 THP @ 40 t per hour actual output	hour	6.00	10,364.00	62,184.00
		Hydraulic broom @ 1250 sqm per hour	hour	1.10	558.00	613.80
		Air compressor 210 cfm	hour	1.10	321.00	353.10
		Paver finisher	hour	6.00	951.00	5,706.00
		Generator 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 cum, 10 t capacity	hour	6.21	321.00	1,993.41
		Three wheel 80-100 kN static roller for intial break down rolling, final and finishing rolling	hour	12.00	379.00	4,548.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Vibratory roller 80-100 kN for intermediate rolling	hour	6.00	1,304.00	7,824.00
	c)	**Material**				
	i)	**Bitumen (VG-30)** @ 3.3 per cent of mix (Weight of mix = 102.5 x 2.2 = 225 t)	t	7.425	37,787.00	280,568.48
	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) as per Table 500.4	cum	145.05	3,845.00	557,717.25
		25 -10 mm - 40.00 % 58.02	cum			
		10– 5 mm - 40.00% 58.02	cum			
		5 mm and below - 20.00 % 29.01	cum			
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**140,371.81**
		Cost of 102.5 cum = a+b+c+d+e				1,076,183.84
		Rate per cum = a+b+c+d+e/102.5				**10,499.35**
					say	*10499.40*

ii. With Viscocity Graded Bitumen of VG-20.

Unit = cum

Taking output = 102.5 cum (225 t)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		Batch mix HMP 40-60 THP @ 40 t per hour actual output	hour	6.00	10,364.00	62,184.00
		Hydraulic broom @ 1250 sqm per hour	hour	1.10	558.00	613.80
		Air compressor 210 cfm	hour	1.10	321.00	353.10
		Paver finisher	hour	6.00	951.00	5,706.00
		Generator 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 cum, 10 t capacity	hour	6.21	321.00	1,993.41
		Three wheel 80-100 kN static roller for intial break down rolling, final and finishing rolling	hour	12.00	379.00	4,548.00
		Vibratory roller 80-100 kN for intermediate rolling	hour	6.00	1,304.00	7,824.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) **Material**				
		i) **Bitumen (VG-20) @ 3.3 per cent of mix (Weight of mix = 102.5 x 2.2 = 225 t)**	t	7.425	36,820.00	273,388.50
		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) as per Table 500.4	cum	145.05	3,845.00	557,717.25
		25 -10 mm - 40.00 % 58.02	cum			
		10– 5 mm - 40.00% 58.02	cum			
		5 mm and below - 20.00 % 29.01	cum			
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**139,294.81**
		Cost of 102.5 cum = a+b+c+d+e				1,067,926.87
		Rate per cum = a+b+c+d+e/102.5				**10,418.80**
					say	*__10418.80__*

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**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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 (Bitumen of VG-30) after each layer. and with key aggregates placed on top of the second layer to serve as a base, conforming to line, grades and cross section specified, the compacted layer thickness being 75 mm as per MoRD Technical Specification Clause 505.				

(A) By Manual Means

Unit = sqm

Taking output = 800 sqm (60 cum)

a) Labour

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	5.50	300.00	1,650.00
		Mazdoor (Unskilled)	day	100.50	300.00	30,150.00
		Chips spreader	day	10.00	300.00	3,000.00
		Bitumen Sprayer	day	2.50	340.00	850.00
		Mazdoor (Semi-Skilled)	day	25.50	340.00	8,670.00

b) Machinery

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	6.00	207.00	1,242.00
		Three wheel 80-100 kN static Roller	hour	6.00	379.00	2,274.00

c) Material

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen of VG-30 @ 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	2.40	37,787.00	90,688.80
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 1.00 cum per 10 sqm for each layer	cum	80.00	3,364.00	269,120.00
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	10.40	3,564.00	37,065.60

d) 0   0.00

e) Contractor's profit and overheads @ 15 % on (a+b+c+d)   66,706.56

Cost of 800 sqm = a+b+c+d+e   511,416.96

Rate per sqm = (a+b+c+d+e)/800   **639.27**

say   <u>*639.30*</u>

(B) By Mechanical Means

Unit = sqm

Taking output = 3000 sqm (225 cum)

a) Labour

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.40	300.00	120.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
	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	2,672.00	16,032.00
		Bitumen presssure distributor for 3000x 2 sqm @ 1750 sqm per hour	hour	3.43	735.48	2,522.70
		Tipper 5.5 cum capacity	hour	10.00	321.00	3,210.00
		Three wheel 80-100 kN Static Roller @ 10 cum per hour	hour	22.50	379.00	8,527.50
		Front end loader 1 cum bucket capacity	hour	5.00	963.00	4,815.00
	c)	**Material**				
		Bitumen (VG-30) @ 30 kg per 10 sqm @ 15 kg per 10 sqm for each layer	t	9.00	37,787.00	340,083.00
		Crushed stone coarse aggregate passing 53 mm and retained on 2.8 mm sieve @ 1.00 cum per 10 sqm for each layer	cum	300.00	3,364.00	1,009,200.00
		Key aggregates passing 22.4 mm and retained on 2.8 mm sieve @ 0.13 cum per 10 sqm	cum	39.00	3,564.00	138,996.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**228,999.93**
		Cost of 3000 sqm = a+b+c+d+e				1,755,666.13
		Rate per sqm = (a+b+c+d+e)/3000				**585.22**
					say	*585.20*

| 5.5 | 507 | **Surface Dressing using Bituminous (viscocity grade) 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 MoRD Technical Specification Clause 507.

(A) By Manual Means

Case – I: Nominal chipping size 13.2 mm

(I) Bitumen of VG-30

Unit = sqm

Taking output = 900 sqm

a) Labour

		Description	Unit	Quantity	Rate	Amount
		Mate	day	2.60	300.00	780.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	58.00	300.00	17,400.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		Add: 0.50 % of (a) Labour for sundries				102.80
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	207.00	465.75
		Three wheel 80-100 kN static roller	hour	2.25	379.00	852.75
		c) Material				
		Bitumen (VG-30) @ 1.00 kg per sqm	t	0.90	37,787.00	34,008.30
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	3,925.00	35,325.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**13,697.19**
		Cost of 900 sqm = a+b+c+d+e				105,011.79
		Rate per sqm = (a+b+c+d+e)/900				**116.68**
					say	*116.70*
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 900 sqm				
		a) Labour				
		Mate	day	2.60	300.00	780.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	58.00	300.00	17,400.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		Add: 0.50 % of (a) Labour for sundries				102.80
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.25	207.00	465.75
		Three wheel 80-100 kN static roller	hour	2.25	379.00	852.75
		c) Material				
		Bitumen (VG-20) @ 1.00 kg per sqm	t	0.90	36,820.00	33,138.00
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	3,925.00	35,325.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**13,566.65**
		Cost of 900 sqm = a+b+c+d+e				104,010.95
		Rate per sqm = (a+b+c+d+e)/900				**115.57**
					say	*115.60*

Case – II: Nominal chipping size 9.5 mm

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(I) **Bitumen of VG-30**				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	300.00	780.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	58.00	300.00	17,400.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		Add: 0.50 % of (a) Labour for sundries				102.80
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	207.00	414.00
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
		c) Material				
		Bitumen (VG-30) @ 0.90 kg per sqm	t	0.90	37,787.00	34,008.30
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	3,845.00	30,760.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**12,990.47**
		Cost of 1000 sqm = a+b+c+d+e				99,593.57
		Rate per sqm = (a+b+c+d+e)/1000				**99.59**
					say	*99.60*
		(II) **Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.60	300.00	780.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	58.00	300.00	17,400.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		Add: 0.50 % of (a) Labour for sundries				102.80
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.00	207.00	414.00
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
		c) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen (VG-20) @ 0.90 kg per sqm	t	0.90	36,820.00	33,138.00
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	3,845.00	30,760.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**12,859.92**
		Cost of 1000 sqm = a+b+c+d+e				98,592.72
		Rate per sqm = (a+b+c+d+e)/1000				**98.59**
					say	*98.60*
		(B) By Mechanical Means				
		Case – I: Nominal chipping size 13.2 mm				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	558.00	3,348.00
		Air compressor 210 cfm	hour	6.00	321.00	1,926.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller weight	hour	18.75	379.00	7,106.25
		c) Material				
		Bitumen (VG-30) @ 1.00 kg per sqm	t	7.50	37,787.00	283,402.50
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	3,925.00	294,375.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**93,284.79**
		Cost of 7500 sqm = a+b+c+d+e				715,183.42
		Rate per sqm = (a+b+c+d+e)/7500				**95.36**
					say	*95.40*
		(II) Bitumen of VG-20				
		Unit = sqm				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 7500 sqm				
		a) Labour				
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	558.00	3,348.00
		Air compressor 210 cfm	hour	6.00	321.00	1,926.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller weight	hour	18.75	379.00	7,106.25
		c) Material				
		Bitumen (VG-20) @ 1.00 kg per sqm	t	7.50	36,820.00	276,150.00
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	3,925.00	294,375.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**92,196.92**
		Cost of 7500 sqm = a+b+c+d+e				706,843.05
		Rate per sqm = (a+b+c+d+e)/7500				**94.25**
					say	*94.20*

Case – II: Nominal chipping size 9.5 mm

(I) Bitumen of VG-30

Unit = sqm

Taking output = 7500 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		b) Machinery				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	558.00	3,348.00
		Air compressor 210 cfm	hour	6.00	321.00	1,926.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,672.00	16,032.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller weight	hour	15.00	379.00	5,685.00
	c)	**Material**				
		Bitumen (VG-30) @ 0.90 kg per sqm	t	6.75	37,787.00	255,062.25
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	3,845.00	230,700.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**79,269.32**
		Cost of 7500 sqm = a+b+c+d+e				607,731.45
		Rate per sqm = (a+b+c+d+e)/7500				**81.03**
					say	**81.00**

(II) Bitumen of VG-20

Unit = sqm

Taking output = 7500 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
	b)	**Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	558.00	3,348.00
		Air compressor 210 cfm	hour	6.00	321.00	1,926.00
		Hydraulic self propelled chips spreader @ 1500 sqm per hour	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chips spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor @ 1750 sqm per hour	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller weight	hour	15.00	379.00	5,685.00
	c)	**Material**				
		Bitumen (VG-20) @ 0.90 kg per sqm	t	6.75	36,820.00	248,535.00
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	3,845.00	230,700.00
	d)	**0**				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**78,290.23**
		Cost of 7500 sqm = a+b+c+d+e				600,225.11
		Rate per sqm = (a+b+c+d+e)/7500				**80.03**
					say	*80.00*
5.6	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 three wheel 80-100 kN static roller including cleaning the road surface as per MoRD 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	300.00	708.00
		Bitumen Emulsion Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	58.00	300.00	17,400.00
		Add: 0.50 % of (a) Labour for sundries				92.24
		b) Machinery				
		Bitumen emulsion sprayer, capacity 1000 litre fitted with spray set	hour	2.25	735.48	1,654.83
		Three wheel 80-100 kN static roller	hour	2.25	379.00	852.75
		c) Material				
		Bitumen Emulsion (RS-1) @ 1.50 kg per sqm	t	1.35	36,443.00	49,198.05
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	9.00	3,925.00	35,325.00
		d) 0				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**15,835.63**
		Cost of 900 sqm = a+b+c+d+e				121,406.50
		Rate per sqm = (a+b+c+d+e)/900				**134.90**
					say	*134.90*
		Case – II: Nominal chipping size 9.5 mm				
		Unit = sqm				
		Taking output = 1000 sqm				
		a) Labour				
		Mate	day	2.36	300.00	708.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	58.00	300.00	17,400.00
		Add: 0.50 % of (a) Labour for sundries				92.24
	b)	**Machinery**				
		Emulsion sprayer, capacity 1000 litre fitted with spray set	hour	2.00	735.48	1,470.96
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
	c)	**Material**				
		Bitumen Emulsion (RS-1) @ 1.40 kg per sqm	t	1.40	36,443.00	51,020.20
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	8.00	3,845.00	30,760.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**15,382.41**
		Cost of 1000 sqm = a+b+c+d+e				117,931.81
		Rate per sqm = (a+b+c+d+e)/1000				**117.93**
					say	_**117.90**_

(B) By Mechanical Means

Case – I: Nominal chipping size 13.2 mm

Unit = sqm

Taking output = 7500 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
	b)	**Machinery**				
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	558.00	3,348.00
		Air compressor 210 cfm	hour	6.00	321.00	1,926.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen Emulsion pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller	hour	18.75	379.00	7,106.25
	c)	**Material**				
		Bitumen Emulsion (RS-1) @ 1.50 kg per sqm	t	11.25	36,443.00	409,983.75

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Crushed stone chipping, 13.2 mm nominal size @ 0.010 cum per sqm	cum	75.00	3,845.00	288,375.00
d)		0				0.00
e)		**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**111,371.98**
		Cost of 7500 sqm = a+b+c+d+e				853,851.86
		Rate per sqm = (a+b+c+d+e)/7500				**113.85**
					say	*__113.80__*

Case – II: Nominal chipping size 9.5 mm

Unit = sqm

Taking output = 7500 sqm

a) Labour

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.44	300.00	132.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00

b) Machinery

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Hydraulic broom @ 1250 sqm per hour	hour	6.00	558.00	3,348.00
		Air compressor 210 cfm	hour	6.00	321.00	1,926.00
		Hydraulic self propelled chip spreader @ 1500 sqm per hour	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 10 t capacity for carriage of stone chips from stockpile on road side to chip spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen emulsion pressure distributor @ 1750 sqm per hour	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller	hour	15.00	379.00	5,685.00

c) Material

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen Emulsion (RS-1) @ 1.40 kg per sqm	t	10.50	36,443.00	382,651.50
		Crushed stone chipping, 9.5 mm nominal size @ 0.008 cum per sqm	cum	60.00	3,845.00	230,700.00
d)		0				0.00
e)		**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**98,407.71**
		Cost of 7500 sqm = a+b+c+d+e				754,459.09
		Rate per sqm = (a+b+c+d+e)/7500				**100.59**
					say	*__100.60__*

5.7   507.2.5 Pre-coating Chips

Pre-coating chips with 1 percent of paving bitumen by weight of chips in a suitable mixer duly heated to 160° C as per Technical Specification Clause 507.2.5.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = cum				
		Taking output = 30 cum				
		a) Labour				
		Mate	day	0.60	300.00	180.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre itre	hour	6.00	207.00	1,242.00
		Mixall 6-10 t capacity	hour	6.00	762.00	4,572.00
		c) Material				
		Bitumen (VG-30) @1.00% by weight of chips (30x1.6)/100	t	0.48	37,787.00	18,137.76
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**4,294.76**
		Cost of 30 cum = a+b+c+d+e				32,926.52
		Rate per cum = (a+b+c+d+e)/30				**1,097.55**
					say	*1097.60*
5.8	508	**20 mm thick Open-Graded Premix Carpet using Bituminous (viscocity 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 viscocity 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 or Type D as per MoRD Technical Specification Clause 508.				
		Case - I: By Manual Means				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 500 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	300.00	324.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	762.00	3,048.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen boiler oil fired1000 litre capacity fitted with spray set	hour	4.00	207.00	828.00
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
	c)	**Material**				
		Bitumen (VG-30) @ 14.60 kg per 10 sqm	t	0.73	37,787.00	27,584.51
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	3,925.00	52,987.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**14,080.50**
		Cost of 500 sqm = a+b+c+d+e				107,950.51
		Rate per sqm = (a+b+c+d+e)/500				**215.90**
					say	*215.90*

(II) **Bitumen of VG-20**

Unit = sqm

Taking output = 500 sqm (10 cum)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	1.08	300.00	324.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
	b)	**Machinery**				
		Mixall 6/10 t capacity	hour	4.00	762.00	3,048.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	207.00	828.00
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
	c)	**Material**				
		Bitumen (VG-20) @ 14.60 kg per 10 sqm	t	0.73	36,820.00	26,878.60
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	13.50	3,925.00	52,987.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**13,974.62**
		Cost of 500 sqm = a+b+c+d+e				107,138.72
		Rate per sqm = (a+b+c+d+e)/500				**214.28**
					say	*214.30*

Case - II: By Mechanical Means

(I) **Bitumen of VG-30**

Unit = sqm

Taking output = 4000 sqm (80 cum)

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 10 t capacity	hour	3.64	321.00	1,168.44
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	16.00	379.00	6,064.00
		c) Material				
		Bitumen (VG-30) @ 14.60 kg per 10 sqm	t	5.84	37,787.00	220,676.08
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	3,925.00	423,900.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**107,733.38**
		Cost of 4000 sqm = a+b+c+d+e				825,955.90
		Rate per sqm = (a+b+c+d+e)/4000				**206.49**
					say	*206.50*
		(II) Bitumen of VG-20				
		Unit = sqm					
		Taking output = 4000 sqm (80 cum)					
		a) Labour				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
		b) Machinery				
		HMP 30/40 t per hour	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 10 t capacity	hour	3.64	321.00	1,168.44
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	16.00	379.00	6,064.00
		c) Material				
		Bitumen (VG-20) @ 14.60 kg per 10 sqm	t	5.84	36,820.00	215,028.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	108.00	3,925.00	423,900.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**106,886.29**
		Cost of 4000 sqm = a+b+c+d+e				819,461.53
		Rate per sqm = (a+b+c+d+e)/4000				**204.87**
					say	*204.90*

5.9	508.2	**20 mm thick Open Graded Premix Carpet using Bitumen Emulsion as per MoRD Technical Specification Clause 508.2.**				

Providing , laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates using bitumen 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 or Type D as per MoRD Technical Specification Clause 508.2.

Unit = sqm

Taking output = 900 sqm (24.3 cum)

		a) Labour				
		Mate	day	0.80	300.00	240.00
		Mazdoor (Unskilled)	day	18.00	300.00	5,400.00
		Mazdoor (Skilled)	day	2.00	380.00	760.00
		b) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	6.00	193.00	1,158.00
		Three wheel 80-100 kN static roller	hour	3.60	379.00	1,364.40
		c) Material				
		Bitumen emulsion (RS-1) @ 21.50 kg per 10 sqm	t	1.94	36,443.00	70,699.42
		Crushed stone aggregates 13.2 mm to 5.6 mm @ 0.27 cum per 10 sqm	cum	24.30	3,925.00	95,377.50
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**26,249.90**
		Cost of 900 sqm = a+b+c+d+e				201,249.22
		Rate per sqm = (a+b+c+d+e)/900				**223.61**
					say	*223.60*
5.10	509	**Mix Seal Surfacing**				

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BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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 viscocity 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 80 - 100 kN static roller , finishing to required level and grades as per MoRD Technical Specification Clause 509.				
		(A) By Manual Means				
		i) Type A				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	300.00	420.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	7.00	340.00	2,380.00
		b) Machinery				
		Mixall 6-10 t capacity	hour	6.00	762.00	4,572.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	207.00	1,242.00
		Three wheel 80-100 kN static roller	hour	6.00	379.00	2,274.00
		c) Material				
		Bitumen (VG-30) @ 22.00 kg per 10 sqm	t	1.10	37,787.00	41,565.70
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	4,085.00	55,147.50
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**17,085.18**
		Cost of 500 sqm = a+b+c+d+e				130,566.38
		Rate per sqm = (a+b+c+d+e)/500				**261.13**
					say	*261.10*
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 500 sqm				
		a) Labour				
		Mate	day	1.40	300.00	420.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	7.00	340.00	2,380.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) **Machinery**				
		Mixall 6-10 t capacity	hour	6.00	762.00	4,572.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	207.00	1,242.00
		Three wheel 80-100 kN static roller	hour	6.00	379.00	2,274.00
		c) **Material**				
		Bitumen (VG-20) @ 22.00 kg per 10 sqm	t	1.10	36,820.00	40,502.00
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	13.50	4,085.00	55,147.50
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**16,925.63**
		Cost of 500 sqm = a+b+c+d+e				129,343.13
		Rate per sqm = (a+b+c+d+e)/500				**258.69**
					say	*258.70*

ii) Type B

(I) **Bitumen of VG-30**

Unit = sqm

Taking output = 500 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) **Labour**				
		Mate	day	1.40	300.00	420.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	7.00	340.00	2,380.00
		b) **Machinery**				
		Mixall 6-10 t capacity	hour	6.00	762.00	4,572.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	207.00	1,242.00
		Three wheel 80-100 kN static roller	hour	6.00	379.00	2,274.00
		c) **Material**				
		Bitumen (VG-30) @ 19.00 kg per 10 sqm	t	0.95	37,787.00	35,897.65
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	4,085.00	55,147.50
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**16,234.97**
		Cost of 500 sqm = a+b+c+d+e				124,048.12
		Rate per sqm = (a+b+c+d+e)/500				**248.10**
					say	*248.10*

(II) **Bitumen of VG-20**

Unit = sqm

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 500 sqm				
	a)	**Labour**				
		Mate	day	1.40	300.00	420.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	7.00	340.00	2,380.00
	b)	**Machinery**				
		Mixall 6-10 t capacity	hour	6.00	762.00	4,572.00
		Oil fired bitumen boiler 1000 litre capacity fitted with spray set	hour	6.00	207.00	1,242.00
		Three wheel 80-100 kN static roller	hour	6.00	379.00	2,274.00
	c)	**Material**				
		Bitumen (VG-20) @ 19.00 kg per 10 sqm	t	0.95	36,820.00	34,979.00
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27cum per 10 sqm	cum	13.50	4,085.00	55,147.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**16,097.18**
		Cost of 500 sqm = a+b+c+d+e				122,991.68
		Rate per sqm = (a+b+c+d+e)/500				**245.98**
					say	*246.00*

B. By Mechanical Means

i) Type A

(I)   Bitumen of VG-30

Unit = sqm

Taking output = 4000 sqm (80 cum)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		HMP of appropriate capacity	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 10 t capacity	hour	3.60	321.00	1,155.60
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	18.00	379.00	6,822.00
	c)	**Material**				
		Bitumen (VG-30) @ 22.00 kg per 10 sqm	t	8.80	37,787.00	332,525.60

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	4,085.00	441,180.00
	d)	0				0.00
	e)	Contractor's profit and overheads @ 15 % on (a+b+c+d)				127,214.58
		Cost of 4000 sqm = a+b+c+d+e				975,311.78
		Rate per sqm = (a+b+c+d+e)/4000				**243.83**
					say	*243.80*
	(II)	**Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		HMP of appropriate capacity	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 10 t capacity	hour	3.60	321.00	1,155.60
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	18.00	379.00	6,822.00
	c)	**Material**				
		Bitumen (VG-20) @ 22.00 kg per 10 sqm	t	8.80	36,820.00	324,016.00
		Stone crushed aggregates 11.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	4,085.00	441,180.00
	d)	0				0.00
	e)	Contractor's profit and overheads @ 15 % on (a+b+c+d)				125,938.14
		Cost of 4000 sqm = a+b+c+d+e				965,525.74
		Rate per sqm = (a+b+c+d+e)/4000				**241.38**
					say	*241.40*
	ii)	**Type B**				
	(I)	**Bitumen of VG-30**				
		Unit = sqm				
		Taking output = 4000 sqm (80 cum)				
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		HMP 30/40 t per hour	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 10 t capacity	hour	3.60	321.00	1,155.60
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	18.00	379.00	6,822.00
	c)	**Material**				
		Bitumen (VG-30) @ 19.00 kg per 10 sqm	t	7.60	37,787.00	287,181.20
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	4,085.00	441,180.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**120,412.92**
		Cost of 4000 sqm = a+b+c+d+e				923,165.72
		Rate per sqm = (a+b+c+d+e)/4000				**230.79**
					say	*230.80*
	(II)	**Bitumen of VG-20**				
		Unit = sqm					
		Taking output = 4000 sqm (80 cum)					
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		HMP 30/40 t per hour	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5 10 t capacity	hour	3.60	321.00	1,155.60
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	18.00	379.00	6,822.00
	c)	**Material**				
		Bitumen (VG-20) @ 19.00 kg per 10 sqm	t	7.60	36,820.00	279,832.00
		Stone crushed aggregates 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm	cum	108.00	4,085.00	441,180.00
	d)	**0**				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**119,310.54**
		Cost of 4000 sqm = a+b+c+d+e				914,714.14
		Rate per sqm = (a+b+c+d+e)/4000				**228.68**
					say	*228.70*

5.11   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 or Type B or Type C or Type D as per MoRD Technical Specification Clause 510.

A.   By Manual Means

Case - I : Type A

(I)   Bitumen of VG-30

Unit = sqm

Taking output = 1100 sqm

			Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	1.15	300.00	345.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	22.00	300.00	6,600.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		b) Machinery				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	221.00	486.20
		Three wheel 80-100 kN static roller	hour	2.20	379.00	833.80
		c) Material				
		Bitumen (VG-30) @ 9.80 kg per 10 sqm	t	1.078	37,787.00	40,734.39
		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	3,605.00	35,689.50
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**13,060.33**
		Cost of 1100 sqm = a+b+c+d+e				100,129.22
		Rate per sqm = (a+b+c+d+e)/1100				**91.03**
					say	*91.00*
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	300.00	345.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	22.00	300.00	6,600.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
	b)	**Machinery**				
		Bitumen boiler oil fired, capacity 1000 litre fitted with spray set	hour	2.20	221.00	486.20
		Three wheel 80-100 kN static roller	hour	2.20	379.00	833.80
	c)	**Material**				
		Bitumen (VG-20) @ 9.80 kg per 10 sqm	t	1.078	36,820.00	39,691.96
		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	3,605.00	35,689.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**12,903.97**
		Cost of 1100 sqm = a+b+c+d+e				98,930.43
		Rate per sqm = (a+b+c+d+e)/1100				**89.94**
					say	*89.90*

Case - II : Type B

(I) **Bitumen of VG-30**

Unit = sqm

Taking output = 1250 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.85	300.00	255.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		Mazdoor (Semi-Skilled)	day	2.00	340.00	680.00
	b)	**Machinery**				
		Mixall 6/10 t capacity	hour	2.50	762.00	1,905.00
		Three wheel 80-100 kN static roller	hour	2.50	379.00	947.50
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	207.00	517.50
	c)	**Material**				
		Bitumen (VG-30) @ 6.80 kg per 10 sqm	t	0.85	37,787.00	32,118.95
		Crushed stone or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	2,643.00	19,822.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**9,111.97**
		Cost of 1250 sqm = a+b+c+d+e				69,858.42
		Rate per sqm = (a+b+c+d+e)/1250				**55.89**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*55.90*
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 1250 sqm				
		a) Labour				
		Mate	day	0.85	300.00	255.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		Mazdoor (Semi-Skilled)	day	2.00	340.00	680.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	2.50	762.00	1,905.00
		Three wheel 80-100 kN static roller	hour	2.50	379.00	947.50
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	207.00	517.50
		c) Material				
		Bitumen (VG-20) @ 6.80 kg per 10 sqm	t	0.85	36,820.00	31,297.00
		Crushed stone or grit as passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	7.50	2,643.00	19,822.50
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				8,988.68
		Cost of 1250 sqm = a+b+c+d+e				68,913.18
		Rate per sqm = (a+b+c+d+e)/1250				**55.13**
					say	*55.10*
		Case - III : Type C				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 1100 sqm				
		a) Labour				
		Mate	day	1.15	300.00	345.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled)	day	22.00	300.00	6,600.00
		Mazdoor (Semi-Skilled)	day	5.00	340.00	1,700.00
		b) Machinery				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	207.00	455.40
		Three wheel 80-100 kN static roller	hour	2.20	379.00	833.80
		c) Material				
		Bitumen (VG-30) @ 6.50 kg per 10 sqm	t	0.715	37,787.00	27,017.71

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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 per 10 sqm.	cum	9.90	3,605.00	35,689.50
	d)	0				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**10,947.21**
		Cost of 1100 sqm = a+b+c+d+e				83,928.62
		Rate per sqm = (a+b+c+d+e)/1100				**76.30**
					say	*76.30*
(II)		**Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 1100 sqm				
	a)	**Labour**				
		Mate	day	1.15	300.00	345.00
		Bitumen Sprayer	day	1.00	340.00	340.00
		Mazdoor (Unskilled) for carrying of chips & spraying	day	22.00	300.00	6,600.00
		Mazdoor (Semi-Skilled)	day	5.00	340.00	1,700.00
	b)	**Machinery**				
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.20	207.00	455.40
		Three wheel 80-100 kN static roller	hour	2.20	379.00	833.80
	c)	**Material**				
		Bitumen (VG-20) @ 6.50 kg per 10 sqm	t	0.715	36,820.00	26,326.30
		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 per 10 sqm.	cum	9.90	3,605.00	35,689.50
	d)	0				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**10,843.50**
		Cost of 1100 sqm = a+b+c+d+e				83,133.50
		Rate per sqm = (a+b+c+d+e)/1100				**75.58**
					say	*75.60*
		Case - IV : Type D (premix with fine sand)				
(I)		**Bitumen of VG-30**				
		Unit = sqm				
		Taking output = 1250 sqm				
	a)	**Labour**				
		Mate	day	0.85	300.00	255.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Semi-Skilled)	day	2.00	340.00	680.00
	b)	**Machinery**				
		Mixall 6/10 t capacity	hour	2.50	762.00	1,905.00
		Three wheel 80-100 kN static roller	hour	2.50	379.00	947.50
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	207.00	517.50
	c)	**Material**				
		Bitumen (VG-30) @ 6.80 kg per 10 sqm	t	0.850	37,787.00	32,118.95
		Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.50	370.00	2,775.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**6,554.84**
		Cost of 1250 sqm = a+b+c+d+e				50,253.79
		Rate per sqm = (a+b+c+d+e)/1250				**40.20**
					say	*40.20*
	(II)	**Bitumen of VG-20**				
		Unit = sqm					
		Taking output = 1250 sqm					
	a)	**Labour**				
		Mate	day	0.85	300.00	255.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		Mazdoor (Semi-Skilled)	day	2.00	340.00	680.00
	b)	**Machinery**				
		Mixall 6/10 t capacity	hour	2.50	762.00	1,905.00
		Three wheel 80-100 kN static roller	hour	2.50	379.00	947.50
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	2.50	207.00	517.50
	c)	**Material**				
		Bitumen (VG-20) @ 6.80 kg per 10 sqm	t	0.850	36,820.00	31,297.00
		Sand (fine) applied @ 0.06 cum per 10 sqm	cum	7.50	370.00	2,775.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**6,431.55**
		Cost of 1250 sqm = a+b+c+d+e				49,308.55
		Rate per sqm = (a+b+c+d+e)/1250				**39.45**
					say	*39.40*
	B.	**By Mechanical Means**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Case - I : Type A				
(I)		**Bitumen of VG-30**				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
	a)	**Labour**				
		Mate	day	0.24	300.00	72.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
	b)	**Machinery**				
		Hydraulic self propelled chips spreader	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 / 10 t capacity for carriage of stone chips from stockpile on the road to chip spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller	hour	15.00	379.00	5,685.00
	c)	**Material**				
		Bitumen (VG-30) @ 9.80 kg per 10 sqm	t	7.35	37,787.00	277,734.45
		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	3,605.00	243,337.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**83,516.67**
		Cost of 7500 sqm = a+b+c+d+e				640,294.50
		Rate per sqm = (a+b+c+d+e)/7500				**85.37**
					say	*85.40*
(II)		**Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
	a)	**Labour**				
		Mate	day	0.24	300.00	72.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
	b)	**Machinery**				
		Hydraulic self propelled chips spreader	hour	6.00	2,672.00	16,032.00
		Tipper 5.5 / 10 t capacity for carriage of stone chips from stockpile on the road to chip spreader	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bitumen pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller	hour	15.00	379.00	5,685.00
	c)	**Material**				
		Bitumen (VG-20) @ 9.80 kg per 10 sqm	t	7.35	36,820.00	270,627.00
		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	3,605.00	243,337.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**82,450.56**
		Cost of 7500 sqm = a+b+c+d+e				632,120.94
		Rate per sqm = (a+b+c+d+e)/7500				**84.28**
					say	*84.30*

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 of VG-30

Unit = sqm

Taking output = 5000 sqm (30 cum)

	a)	**Labour**				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
	b)	**Machinery**				
		HMP of 30/40 t per hour	hour	2.00	7,734.00	15,468.00
		Electric generator set 125 KVA	hour	2.00	705.00	1,410.00
		Front end loader 1 cum bucket capacity	hour	2.00	963.00	1,926.00
		Tipper 5.5 /10 t capacity	hour	1.36	321.00	436.56
		Paver finisher	hour	2.00	951.00	1,902.00
		Three wheel 80-100 kN static roller	hour	10.00	379.00	3,790.00
	c)	**Material**				
		Bitumen (VG-30) @ 6.80 kg per 10 sqm	t	3.40	37,787.00	128,475.80
		Crushed stone or grit passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	2,643.00	79,290.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**35,091.95**
		Cost of 5000 sqm = a+b+c+d+e				269,038.31
		Rate per sqm = (a+b+c+d+e)/5000				**53.81**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*53.80*
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 5000 sqm (30 cum)				
		a) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
		b) Machinery				
		HMP of 30/40 t per hour	hour	2.00	7,734.00	15,468.00
		Electric generator set 125 KVA	hour	2.00	705.00	1,410.00
		Front end loader 1 cum bucket capacity	hour	2.00	963.00	1,926.00
		Tipper 5.5/ 10 t capacity	hour	1.36	321.00	436.56
		Paver finisher	hour	2.00	951.00	1,902.00
		Three wheel 80-100 kN static roller	hour	10.00	379.00	3,790.00
		c) Material				
		Bitumen (VG-20) @ 6.80 kg per 10 sqm	t	3.40	36,820.00	125,188.00
		Crushed stone or grit passing 2.36 mm sieve and retained on 180 micron sieve applied @ 0.06 cum per 10 sqm	cum	30.00	2,643.00	79,290.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**34,598.78**
		Cost of 5000 sqm = a+b+c+d+e				265,257.34
		Rate per sqm = (a+b+c+d+e)/5000				**53.05**
					say	*53.10*

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 of VG-30

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = sqm				
		Taking output = 7500 sqm (67.5 cum)				
		a) Labour				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	5.00	300.00	1,500.00
		b) Machinery				
		Hydraulic self propelled chips spreader	hour	6.00	2,672.00	16,032.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tipper 5.5/ 10 t capacity	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller	hour	15.00	379.00	5,685.00
	c)	**Material**				
		Bitumen (VG-30) @ 6.50 kg per 10 sqm	t	4.88	37,787.00	184,400.56
		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	3,605.00	243,337.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**69,469.79**
		Cost of 7500 sqm = a+b+c+d+e				532,601.73
		Rate per sqm = (a+b+c+d+e)/7500				**71.01**
					say	*__71.00__*

(II) Bitumen of VG-20

Unit = sqm

Taking output = 7500 sqm (67.5 cum)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	5.00	300.00	1,500.00
	b)	**Machinery**				
		Hydraulic self propelled chips spreader	hour	6.00	2,672.00	16,032.00
		Tipper 5.5/ 10 t capacity	hour	6.00	321.00	1,926.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Bitumen pressure distributor	hour	6.00	735.48	4,412.88
		Three wheel 80-100 kN static roller	hour	15.00	379.00	5,685.00
	c)	**Material**				
		Bitumen (VG-20) @ 6.50 kg per 10 sqm	t	4.88	36,820.00	179,681.60
		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	3,605.00	243,337.50
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**68,761.95**
		Cost of 7500 sqm = a+b+c+d+e				527,174.93
		Rate per sqm = (a+b+c+d+e)/7500				**70.29**
					say	*__70.30__*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
5.12	508	**25 mm thick Open-Graded Premix Carpet using Bituminous (viscocity grade/ modified bitumen) Binder**				
		Providing, laying and rolling of open-graded premix carpet of 25 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using viscocity 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 or Type D as per MoRD Technical Specification Clause 508.				
		Case - I: By Manual Means				
		(I) Bitumen of VG-30				
		Unit = sqm				
		Taking output = 400 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	300.00	324.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		b) Machinery				
		Mixall 6/10 t capacity	hour	4.00	762.00	3,048.00
		Bitumen boiler oil fired1000 litre capacity fitted with spray set	hour	4.00	207.00	828.00
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
		c) Material				
		Bitumen (VG-30) @ 18.25 kg per 10 sqm	t	0.73	37,787.00	27,584.51
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	13.60	3,925.00	53,380.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**14,139.38**
		Cost of 400 sqm = a+b+c+d+e				108,401.89
		Rate per sqm = (a+b+c+d+e)/400				**271.00**
					say	*271.00*
		(II) Bitumen of VG-20				
		Unit = sqm				
		Taking output = 400 sqm (10 cum)				
		a) Labour				
		Mate	day	1.08	300.00	324.00
		Mazdoor (Unskilled)	day	21.00	300.00	6,300.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
	b)	**Machinery**				
		Mixall 6/10 t capacity	hour	4.00	762.00	3,048.00
		Bitumen boiler oil fired 1000 litre capacity fitted with spray set	hour	4.00	207.00	828.00
		Three wheel 80-100 kN static roller	hour	2.00	379.00	758.00
	c)	**Material**				
		Bitumen (VG-20) @ 18.25 kg per 10 sqm	t	0.73	36,820.00	26,878.60
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	13.60	3,925.00	53,380.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				14,033.49
		Cost of 400 sqm = a+b+c+d+e				107,590.09
		Rate per sqm = (a+b+c+d+e)/400				**268.98**
					say	*269.00*

Case - II: By Mechanical Means

(I) Bitumen of VG-30

Unit = sqm

Taking output = 3200 sqm (80 cum)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		HMP 30/40 t per hour	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5/ 10 t capacity	hour	3.64	321.00	1,168.44
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	16.00	379.00	6,064.00
	c)	**Material**				
		Bitumen (VG-30) @ 18.25 kg per 10 sqm	t	5.84	37,787.00	220,676.08
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	108.80	3,925.00	427,040.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 0 % on (a+b+c+d)**				108,204.38
		Cost of 3200 sqm = a+b+c+d+e				829,566.90
		Rate per sqm = (a+b+c+d+e)/3200				**259.24**

Chapter 5
BASES AND SURFACE COURSES (BITUMINOUS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*__259.20__*
	(II)	**Bitumen of VG-20**				
		Unit = sqm				
		Taking output = 3200 sqm (80 cum)				
	a)	**Labour**				
		Mate	day	0.52	300.00	156.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Mazdoor (Skilled)	day	3.00	380.00	1,140.00
	b)	**Machinery**				
		HMP 30/40 t per hour	hour	6.00	7,734.00	46,404.00
		Electric generator set 125 KVA	hour	6.00	705.00	4,230.00
		Front end loader 1 cum bucket capacity	hour	6.00	963.00	5,778.00
		Tipper 5.5/ 10 t capacity	hour	3.64	321.00	1,168.44
		Paver finisher	hour	6.00	951.00	5,706.00
		Three wheel 80-100 kN static roller	hour	16.00	379.00	6,064.00
	c)	**Material**				
		Bitumen (VG-20) @ 18.25 kg per 10 sqm	t	5.84	36,820.00	215,028.80
		Crushed stone chipping, 13.2 mm to 5.6 mm @ 0.34 cum per 10 sqm	cum	108.80	3,925.00	427,040.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**107,357.29**
		Cost of 3200 sqm = a+b+c+d+e				823,072.53
		Rate per sqm = (a+b+c+d+e)/3200				**257.21**
					say	*__257.20__*

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
6.1	400	**Granual Sub-base**				
		Rate as per item No.4.1 of Chapter 4				
6.2	1500 & 400	**Water Bound Macadam (WBM) - Sub-base**				
		(A) By Manual Means				
		As per item No.4.2 of Chapter 4				
		(B) By Mechnical Means				
		As per item No.4.2 of Chapter 4				
6.3	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 MoRD Technical Specification Clause 1501.

Unit = cum
Taking output = 75 cum (172.50 t)
(100 m x 3.75 m x 0.200 m)

		Description	Unit	Quantity	Rate	Amount
a)		**Labour**				
		Mate	day	7.00	300.00	2,100.00
		Mason (1st class)	day	5.00	425.00	2,125.00
		Mason (2nd class)	day	5.00	380.00	1,900.00
		Mazdoor (Unskilled)	day	129.00	300.00	38,700.00
		Mazdoor (Skilled)	day	6.00	380.00	2,280.00
		Surveyor	day	2.00	490.00	980.00
		Mazdoor (Semi-Skilled)	day	6.00	340.00	2,040.00
		Bhisti	day	14.00	300.00	4,200.00
		Blacksmith for cutting of dowel bars including removal of burrs, fabrications & fixing of dowel bars.	day	1.00	403.00	403.00
b)		**Machinery**				
		Concrete mixer 0.28 / 0.4 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	193.00	6,948.00
		Needle vibrator	hour	9.00	62.00	558.00

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			Screed vibrator	hour	9.00	83.00	747.00
			Plate vibrator	hour	9.00	143.00	1,287.00
			Concrete joint cutting machine for initial & final cuts	hour	4.00	257.00	1,028.00
			Water tanker 6 kl capacity	hour	5.00	310.00	1,550.00
			Air Compressor (1 hour initial + 1 hour final)	hour	2.00	321.00	642.00
	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	3,925.00	264,937.50
		(ii)	Sand as per IS:383 and conforming to Clause 1500.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	370.00	12,487.50
		(iii)	Cement @ 310 kg/cum of concrete	t	26.25	6,100.00	160,125.00
		(iv)	Polythene sheet 125 micron	sqm	412.50	21.00	8,662.50
		(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	40.32	4,741.63
			Bitumen primer @ 200 ml per joint for 23 joints	t	0.005	45,164.00	225.82
			Bituminous sealant 800 ml per joint for 23 joints	litre	19.00	90.00	1,710.00
			Jute rope 12 mm dia including 5 per cent wastage	m	90.00	4.90	441.00
			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	21.00	1,890.00
			Polythene sheathing, covering 2/3rd dowel bars (25 mm x 1.0 m) and tight fit including 5 per cent wastage	No.	483.00	11.35	5,482.05
			Plasticizer 0.5 per cent by weight of cement	litre	122.00	41.00	5,002.00
			Curing compound (if used) @ 0.33 litre per sqm	litre	131.25	98.00	12,862.50
			Water for curing	kl	18.00	135.00	2,430.00
			Joint filler board 20 mm thick as per IS:1838 (4 x 3.75 x 0.200 = 3 sqm)	sqm	3.00	865.00	2,595.00
	d)		**Formwork @ 3% of (a+b+c)**				**16,532.42**
	e)		**0**				**0.00**
	f)		**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**85,141.94**
			Cost for 75 cum = a+b+c+d+e+f				652,754.85
			Rate per cum = (a+b+c+d+e+f)/75				**8,703.40**
						say	*8703.40*

6.4   1500   Roller Compacted Concrete Pavement

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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 and with minimum cement 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 drawing and MoRD technical specification Clause 1502.				
		Unit = cum				
		Taking output = 75 cum				
		a) **Labour**				
		(i) Mate	day	6.00	300.00	1,800.00
		(ii) Mazdoor (Unskilled)	day	132.00	300.00	39,600.00
		(iii) Mason (1st class)	day	4.00	425.00	1,700.00
		(iv) Mason (2nd class)	day	4.00	380.00	1,520.00
		(v) Surveyor	day	2.00	490.00	980.00
		(vi) Bhisti	day	14.00	300.00	4,200.00
		b) **Machinery**				
		(i) Concrete mixer 0.28 / 0.4 cum capacity (6 mixers) with weigh batcher and suitable capacity calibrated water tank	hour	36.00	193.00	6,948.00
		(ii) Vibratory/80-100 kN Static Roller	hour	6.00	1,304.00	7,824.00
		(iii) Concrete joint cutting machine for day's end work and regular joint cutting.	hour	6.00	257.00	1,542.00
		(iv) Water tanker 6 kl capacity	hour	6.00	310.00	1,860.00
		(v) Air compressor (1 hour initial + 1 hour final)	hour	2.00	321.00	642.00
		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	3,925.00	264,937.50
		(ii) Sand as per IS:383 and conforming to Clause 1501.2.4.2 @ 0.45 cum/cum of concrete	cum	33.75	370.00	12,487.50
		(iii) Cement @ 310 kg/cum of concrete	t	23.25	6,100.00	141,825.00
		(iv) Bitminous primer @ 200 ml per joint for 21 joints	t	0.004	45,164.00	180.66
		(v) Jute rope 10 mm dia including 5 per cent wastage	m	90.00	4.90	441.00
		(vi) Bituminous sealant @ 800 ml per joint for 21 joints	kg	16.80	90.00	1,512.00
		(vii) Curing compound @ 0.33 litre per sqm	l	131.25	98.00	12,862.50
		(viii) Water for mixing and curing for 14-days	day	18.00	135.00	2,430.00
		d) **Formwork @ 2% of (a+b+c)**				**10,105.84**
		e) **0**				**0.00**

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	f)	**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**77,309.70**
		Cost for 75 cum = a+b+c+d+e+f				592,707.70
		Rate per cum = (a+b+c+d+e+f)/75				**7,902.77**
					say	***7902.80***

Note: When curing compound is used 4-days water curing will be done

6.5 1500 Rectangular Concrete Block Pavement

Manufacturing, laying of cement concrete blocks of size 0.450 m x 0.300 m x 0.150 m of Cement Concrete (C.C) M30 grade and spreading 25 mm thick sand under neath and filling joints with sand on existing W.B.M. base as per MoRD Technical Specification Clause 1503.

Unit = sqm

Taking output = 112.5 sqm

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Concrete M30 grade for block, 784 x (0.45 x 0.30 x 0.15)	cum	15.88	7,139.36	113,373.04
		Concrete M30 for edge block, 2 x 98 x (0.30 x 0.30 x 0.15)	cum	2.65	7,139.36	18,919.30
		TOTAL:-	**cum**	**18.53**		
a)		**Labour**				
		Labour for Manufacturing the Cement Concrete Block :				
	(i)	Mate	day	3.00	300.00	900.00
	(ii)	Mazdoor (Unskilled)	day	80.00	300.00	24,000.00
	(iii)	Mason (2nd class)	day	12.00	380.00	4,560.00
	(iv)	Bhisti	day	3.00	300.00	900.00
b)		**Machinery**				
		Concrete mixer 0.28 / 0.4 cum	hour	12.00	193.00	2,316.00
		Plate vibrator	hour	23.00	143.00	3,289.00
		Water tanker 6 kl capacity	hour	4.00	310.00	1,240.00
c)		**Material**				
	(i)	Coarse aggregates 26.5mm to 75 micron as per Table 1500.1 (18.53 x 0.89)	cum	16.49	3,925.00	64,723.25
	(ii)	Fine Sand (18.53 x .42) (considering 20% void)	cum	9.73	370.00	3,600.10
	(iii)	Cement	t	7.41	6,100.00	45,201.00
	(iv)	Sand as per Table 1500.5	cum	5.760	300.00	1,728.00
		Bed = 30 m x 3.75 x 0.025 = 2.81 cum				
		Joints = (240x4mm + 367.5 x 4mm)x 0.15 = 1.80 cum				
		Total = 4.61 cum (considering 20% void)				
	(v)	Cost of water	kl	12.00	135.00	1,620.00
d)		**Formwork @ 3% of (a+b+c)**				**4,622.32**
e)		**0**				**0.00**

Chapter 6
CEMENT CONCRETE PAVEMENT

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
f)		**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**23,804.95**
		Cost for 112.5 sqm = a+b+c+d+e+f				182,504.62
		Rate per sqm = (a+b+c+d+e+f)/112.5				**1,622.26**
					say	*1622.30*

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.*

Chapter 7
CAUSEWAY AND SUBMERSIBLE BRIDGES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
7.1	1400, 300, 600	**Construction of Cut-off Walls/Head Walls**				
		(i) Earthwork in excavation for structures as per drawing and technical specification Clause 305.				
		Rate as per item No.11.1 of Chapter 11	cum			
		(ii) Plain cement concrete M15 grade				
		Rate as per item No.11.4 (ii) of Chapter 11	cum			
		(iii) Brick masonry in cement mortar 1:4				
		Rate as per item No.11.5 (ii) of Chapter 11	cum			
		(iv) Providing P.C.C M20 architectural coping on top of wall				
		Rate as per item No.12.11 of Chapter 12	m			
		Note: *Rate as appropriate for the type of soil/rock are to be taken in (i)*				
7.2	300	**Preparation of Subgrade**				
		Rate as per item No.3.13 of Chapter 3	cum			
7.3	400	**Granular Sub-base**				
		Rate as per item No.4.1 of Chapter 4	cum			
7.4	1500	**Cement Concrete Slab**				
		Rate as per item No.6.3 of Chapter 6	cum			
7.5	1400 & 1300	**(i) Providing and Laying of Apron with Cement Concrete Blocks as per Drawing and Technical Specification Clause 1301**				
		Rate as per item No.14.3 of Chapter 14	cum			
7.6	1400 & 1600	**Guide Posts**				
		Construction of R.C.C. guide posts of 250 mm dia, M25 grade as per drawing and technical specification Clause 1401.6				
		Rate as per item No.8.8 of Chapter 8	cum			
7.7	1400, 1100 &	**Bedding for Causeway**				
		(i) Type A (concrete cradle) Bedding Clause 1402.5				
		As per item No.9.2 of Chapter 9	cum			
		(ii) Type B (first class) Bedding Clause 1402.5				
		As per item No.9.2 of Chapter 9	cum			
7.8	1400 & 1100	**Laying Reinforced Cement Concrete Pipe NP3 as per drawing and technical specification Clause 1402.6**				
		As per item No.9.3 of Chapter 9	m			

Note :
1. Rate as appropriate for the type of soil/rock are to be taken in (i) .
2. Appropriate items may also be taken from the relevant item of the relevant Chapters in case of usimg jhama brick aggregate.

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
8.1	200	**Site Clearance**				
		As per Chapter 2				
8.2	1600 & 300	**Earthwork in Hill Road**				
		(i) Excavation in Hilly Areas in Ordinary Soil by manual means.				
		A) Excavation in ordinary soil in Hilly Areas by manual means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.50 m and a lead upto 20 m as per drawing and MoRD Technical Specification Clause 1603.1.				
		Unit = cum				
		Taking output = 120 cum				
		a) Labour				
		Mate	day	2.40	300.00	720.00
		Mazdoor (Unskilled)	day	60.00	300.00	18,000.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**2,808.00**
		Cost for 120 cum = (a+b+c)				21,528.00
		Rate per cum = (a+b+c)/120				**179.40**
					say	*179.40*
		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	300.00	165.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**24.75**
		Cost for 10 cum = (a+b+c)				189.75
		Rate per cum = (a+b+c)/10				**18.98**
					say	*19.00*
		(ii) Excavation in Hilly Areas in Ordinary Soil by mechanical means.				
		A) Excavation in ordinary soil in Hilly Areas by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.50 m and a lead upto 20 m as per drawing and MoRD Technical Specification Clause 1603.1.				
		Unit = cum				

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 260 cum				
		a) Labour				
		Mate	day	0.80	300.00	240.00
		Mazdoor (Unskilled) for trimming slopes and helping in excavation, etc.	day	20.00	300.00	6,000.00
		b) Machinery				
		Dozer D-50 @ 43.28 cum per hour	hour	6.00	1,463.00	8,778.00
		c) Overheads @ 10% on (a+b)				0.00
		d) Contractor's profit @ 10% on (a+b+c)				2,252.70
		Cost for 260 cum = a+b+c+d				17,270.70
		Rate per cum = (a+b+c+d)/260				**66.43**
					say	*66.40*
		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	300.00	165.00
		b) 0				0.00
		c) Contractor's profit and overheads @ 15 % on (a+b)				24.75
		Cost for 10 cum = (a+b+c)				189.75
		Rate per cum = (a+b+c)/10				**18.98**
					say	*19.00*

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 1.50 m and lead upto 20 m as per MoRD Clause 1603.2.

Unit = cum

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 120 cum				
		a) Labour				
		Mate	day	5.28	300.00	1,584.00
		Mazdoor (Unskilled)	day	132.00	300.00	39,600.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**6,177.60**
		Cost for 120 cum = a+b+c				47,361.60
		Rate per cum = (a+b+c)/120				**394.68**
					say	*394.70*
		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	300.00	258.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**38.70**
		Cost for 10 cum = a+b+c				296.70
		Rate per cum = (a+b+c)/10				**29.67**
					say	*29.70*
	(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 1.50 m and lead upto 20 m as per MoRD Technical specification Clause 1603.2.				
		Unit = cum Taking output = 170 cum				
		a) Labour				
		Mate	day	0.68	300.00	204.00
		Mazdoor (Unskilled)	day	17.00	300.00	5,100.00
		Mazdoor for disposing of earth upto 20 m	day	9.00	300.00	2,700.00
		b) Machinery				
		Dozer D-50 @ 28.32 cum per hour	hour	6.00	1,463.00	8,778.00
		Hydraulic Excavator 0.9 cum bucket capacity @ 40 cum per hour	hour	4.25	1,296.00	5,508.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**3,343.50**
		Cost for 170 cum = a+b+c+d				25,633.50

Chapter 8
HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c+d)/170				**150.79**
					say	*150.80*

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) *In case, alternative machine like hydraulic excavator 0.9 cum bucket capacity is necessited because of site conditions, the same can be used.*

| Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
8.3	1400, 1700 & 800	Construction of RCC guide posts of 250 mm dia and total 600 mm long,(300 mm below GL) 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 MoRD Technical Specification Clause 1401.6.				
		Unit = Each				
		Taking Output = 1 No.				
		A. In Ordinary Soil				
		(i) Earth work in excavation for structures				
		Unit = cum				
		Rates as per item No.11.1.A.I(i) of Chapter 11	cum	0.08	287.00	22.96
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.4.II(i) of Chapter 11	cum	0.03	7,071.60	212.15
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	53,066.80	106.13
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	85.40	21.35
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**362.59**
					say	*362.60*

Note: *Quantities are to be taken as per drawing.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		B. In Ordinary Rock (not requiring blasting)				
		(i) Earth work in excavation for structures				
		Unit = cum				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.08	358.80	28.70
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.4.II(i) of Chapter 11	cum	0.03	7,071.60	212.15
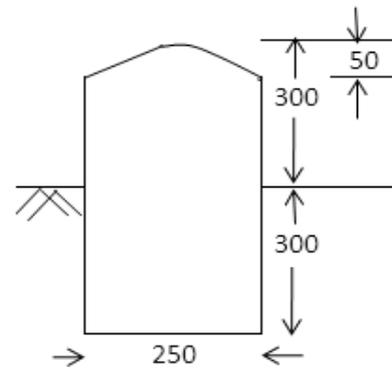
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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	53,066.80	106.13
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	85.40	21.35
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**368.34**
					say	*368.30*
	Note:	*Quantities are to be taken as per drawing.*				
		C. In Hard Rock (blasting prohibited)				
		(i) Earth work in excavation for structures				
		Unit = cum				
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.08	548.60	43.89
		(ii) RCC M15 grade				
		Unit = cum				
		As per item No. 11.4.II(i) of Chapter 11	cum	0.03	7,071.60	212.15
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	53,066.80	106.13
		(iv) Painting two coats including prime coat on new concrete surface				
		Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	85.40	21.35
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**383.52**
					say	*383.50*
	Note:	*Quantities are to be taken as per drawing.*				
8.4	1600	Providing edge stones on valley side of formation as per drawing and Technical Specification Clause 1608.2.6.				
		Unit = 1 m				
		Same as Item No. 8.3 of this chapter.				
8.5	1600 & 309	**Turfing with Sods in hilly areas**				
		Furnishing and laying of the live sods of perennial turf forming grass on embankment slope of hill roads, 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 MoRD Technical specification Clause 309.				
		Unit = sqm				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 100 sqm				
	a)	**Labour**				
		Mate	day	0.16	300.00	48.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00
	b)	**Machinery**				
		Water tanker including watering for 3 months	hour	4.00	310.00	1,240.00
		Tractor with Trolley	hour	1.00	303.00	303.00
	c)	**Materials**				
		Farmyard manure @ 0.18 cum per 100 sqm at site of work	cum	0.18	490.00	88.20
		Water	kl	24.00	135.00	3,240.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				917.88
		Cost for 100 sqm = a+b+c+d+e				7,037.08
		Rate per sqm = (a+b+c+d+e)/100				**70.37**
					say	*70.40*

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
8.6	1600, 600 & 700	**Retaining Walls / Breast Walls**				
		Construction of retaining walls/breast walls in Plain cement concrete with M10 (with jhama brick aggregate) as per drawing and MoRD technical specifications Clause 1604 (including centering, shuttering, staging etc. but excluding reinforcement).				
		(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.11.9.I.(i) of Chapter 11	cum			
		(iii) Providing P.C.C. M 20 architectural coping on top of retaining wall/breast wall				
		Rate as per item No.12.15 of Chapter 12	m			
		(iv) Filter material behind retaining wall / breast wall as per Specification 1204.3.8 in a width of 600 m				
		Rate as per item No. 12.13 of Chapter 12	cum			
		(v) Back filling behind retaining wall/breast wall				
		Rate as per item No. 12.8.I of Chapter 12	cum			
	Note:	*1 Quantities of material/work shall be as per design and drawings.*				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		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, 700, 300 & 800	**Construction of Hill Side Drain** Construction of hill side drain in accordance with the requirment of specifications true to lines and grades. Dimensions and other particulars as per drawing and MoRD Technical Specification Clause 1606.1. Unit = 1 m As per item No.3.16 of Chapter 3				
	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.*				
8.8	1400, 1700 & 800	Construction of RCC guide posts of 250 mm dia and total 600 mm long,(300 mm below GL) M15 grade (with jhama brick aggregate) 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 MoRD Technical Specification Clause 1401.6. Unit = Each Taking Output = 1 No.				
		A. In Ordinary Soil				
		(i) Earth work in excavation for structures Unit = cum As per item No.11.1.A.I(i) of Chapter 11	cum	0.08	287.00	22.96
		(ii) RCC M15 grade Unit = cum As per item No. 11.9.II(i) of Chapter 11	cum	0.03	6,061.90	181.86
		(iii) Steel bars Steel @ 80 kg/ cum As per item No. 11.6 of Chapter 11	t	0.002	53,066.80	106.13
		(iv) Painting two coats including prime coat on new concrete surface Unit = sqm As per item No.10.5 of Chapter 10	sqm	0.25	85.40	21.35
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**332.30**
					say	*332.30*
	Note:	*Quantities are to be taken as per drawing.*				
		B. In Ordinary Rock (not requiring blasting)				
		(i) Earth work in excavation for structures Unit = cum				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.08	358.80	28.70
		(ii) RCC M15 grade Unit = cum				
		As per item No. 11.9.II(i) of Chapter 11	cum	0.03	6,061.90	181.86
		(iii) Steel bars				
		Unit = t				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	53,066.80	106.13
		(iv) Painting two coats including prime coat on new concrete surface Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	85.40	21.35
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**338.04**
					say	*338.00*

Note: *Quantities are to be taken as per drawing.*

C.   In Hard Rock (blasting prohibited)

(i)   Earth work in excavation for structures

Unit = cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.08	548.60	43.89
		(ii) RCC M15 grade Unit = cum				
		As per item No. 11.9.II(i) of Chapter 11	cum	0.03	6,061.90	181.86
		(iii) Steel bars				
		Steel @ 80 kg/ cum				
		As per item No. 11.6 of Chapter 11	t	0.002	53,066.80	106.13
		(iv) Painting two coats including prime coat on new concrete surface Unit = sqm				
		As per item No.10.5 of Chapter 10	sqm	0.25	85.40	21.35
		Cost for 1 No. of RCC Guide Post = (i + ii + iii + iv)				**353.23**
					say	*353.20*

Note: *Quantities are to be taken as per drawing.*

Sr. No.	Ref. to MORD Spec.	Description
8.9	**1600**	Providing edge stones with PCC using jhama brick aggregate on valley side of formation as per drawing and MoRD Technical Specification Clause 1608.2.6.
		Unit = 1 m
		Same as Item No. 8.8 of this chapter.
8.10	**1600**	**Setting Out (using PCC with jhama brick aggregate)**
		Unit = Each
		The analysis of rate per km shall account for the following:

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	(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)				
	A.	**In Ordinary Soil**				
	(1)	Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and MoRD Technical Specification Clause 1602.1.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.014	287.00	4.02
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.012	5,881.10	70.57
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.28	145.60	40.77
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				5.77
		Total Cost for each Reference Pillar				**121.13**
					say	*121.10*
	(2)	Construction of back pillar as per Fig. 1600.1 (c) as per drawing and MoRD Technical Specification Clause 1602.3.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.043	287.00	12.34
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.036	5,881.10	211.72
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.57	145.60	82.99
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				15.35
		Total Cost for Back Pillar				**307.05**
					say	*307.10*
	(3)	Construction of job pillars as per Fig. 1600.1(d) and MoRD Technical Specification Clause 1602.4.				

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HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.115	287.00	33.01
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.096	5,881.10	564.59
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	1.12	145.60	163.07
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				38.03
		Total Cost for each Job Pillar				**798.70**
					say	*798.70*
		B. In Ordinary Rock (not requiring blasting)				
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and MoRD Technical Specification Clause 1602.1.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.014	358.80	5.02
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.012	5,881.10	70.57
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.28	145.60	40.77
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				5.82
		Total Cost for each Reference Pillar				**122.18**
					say	*122.20*
		(2) Construction of back pillar as per Fig. 1600.1 (c) as per drawing and MoRD Technical Specification Clause 1602.3.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.043	358.80	15.43
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				

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HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.036	5,881.10	211.72
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.57	145.60	82.99
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				15.51
		Total Cost for Back Pillar				**310.14**
					say	*310.10*
		(3) Construction of job pillars as per Fig. 1600.1(d) and MoRD Technical Specification Clause 1602.4.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		As per item No.11.1.A.II(i) of Chapter 11	cum	0.115	358.80	41.26
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.096	5,881.10	564.59
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	1.12	145.60	163.07
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				38.45
		Total Cost for each Job Pillar				**807.37**
					say	*807.40*
		C. In Hard Rock (blasting prohibited)				
		(1) Construction of reference pillars as per Fig. 1600.1 (b) as per drawing and MoRD Technical Specification Clause 1602.1.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.014	548.60	7.68
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD Technical Specifications				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.012	5,881.10	70.57
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.28	145.60	40.77
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				5.95
		Total Cost for each Reference Pillar				**124.97**

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HILL ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*125.00*
	(2)	Construction of back pillar as per Fig. 1600.1 (c) as per drawing and MoRD Technical Specification Clause 1602.3.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.043	548.60	23.59
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.036	5,881.10	211.72
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	0.57	145.60	82.99
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				15.92
		Total Cost for Back Pillar				**318.30**
					say	*318.30*
	(3)	Construction of job pillars as per Fig. 1600.1(d) and MoRD Technical Specification Clause 1602.4.				
		(a) Earthwork in excavation for foundation as per drawing and MoRD Technical Specifications.				
		Rates as per item No.11.1.A.III of Chapter 11	cum	0.115	548.60	63.09
		(b) Plain cement concrete work in M10 (with jhama brick aggregate) in foundation complete as per drawing and MoRD				
		As per item No.11.9.I.(ii) of Chapter 11	cum	0.096	5,881.10	564.59
		(c) Plaster with cement mortar 1:4 as per MoRD Technical Specifications				
		As per item No.12.3 of Chapter 12	sqm	1.12	145.60	163.07
		Add 5% on (a+b+c) for white washing, lettering and painting, etc.				39.54
		Total Cost for each Job Pillar				**830.28**
					say	*830.30*

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.*

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
9.1	1100 & 300	**Excavation for Structures**				
		Earthwork in excavation for foundation of structures upto 3 m depth as per drawing and MoRD technical specification Clause 1104, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
		Unit = cum				
		A. Ordinary Soil				
		Rate as per item No.11.1.A(i) of Chapter 11	cum		287.00	
		B. Ordinary Rock (not requiring blasting)				
		Rate as per item No.11.II of Chapter 11	cum		358.80	
		C. Hard Rock (blasting prohobited)				
		Rate as per item No.11.1.III of Chapter 11	cum		548.60	
		D. Marshy Soil				
		Rate as per item No.11.1.IV of Chapter 11	cum		538.20	
		Note: Rate as applicable for the type of soil / rock are to be taken from Chapter 11				
9.2	1100 & 800	**Bedding for Pipe**				
		(i) Type A (Concrete Cradle) Bedding				
		Laying concrete cradle bedding with M15 Grade Cement Concrete as per MoRD Technical specification Clause 1105(i).				
		Unit = cum				
		Rate as per Item No.11.4 of Chapter 11	cum		6,890.10	
		Note: Rate as applicable for the type mixing are taken from Chapter 11				
		(ii) Type B (First Class) Bedding				
		Laying (First Class) bedding on well compacted sand, moorum or approved granular material as per MoRD Technical specification Clause 1105(i).				
		Unit = cum				
		Rate as per Item No.11.2.I of Chapter 11	cum		521.00	
9.3	1100	**Providing and Laying Reinforced Cement Concrete Pipe NP3 as per design in Single Row**				
		Providing and Laying reinforced cement concrete pipe NP3 with collar for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.				
		Unit = m				

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 7.5 m				
		(3 pipes of 2.5 m length each)				
		(A) 1200 mm dia				
		a) Labour				
		Mate	day	0.14	300.00	42.00
		Mason (1st Class)	day	0.50	425.00	212.50
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
		b) Material				
		Sand	cum	0.05	370.00	18.50
		Cement	t	0.07	6,100.00	427.00
		RCC pipe NP3 pipe including collar	m	7.50	10,710.00	80,325.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**12,288.75**
		Cost for 7.5 m = a+b+c+d				94,213.75
		Rate per m = (a+b+c+d)/7.5				**12,561.83**
					say	*12561.80*
		(B) 1000 mm dia				
		a) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.25	425.00	106.25
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Material				
		Sand	cum	0.04	370.00	14.80
		Cement	t	0.03	6,100.00	183.00
		RCC pipe NP3 pipe including collar	m	7.50	8,824.00	66,180.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**10,066.66**
		Cost for 7.5 m = a+b+c+d				77,177.71
		Rate per m = (a+b+c+d)/7.5				**10,290.36**
					say	*10290.40*
		(C) 750 mm dia				
		a) Labour				
		Mate	day	0.05	300.00	15.00
		Mason (1st Class)	day	0.15	425.00	63.75
		Mazdoor (Unskilled)	day	1.20	300.00	360.00
		b) Material				

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PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Sand	cum	0.024	370.00	8.88
		Cement	t	0.018	6,100.00	109.80
		RCC pipe NP3 pipe including collar	m	7.50	6,126.00	45,945.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**6,975.36**
		Cost for 7.5 m = a+b+c+d				53,477.79
		Rate per m = (a+b+c+d)/7.5				**7,130.37**
					say	*7130.40*
	(D)	**600 mm dia**				
	a)	**Labour**				
		Mate	day	0.04	300.00	12.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	0.96	300.00	288.00
	b)	**Material**				
		Sand	cum	0.0192	370.00	7.10
		Cement	t	0.014	6,100.00	85.40
		RCC pipe NP3 pipe including collar	m	7.50	4,413.00	33,097.50
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**5,031.15**
		Cost for 7.5 m = a+b+c+d				38,572.15
		Rate per m = (a+b+c+d)/7.5				**5,142.95**
					say	*5143.00*

9.4   1100   Providing and Laying Reinforced Cement Concrete Pipe NP3 as per Design in Double Row

Providing and Laying reinforced cement concrete pipe NP3 with collar for culverts on first class bedding of granular material in Double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.

Unit = m

Taking output = 7.5 m

(6 pipes of 2.5 m length each in two rows)

(A)   1200 mm dia

	a)	**Labour**				
		Mate	day	0.34	300.00	102.00
		Mason (1st Class)	day	1.20	425.00	510.00
		Mazdoor (Unskilled)	day	7.20	300.00	2,160.00
	b)	**Material**				

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Sand	cum	0.11	370.00	40.70
		Cement	t	0.14	6,100.00	854.00
		RCC pipe NP3 pipe including collar	m	15.00	10,710.00	160,650.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**24,647.51**
		Cost for 7.5 m = a+b+c+d				188,964.21
		Rate per m = (a+b+c+d)/7.5				**25,195.23**
					say	*25195.20*
	(B)	**1000 mm dia**				
	a)	**Labour**				
		Mate	day	0.22	300.00	66.00
		Mason 1st Class	day	0.60	425.00	255.00
		Mazdoor (Unskilled)	day	4.80	300.00	1,440.00
	b)	**Material**				
		Sand	cum	0.08	370.00	29.60
		Cement	t	0.06	6,100.00	366.00
		RCC pipe NP3 pipe including collar	m	15.00	8,824.00	132,360.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**20,177.49**
		Cost for 7.5 m = a+b+c+d				154,694.09
		Rate per m = (a+b+c+d)/7.5				**20,625.88**
					say	*20625.90*
	(C)	**750 mm dia**				
	a)	**Labour**				
		Mate	day	0.11	300.00	33.00
		Mason 1st Class	day	0.30	425.00	127.50
		Mazdoor (Unskilled)	day	4.80	300.00	1,440.00
	b)	**Material**				
		Sand	cum	0.08	370.00	29.60
		Cement	t	0.060	6,100.00	366.00
		RCC pipe NP3 pipe including collar	m	15.00	6,126.00	91,890.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**14,082.92**
		Cost for 7.5 m = a+b+c+d				107,969.02
		Rate per m = (a+b+c+d)/7.5				**14,395.87**
					say	*14395.90*
	(D)	**600 mm dia**				

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.09	300.00	27.00
		Mason 1st Class	day	0.24	425.00	102.00
		Mazdoor (Unskilled)	day	3.84	300.00	1,152.00
		b) Material				
		Sand	cum	0.06	370.00	22.20
		Cement	t	0.050	6,100.00	305.00
		RCC pipe NP3 pipe including collar	m	12.00	4,413.00	52,956.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**8,184.63**
		Cost for 7.5 m = a+b+c+d				62,748.83
		Rate per m = (a+b+c+d)/7.5				**8,366.51**
					say	*8366.50*
9.5	1100 & 800	**Plain Cement Concrete M10(1:3:6 nominal mix) in levelling course below open foundation of Head walls as per drawings & MoRD Technical Specification Clause 800 & 1109.**				
		Rate as per item No.11.4.I.(i) of Chapter 11	cum			6,890.10
9.6	1100 & 600	**Brick Masonry Work in cement mortar in foundation of Head walls complete excluding pointing and plastering as per drawing and MoRD technical specification Clause 1109.**				
		(A) Brick Masonry in 1:4 cement mortar				
		Rate as per item No.11.5 (ii) Chapter 11	cum			5,383.60
9.7	1100 & 600	**Pointing with Cement Mortar (1 : 3) on brickwork as per MoRD Technical Specification Clause 613.3.**				
		Rate as per item No.12.2 of Chapter 12	sqm			63.10
9.8	1100 & 600	**Plastering with Cement Mortar (1 : 4), 15 mm thick on brickwork in substructure as per MoRD technical specification Clause 613.4.**				
		Rate as per item No.12.3 of Chapter 12	sqm			145.60
9.9	1100 & 300	**Backfilling in Foundation Trenches as per drawing and MoRD technical specification Clause 1108.**				
		i) Sand Filling				
		Rate as per Item No.11.2.I of Chapter 11	cum			521.00
		i) Earth Filling (for Masrshy Soil)				
		Rate as per Item No.11.2.II of Chapter 11	cum			184.00
9.10	1100, 600, 700 & 1200	**Providing PCC M20 Architecture Coping on the top of wing wall, return wall etc. complete as per drawing and MoRD Technical Specification Clause 615.**				
		Rate as per Item No.12.11 of Chapter 12	m			518.90

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
9.11	1109 & 800	**Cement Concrete M10 (1:3:6 nominal mix) in Head Walls with skin reinforcement (8 mm dia @ 200 mm c/c on exposed surface as per drawings & MoRD Technical Specification 1109 (including centering, shuttering, staging etc.)**				
		Unit = cum				
		Taking output = 2.60 cum				
		Area of skin reinforcement = 13.16 cum				
		500 mm dia				
		a) **For concrete**				
		Rate as per Item No.11.4.I(ii) of Chapter 11	Cum	2.57	6,934.10	17,820.64
		b) **Steel for skin reinforcement @ 4.50 kg/sqm (Twisted steel/ deformed bars)**	t	0.059	41,020.00	2,420.18
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (b+c)**				**363.03**
		Cost for 2.57 cum = a+b+c+d				20,603.84
		Rate per cum = (a+b+c+d)/2.57				**8,017.06**
					say	**8017.10**
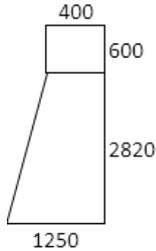
Dimensions shown in figure: 400, 600, 2820, 1250

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
9.12	1100 & 800	**Bedding for Pipe**				
		(i) Type A (Concrete Cradle) Bedding				
		Laying concrete cradle bedding with M15 Grade Cement Concrete(with jhama brick aggregate as per MoRD Technical soecification Clause 1105(i). Unit = cum				
		Rate as per Item No.11.9.II(i) of Chapter 11	cum			6,017.90
9.13	1100 & 800	Plain Cement Concrete M10(1:3:6 nominal mix with jhama brick aggregate) in levelling course below open foundation of Head walls as per drawings & MoRD Technical Specification Clause 1109 (including centering, shuttering, staging etc. but excluding reinforcement).				
		Rate as per item No. 11.11.I.(i) of Chapter 11.	cum			5,837.10
9.14	1100, 600, 700 & 1200	Providing PCC M20 (jhama brick aggregate) Architecture Coping on the top of wing wall, return wall etc. complete as per drawing and MoRD Technical Specification Clause 615 (including centering, shuttering, staging etc. but excluding reinforcement).				
		Rate as per Item No.12.15 of Chapter 12	m			446.80

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
9.15	1109 & 800	Cement Concrete M10 (1:3:6 nominal mix with jhama brick aggregate) in Head Walls with skin reinforcement (8 mm dia @ 200 mm c/c on exposed surface as per drawings & MoRD Technical Specification 1109 (including centering, shuttering, staging etc.)				

400
600
2820
1250
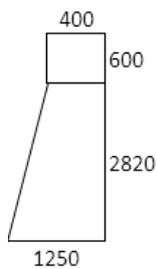
Unit = cum

Taking output = 2.60 cum

Area of skin reinforcement = 13.02 cum

	a)	**For concrete**				
		Rate as per Item No.11.11.I(i) of Chapter 11	Cum	2.57	5,837.10	15,001.35
	b)	**Steel for skin reinforcement @ 4.50 kg/sqm (Twisted steel/ deformed bars)**	t	0.059	41,020.00	2,420.18
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (b+c)**				**363.03**
		Cost for 2.57 cum = a+b+c+d				17,784.55
		Rate per cum = (a+b+c+d)/2.57				**6,920.06**
					say	*6920.10*

9.16	1100	**Providing and laying Reinforced Cement Concrete Pipe NP2 as per design in single Row**				

Providing and Laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.

Unit = m

Taking output = 7.5 m

(3 pipes of 2.5 m length each)

	(A)	**1200 mm dia**				
	a)	**Labour**				
		Mate	day	0.14	300.00	42.00
		Mason (1st Class)	day	0.50	425.00	212.50
		Mazdoor (Unskilled)	day	3.00	300.00	900.00
	b)	**Material**				
		Sand	cum	0.05	370.00	18.50
		Cement	t	0.07	6,100.00	427.00
		RCC pipe NP2 pipe of 1200 mm dia	m	7.50	5,838.00	43,785.00
		Collar of 1200 mm dia	no	2	1,294.00	2,588.00
	c)	**0**				**0.00**

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**7,195.95**
		Cost for 7.5 m = a+b+c+d				55,168.95
		Rate per m = (a+b+c+d)/7.5				**7,355.86**
					say	*7355.90*
		(B) 900 mm dia				
		a) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.25	425.00	106.25
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) Material				
		Sand	cum	0.04	370.00	14.80
		Cement	t	0.03	6,100.00	183.00
		RCC pipe NP2 pipe of 900 mm dia	m	7.50	3,710.00	27,825.00
		Collar of 900 mm dia	no	2	953.00	1,906.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**4,599.31**
		Cost for 7.5 m = a+b+c+d				35,261.36
		Rate per m = (a+b+c+d)/7.5				**4,701.51**
					say	*4701.50*
		(C) 600 mm dia				
		a) Labour				
		Mate	day	0.05	300.00	15.00
		Mason (1st Class)	day	0.15	425.00	63.75
		Mazdoor (Unskilled)	day	1.20	300.00	360.00
		b) Material				
		Sand	cum	0.02	370.00	7.40
		Cement	t	0.02	6,100.00	122.00
		RCC pipe NP2 pipe of 600 mm dia	m	7.50	2,306.00	17,295.00
		Collar of 600 mm dia	no	2	537.00	1,074.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**2,840.57**
		Cost for 7.5 m = a+b+c+d				21,777.72
		Rate per m = (a+b+c+d)/7.5				**2,903.70**
					say	*2903.70*
		(D) 450 mm dia				
		a) Labour				

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.04	300.00	12.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	0.96	300.00	288.00
	b)	**Material**				
		Sand	cum	0.0192	370.00	7.10
		Cement	t	0.014	6,100.00	85.40
		RCC pipe NP2 pipe of 450 mm dia	m	7.50	1,485.00	11,137.50
		Collar of 450 mm dia	no	2	354.00	708.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**1,843.35**
		Cost for 7.5 m = a+b+c+d				14,132.35
		Rate per m = (a+b+c+d)/7.5				**1,884.31**
					say	*1884.30*
(E)		**300 mm dia**				
	a)	**Labour**				
		Mate	day	0.03	300.00	9.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	0.77	300.00	231.00
	b)	**Material**				
		Sand	cum	0.0154	370.00	5.70
		Cement	t	0.012	6,100.00	73.20
		RCC pipe NP2 pipe of 300 mm dia	m	7.50	698.00	5,235.00
		Collar of 300 mm dia	no	2	143.00	286.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**882.36**
		Cost for 7.5 m = a+b+c+d				6,764.76
		Rate per m = (a+b+c+d)/7.5				**901.97**
					say	*902.00*

9.17   1100   Providing and laying Reinforced Cement Concrete Pipe NP2 as per design in Double Row

Providing and Laying reinforced cement concrete pipe NP2 for culverts on first class bedding of granular material in Double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling , concrete and masonry works in head walls and parapets as per MoRD Technical specification Clause 1106.

Unit = m

Taking output = 7.5 m

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(6 pipes of 2.5 m length each in two rows)				
		(A) 1200 mm dia				
		a) Labour				
		Mate	day	0.34	300.00	102.00
		Mason (1st Class)	day	1.20	425.00	510.00
		Mazdoor (Unskilled)	day	7.20	300.00	2,160.00
		b) Material				
		Sand	cum	0.11	370.00	40.70
		Cement	t	0.14	6,100.00	854.00
		RCC pipe NP2 pipe of 1200 mm dia	m	15.00	5,838.00	87,570.00
		Collar of 1200 mm dia	no	4	1,294.00	5,176.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**14,461.91**
		Cost for 7.5 m = a+b+c+d				110,874.61
		Rate per m = (a+b+c+d)/7.5				**14,783.28**
					say	*14783.30*
		(B) 900 mm dia				
		a) Labour				
		Mate	day	0.22	300.00	66.00
		Mason (1st Class)	day	0.60	425.00	255.00
		Mazdoor (Unskilled)	day	4.80	300.00	1,440.00
		b) Material				
		Sand	cum	0.08	370.00	29.60
		Cement	t	0.06	6,100.00	366.00
		RCC pipe NP2 pipe of 900 mm dia	m	15.00	3,710.00	55,650.00
		Collar of 900 mm dia	no	4	953.00	3,812.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**9,242.79**
		Cost for 7.5 m = a+b+c+d				70,861.39
		Rate per m = (a+b+c+d)/7.5				**9,448.19**
					say	*9448.20*
		(C) 600 mm dia				
		a) Labour				
		Mate	day	0.11	300.00	33.00
		Mason (1st Class)	day	0.30	425.00	127.50
		Mazdoor (Unskilled)	day	4.80	300.00	1,440.00

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		Sand	cum	0.08	370.00	29.60
		Cement	t	0.06	6,100.00	366.00
		RCC pipe NP2 pipe of 600 mm dia	m	15.00	2,306.00	34,590.00
		Collar of 600 mm dia	no	4	537.00	2,148.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**5,810.12**
		Cost for 7.5 m = a+b+c+d				44,544.22
		Rate per m = (a+b+c+d)/7.5				**5,939.23**
					say	*5939.20*
		(D) 450 mm dia				
		a) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.24	425.00	102.00
		Mazdoor (Unskilled)	day	3.84	300.00	1,152.00
		b) Material				
		Sand	cum	0.06	370.00	22.20
		Cement	t	0.05	6,100.00	305.00
		RCC pipe NP2 pipe of 450 mm dia	m	15.00	1,485.00	22,275.00
		Collar of 450 mm dia	no	4	354.00	1,416.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 0 % on (a+b+c)				**3,794.88**
		Cost for 7.5 m = a+b+c+d				29,094.08
		Rate per m = (a+b+c+d)/7.5				**3,879.21**
					say	*3879.20*
		(E) 300 mm dia				
		a) Labour				
		Mate	day	0.07	300.00	21.00
		Mason (1st Class)	day	0.19	425.00	80.75
		Mazdoor (Unskilled)	day	3.07	300.00	921.00
		b) Material				
		Sand	cum	0.05	370.00	18.50
		Cement	t	0.04	6,100.00	244.00
		RCC pipe NP2 pipe of 300 mm dia	m	15.00	698.00	10,470.00
		Collar of 300 mm dia	no	4	143.00	572.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**1,849.09**

Chapter 9
PIPE CULVERTS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 7.5 m = a+b+c+d				14,176.34
		Rate per m = (a+b+c+d)/7.5				**1,890.18**
					say	<u>*1890.20*</u>

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.1	1700	**Printing New Letters and Figures of any Shade**				
		Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade as per drawings and MoRD Technical Specification Clause 1701.				
		i) Hindi (Matras commas and the like not to be measured and paid for. Half letters shall be counted as half only)				
		Details for 100 letters of 160 mm height, i.e., 1600 cm				
		Unit = per cm height per letter				
		a) Labour				
		Mate	day	0.12	300.00	36.00
		Painter 1st Class	day	2.00	340.00	680.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		b) Material				
		Paint	litre	0.70	180.00	126.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**171.30**
		Cost for 1600 cm = a+b+c+d				1,313.30
		Rate per cm height per letter = (a+b+c+d)/1600				**0.82**
					say	*0.80*
		ii) English and Roman				
		Hyphens, commas and the like not to be measured and paid for. Detail for 100 letters of 160 mm height, i.e., 1.6 m				
		Unit = per cm height per letter				
		a) Labour				
		Mate	day	0.07	300.00	21.00
		Painter Ist class	day	1.25	340.00	425.00
		Mazdoor	day	0.50	300.00	150.00
		b) Material				
		Paint	litre	0.50	180.00	90.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**102.90**
		Cost for 1600 cm = a+b+c+d				788.90
		Rate per cm height per letter = (a+b+c +d)/1600				**0.49**
					say	*0.50*
10.2	1700, 300, 800	**Traffic Signs**				
		A. Retro-reflectorised Traffic Signs				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
(1)		Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRD Technical Specification Clause 801.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
		a) labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	764.00	267.40
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				187.30
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,457.19**
					say	_2457.20_
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = one traffic sign				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	764.00	119.18
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**165.06**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,286.74**
					say	*2286.70*
	iii)	**with 600 mm circular aluminium sheeting**				
		Unit = each					
		Taking output = one traffic sign					
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	764.00	216.21
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**179.62**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,398.32**
					say	*2398.30*

iv) with 800 x 600 mm rectangular aluminium sheeting

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
i)		**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
ii)		**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
iii)		**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	764.00	366.72

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**202.19**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,571.41**
					say	*2571.40*
		v) with 600 x 450 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii) **Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
		a) **labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	764.00	206.28
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**178.13**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,386.90**
					say	*2386.90*
		vi) with 600 x 600 mm square aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) **Excavation for foundation**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.36	764.00	275.04
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				188.44
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,465.97
					say	*2466.00*

vii) **with 900 mm side octagon aluminium sheeting**

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
			Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
			Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
			with 900 mm side octagon	sqm	0.672	764.00	513.41
		c)	**Machinery**				
			Tractor with trolley	hour	0.08	303.00	24.24
		d)	**0**				**0.00**
		e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**224.20**
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,740.10**
						say	*2740.10*

(2) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on GI pipe 50 mm dia firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRD Technical Specification Clause 1701.

Unit = each

Taking output = one traffic sign

i) with 900 mm equilateral triangle aluminium sheeting

		i)	**Excavation for foundation**				
			As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii)	**Cement concrete M15 grade**				
			As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a)	**Labour (For fixing at site)**				
			Mate	day	0.01	300.00	3.00
			Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b)	**Material**				
			50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
			Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
			900 mm equilateral triangle	sqm	0.35	764.00	267.40
		c)	**Machinery**				
			Tractor with trolley	hour	0.08	303.00	24.24
		d)	**0**				**0.00**
		e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**236.21**
			Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,743.68**
						say	***2743.70***
		ii)	**with 600 mm equilateral triangle aluminium sheeting**				
		i)	**Excavation for foundation**				
			As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii)	**Cement concrete M15 grade**				
			As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a)	**Labour (For fixing at site)**				
			Mate	day	0.01	300.00	3.00
			Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b)	**Material**				
			50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
			Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
			Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
			600 mm equilateral triangle	sqm	0.156	764.00	119.18
		c)	**Machinery**				
			Tractor with trolley	hour	0.08	303.00	24.24
		d)	**0**				**0.00**
		e)	**Contractor's profit and overheads @ on (a+b+c+d)**				**213.98**
			Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,573.23**
						say	***2573.20***
		iii)	**with 600 mm circular aluminium sheeting**				
		i)	**Excavation for foundation**				
			As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii) **Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm circular	sqm	0.283	764.00	216.21
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**228.53**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,684.81**
					say	*2684.80*
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		800 mm x 600 mm rectangular	sqm	0.48	764.00	366.72

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**251.11**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,857.90**
					say	*2857.90*
		v) with 600 x 450 mm rectangular aluminium sheeting				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 450 mm rectangular	sqm	0.27	764.00	206.28
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**227.04**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,673.39**
					say	*2673.40*
		vi) with 600 mm x 600 mm square aluminium sheeting				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	b)	**Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 600 mm square	sqm	0.36	764.00	275.04
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				237.36
		Rate per traffic sign = (i+ii+a+b+c+d+e)				2,752.46
					say	*2752.50*
	vii)	**with 900 mm side octagon aluminium sheeting**				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm sides octagon	sqm	0.672	764.00	513.41
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				273.11
		Rate per traffic sign = (i+ii+a+b+c+d+e)				3,026.59

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*3026.60*
		(3) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per drawings and MoRD Technical Specification Clause 1701.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii) **Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a) **labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50
		ii. Steel reinforcement Twisted steel/ deformed bar				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	764.00	267.40
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**58.26**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,093.45**
					say	*2093.50*
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a) labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		i. RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
		iv. Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	764.00	119.18
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)				**36.02**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,923.00**
					say	*1923.00*
		iii) with 600 mm circular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
	i.	RCC M15 Grade in Sub-structure				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.0285	7,526.20	214.50
	ii.	Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
	iv.	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	764.00	216.21
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**50.58**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,034.58**
					say	*2034.60*

iv) with 800 x 600 mm rectangular aluminium sheeting

Unit = each

Taking output = one traffic sign

	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82

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Sr. No.	Ref. to MORD Spec.	Description		Unit	Quantity	Rate (₹)	Amount (₹)
		a)	labour (For fixing at site)				
			Mate	day	0.01	300.00	3.00
			Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b)	Material				
		i.	RCC M15 Grade in Sub-structure				
			As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50
		ii.	Steel reinforcement Twisted steel/ deformed bars				
			As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
		iv.	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
			with 800 x 600 mm rectangular	sqm	0.48	764.00	366.72
		c)	**Machinery**				
			Tractor with trolley	hour	0.08	303.00	24.24
		d)	**0**				**0.00**
		e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**73.15**
			Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,207.67**
						say	*2207.70*
	v)	**with 600 x 450 mm rectangular aluminium sheeting**					
		Unit = each					
		Taking output = one traffic sign					
		i)	**Excavation for foundation**				
			As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii)	**Cement concrete M15 grade**				
			As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
			As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a)	**labour (For fixing at site)**				
			Mate	day	0.01	300.00	3.00
			Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b)	**Material**				
		i.	RCC M15 Grade in Sub-structure				
			As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50
		ii.	Steel reinforcement Twisted steel/ deformed bars				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
	iv.	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	764.00	206.28
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**49.09**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,023.16**
					say	*2023.20*

vi) with 600 x 600 mm square aluminium sheeting

Unit = each

Taking output = one traffic sign

i)		**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
ii)		**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
iii)		**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
	i.	RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50
	ii.	Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
	iv.	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		with 600 x 600 mm square	sqm	0.35	764.00	267.40
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**58.26**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,093.45**
					say	*2093.50*
vii)		**with 900 mm side octagon aluminium sheeting**				
		Unit = each				
		Taking output = one traffic sign				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
	i.	RCC M15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50
	ii.	Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				18.73
	iv.	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	764.00	513.41
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**95.16**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,376.36**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*2376.40*

Note:

1 *Any one area of aluminium sheeting given at (i) to (vii) may be adopted as per site requirement and in accordance with IRC:67.*

2 *The rate for excavation, cement concrete M-15, RCC M-15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*

B. Semi Reflective Traffic Signs

Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD for Rural Roads of required shade and colour supported and welded on 47 mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and as per MoRD Technical specification Clause 1701.2.2.

Unit = Each

Taking output = one traffic sign

i) with 900 mm equilateral triangle MS sheeting

(i) Excavation foundations

Description	Unit	Quantity	Rate (₹)	Amount (₹)
As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16

(ii) Cement concrete M-15 Grade

Description	Unit	Quantity	Rate (₹)	Amount (₹)
As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57

(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications

Description	Unit	Quantity	Rate (₹)	Amount (₹)
As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91

a) Labour (For fixing at site)

Description	Unit	Quantity	Rate (₹)	Amount (₹)
Mate	day	0.01	300.00	3.00
Mazdoor (Unskilled)	day	0.25	300.00	75.00

b) Material

Support of M.S. Sheet tube

Description	Unit	Quantity	Rate (₹)	Amount (₹)
(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm equilateral & triangle	sqm	0.35	530.00	185.50
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**155.44**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,170.35**
					say	*__2170.40__*
	ii)	**with 600 mm equilateral triangle MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M-15 Grade**				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm equilateral & triangle	sqm	0.156	530.00	0.00
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**127.62**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,957.03**
					say	*1957.00*
iii)		**with 600 mm circular MS sheeting**				
(i)		**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
(ii)		**Cement concrete M-15 Grade**				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
(iii)		**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm circular	sqm	0.283	530.00	149.99
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				150.11
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,129.52
					say	*2129.50*
	iv)	**with 800 x 600 mm rectangular MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M-15 Grade**				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		800 mm x 600 mm rectangular	sqm	0.48	530.00	254.40
		c) **Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) **0**				0.00
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				165.78
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,249.59
					say	*2249.60*
	v)	**with 600 x 450 mm rectangular MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M-15 Grade**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm x 450 mm rectangular	sqm	0.27	530.00	143.10
		c) Machinery				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**149.08**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,121.59**
					say	*2121.60*
		vi) with 600 x 600 mm square MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
		(ii) Cement concrete M-15 Grade				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		600 mm x 600 mm	sqm	0.36	530.00	190.80
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**156.24**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,176.45**
					say	*2176.40*
	vii)	**with 900 mm side octagon MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M-15 Grade**				
		As per item no. 11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm side octagon	sqm	0.672	530.00	356.16
		c) **Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**181.04**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,366.61**
					say	*2366.60*

Note:

1 *Any one area of M.S. Sheet given at (i) to (viii) may be adopted as per site requirement and in accordance with IRC-67.*

2 *The rate for excavation, cement concrete M-15, and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal area. This is applicable to all road signs and direction boards.*

10.3 1700, 800 & 300 **Direction and Place Identification signs upto 0.9 sqm size board**

A. **Retro-reflectorised Traffic Signs**

(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on a mild steel single angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = sqm

Taking output = 0.9 sqm

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M-15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii) **Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate as per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	925.00	832.50
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**272.06**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				3,107.05
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/0.90				**3,452.28**
					say	*3452.30*

(ii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on 2 inch dia GI Pipe firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = sqm

Taking output = 0.9 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	925.00	832.50
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**320.98**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				3,393.54
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/0.90				**3,770.60**
					say	*3770.60*
	(iii)	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	0.90	99.80	89.82
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		i. RCC M-15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.0285	7,526.20	214.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts etc.				18.73
		iv. Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	925.00	832.50
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii, iv+c)				**143.02**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				2,743.32
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/0.90				**3,048.13**
					say	*3048.10*

Note: 1 *Lettering and arrow markings on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 *The rate for excavation, cement concret M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*

B. Semi-Reflective Traffic signs

Direction and place indentification signs up to 0.9 sqm size board

Providing and erecting and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with red reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = each

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Take Output = 0.9 sqm				
	(i)	**Excavation for foundations**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M-15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.126	7,115.60	896.57
	(iii)	**Painting on M.S. tube post with primer and two coat of epoxy paint as per specifications**				
		As per item No.10.7 of Chapter 10	sqm	0.59	99.80	58.88
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Materials**				
	i)	Support of MS sheet tube				
		47 mm x 47 mm of 12 SWG sheet 3050 mm long	kg	12.40	54.96	681.50
	ii)	Angle iron 50 x 50 x 6 mm for lugs including 5% wastage	kg	1.06	42.67	45.23
	iii)	2 mm thick MS sheet strengthened by 25 mm x 5 mm MS flat iron & painted with stove enameled paint including lettering, signs, message, border with reflective tape of engineering grade of required shade and colour as per Technical Specifications.	sqm	0.90	712.00	640.80
		Add 3% cost of MS sheet angle iron towards the cost of fabrications, drilling, holes, nuts, bolts, etc.				41.03
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**226.62**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				2,729.03
		Rate per sqm = (i+ii+iii+a+b+c+d+e) / 0.9				**3,032.26**
					say	*3032.30*

Note: *Rate for excavation, cement concrete M15 and painting may be taken from respective Chapters.*

10.4 ¹⁷⁰⁰, ⁸⁰⁰ & ³⁰⁰ **Direction and Place Identification signs with size more than 0.9 sqm size board**

A. Retro-reflectorised Traffic Signs

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exeeding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
		ii) Cement concrete M-15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	7,115.60	1,793.13
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint specifications				
		As per item No.10.7 of Chapter 10	sqm	1.774	99.80	177.05
		a) Labour (For fixing at site)				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Material				
		Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 m long, 2 nos. with 5 per cent wastage	kg	40.00	42.67	1,706.80
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				51.20
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	925.00	1,387.50
		c) Machinery				
		Tractor with trolley	hour	0.12	303.00	36.36
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				500.68
		Cost for 1.5 sqm = i+ii+iii+a+b+c+d+e				5,881.04
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/1.50				**3,920.70**
					say	_**3920.70**_

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(ii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exeeding 0.9 sqm supported on 50 mm dia GI Pipe, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	7,115.60	1,793.13
		a) Labour (For fixing at site)				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	6.00	390.00	2,340.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts, etc.				70.20
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint		1.50	925.00	1,387.50
		c) Machinery				
		Tractor with trolley	hour	0.12	303.00	36.36
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**598.51**
		Cost for 1.50 sqm = i+ii+a+b+c+d+e				6,454.02
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+a+b+c+d+e)/1.50				**4,302.68**
					say	*4302.70*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
		ii) Cement concrete M15 grade				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	7,115.60	1,793.13
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	1.84	99.80	183.63
		a) Labour (For fixing at site)				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Material				
		i. RCC M-15 Grade in Sub-structure				
		As per item No.12.4.II of Chapter 12	cum	0.057	7,526.20	428.99
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0154	53,218.60	819.57
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				37.46
		iv. Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	925.00	1,387.50
		c) Machinery				
		Tractor with trolley	hour	0.12	303.00	36.36
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii, iv+c)				**242.60**
		Cost for 1.5 sqm = a+b+c+d+e				5,157.56
		Rate per sqm (for sign having area more than 0.9 sqm) = (a+b+c+d+e)/1.50				**3,438.37**
					say	*3438.40*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
Note:	1	*Lettering and arrow markings on sign boards to be provided separately as per actual requirement. Rates for these items have been analysed separately.*				
	2	*The rate for excavation, cement concrete M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*				
	3	*The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*				

B. Semi-Reflective Traffic signs

Direction and place identification signs more than 0.90 sqm sign board

Providing and erecting direction and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 2 Nos. 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = each

Taking output = 1.5 sqm

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
(i)		**Excavation for foundations as**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
(ii)		**Cement concrete M15 grade**				
		As per item No.11.4.II(ii) of Chapter 11	cum	0.252	7,115.60	1,793.13
(iii)		**Painting M.S. tube posts with primer and two coats of epoxy paint as per specification**				
		As per item No. 10.7 of chapter 10	sqm	0.92	99.80	91.82
a)		**Labour (fox fixing at site)**				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
b)		**Material**				
	i)	Support of MS Sheet tubes 47 mm x 47 mm x 12 SWG sheet 3050 mm long	kg	24.80	54.96	1,363.01

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii) Angle iron 50 mm x 50 mm x 6 mm for lugs	kg	2.12	42.67	90.46
		iii) 2 mm thick MS Sheet strengthened by 25 mm x 5 mm M.S. flat iron and painted with stove enameled paint including lettering, signs, messages, border with reflective tape of engineering grade of required size, shade and colour as per MORD specifications	sqm	1.50	712.00	1,068.00
		Add 3% cost of MS sheet and angle iron towards the cost of fabrications, drilling, holes, nuts, bolts etc.				75.64
		c) **Machinery**				
		Tractor with trolley	hour	0.16	303.00	48.48
		d) 0				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**420.24**
		Cost for 1.5 sqm board = (i+ii+iii+a+b+c+d+e)				5,179.10
		Rate per sqm = (i+ii+iii+a+b+c+d+e) / 1.5				**3,452.74**
					say	*3452.70*

Note: *Rate for excavation cement concrete M15 and painting may be taken from respective chapter*

10.5	1700	**Painting Two Coats on New Concrete Surfaces**				

Painting two coats including primer coat after filling the surface with synthetic enamel paint in all shades on new, plastered / concrete surfaces as per drawing and MoRD Technical Specification clause 1701.

Unit = sqm

Taking output = 40 sqm

		a) **Labour**				
		Mate	day	0.20	300.00	60.00
		Painter (1st Class)	day	3.00	340.00	1,020.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) **Material**				
		Cement Primer as per specifications	litre	3.00	65.00	195.00
		Paint conforming to requirement of Clause 1701.3.8	litre	6.00	180.00	1,080.00
		Add for scaffolding @ 1 per cent of labour cost where required				16.80
		c) 0				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**445.77**
		Cost for 40 sqm = a+b+c+d				3,417.57
		Rate per sqm = (a+b+c+d)/40				**85.44**
					say	*85.40*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.6	1700	**Painting on Steel Surfaces**				
		Providing and applying two coats of ready mix paint including primer coat of approved brand on steel surface after through cleaning of surface to give an even shade as per drawing and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Labour				
		Mate	day	0.25	300.00	75.00
		Painter (1st Class)	day	0.60	340.00	204.00
		Mazdoor (Unskilled)	day	0.40	300.00	120.00
		b) Material				
		Red-oxide Primer as per specifications	litre	0.60	85.00	51.00
		Paint ready mixed approved brand	litre	1.25	180.00	225.00
		Add @ 1 per cent on cost of material for scaffolding wherever required				2.76
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**101.66**
		Cost for 10 sqm = a+b+c+d				779.42
		Rate per sqm = (a+b+c+d)/10				**77.94**
					say	<u>**77.90**</u>
10.7	1700	**Painting on Concrete/Steel Surfaces with Epoxy**				
		Painting two coats including prime coat with epoxy paint of approved brand on concrete/steel surfaces after through cleaning of surface to give an even shade as per drawing and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Labour				
		Mate	day	0.25	300.00	75.00
		Painter (1st Class)	day	0.60	340.00	204.00
		Mazdoor (Unskilled)	day	0.40	300.00	120.00
		b) Material				
		Epoxy primer	litre	0.60	190.00	114.00
		Epoxy paint	litre	1.25	280.00	350.00
		Add @ 1 per cent on cost of material for scaffolding wherever required				4.64
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**130.15**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 10 sqm = (a+b+c+d)				997.79
		Rate per sqm = (a+b+c+d)/10				**99.78**
					say	*99.80*
10.8	**1700**	**Painting lines, Dashes, Arrows, etc. on Road in Two Coats on New Work**				
		Painting lines, dashes, arrows, etc. on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous/concrete surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per drawing and MoRD Technical Specification Clause 1702.				
		Assuming 100 mm width				
		Unit = sqm				
		Taking output = 10 sqm				
		a) **Labour**				
		Mate	day	0.09	300.00	27.00
		Painter 1st Class	day	0.55	340.00	187.00
		Mazdoor (Unskilled)	day	1.55	300.00	465.00
		b) **Material**				
		Road marking paint as per IS:164	litre	1.48	212.00	313.76
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**148.91**
		Cost for 10 sqm = a+b+c+d				1,141.67
		Rate per sqm = (a+b+c+d)/10				**114.17**
					say	*114.20*
10.9	**1700**	**Painting lines, Dashes, Arrows, etc. on Roads in Two Coats on Old Work**				
		Painting lines, dashes, arrows, etc. on roads in two coats on old work with ready mixed road marking paint conforming to IS:164 on bituminous / concrete surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control as per drawing and MoRD Technical Specification Clause 1702.				
		Assuming 100 cm width				
		Unit = sqm				
		Taking output = 10 sqm				
		a) **Labour**				
		Mate	day	0.06	300.00	18.00
		Painter (Ist class)	day	0.30	340.00	102.00
		Mazdoor (Unskilled)	day	1.25	300.00	375.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
		Road marking paint	litre	0.90	212.00	190.80
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**102.87**
		Cost for 10 sqm = a+b+c+d				788.67
		Rate per sqm = (a+b+c+d)/10				**78.87**
					say	*78.90*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.10	1700	**Kilometre Stone**				
		Reinforced cement concrete M15 grade kilometre stone / local stone of standard design as per IRC:8 fixing in position including painting and printing, etc. as per drawing and MoRD Technical Specification Clause 1703.				
		i) 5th Kilometre Stone (precast)				
		Unit = each				
		Taking output = 6 Nos.				
		a) M-15 grade of concrete				
		As per item No.12.4.II of Chapter 12	cum	2.35	7,526.20	17,686.57
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0221	53,218.60	1,176.13
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.68	287.00	482.16
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	9.85	85.40	841.19
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Ro	per cm high per letter	1,800.00	0.50	900.00
		Transportation and fixing				
		f) Labour				
		Mate	day	0.26	300.00	78.00
		Mason (1st Class)	day	0.60	425.00	255.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		g) Machinery				
		50 HP Tractor with trolley	hour	6.00	303.00	1,818.00
		h) 0				**0.00**
		i) Contractor's profit and overheads @ 15 % on (f+g+h)				**592.65**
		Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h+i				25,629.70
		Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i)/6				**4,271.62**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*4271.60*
	ii)	**Ordinary Kilometer Stone (Precast)**				
		Unit = each				
		Taking output = 14 Nos.				
	a)	M15 grade of concrete				
		As per item No.12.4.II of Chapter 12	cum	3.77	7,526.20	28,373.77
	b)	Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0263	53,218.60	1,399.65
	c)	Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	2.77	287.00	794.99
	d)	Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	11.41	85.40	974.41
	e)	lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm high per	1,680.00	0.50	840.00
		Transportation and fixing				
	f)	**Labour**				
		Mate	day	0.32	300.00	96.00
		Mason (1st Class)	day	1.00	425.00	425.00
		Mazdoor (Unskilled)	day	7.00	300.00	2,100.00
	g)	**Machinery**				
		50 HP Tractor with trolley	hour	6.00	303.00	1,818.00
	h)	**0**				**0.00**
	i)	**Contractor's profit and overheads @ 15 % on (f+g+h)**				**665.85**
		Cost for 14 Nos. ordinary km stone = (a+b+c+d+e+f+g+h+I)				37,487.68
		Rate for each ordinary km stone = (a+b+c+d+e+f+g+h+i)/14				**2,677.69**
					say	*2677.70*
	iii)	**200 m stone (precast)**				
		Unit = each				
		Taking output = 33 Nos.				
	a)	M15 grade of concrete				
		As per item No.12.4.II of Chapter 12	cum	1.58	7,526.20	11,891.40
	b)	Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.066	53,218.60	3,512.43
	c)	Excavation in soil for foundation				

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			As per item No.11.1.A.I(i) of Chapter 11	cum	1.39	287.00	398.93
		d)	Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	6.27	85.40	535.46
		e)	lettering on km post (average 30 letters of 10 cm height each)				
			As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm per letter	330.00	0.50	165.00
		Transportation and fixing					
		f)	**Labour**				
			Mate	day	0.34	300.00	102.00
			Mason (1st Class)	day	1.50	425.00	637.50
			Mazdoor (Unskilled)	day	7.00	300.00	2,100.00
		g)	**Machinery**				
			50 HP Tractor with trolley	hour	6.00	303.00	1,818.00
		h)	**0**				0.00
		i)	**Contractor's profit and overheads @ 15 % on (f+g+h)**				698.63
			Cost for 33 Nos. 200 m stone = (a+b+c+d+e+f+g+h+I)				21,859.34
			Rate for each 200 m stone = (a+b+c+d+e+f+g+h+i)/33				**662.40**
						say	_662.40_

> **Note:** 1 *The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective Chapters.*
>
> 2 *In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.*

10.11 ^1700, 800 & 300^ **G.I Barbed Wire Fencing 1.2 m high**

Providing and fixing 1.2 m high GI barbed wire fencing with 1.8 m RCC posts 150 mm x 150 mm placed every 3 m centre-to-centre founded in M-15 grade cement concrete, 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.

Unit = per running m

Taking output = 30 m

a) **Labour**

			Description	Unit	Quantity	Rate (₹)	Amount (₹)
			Mate	day	0.09	300.00	27.00
			Blacksmith	day	0.25	403.00	100.75
			Mazdoor (Unskilled)	day	2.00	300.00	600.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) **Material**				
		i. Barbed wire 335 m length @ 9.38 kg per 100 m	kg	31.42	88.20	2,771.24
		R.C.C. Post 150 mm x 150 mm x 1.80 m				
		M15 Grade concrete				
		13 x 150 mm x 150 mm x 1.8 m				
		ii. Rate As per item No.12.4.II of Chapter 12	cum	0.526	7,526.20	3,958.78
		iii. Add 5 per cent extra cost for formwork of M-15				197.94
		Supply of Twisted steel/ deformed bars including cutting, bending, tying & placing in position.				
		10 mm dia bars for posts				
		13 x 4 x 1.8 = 93.6 m @ 0.62 kg/mt = 43.60 kg				
		8 mm dia bars for rings				
		13 x 10 x 0.6 = 78 m @ 0.39 kg/mt = 30.42 kg				
		Total 74.02 kg				
		iv. As per item No.12.5 of Chapter 12	t	0.074	53,218.60	3,938.18
		v. Add for GI staple binding wire, drilling holes, etc. @ 2 per cent of the cost of material				78.76
		c) **Painting**				
		Applying two coats of painting including primer coat on exposed surface of RCC posts				
		As per item No.10.5 of this Chapter	sqm	8.14	85.40	695.16
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b{i,iii & v}+d)**				**566.35**
		Cost for 30 m fencing = a+b+c+d+e				12,934.16
		Rate per m = (a+b+c+d+e)/30				**431.14**
					say	*431.10*

Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*

10.12 **1700, 800 & 300** **G.I Barbed Wire Fencing 1.8 m high**

Providing and fixing 1.8 m high GI barbed wire fencing with 2.4 m RCC M15 grade 150 mm x 150 mm concrete post placed every 3 m centre-to-centre founded in M15 grade cement concrete, 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.

Unit = per running m

Taking output = 30 m

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a)	**Labour**				
			Mate	day	0.12	300.00	36.00
			Blacksmith	day	0.40	403.00	161.20
			Mazdoor (Unskilled)	day	2.50	300.00	750.00
		b)	**Material**				
		i.	Barbed wire 428 m length @ 9.38 kg per 100 m	kg	40.15	88.20	3,541.23
			R.C.C. Post 150 mm x 150 mm x 2.4 m				
			M-15 Grade				
			13 x 150 mm x 150 mm x 2.4 m				
		ii.	As per item No.12.4.II of Chapter 12	cum	0.702	7,526.20	5,283.39
		iii.	Add 5 per cent extra cost of C.C. for formwork of M-15				264.17
			Supply of Twisted steel/ deformed bars including cutting, bending, tying & placing in position.				
			10 mm dia steel bars for posts				
			13 x 4 x 2.4 = 124.80 m				
			@ 0.62 kg/mt = 77.38 kg				
			8 mm dia bars for rings				
			13 x 11 x 0.6 = 85.80 m				
			@ 0.39 kg/m = 33.46 kg				
			Total 110.84 kg				
		iv.	As per item No.12.5 of Chapter 12	t	0.111	53,218.60	5,907.26
		v.	Add for GI staple, binding wire, drilling holes etc. @ 2 per cent of the cost of material				118.15
		c)	**Painting**				
			Applying two coats of painting including prime coat on exposed surface of RCC posts				
			As per item No.10.5 of this Chapter	sqm	12.10	85.40	1,033.34
		d)	**0**				**0.00**
		e)	**Contractor's profit and overheads @ 15 % on (a+b{i,iii & v}+d)**				**730.61**
			Cost for 30 m fencing = a+b+c+d+e				17,825.35
			Rate per m fencing = (a+b+c+d+e)/30				**594.18**
						say	*594.20*

Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*

10.13 | 1700, 800 &300 | **Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels(ISMC series) 100 mm x 50 mm, 1.2 m high above ground, 2 m centre-to-centre, complete as per approved drawings MoRD technical specification Clause 1706.				
		Unit = Running m				
		Taking output = 10 m				
	i)	**Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	287.000	371.95
	ii)	**Foundation concrete M-15 grade PCC 6 x 0.6 x 0.6 x 0.3**				
		As per item No. 11.4.II(ii) of Chapter 11	cum	0.648	7,115.600	4,610.91
	iii)	**Painting of pipe**				
		As per item No.10.6 of this Chapter	sqm	4.71	77.900	366.91
	iv)	**Painting of channel section (6 nos.) 1.8 m each 0.2 x 1.8 x 1.6 = 2.16**				
		As per item No.10.6 of this Chapter	sqm	2.16	77.900	168.26
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		Plumber	day	0.01	380.00	3.80
	b)	**Material**				
		Steel pipe 50 mm external dia as per IS:1239	m	30.00	390.00	11,700.00
		Medium weight steel channel (ISMC series) 100 mm x 50 mm, 10.8 m length @ 9.2 kg per m including 5 per cent wastage	kg	104.33	46.35	4,835.70
		Add for drilling holes @ 3 per cent of cost of channels				145.07
	c)	**Machinery**				
		50 HP Tractor with trolley	hour	0.06	303.00	18.18
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				2,517.11
		Cost for 10 m = a+b+c+d+e				24,815.89
		Rate per m = (a+b+c+d+e)/10				**2,481.59**
					say	_2481.60_

10.14   1700, 800 & 300   **Tubular Steel Railing on Precast RCC posts, 1.2 m high above Ground Level**

Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M-20 grade RCC vertical posts 175 mm x 175 mm x 1.8 m high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 m centre-to-centre complete as per approved drawings MoRD technical specification Clause 1706.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = Running m				
		Taking output = 10 m				
	i)	**Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	287.000	371.95
	ii)	**Foundation concrete M15 grade PCC 6 x 0.6 x 0.6 x 0.3**				
		As per item No. 11.4II.ii of Chapter 11	cum	0.648	7,115.600	4,610.91
	iii)	**RCC M20 for precast posts (6 nos.) of 1.8 m each**				
		As per item No.12.4.V.i of Chapter 12	sqm	0.33	8,414.000	2,776.62
	iv)	**Painting of pipe**				
		As per item No.10.6 of this Chapter	sqm	4.71	77.900	366.91
		a) **Labour**				
		Mate	day	0.014	300.00	4.20
		Mazdoor (Unskilled)	day	0.35	300.00	105.00
		Plumber	day	0.01	380.00	3.80
		b) **Material**				
		i. Steel pipe 50 mm dia as per IS:1239	m	30.00	390.00	11,700.00
		ii. Twisted steel/ deformed bars As per item No.12.5 of Chapter 12	t	0.032	53,218.60	1,703.00
		c) **Machinery**				
		50 HP Tractor with trolley	hour	0.25	303.00	75.75
		d) **0**				0.00
		e) **Contractor's profit and overheads @ 15 % on (a+b.i+c+d)**				1,783.31
		Cost for 10 m = a+b+c+d+e				23,129.50
		Rate per m = (a+b+c+d+e)/10				**2,312.95**
					say	*2312.90*
10.15	Suggestive	**Traffic Cone**				
		Provision of red fluorescent with white refective sleeve traffic cone made of Low Density Polythylene(LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS:873.				
		Unit = Each				
		Taking output = 68 Nos.				
		a) **Labour**				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) **Material**				
		Traffic cones with 150 mm reflective sleeve	Nos.	68.00	585.00	39,780.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Machinery				
		50 HP Tractor with trolley	Hour	0.10	303.00	30.30
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**5,994.95**
		Cost for 68 Nos. = a+b+c+d+e				45,961.25
		Rate for each cone = (a+b+c+d+e)/68				**675.90**
					say	*675.90*
10.16	Suggestive	**Rumble Strips**				

Provision of 15 nos. rumble strips covered with premix bituminous carpet, 15-20 mm high at centre, 250 mm wide placed at 1 m centre-to-centre at approved locations to control speed, marked with white strips of road marking paint.

Unit = sqm

Taking output = 57.188 sqm (including gaps)

(15.25 m long and 3.75 m wide area)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Tack coat with bitumen emulsion 0.20 to 0.25 kg per sqm				
		As per item No.5.2(i) of Chapter 5	sqm	14.06	10.80	151.85
		ii) 20 mm thick open graded premix carpet using bituminous binder				
		As per item No.5.8. Case-I.(II) of Chapter 5	cum	14.06	215.90	3,035.55
		iii) Painting with road marking paint				
		As per item No.10.8 of Chapter 10	sqm	7.03	114.20	802.83
		Add 2.00 % extra invlovement of labour for peacemeal work				79.80
		Cost for 57.188 sqm =				4,070.03
		Rate per sqm =				**71.17**
					say	*71.20*

Note: *The rate per sqm of premix carpet and road marking may be adopted from Chapters 5 & 10 respectively for the quantities calculated from approved drawings.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.17	Suggestive	**Road Markers/Road Stud with Lens Reflector**				

Providing and fixing of road stud 100 x 100 mm die cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling holes 30 mm upto a depth of 600 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS:873(Part 4) 1973.

Unit = each

Taking output = 50 Nos.

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(a) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(b) Material				
		Aluminium studs 100x100 mm fitted with lense reflectors	Nos.	50.00	220.00	11,000.00
		Add 10 per cent of cost of material for fixing and installation.				1,100.00
		(c) 0				**0.00**
		(d) Contractor's profit and overheads @ 15 % on (a+b+c)				**1,861.80**
		Cost for 50 studs = a+b+c+d				14,273.80
		Rate per stud = (a+b+c+d)/50				**285.48**
					say	*285.50*

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.18	1700, 300, 800	**Traffic Signs (using jhama brick aggregate in CC/ PCC)**				
		A. Retro-reflectorised Traffic Signs				
		(1) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 801.				
		i) with 900 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
		a) labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	764.00	267.40
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**187.30**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,324.42**
					say	*2324.40*

ii) with 600 mm equilateral triangle aluminium sheeting

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
i)		**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
ii)		**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
iii)		**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	764.00	119.18
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	e)	Contractor's profit and overheads @ 15 % on (a+b+c+d)				165.06
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,153.97
					say	*2154.00*
		iii) with 600 mm circular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
		a) labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	764.00	216.21
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				179.62
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,265.56
					say	*2265.60*
		iv) with 800 x 600 mm rectangular aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	764.00	366.72
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				202.19
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,438.64
					say	*2438.60*
	v)	**with 600 x 450 mm rectangular aluminium sheeting**				
		Unit = each					
		Taking output = one traffic sign					
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	764.00	206.28
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**178.13**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,254.13**
					say	*__2254.10__*
	vi)	**with 600 x 600 mm square aluminium sheeting**				
		Unit = each				
		Taking output = one traffic sign				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.36	764.00	275.04
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	e)	Contractor's profit and overheads @ 15 % on (a+b+c+d)				188.44
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,333.21
					say	*2333.20*
vii)		**with 900 mm side octagon aluminium sheeting**				
		Unit = each				
		Taking output = one traffic sign				
i)		**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
ii)		**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
iii)		**Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per**				
		As per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	764.00	513.41
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				224.20
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				2,607.33
					say	*2607.30*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(2) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on GI pipe 50 mm dia firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approveddrawings and MoRD Technical Specification Clause 1701.				
		Unit = each				
		Taking output = one traffic sign				
		i) with 900 mm equilateral triangle aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate) As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		a) a)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	764.00	267.40
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**236.21**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,610.91**
					say	*2610.90*
		ii) with 600 mm equilateral triangle aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ii) **Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm equilateral triangle	sqm	0.156	764.00	119.18
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ on (a+b+c+d)**				**213.98**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,440.46**
					say	*__2440.50__*
		iii) with 600 mm circular aluminium sheeting				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		600 mm circular	sqm	0.283	764.00	216.21
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**228.53**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,552.05**
					say	*2552.00*
		iv) with 800 x 600 mm rectangular aluminium sheeting				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		800 mm x 600 mm rectangular	sqm	0.48	764.00	366.72
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**251.11**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,725.13**
					say	*2725.10*
		v) with 600 x 450 mm rectangular aluminium sheeting				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 450 mm rectangular	sqm	0.27	764.00	206.28
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**227.04**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,540.62**
					say	*2540.60*
		vi) with 600 mm x 600 mm square aluminium sheeting				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		600 mm x 600 mm square	sqm	0.36	764.00	275.04
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**237.36**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,619.70**
					say	*2619.70*
	vii)	**with 900 mm side octagon aluminium sheeting**				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm sides octagon	sqm	0.672	764.00	513.41
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**273.11**
		Rate per traffic sign = (i+ii+a+b+c+d+e)				**2,893.82**
					say	*2893.80*

(3) Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 1.5 mm thick supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.

i) with 900 mm equilateral triangle aluminium sheeting

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit = each				
		Taking output = one traffic sign				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) **Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		iii) **Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a) **labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
		ii. Twisted steel/ deformed bar				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		900 mm equilateral triangle	sqm	0.35	764.00	267.40
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**58.11**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,927.82**
					say	*1927.80*
		ii) with 600 mm equilateral triangle aluminium sheeting				
		Unit = each				
		Taking output = one traffic sign				
		i) **Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
	i.	PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
	ii.	Twisted steel/ deformed bar				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78
	iv	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm equilateral triangle	sqm	0.156	764.00	119.18
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**35.88**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,757.37**
					say	*1757.40*

iii) with 600 mm circular aluminium sheeting

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a) labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)	cum	0.0285	6,411.60	182.73
		As per item No.12.14.II of Chapter 12				
		ii. Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 mm circular	sqm	0.283	764.00	216.21
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)				**50.43**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,868.96**
					say	*1869.00*

iv) with 800 x 600 mm rectangular aluminium sheeting

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a) labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 800 x 600 mm rectangular	sqm	0.48	764.00	366.72
		c) **Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**73.01**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,042.04**
					say	*2042.00*

v) with 600 x 450 mm rectangular aluminium sheeting

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		iii) Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
		a) **labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		i. PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
		ii. Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78
	iv	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 450 mm rectangular	sqm	0.27	764.00	206.28
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**48.94**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,857.53**
					say	*1857.50*

vi) with 600 x 600 mm square aluminium sheeting

Unit = each

Taking output = one traffic sign

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
	i.	PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
	ii.	Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iv Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 600 x 600 mm square	sqm	0.35	764.00	267.40
	c)	**Machinery**				
		Tractor with trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)**				**58.11**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,927.82**
					say	*1927.80*
	vii)	**with 900 mm side octagon aluminium sheeting**				
		Unit = each				
		Taking output = one traffic sign				
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	iii)	**Painting two coats including Prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of this Chapter	sqm	0.90	99.80	89.82
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
	i.	PCC M15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
	ii.	Steel reinforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				17.78
	iv	Aluminium sheeting 1.5 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint				
		with 900 mm side octagon	sqm	0.672	764.00	513.41
	c)	**Machinery**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)				**95.01**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,210.73**
					say	*2210.70*

Note: 1 *Any one area of aluminium sheeting given at (i) to (vii) may be adopted as per site requirement and in accordance with IRC:67.*

2 *The rate for excavation, cement concrete M-15, RCC M-15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*

B. Semi Reflective Traffic Signs

Providing and fixing of semi reflective cautionary, mandatory and informatory sign board as per IRC:67 made of 1.5 mm thick MS sheet duly stove white colour in front and gray colour on back with red reflective border of 65 mm width and required letters and figures with reflective tape engineering grade as per Clause 1701.3.9 of MORD specification for Rural Roads of required shade and colour supported and welded on 47 mm x 47 mm x 12 SWG sheet tube firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD technical specification Clause 1701.2.2.

Unit = Each

Taking output = one traffic sign

i) **with 900 mm equilateral triangle MS sheeting**

(i) **Excavation foundations**

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16

(ii) **Cement concrete M15 grade (using jhama brick aggregate)**

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80

(iii) **Painting steel tube posts with primer and two coats of epoxy paint as per specifications**

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) **Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm equilateral & triangle	sqm	0.35	530.00	185.50
		c) **Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**155.44**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,037.59**
					say	*2037.60*
		ii) **with 600 mm equilateral triangle MS sheeting**				
		(i) **Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
		(ii) **Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		(iii) **Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) **Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) **Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm equilateral & triangle	sqm	0.156	530.00	0.00
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**127.62**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,824.26**
					say	*1824.30*
	iii)	**with 600 mm circular MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
	b)	**Material**				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		600 mm circular	sqm	0.283	530.00	149.99
		c) Machinery				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**150.11**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,996.75**
					say	*1996.80*
		iv) with 800 x 600 mm rectangular MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		800 mm x 600 mm rectangular	sqm	0.48	530.00	254.40
		c) Machinery				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**165.78**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,116.82**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*2116.80*
	v)	**with 600 x 450 mm rectangular MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
	(iii)	**Painting steel tube posts with primer and two coats of epoxy paint as per specifications**				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet	kg	12.40	54.96	681.50
		3050 mm long				
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications	sqm			
		600 mm x 450 mm rectangular	sqm	0.27	530.00	143.10
		c) Machinery				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**149.08**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**1,988.83**
					say	*1988.80*
	vi)	**with 600 x 600 mm square MS sheeting**				
	(i)	**Excavation foundations**				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
	(ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		600 mm x 600 mm	sqm	0.36	530.00	190.80
		c) Machinery				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**156.24**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,043.68**
					say	*2043.70*
		vii) with 900 mm side octagon MS sheeting				
		(i) Excavation foundations				
		As per Item No. 1 to 11.1 of Chapter 11	cum	0.126	287.00	36.16
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		(iii) Painting steel tube posts with primer and two coats of epoxy paint as per specifications				
		As per item no 10.7 of Chapter 11	sqm	0.46	99.80	45.91
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Support of M.S. Sheet tube				
		(I) 47 mm x 47 mm x 12 SWG Sheet 3050 mm long	kg	12.40	54.96	681.50
		(II) Angle iron 50 x 50 x 6 mm for hold fast including 5% wastage	kg	1.06	42.67	45.23
		Add 3% cost of MS Sheet tube 12 SWG and angle irons towards the cost of fabrication, drilling holes, nuts and bolts etc.				21.80
		(III) 1.5 mm thick M.S. Sheet duly painted with stove enamelled paint including lettering, signs, border, message with reflective tape of engineering grade required size, shade and colour as per Technical Specifications				
		900 mm side octagon	sqm	0.672	530.00	356.16
	c)	**Machinery**				
		Tractor with Trolley	hour	0.08	303.00	24.24
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**181.04**
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				**2,233.85**
					say	*2233.80*

Note:
1. *Any one area of M.S. Sheet given at (i) to (viii) may be adopted as per site requirement and in accordance with IRC-67.*

2. *The rate for excavation, cement concrete M-15, and painting may be taken from respective Chapters.*

3. *The depth of foundation and quantity of cement in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal area. This is applicable to all road signs and direction boards.*

10.19 1700, 800 & 300 **Direction and Place Identification signs upto 0.9 sqm size board (using jhama brick aggregate in CC / PCC)**

A. **Retro-reflectorised Traffic Signs**

Chapter 10
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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on a mild steel single angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11		0.126	6,061.90	763.80
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint as per				
		Rate as per item No.10.7 of this Chapter	sqm	0.887	99.80	88.52
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		Mild steel angle iron 75 x 75 x 6 mm	kg	20.00	42.67	853.40
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				25.60
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	925.00	832.50
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**272.06**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				2,974.29
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/0.90				**3,304.76**
					say	*3304.80*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(ii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exeeding 0.9 sqm supported on 50 mm dia GI Pipe firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11		0.126	6,061.90	763.80
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	3.00	390.00	1,170.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts etc.				35.10
		Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	925.00	832.50
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**320.98**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				3,260.78
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/0.90				**3,623.09**
					say	*3623.10*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(iii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 0.9 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.126	287.00	36.16
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
		iii) Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications				
		As per item No.10.7 of Chapter 10	sqm	0.90	99.80	89.82
		a) Labour (For fixing at site)				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		b) Material				
		i. PCC M-15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.0285	6,411.60	182.73
		ii. Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0077	53,218.60	409.78
		iii. Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts etc.				17.78
		iv. Aluminium sheeting 2.0 mm thick fixed with encapsulated lens type reflective sheeting of size 0.90 sqm including lettering and signs as applicable background with epoxy paint	sqm	0.90	925.00	832.50
		c) Machinery				
		Tractor with trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)				**142.88**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				2,577.69

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per sqm (for sign having area upto 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/0.90				**2,864.10**
					say	*2864.10*

Note: 1 *Lettering and arrow markings on sign board to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 *The rate for excavation, cement concret M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*

B. Semi-Reflective Traffic signs

Direction and place indentification signs up to 0.9 sqm size board

Providing and erecting and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with red reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = each

Take Output = 0.9 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
(i)		**Excavation for foundations**				
		As per Item No. 11.1 of Chapter 11	cum	0.126	287.00	36.16
(ii)		**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.126	6,061.90	763.80
(iii)		**Painting on M.S. tube post with primer and two coat of epoxy paint as per specifications**				
		As per item No.10.7 of Chapter 10	sqm	0.59	99.80	58.88
	a)	**Labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Materials				
		i) Support of MS sheet tube				
		47 mm x 47 mm of 12 SWG sheet 3050 mm long	kg	12.40	54.96	681.50
		ii) Angle iron 50 x 50 x 6 mm for lugs including 5% wastage	kg	1.06	42.67	45.23
		iii) 2 mm thick MS sheet strengthened by 25 mm x 5 mm MS flat iron & painted with stove enameled paint including lettering, signs, message, border with reflective tape of engineering grade of required shade and colour as per Technical Specifications.	sqm	0.90	712.00	640.80
		Add 3% cost of MS sheet angle iron towards the cost of fabrications, drilling, holes, nuts, bolts, etc.				41.03
		c) Machinery				
		Tractor with Trolley	hour	0.08	303.00	24.24
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**226.62**
		Cost for 0.9 sqm = (i+ii+iii+a+b+c+d+e)				2,596.26
		Rate per sqm = (i+ii+iii+a+b+c+d+e) / 0.9				**2,884.74**
					say	*2884.70*

Note: *Rate for excavation, cement concrete M15 and painting may be taken from respective Chapters.*

10.20 | 1700, 800 & 300 | **Direction and place identification signs with size more than 0.9 sqm sign board (using jhama brick aggregate in CC /PCC)**

A. Retro-reflectorised Traffic Signs

(i) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exceding 0.9 sqm supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = sqm

Taking output = 1.50 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11		0.252	6,061.90	1,527.60

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii) Painting Angle Iron Post with Primer and two coats of Epoxy Paint specifications				
		As per item No.10.7 of Chapter 10	sqm	1.774	99.80	177.05
		a) Labour (For fixing at site)				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Material				
		Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 m long, 2 nos. with 5 per cent wastage	kg	40.00	42.67	1,706.80
		Add 3 per cent of cost of angle iron towards cost of fabrication, drilling holes, nuts, bolts, etc.				51.20
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	925.00	1,387.50
		c) Machinery				
		Tractor with trolley	hour	0.12	303.00	36.36
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**500.68**
		Cost for 1.5 sqm = i+ii+iii+a+b+c+d+e				5,615.51
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/1.50				**3,743.67**
					say	*3743.70*
		(ii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exeeding 0.9 sqm supported on 50 mm dia GI Pipe 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = sqm				
		Taking output = 1.50 sqm				
		i) Excavation for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
		ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.252	6,061.90	1,527.60
		a) Labour (For fixing at site)				
		Mate	day	0.02	300.00	6.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
	b)	**Material**				
		50 mm dia GI Pipe 2.85 m long including 5 per cent wastage	m	6.00	390.00	2,340.00
		Add 3 per cent of cost of GI Pipe towards cost of fabrication, drilling holes, nuts, bolts, etc.				70.20
		Aluminium sheeting 2 mm thick fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint		1.50	925.00	1,387.50
	c)	**Machinery**				
		Tractor with trolley	hour	0.12	303.00	36.36
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**598.51**
		Cost for 1.50 sqm = i+ii+a+b+c+d+e				6,188.49
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+a+b+c+d+e)/1.50				**4,125.66**
					say	*4125.70*

(iii) Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide MoRD technical specification Clause 1701.2.3 fixed over aluminium sheeting, 2 mm thick with area exceeding 0.9 sqm supported on RCC post 100 mm x 100 mm, 2 Nos. firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm bellow ground level as per approved drawings and MoRD Technical Specification Clause 1701.

Unit = sqm

Taking output = 1.50 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	i)	**Excavation for foundation**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	0.252	287.00	72.32
	ii)	**Cement concrete M15 grade (using jhama brick aggregate)**				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.252	6,061.90	1,527.60
	iii)	**Painting two coats including prime coat on concrete surface with Epoxy Paint as per specifications**				
		As per item No.10.7 of Chapter 10	sqm	1.84	99.80	183.63
	a)	**Labour (For fixing at site)**				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Material				
	i.	PCC M-15 Grade in Sub-structure (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	0.057	6,411.60	365.46
	ii.	Steel re-inforcement Twisted steel/ deformed bars				
		As per item No.12.5 of Chapter 12	t	0.0154	53,218.60	819.57
	iii.	Add 3 per cent of cost of RCC Post towards cost of drilling holes, nuts, bolts, etc.				35.55
	iv.	Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable background with epoxy paint	sqm	1.50	925.00	1,387.50
		c) Machinery				
		Tractor with trolley	hour	0.12	303.00	36.36
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b.iii.iv+c+d)				**242.31**
		Cost for 1.5 sqm = a+b+c+d+e				4,826.30
		Rate per sqm (for sign having area more than 0.9 sqm) = (a+b+c+d+e)/1.50				**3,217.54**
					say	*3217.50*

Note: 1 *Lettering and arrow markings on sign boards to be provided separately as per actual requirement. Rates for these items have been analysed separately.*

2 *The rate for excavation, cement concrete M15, RCC M15 in Sub-structure, steel re-inforcement and painting may be taken from respective Chapters.*

3 *The depth of foundation and quantity of cement concrete in the foundation are indicative. These may be increased for areas having higher wind velocities like in coastal areas. This is applicable to all road signs and directions boards.*

B. Semi-Reflective Traffic signs

Direction and place identification signs more than 0.90 sqm sign board

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing and erecting and place identifications of semi reflective sign boards as per IRC:67 made of 2 mm thick M.S. sheet duly stove enameled paint in white colour in front and gray colour on back with reflective border of 70 mm width and required message, letters and figures with reflective engineering grade tape as per MORD specifications of required shade and colour. Supported and welded on 47 mm x 47 mm x 12 SWG square tube of 3050 mm height duly strengthened by 25 mm x 5 mm MS flat iron on edges on back firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete (using jhama brick aggregate) 450 mm x 450 mm x 600 mm, 600 mm below ground level as per approved drawings and MoRD Technical Specification Clause 1701.				
		Unit = each				
		Taking output = 1.5 sqm				
		(i) Excavation for foundations as				
		As per item no. 11.1 Chapter 11	cum	0.252	287.00	72.32
		(ii) Cement concrete M15 grade (using jhama brick aggregate)				
		As per item No.11.9.II(ii) of Chapter 11	cum	0.252	6,061.90	1,527.60
		(iii) Painting M.S. tube posts with primer and two coats of epoxy paint as per specification				
		As per item No. 10.7 of chapter 10	sqm	0.92	99.80	91.82
		a) Labour (fox fixing at site)				
		Mate	day	0.02	300.00	6.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		b) Material				
		i) Support of MS Sheet tubes 47 mm x 47 mm x 12 SWG sheet 3050 mm long	kg	24.80	54.96	1,363.01
		ii) Angle iron 50 mm x 50 mm x 6 mm for lugs	kg	2.12	42.67	90.46
		iii) 2 mm thick MS Sheet strengthened by 25 mm x 5 mm M.S. flat iron and painted with stove enameled paint including lettering, signs, messages, border with reflective tape of engineering grade of required size, shade and colour as per MORD specifications	sqm	1.50	712.00	1,068.00
		Add 3% cost of MS sheet and angle iron towards the cost of fabrications, drilling, holes, nuts, bolts etc.				75.64
		c) Machinery				
		Tractor with trolley	hour	0.16	303.00	48.48
		d) 0				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**420.24**
		Cost for 1.5 sqm board = (i+ii+iii+a+b+c+d+e)				4,913.57
		Rate per sqm = (i+ii+iii+a+b+c+d+e) / 1.5				**3,275.71**
					say	*3275.70*

Note: *Rate for excavation cement concrete M15 and painting may be taken from respective chapter*

10.21 1700 Kilometre Stone (with RCC M15 grade using jhama brick aggregate)

Reinforced cement concrete M15 grade (using jhama brick aggregate) kilometre stone/local stone of standard design as per IRC:8 fixing in position including painting and printing, etc. as per drawing and MoRD Technical Specification Clause 1703.

i) 5th Kilometre Stone (precast)

Unit = each

Taking output = 6 Nos.

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	2.35	6,411.60	15,067.26
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0221	53,218.60	1,176.13
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.68	287.00	482.16
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	9.85	85.40	841.19
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm high per letter	1,800.00	0.50	900.00
		Transportation and fixing				
		f) **Labour**				
		Mate	day	0.26	300.00	78.00
		Mason (1st Class)	day	0.60	425.00	255.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		g) **Machinery**				
		50 HP Tractor with trolley	hour	6.00	303.00	1,818.00
		h) **0**				**0.00**
		i) **Contractor's profit and overheads @ 15 % on (f+g+h)**				**592.65**
		Cost for 6 Nos. 5th km stone = a+b+c+d+e+f+g+h+i				23,010.39
		Rate for each 5th km stone = (a+b+c+d+e+f+g+h+i)/6				**3,835.07**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*3835.10*
	ii)	**Ordinary Kilometer Stone (Precast)**				
		Unit = each				
		Taking output = 14 Nos.				
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	3.77	6,411.60	24,171.73
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.0263	53,218.60	1,399.65
		c) Excavation in soil for foundation				
		As per item No.11.1.A.I(i) of Chapter 11	cum	2.77	287.00	794.99
		d) Painting two coats on concrete surface				
		As per item No.10.5 of Chapter 10	sqm	11.41	85.40	974.41
		e) lettering on km post (average 30 letters of 10 cm height each)				
		As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm high per	1,680.00	0.50	840.00
		Transportation and fixing				
		f) **Labour**				
		Mate	day	0.32	300.00	96.00
		Mason (1st Class)	day	1.00	425.00	425.00
		Mazdoor (Unskilled)	day	7.00	300.00	2,100.00
		g) **Machinery**				
		50 HP Tractor with trolley	hour	6.00	303.00	1,818.00
		h) **0**				**0.00**
		i) **Contractor's profit and overheads @ 15 % on (f+g+h)**				**665.85**
		Cost for 14 Nos. ordinary km stone = (a+b+c+d+e+f+g+h+I)				33,285.64
		Rate for each ordinary km stone = (a+b+c+d+e+f+g+h+i)/14				**2,377.55**
					say	*2377.50*
	iii)	**200 m stone (precast)**				
		Unit = each				
		Taking output = 33 Nos.				
		a) Cement concrete M-15 grade (using jhama brick aggregate)				
		As per item No.12.14.II of Chapter 12	cum	1.58	6,411.60	10,130.33
		b) Steel reinforcement @ 5 kg per sqm				
		As per item No.12.5 of Chapter 12	t	0.066	53,218.60	3,512.43
		c) Excavation in soil for foundation				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
			As per item No.11.1.A.I(i) of Chapter 11	cum	1.39	287.00	398.93
		d)	Painting two coats on concrete surface				
			As per item No.10.5 of Chapter 10	sqm	6.27	85.40	535.46
		e)	lettering on km post (average 30 letters of 10 cm height each)				
			As per item No.10.1 of Chapter 10 (Englisg & Roman)	per cm per	330.00	0.50	165.00
			Transportation and fixing				
		f)	**Labour**				
			Mate	day	0.34	300.00	102.00
			Mason (1st Class)	day	1.50	425.00	637.50
			Mazdoor (Unskilled)	day	7.00	300.00	2,100.00
		g)	**Machinery**				
			50 HP Tractor with trolley	hour	6.00	303.00	1,818.00
		h)	**0**				0.00
		i)	**Contractor's profit and overheads @ 15 % on (f+g+h)**				698.63
			Cost for 33 Nos. 200 m stone = (a+b+c+d+e+f+g+h+I)				20,098.27
			Rate for each 200 m stone = (a+b+c+d+e+f+g+h+i)/33				**609.04**
						say	_609.00_

Note: 1 *The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective Chapters.*

2 *In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.*

10.22 1700 Boundary Pillar (with PCC M15 grade using jhama brick aggregate and reinforcement)

Plain cement concrete M15 grade (using jhama brick aggregate and reinforcement) boundary pillar / local stone of standard design as per IRC:25 fixed in position including finishing and lettering but excluding painting as per drawing and MoRD Technical Specification Clause 1704.

Unit = each

Taking output = 57 Nos.

		a)	Cement concrete M-15 grade (using jhama brick aggregate)				
			As per item No.12.14.II of Chapter 12	cum	1.37	6,411.60	8,783.89
		b)	Excavation in soil				
			As per Item No. 11.1.A.I(i) of Chapter 11	cum	9.58	287.00	2,749.46
		c)	lettering, each 10 cm high				
			As per Item No. 10.1 of Chapter 10	per letter per cm	2,280.00	0.50	1,140.00

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Transportation and fixing				
	e)	**Labour**				
		Mate	day	0.57	300.00	171.00
		Mazdoor (Unskilled)	day	14.25	300.00	4,275.00
	f)	**Machinery**				
		Tractor with trolley	hour	6.00	303.00	1,818.00
	g)	**Material**				
		PCC M15 grade with jhama brick aggregate				
		As per item No.12.14.I of Chapter 12	cum	1.31	6,365.00	8,338.15
		M.S bar 6 mm dia				
		As per Item No. 12.6 of Chapter 12	t	0.076	52,373.30	3,980.37
	h)	0				0.00
	i)	**Contractor's profit and overheads @ 15 % on (e+f+h)**				939.60
		Cost for 57 Nos. boundary pillar = a+b+c+d+e+f+g+h+i				32,195.47
		Rate for each boundary pillar = (a+b+c+d+e+f+g+h+i)/57				**564.83**
					say	_**564.80**_

Note: 1 *In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.*

2 *In case local stone is to be used in place of precast RCC stones, then rate of cement concrete and steel reinforcement may be deleted.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
10.23	1700, 800 & 300	**G.I Barbed Wire Fencing 1.2 m high (using jhama brick aggreagte in CC/PCC/RCC)**				
		Providing and fixing 1.2 m high GI barbed wire fencing with 1.8 m RCC posts 150 mm x 150 mm placed every 3 m centre-to-centre founded in M15 grade cement concrete,(using jhama brick aggregate) 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.				
		Unit = per running m				
		Taking output = 30 m				
	a)	**Labour**				
		Mate	day	0.09	300.00	27.00
		Blacksmith	day	0.25	403.00	100.75
		Mazdoor (Unskilled)	day	2.00	300.00	600.00

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) **Material**				
		i. Barbed wire 335 m length @ 9.38 kg per 100 m	kg	31.42	88.20	2,771.24
		R.C.C. Post 150 mm x 150 mm x 1.80 m				
		M15 Grade concrete				
		13 x 150 mm x 150 mm x 1.8 m				
		ii. Rate as per item No.12.14.II of Chapter 12	cum	0.526	6,411.60	3,372.50
		iii. Add 5 per cent extra cost for formwork of M-15				168.63
		Supply of Twisted steel/ deformed bars including cutting, bending, tying & placing in position.				
		10 mm dia steel bars for posts				
		13 x 4 x 1.8 = 93.6 m @ 0.62 kg/mt = 43.60 kg				
		8 mm dia steel bars for rings				
		13 x 10 x 0.6 = 78 m @ 0.39 kg/mt = 30.42 kg				
		Total **74.02 kg**				
		iv. As per item No.12.5 of Chapter 12	t	0.074	53,218.60	3,938.18
		v. Add for GI staple binding wire, drilling holes, etc. @ 2 per cent of the cost of material				78.76
		c) **Painting**				
		Applying two coats of painting including primer coat on exposed surface of RCC posts				
		As per item No.10.5 of this Chapter	sqm	8.14	85.40	695.16
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b{i,iii & v}+d)**				**561.96**
		Cost for 30 m fencing = a+b+c+d+e				12,314.17
		Rate per m = (a+b+c+d+e)/30				**410.47**
					say	*410.50*

Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*

10.24 1700, 800 & 300 **G.I Barbed Wire Fencing 1.8 m high (using jhama brick aggreagte in CC/PCC/RCC)**

Providing and fixing 1.8 m high GI barbed wire fencing with 2.4 m RCC M15 grade (using jhama brick aggregate)150 mm x 150 mm concrete post placed every 3 m centre-to-centre founded in M15 grade cement concrete, 0.6 m below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc. complete as per MoRD technical specification Clause 1705.

Unit = per running m

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 30 m				
	a)	**Labour**				
		Mate	day	0.12	300.00	36.00
		Blacksmith	day	0.40	403.00	161.20
		Mazdoor (Unskilled)	day	2.50	300.00	750.00
	b)	**Material**				
	i.	Barbed wire 428 m length @ 9.38 kg per 100 m	kg	40.15	88.20	3,541.23
		R.C.C. Post 150 mm x 150 mm x 2.4 m				
		M-15 Grade				
		13 x 150 mm x 150 mm x 2.4 m				
	ii.	As per item No.12.14.II of Chapter 12	cum	0.702	6,411.60	4,500.94
	iii.	Add 5 per cent extra cost of C.C. for formwork of M-15				225.05
		Supply of Twisted steel/ deformed Bars including cutting, bending, tying & placing in position.				
		10 mm dia steel bars for posts				
		13 x 4 x 2.4 = 124.80 m				
		@ 0.62 kg/mt = 77.38 kg				
		8 mm dia steel bars for rings				
		13 x 11 x 0.6 = 85.80 m				
		@ 0.39 kg/m = 33.46 kg				
		Total 110.84 kg				
	iv.	As per item No.12.5 of Chapter 12	t	0.111	53,218.60	5,907.26
	v.	Add for GI staple, binding wire, drilling holes etc. @ 2 per cent of the cost of material				118.15
	c)	**Painting**				
		Applying two coats of painting including prime coat on exposed surface of RCC posts				
		As per item No.10.5 of this Chapter	sqm	12.10	85.40	1,033.34
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b{i,iii & v}+d)**				**724.74**
		Cost for 30 m fencing = a+b+c+d+e				16,997.91
		Rate per m fencing = (a+b+c+d+e)/30				**566.60**
					say	*__566.60__*

Note: *Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective Chapters.*

| 10.25 | 1700, 800 &300 | **Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm** | | | | |

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels(ISMC series) 100 mm x 50 mm, 1.2 m high above ground, 2 m centre-to-centre, complete as per approved drawings as per MoRD technical specification Clause 1706.				
		Unit = Running m				
		Taking output = 10 m				
	i)	**Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	287.000	371.95
	ii)	**Foundation concrete M-15 grade PCC(using jhama brick aggregate) 6 x 0.6 x 0.6 x 0.3**				
		As per item No. 11.9.II(ii) of Chapter 11	cum	0.648	6,061.900	3,928.11
	iii)	**Painting of pipe**				
		As per item No.10.6 of this Chapter	sqm	4.71	77.900	366.91
	iv)	**Painting of channel section (6 nos.) 1.8 m each 0.2 x 1.8 x 1.6 = 2.16**				
		As per item No.10.6 of this Chapter	sqm	2.16	77.900	168.26
	a)	**labour (For fixing at site)**				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		Plumber	day	0.01	380.00	3.80
	b)	**Material**				
		Steel pipe 50 mm external dia as per IS:1239	m	30.00	390.00	11,700.00
		Medium weight steel channel (ISMC series) 100 mm x 50 mm, 10.8 m length @ 9.2 kg per m including 5 per cent wastage	kg	104.33	46.35	4,835.70
		Add for drilling holes @ 3 per cent of cost of channels				145.07
	c)	**Machinery**				
		50 HP Tractor with trolley	hour	0.06	303.00	18.18
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**2,517.11**
		Cost for 10 m = a+b+c+d+e				24,133.09
		Rate per m = (a+b+c+d+e)/10				**2,413.31**
					say	*2413.30*

| 10.26 | 1700, 800 & 300 | **Tubular Steel Railing on Precast RCC posts, 1.2 m high above Ground Level** | | | | |

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M-20 grade RCC(using jhama brick aggregate) vertical posts 175 mm x 175 mm x 1.8 m high (1.2 m above GI) with 3 holes 50 mm dia for pipe, fixed 2 m centre-to-centre complete as per approved drawings as per MoRD technical specification Clause 1706.				
		Unit = Running m				
		Taking output = 10 m				
	i)	**Excavation for foundation (6 Nos.) 6 x 0.6 x 0.6 x 0.6**				
		As per item No.11.1.A.I(i) of Chapter 11	cum	1.296	287.000	371.95
	ii)	**Foundation concrete M15 grade PCC(using jhama brick aggregate) 6 x 0.6 x 0.6 x 0.3**				
		As per item No. 11.9.II.ii of Chapter 11	cum	0.648	6,061.900	3,928.11
	iii)	**RCC M20(using jhama brick aggregate) for precast posts (6 nos.) of 1.8 m each**				
		As per item No.12.14.IV of Chapter 12	sqm	0.33	6,930.700	2,287.13
	iv)	**Painting of pipe**				
		As per item No.10.6 of this Chapter	sqm	4.71	77.900	366.91
	a)	**Labour**				
		Mate	day	0.014	300.00	4.20
		Mazdoor (Unskilled)	day	0.35	300.00	105.00
		Plumber	day	0.01	380.00	3.80
	b)	**Material**				
	i.	Steel pipe 50 mm dia as per IS:1239	m	30.00	390.00	11,700.00
	ii.	Steel bars As per item No.12.5 of Chapter 12	t	0.032	53,218.60	1,703.00
	c)	**Machinery**				
		50 HP Tractor with trolley	hour	0.25	303.00	75.75
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b.i+c+d)**				**1,783.31**
		Cost for 10 m = a+b+c+d+e				21,957.21
		Rate per m = (a+b+c+d+e)/10				**2,195.72**
					say	*2195.70*
10.27	1700	**Providing and Fixing 'Citizens' Information Board' of the Project(with CC structure)**				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Providing and fixing of typical Citizens' Information board with Logo as per MORD specifications and drawing with CC structure made with M-15 of Size 1150 mm in length, 300 mm in thickness and 2450 mm in height all above G.L. with foundation with M-15 concrete of size 1150 mm x 600 mm x 750 mm , 750 mm below ground level with skin reinforcemet with 8 mm dia TMT bars @ 200 cm C/C from bottom of the structure. Lettering and printing arrows, border etc. will be painted with ready mixed synthetic enamel paint of superior quality in required shade and colour. All sections of structure will be painted with primer and two coats of epoxy paint as per drawing and MoRD technical specification Clause 1701 and Annexure 1700.1				
		Unit = Each				
		Taking out put = one typical board				
		A. Board 'A'				
	(i)	**Excavation for foundations**				
		As per item No. 11.1 of Chapter 11	cum	0.520	287.000	149.24
	(ii)	**Cement Concrete M15 grade (using jhama brick aggregate)**				
		Below G.L 1.15 x 0.60 x 0.75 = 0.520				
		Above G.L 1.15 x 0.30 x 2.45 = 0.850				
		Total :- 1.37				
		As per item No. 11.11.II.ii of Chapter 11	cum	1.370	6,061.900	8,304.80
		Steel for skin reinforcement, 8 mm steel bars @ 200 mm c/c	t	0.041	53,218.60	2,181.96
	(iii)	**Painting on MS Steel tubes with primer and two coats of epoxy paint**				
		2 x 2.05 x 1.15 = 5.60				
		2 x 2.05 x 0.30 = 1.50				
		1 x 1.15 x 0.30 = 0.40				
		Total :- 7.50				
		As per item no. 10.7 of Chapter 10	sqm	7.46	99.80	744.51
	iv)	**Printing new letters and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade.**				
		Heading Band 90 x 10 = 900				
		Logo 70 x 10 = 700				
		Lettering 50 x 2.5 = 125				
		Band 65 x 1.5 x 3 = 292.5				
		75 x 1.5 x 4 = 450				
		Information 200 x 1.7 x 80 = 340				
		21 x 2.5 = 52.5				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		700 x 1 = 700				
		25 x 1.7 = 42.5				
		1400 x 1.2 = 1680				
		Total :- 5282.50				
		4532.5 per cm height per letter				
		As per item No.10.1 of Chapter 10 (English & Roman	per cm height per	5,282.50	0.50	2,641.25
		a) **Labour (for fixing at site)**				
		Mate	day	0.05	300.00	15.00
		Mazdoor (Unskilled)	day	1.25	300.00	375.00
		b) **Machinery**				
		Tractor with trolley	hour	0.30	303.00	90.90
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**72.14**
		Cost for one Board= (i+ii+iii+iv+a+b+c+d)				14,574.80
					say	_**14574.80**_
		B. Board 'B'				
		(i) **Excavation for foundations**				
		As per item No. 11.1 of Chapter 11	cum	0.520	287.000	149.24
		(ii) **Cement Concrete M15 grade (using jhama brick aggregate)**				
		Below G.L 1.15 x 0.60 x 0.75 = 0.520				
		Above G.L 1.15 x 0.30 x 2.45 = 0.850				
		Total :- 1.37				
		As per item No. 11.11.II.ii of Chapter 11	cum	1.370	6,061.900	8,304.80
		Steel for skin reinforcement, 8 mm steel bars @ 200 mm c/c	t	0.041	53,218.60	2,181.96
		(iii) **Painting on MS Steel tubes with primer and two coats of epoxy paint**				
		2 x 1.15 x 0.30 = 0.70				
		2 x 1.15 x 2.45 = 5.60				
		1 x 0.30 x 2.45 = 0.70				
		Total :- 7.1				
		As per item no. 10.7 of Chapter 10	sqm	7.10	99.80	708.58
		iv) **Printing new letters and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade.**				
		Heading Band 90 x 10 = 900				
		Logo 70 x 10 = 700				

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Lettering 50 x 2.5 = 125				
		Band 65 x 1.5 x 3 = 292.5				
		75 x 1.5 x 4 = 450				
		Information 200 x 1.7 x 80 = 340				
		21 x 2.5 = 52.5				
		500 x 1 = 500				
		25 x 1.7 = 42.5				
		800 x 1.2 = 960				
		Total :- 4362.50				
		4532.5 per cm height per letter				
		As per item No.10.1 of Chapter 10 (English & Roman)	per cm height per letter	4,362.00	0.50	2,181.00
		a) Labour (for fixing at site)				
		Mate	day	0.05	300.00	15.00
		Mazdoor (Unskilled)	day	1.25	300.00	375.00
		b) Machinery				
		Tractor with trolley	hour	0.30	303.00	90.90
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**72.14**
		Cost for one Board= (i+ii+iii+iv+a+b+c+d)				14,078.62
					say	*14078.60*

Note: *Printing and lettering for blank spaces on the lower plate will be written as required and paid seperately.*

Chapter 10
TRAFFIC SIGNS, MARKINGS AND OTHER ROAD APPURTENANCES

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Boundary Pillar (with PCC M15 grade using jhama brick aggregate and reinforcement)

Cement Concrete M 15

ELEVATION

SECTION AT Y - Y

190
150
490
490
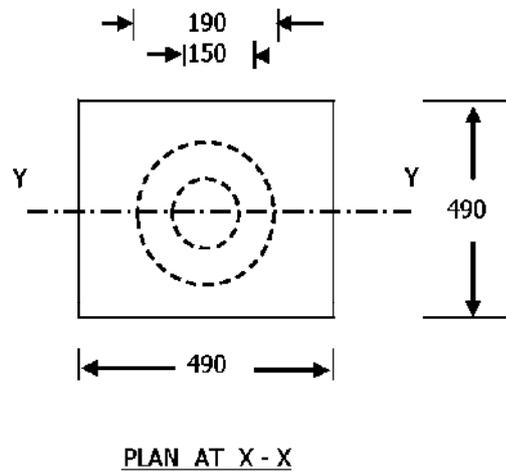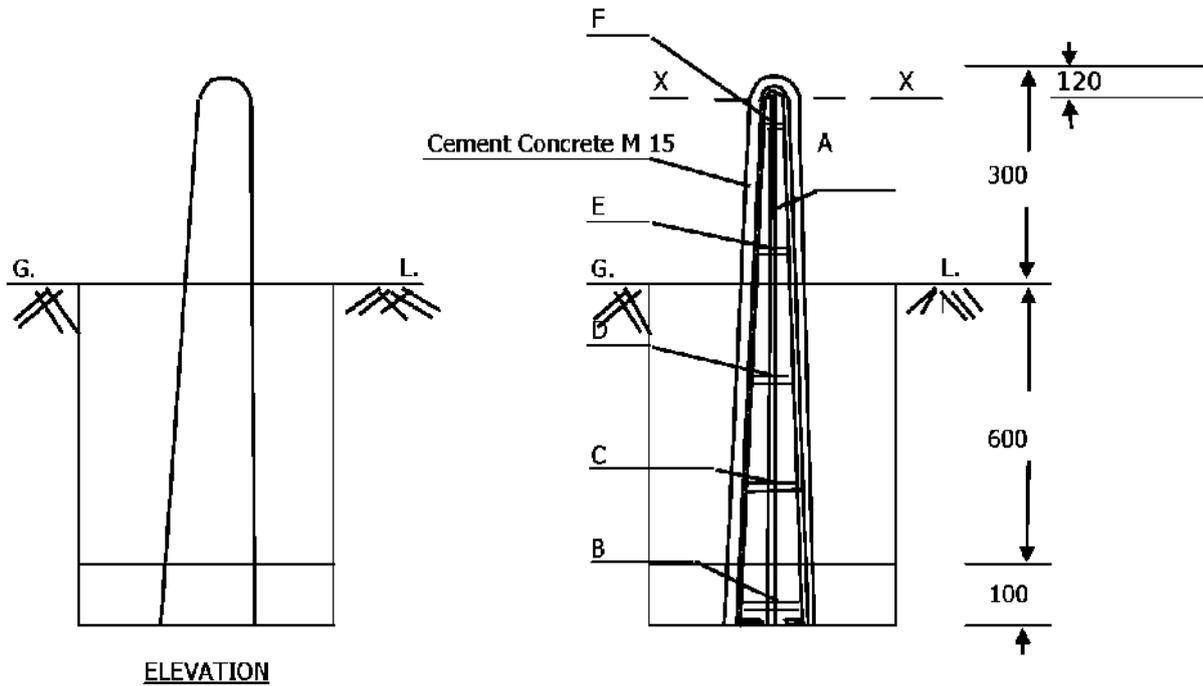
PLAN AT X - X

SCHEDULE OF REINFORCEMENT		
M.S. BARS 6 mm DIA		
	LENGTH	No.
A.	1.87 m	2
B.	48 cm	1
C.	47 cm	1
D.	46 cm	1
E.	43 cm	1
F.	41 cm	1

Note :
1. Not to Scale
2. Hand Sketch
3. All Dimensions are in mm

Chapter 11
FOUNDATION

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
11.1	**300**	**Excavation for Structures**				
		A. Without dewatering.				
		Earthwork in excavation for structures as per drawing and MoRD technical specifications Clause 305.1 including setting out, construction of shoring & bracing, removal of stumps & other deleterious material and disposal upto a lead of 50 m, dressing of sides & bottom and backfilling in trenches with excavated suitable material.				
		I. Ordinary soil				
		(i) Upto 3 m depth				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.32	300.00	96.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**374.40**
		Cost for 10 cum = a+b+c				2,870.40
		Rate per cum = (a+b+c)/10				**287.04**
					say	*287.00*

Note: 1 *Cost of dewatering may be added, where required, up to 10 per cent of labour cost. Assessment for dewatering shall be made as per site conditions.*

2 *The cost of shoring and shuttering, where needed, may be added @ 3 per cent on cost of excavation for open foundation.*

3 *The excavated earth if found suitable, can be used partly for backfilling in trenches & partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 11.1.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(ii) 3 m to 6 m depth				
		Unit = cum				
		a) Labour				
		Mate	day	0.38	300.00	114.00
		Mazdoor (Unskilled)	day	9.50	300.00	2,850.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**444.60**
		Cost for 10 cum = a+b+c				3,408.60
		Rate per cum = (a+b+c)/10				**340.86**
					say	*340.90*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Note: 1   *Cost of dewatering may be added, when needed, up to 15 per cent of labour cost.*

        2   *Cost of shoring and shuttering, where needed, may be added @ 10 per cent on cost of excavation for open foundation.*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
II.		**Ordinary rock (not requiring blasting)**				
		i) Upto 3 m depth				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**468.00**
		Cost for 10 cum = a+b+c				3,588.00
		Rate per cum = (a+b+c)/10				**358.80**
					say	**358.80**

Note: *Cost of dewatering upto 10 per cent of labour cost may be added, where required as per site condition.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
III.		**Hard rock (blasting prohibited)**				
		Upto 3 m depth including 1.5 m depth in hard rock				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	5.00	300.00	1,500.00
		b) Machinery				
		Air compressor 210 cfm with 2 jack hammers of pneumatic breaker	hour	10.00	321.00	3,210.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**715.50**
		Cost for 10 cum = a+b+c+d				5,485.50
		Rate per cum = a+b+c+d/10				**548.55**
					say	**548.60**

Note: *Cost of dewatering up to 10 per cent of (a+b) may be added, where required as per site conditions.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
IV.		**Marshy soil**				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.60	300.00	180.00
		Mazdoor (Unskilled)	day	15.00	300.00	4,500.00
		b) 0				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Contractor's profit and overheads @ 15 % on (a+b)				**702.00**
		Cost for 10 cum = a+b+c				5,382.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per cum = (a+b+c)/10				**538.20**
					say	*538.20*

Note:
1 Cost of dewatering @ 30 per cent of (a) may be added.

2 Shoring and shuttering @ 15 per cent of (a) may be added where required.

3 Since marshy soil cannot be used in filling in trenches, it shall be removed and replaced by approved quality of soil. The labour cost includes labour input for disposal of marshy soil from excavated pit with a lead upto 50 m lead.

4 Marshy soil is generaly available upto 3 m depth. The rate has, therefore, been done upto 3 m depth of excavation. For deeper excavation refer analysis in item 11.1.

A. With dewatering.

Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, dewatering, construction of shoring, shuttering & bracing, removal of stumps & other deleterious material and disposal upto a lead of 50 m, dressing of sides & bottom and backfilling in trenches with excavated suitable material.

I. Ordinary soil

(i) Upto 3 m depth

Unit = cum

Taking output = 10 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.32	300.00	96.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) Add 5.00 % for dewatering				**124.80**
		c) Add 3.00 % for shoring, shuttering & bracing				**78.62**
		d) 0				**0.00**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**404.91**
		Cost for 10 cum = a+b+c+d+e				3,104.34
		Rate per cum = (a+b+c+d+e)/10				**310.43**
					say	*310.40*

Note:
1 Cost of dewatering is added, where required, @ 5.00 per cent of labour cost. Assessment for dewatering shall be made as per site conditions.

2 The cost of shoring and shuttering, is added @ 3 per cent on cost of excavation for open foundation.

3 The excavated earth if found suitable, can be used partly for backfilling in trenches & partly for road work. Hence cost of disposal has not been added except for marshy soil. This note is common to all cases of item 11.1.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		(ii) 3 m to 6 m depth				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.38	300.00	114.00
		Mazdoor (Unskilled)	day	9.50	300.00	2,850.00
		b) Add 10.00 % for dewatering				**296.40**
		c) Add 5.00 % for shoring, shuttering & bracing				**163.02**
		d) Overhead charges @ 0 % on (a+b+c)				**0.00**
		e) Contractor's profit @ 15 % on (a+b+c+d)				**513.51**
		Cost for 10 cum = a+b+c+d+e				3,936.93
		Rate per cum = (a+b+c+d+e)/10				**393.69**
					say	*393.70*

Note: 1 *Cost of dewatering is added, where required, @ 10.00 per cent of labour cost.*

2 *The cost of shoring and shuttering, is added @ 5.00 per cent on cost of excavation for open foundation.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
11.2	300 & 1200	**Filling in foundation trenches as per drawing & MoRD technical specification Clause 305.3.9, 1200.**				
		I. Sand filling				
		Unit = cum				
		a) Labour				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.30	300.00	90.00
		b) Material				
		Sand (local quarry) (assuming 20% voids)	cum	1.20	300.00	360.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**67.95**
		Rate per cum = a+b+c+d				**520.95**
					say	*521.00*
		II. Earth filling (For marshy soil)				
		Unit = cum				
		Taking output = 6 cum				
		a) Labour				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	3.00	300.00	900.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) 0				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				**144.00**
		Cost for 6 cum = a+b+c				1,104.00
		Rate per cum = (a+b+c)/6				**184.00**
					say	_184.00_

Note:
1. *Cost of transportation of good quality earth has not been included. Only labour for carrying carted earth with a lead of 50 m to the foundation pits has been taken in the rate. The cost of carted earth may be worked out separately if the same is not available from the adjoining area.*
2. *Backfilling of foundation trenches shall normally be done with excavated earth. The cost of this operation is included in item 11.1. Only in case the excavated earth is not of suitable quality, sand filling or backfilling with carted earth may be resorted to.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
11.3	300 & 1200	**Filling annular space around footing in rock as per MoRD technical specification Clause 300, 1203.4.3.**				
		Unit = cum				
		P.C.C grade M 15				
		Nominal mix 1 : 2.5 : 5 (Hand mixing)				
		Unit = cum				
		a) **Material**				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.25	3,969.00	992.25
		10 mm aggregate	cum	0.11	4,040.00	444.40
		b) **Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) **Formwork @ 4% on (a+b)**				**237.98**
		d) **0**				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**928.13**
		Rate per cum = a+b+c+d+e				**7,115.64**
					say	_7115.60_

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
11.4	800 & 1200	**Providing concrete for plain/reinforced concrete in open foundations complete including formwork as per drawings & MoRD technical specifications Clauses 802, 803, 900, 1202 and 1203. (including centering, shuttering, staging etc. but excluding reinforcement).**				
		I. P.C.C grade M 10				
		(i) Nominal mix 1:3:6				
		Unit = cum				
		a) Material				
		Cement	t	0.250	6,100.00	1,525.00
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.540	3,532.00	1,907.28
		20 mm aggregate	cum	0.240	3,969.00	952.56
		10 mm aggregate	cum	0.120	4,040.00	484.80
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	193.00	77.20
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**230.44**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**898.71**
		Rate per cum = a+b+c+d+e+f				**6,890.08**
					say	*6890.10*
		(ii) Nominal mix 1:3.6 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.250	6,100.00	1,525.00
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.540	3,532.00	1,907.28
		20 mm aggregate	cum	0.240	3,969.00	952.56
		10 mm aggregate	cum	0.120	4,040.00	484.80
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Formwork @ 4% on cost of material (a) and labour (b)**				**231.91**
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**904.45**
		Rate per cum = a+b+c+d+e				**6,934.10**
					say	*6934.10*
II.		**P.C.C grade M 15**				
(i)		**Nominal mix (1:2.5:5)**				
		Unit = cum				
	a)	**Material**				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.25	3,969.00	992.25
		10 mm aggregate	cum	0.11	4,040.00	444.40
	b)	**Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class0	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
	d)	**Formwork @ 4% on cost of material, labour and machinery (a+b+c)**				**236.51**
	e)	**0**				**0.00**
	f)	**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**922.39**
		Rate per cum = a+b+c+d+e+f				**7,071.63**
					say	*7071.60*
(ii)		**Nominal mix 1:2.5:5 (Hand mixing)**				
		Unit = cum				
	a)	**Material**				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.25	3,969.00	992.25
		10 mm aggregate	cum	0.11	4,040.00	444.40

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 4% on (a+b)				**237.98**
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**928.13**
		Rate per cum = a+b+c+d+e				**7,115.64**
					say	*7115.60*
		III. P.C.C. grade M 20				
		(i) Nominal mix (1:2:4)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	3,532.00	1,271.52
		20 mm aggregate	cum	0.36	3,969.00	1,428.84
		10 mm aggregate	cum	0.18	4,040.00	727.20
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 4% on (a+b+c)				**252.83**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**986.04**
		Rate per cum = a+b+c+d+e+f				**7,559.63**
					say	*7559.60*
		(ii) Nominal mix 1:2:4 (Hand mixed)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	3,532.00	1,271.52

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		20 mm aggregate	cum	0.36	3,969.00	1,428.84
		10 mm aggregate	cum	0.18	4,040.00	727.20
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 4% out of material and labour (a+b)				**254.30**
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**991.78**
		Rate per cum = a+b+c+d+e				**7,603.64**
					say	*7603.60*
	IV.	**R.C.C grade M 20**				
		Unit = cum				
		a) Material				
		Cement	t	0.35	6,100.00	2,135.00
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 4% on (a+b+c)				**266.05**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,037.61**
		Rate per cum = (a+b+c+d+e+f)				**7,955.03**
					say	*7955.00*
	V.	**R.C.C. grade M 25**				
		Unit = cum				
		a) Material				
		Cement	t	0.404	6,100.00	2,464.40
		Sand	cum	0.45	370.00	166.50

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) **Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) **Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) **Formwork @ 4.00% on (a+b+c)**				**279.23**
		e) **0**				**0.00**
		f) **Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**1,089.00**
		Rate per cum = a+b+c+d+e+f				**8,348.99**
					say	*8349.00*
11.5	600 & 1200	**Brick masorny work in cement mortar in foundation completed excluding pointing & plastering as per drawing & MoRD technical specifications Clauses 600, 1202 & 1203.**				
		Unit = cum				
		I. **Brick masonry in 1:3 cement mortar**				
		a) **Material**				
		Brick	Nos.	380.00	8.03	3,051.40
		Cement mortar 1:3	cum	0.24	3,805.50	913.32
		(Rate as per Sub-analysis)				
		b) **Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	60.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**730.76**
		Rate per cum = a+b+c+d				**5,602.48**
					say	*5602.50*
		Sub-analysis				
		Cement mortar 1:3 (1 cement : 3 sand)				
		Unit = cum				
		a) **Material**				
		Cement	t	0.51	6,100.00	3,111.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Sand	cum	1.05	370.00	388.50
		b) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	0.90	300.00	270.00
		Bhisti	day	0.08	300.00	24.00
		Total material and labour = (a+b)				*3805.50*
		II. **Brick masonry in 1:4 cement mortar**				
		Unit = cum				
		a) **Material**				
		Brick	Nos.	380.00	8.03	3,051.40
		Cement mortar 1:4	cum	0.24	3,012.50	723.00
		Rates as per sub-analysis				
		b) **Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	60.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**702.21**
		Rate per cum = a+b+c				**5,383.61**
					say	*5383.60*
		Sub-analysis				
		Cement mortar 1:4 (1 cement : 4 sand)				
		Unit = cum				
		a) **Material**				
		Cement	t	0.38	6,100.00	2,318.00
		Sand	cum	1.05	370.00	388.50
		b) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	0.90	300.00	270.00
		Bhisti	day	0.08	300.00	24.00
		Total material and labour = (a+b)				*3,012.50*
11.6	1000 & 1200	**Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in foundation complete as per drawings & MoRD technical specifications Clauses 1000 & 1202.** Unit = t				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) **Material**				
		Twisted steel/ deformed bars including 5 per cent for overlaps and wastage	t	1.05	41,020.00	43,071.00
		Binding wire	kg	6.00	58.00	348.00
		b) **Labour for cutting, bending, shifting to site, tying and placing in position**				
		Mate	day	0.40	300.00	120.00
		Blacksmith	day	2.00	403.00	806.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**6,921.75**
		Rate per t = a+b+c+d				**53,066.75**
					say	*53066.80*
11.7	**1000 & 1200**	**Supplying, fitting & placing MS bar reinforcement in foundation complete as per drawings & MoRD technical specifications Clauses 1000 & 1202.**				
		Unit = t				
		a) **Material**				
		MS bars including 5 per cent for overlaps and wastag	t	1.05	40,320.00	42,336.00
		Binding wire	kg	6.00	58.00	348.00
		b) **Labour for cutting, bending, shifting to site, tying and placing in position**				
		Mate	day	0.40	300.00	120.00
		Blacksmith	day	2.00	403.00	806.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**6,811.50**
		Rate per t = a+b+c+d				**52,221.50**
					say	*52221.50*

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

11.8	**300 & 1200**	**Filling annular space around footing in rock as per MoRD technical specification Clause 300, 1203.4.3.**				

Unit = cum

P.C.C grade M 15 (using jhama brick aggregate)

Nominal mix 1 : 2.5 : 5 (Hand mixing)

Unit = cum

a) **Material**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	2,550.00	1,377.00
		20 mm aggregate	cum	0.25	2,975.00	743.75
		10 mm aggregate	cum	0.11	3,110.00	342.10
	b)	**Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Formwork @ 4% on (a+b)**				**202.74**
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**790.68**
		Rate per cum = a+b+c+d+e				**6,061.87**
					say	*6061.90*

11.9 **800, 900 & 1200** **Providing concrete for plain concrete (using jhama brick aggregate) in open foundations complete including formwork as per drawings & MoRD technical specifications Clauses 802, 803, 900, 1202 and 1203. (including centering, shuttering, staging etc. but excluding reinforcement)**

I. P.C.C grade M 10 (using jhama brick aggregate)

(i) Nominal mix 1:3:6

Unit = cum

			Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Material**				
		Cement	t	0.250	6,100.00	1,525.00
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.540	2,550.00	1,377.00
		20 mm aggregate	cum	0.240	2,975.00	714.00
		10 mm aggregate	cum	0.120	3,110.00	373.20
	b)	**Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Machinery**				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	193.00	77.20
	d)	**Formwork @ 4% on cost of material, labour and machinery (a+b+c)**				**195.22**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) 0				**0.00**
		f) **Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**761.36**
		Rate per cum = a+b+c+d+e+f				**5,837.08**
					say	*5837.10*
		(ii) **Nominal mix 1:3.6 (Hand mixing)**				
		Unit = cum				
		a) **Material**				
		Cement	t	0.250	6,100.00	1,525.00
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.540	2,550.00	1,377.00
		20 mm aggregate	cum	0.240	2,975.00	714.00
		10 mm aggregate	cum	0.120	3,110.00	373.20
		b) **Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) **Formwork @ 4% on cost of material (a) and labour (b)**				**196.69**
		d) 0				**0.00**
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**767.10**
		Rate per cum = a+b+c+d+e				**5,881.09**
					say	*5881.10*
	II.	**P.C.C grade M 15 (using jhama brick aggregate)**				
		(i) **Nominal mix (1:2.5:5)**				
		Unit = cum				
		a) **Material**				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	2,550.00	1,377.00
		20 mm aggregate	cum	0.25	2,975.00	743.75
		10 mm aggregate	cum	0.11	3,110.00	342.10
		b) **Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class0	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**201.27**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**784.94**
		Rate per cum = a+b+c+d+e+f				**6,017.85**
					say	*6017.90*
		(ii) Nominal mix 1:2.5:5 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	2,550.00	1,377.00
		20 mm aggregate	cum	0.25	2,975.00	743.75
		10 mm aggregate	cum	0.11	3,110.00	342.10
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 4% on (a+b)				**202.74**
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**790.68**
		Rate per cum = a+b+c+d+e				**6,061.87**
					say	*6061.90*
		III. P.C.C. grade M 20 (using jhama brick aggregate)				
		(i) Nominal mix (1:2:4)				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	2,550.00	918.00
		20 mm aggregate	cum	0.36	2,975.00	1,071.00
		10 mm aggregate	cum	0.18	3,110.00	559.80
		b) Labour				
		Mate	day	0.08	300.00	24.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
	d)	**Formwork @ 4% on (a+b+c)**				**217.68**
	e)	**0**				**0.00**
	f)	**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**848.95**
		Rate per cum = a+b+c+d+e+f				**6,508.63**
					say	*6508.60*
(ii)		**Nominal mix 1:2:4 (Hand mixed)**				
		Unit = cum				
	a)	**Material**				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	2,550.00	918.00
		20 mm aggregate	cum	0.36	2,975.00	1,071.00
		10 mm aggregate	cum	0.18	3,110.00	559.80
	b)	**Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Formwork @ 4% out of material and labour (a+b)**				**219.15**
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**854.69**
		Rate per cum = a+b+c+d+e				**6,552.64**
					say	*6552.60*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
12.1	600, 1200	**Brick masonry work in cement mortar in substructure complete excepting pointing & plastering, as per drawing & MoRD technical specification Clauses 602, 603, 604, 1202 and 1204.**				
		I. In 1:3 cement mortar				
		Unit = cum				
		a) Material				
		Bricks	Nos.	380.00	8.03	3,051.40
		Cement mortar (Rate as in item 11.5.I)	cum	0.24	3,805.50	913.32
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason 1st Class	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	60.00
		Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				243.59
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**767.30**
		Rate per cum = a+b+c+d				**5,882.60**
					say	**_5882.60_**
		II. In 1:4 Cement mortar				
		Unit = cum				
		a) Material				
		Bricks	Nos.	380.00	8.03	3,051.40
		Cement mortar				
		(Rate as in item 11.5.II)	cum	0.24	3,012.50	723.00
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason 1st Class	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	60.00
		Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				234.07
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**737.32**
		Rate per cum = a+b+c+d				**5,652.79**
					say	**_5652.80_**
		III. In 1:5 cement mortar				
		Unit = cum				

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Sr. No.	Ref. to MORD Spec.		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a)	**Material**				
			Bricks 1st class	Nos.	380.00	8.03	3,051.40
			Cement mortar (Rate as per sub-analysis)	cum	0.24	2,585.50	620.52
		b)	**Labour**				
			Mate	day	0.09	300.00	27.00
			Mason 1st Class	day	0.80	425.00	340.00
			Mazdoor (Unskilled)	day	1.60	300.00	480.00
			Bhisti	day	0.20	300.00	60.00
			Add for scaffolding @ 5 per cent of cost of materials and labour (a+b)				228.95
		c)	**0**				**0.00**
		d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**721.18**
			Rate per cum = a+b+c+d				**5,529.05**
						say	*5529.00*
			Sub-analysis				
			Cement mortar 1:5 (1 cement, 5 sand)				
		a)	**Material**				
			Cement	t	0.31	6,100.00	1,891.00
			Sand	cum	1.05	370.00	388.50
		b)	**Labour**				
			Mate	day	0.04	300.00	12.00
			Mazdoor (Unskilled)	day	0.90	300.00	270.00
			Bhisti	day	0.08	300.00	24.00
			Total material and labour = (a+b)				*2,585.50*
12.2	600, 1200		**Pointing with cement mortar (1:3) on brickwork as per drawing & MoRD technical specification Clauses 613.3 & 1204.** Unit = 10 sqm				
			Taking output = 10 sqm				
		a)	**Material**				
			Cement mortar 1.3 (Rate as in item 11.5.I)	cum	0.03	3,805.50	114.17
		b)	**Labour**				
			Mate	day	0.04	300.00	12.00
			Mason 1st Class	day	0.50	425.00	212.50
			Mazdoor (Unskilled)	day	0.50	300.00	150.00
			Bhisti	day	0.20	300.00	60.00
		c)	**0**				**0.00**
		d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**82.30**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per 10 sqm = (a+b+c+d)				**630.96**
		Rate per sqm = (a+b+c+d)/10				**63.10**
					say	*63.10*

Note: Scaffolding is already included in item 12.1

12.3	600, 1200	**Plastering with cement mortar (1:4) 15 mm thick on brickwork in substructure as per MoRD technical specification Clauses 613.4 & 1204.**				
		Unit = 10 sqm				
		Taking output = 10 sqm				
		a) **Material**				
		Cement mortar 1:4 (Rate as in item 11.5.II)	cum	0.24	3,012.50	723.00
		b) **Labour**				
		Mate	day	0.06	300.00	18.00
		Mason 1st Class	day	0.60	425.00	255.00
		Mazdoor (Unskilled)	day	0.60	300.00	180.00
		Bhisti	day	0.30	300.00	90.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**189.90**
		Rate per 10 sqm = (a+b+c+d)				**1,455.90**
		Rate per sqm = (a+b+c+d)/10				**145.59**
					say	*145.60*

Note: 1 *Scaffolding is already included in item 12.1*

2 *Though cement mortar of leaner mix has been included in item 12.1, for cement plaster mix of 1:4 has been proposed for better finishing*

3 *If cement plaster 12 mm or 18 mm thick is required elsewhere only the quantity of cement mortar may be changed on prorata basis without any change in the labour.*

| 12.4 | 800,900 & 1200 | **Plain/reinforced cement concrete in substructure complete including formwork as per drawings & MoRD technical specification Clauses 802, 804, 805, 806, 807, 900, 1202 & 1204. (including centering, shuttering, staging etc. but excluding reinforcement)** | | | | |

Unit = cum

I. **P.C.C grade M 15**

Same as item 11.4.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.

(i) **Nominal mix (1:2.5:5)**

Unit = cum

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.25	3,969.00	992.25
		10 mm aggregate	cum	0.11	4,040.00	444.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				591.27
		e) 0				0.00
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				975.60
		Rate per cum = a+b+c+d+e+f				7,479.60
					say	<u>*7479.60*</u>

II. P.C.C grade M 15

Same as item 11.4.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.

(ii) Nominal mix 1:2.5:5 (Hand mixing)

Unit = cum

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.25	3,969.00	992.25
		10 mm aggregate	cum	0.11	4,040.00	444.40
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 10% on (a+b)				594.95

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				981.67
		Rate per cum = a+b+c+d+e				7,526.16
					say	*7526.20*

III. P.C.C. grade M 20 (1:2:4) Nominal mix

i) Same as item 11.4.III(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.

ii) For height above 5 m up to 10 m same as item no. 11.4.III with following changes:-

  a. Add 2 percent of cost of material, labour & machinery excluding formwork to cater for extra lift.

  b. The provision of formwork shall be 12 percent instead of 4 percent of cost of material, labour and machinery.

(i) Up to 5 m height

Unit = cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	3,532.00	1,271.52
		20 mm aggregate	cum	0.36	3,969.00	1,428.84
		10 mm aggregate	cum	0.18	4,040.00	727.20
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				632.08
		e) 0				0.00
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				1,042.93
		Rate per cum = a+b+c+d+e+f				7,995.76
					say	*7995.80*

(ii) For height above 5 m upto 10 m

Unit = cum

a) Material

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	3,532.00	1,271.52
		20 mm aggregate	cum	0.36	3,969.00	1,428.84
		10 mm aggregate	cum	0.18	4,040.00	727.20
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				126.42
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				773.66
		f) 0				0.00
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				1,083.13
		Rate per cum = a+b+c+d+e+f+g				8,303.96
					say	*8304.00*

IV. P.C.C. grade M 20 (1:2:4) Hand mix

i) Same as item 11.4.III(ii) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.

ii) Same III(ii) above.

(i) Up to 5 m height

Unit = cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	3,532.00	1,271.52
		20 mm aggregate	cum	0.36	3,969.00	1,428.84
		10 mm aggregate	cum	0.18	4,040.00	727.20
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Formwork @ 10% out of material and labour (a+b)				635.76
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				1,049.00
		Rate per cum = a+b+c+d+e				8,042.31
					say	*8042.30*
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	3,532.00	1,271.52
		20 mm aggregate	cum	0.36	3,969.00	1,428.84
		10 mm aggregate	cum	0.18	4,040.00	727.20
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Add 2% of the cost of material, labour i.e. on (a+b) to cater extra lift				127.15
		d) Formwork @ 12% on cost of material & labour i.e. on (a+b)				778.17
		e) Overhead charges @ on (a+b+c+d)				0.00
		f) Contractor's profit @ on (a+b+c+d+e)				1,089.43
		Rate per cum = a+b+c+d+e+f				8,352.31
					say	*8352.30*

V. R.C.C grade M 20

i) Same as item 11.4.IV up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.

ii) For height above 5 m up to 10 m same as above except that 2 percent of cost excluding formwork is to be added for extra lift. For cost of formwork add 12 percent of cost of material, labour and machinery instead of 4 percent.

iii) For height above 10 m same as above with the following changes.

   a. Add 4 percent of cost of material, labour & machinery excluding formwork to cater for extra lift.

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b. The provision of formwork shall be 15 percent instead of 4 percent of cost of material, labour and machinery.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.35	6,100.00	2,135.00
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**665.14**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,097.47**
		Rate per cum = (a+b+c+d+e+f)				**8,413.97**
					say	*8414.00*
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.35	6,100.00	2,135.00
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				133.03
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				814.13
		f) 0				0.00
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				1,139.78
		Rate per cum = a+b+c+d+e+f+g				**8,738.29**
					say	**_8738.30_**
		(iii) For height above 10 m				
		Unit = cum				
		a) **Material**				
		Cement	t	0.35	6,100.00	2,135.00
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) **Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) **Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Add 4% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				266.05
		e) Formwork @ 15% on cost of material, labour & machinery i.e. on (a+b+c)				1,037.61
		f) 0				0.00
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				1,193.25
		Rate per cum = a+b+c+d+e+f+g				**9,148.28**
					say	**_9148.30_**

VI. R.C.C. grade M 25

i) Same as item 11.4.V up to 5 m height excluding formwork. For cost of formwork add 10 percent instead of 4.00 percent.

ii) For height above 5 m up to 10 m same as above except that 2 percent of cost excluding formwork is to be added for extra lift. For cost of formwork add 12 percent of cost of material, labour and machinery instead of 4 %.

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		iii) For height above 10 m add 4 percent of cost as above excluding formwork to cater for extra lift. For cost of formwork add 15 percent of cost of material, labour and machinery instead of 4% .				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.404	6,100.00	2,464.40
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**698.08**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,151.83**
		Rate per cum = a+b+c+d+e+f				**8,830.66**
					say	*8830.70*
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.404	6,100.00	2,464.40
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				139.62
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				854.45
		f) 0				0.00
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				1,196.22
		Rate per cum = a+b+c+d+e+f+g				**9,171.04**
					say	*9171.00*
		(iii) For height above 10 m				
		Unit = cum				
		a) **Material**				
		Cement	t	0.404	6,100.00	2,464.40
		Sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) **Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) **Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Add 4% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				279.23
		e) Formwork @ 15% on cost of material, labour & machinery i.e. on (a+b+c)				1,089.00
		f) 0				0.00
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				1,252.35
		Rate per cum = a+b+c+d+e+f+g				**9,601.34**
					say	*9601.30*
12.5	1000 & 1200	**Supplying, fitting & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in substructure complete as per drawings & MoRD technical specification Clauses 1002, 1005, 1010 and 1202.** Unit = t				
		a) **Material**				
		Twisted steel/ deformed bars including 5 per cent overlaps and wastage	t	1.05	41,020.00	43,071.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Binding wire	kg	6.00	58.00	348.00
		b) Labour for cutting, bending, shifting to site, tying, and placing in position				
		Mate	day	0.34	300.00	102.00
		Blacksmith	day	2.00	403.00	806.00
		Mazdoor (Unskilled)	day	6.50	300.00	1,950.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**6,941.55**
		Rate per t = a+b+c+d				**53,218.55**
					say	***53218.60***
12.6	1000 & 1200	**Supplying, fitting & placing with MS bar reinforcement in substructure complete as per drawings & MoRD technical specification Clauses 1002, 1005, 1010 and 1202.** Unit = t				
		a) Material				
		MS bars including 5 per cent overlaps and wastage	t	1.05	40,320.00	42,336.00
		Binding wire	kg	6.00	58.00	348.00
		b) Labour for cutting, bending, shifting to site, tying, and placing in position				
		Mate	day	0.34	300.00	102.00
		Blacksmith	day	2.00	403.00	806.00
		Mazdoor (Unskilled)	day	6.50	300.00	1,950.00
		c) Overheads @ 20% on (a+b)				**0.00**
		d) Contractor's profit @ 10% on (a+b+c)				**6,831.30**
		Rate per t = a+b+c+d				**52,373.30**
					say	***52373.30***
12.7	600,700 & 1200	**Providing weepholes in brick masonry / stone masonry, plain/ reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe or uPVC pipe (110 mm OD of 6.0 Kg/cm² pressure) extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and MoRD technical specification clauses 614, 709, 1204.3.7.** Unit = Mtr Taking output = 30 Mtr				
		a) Material				
		AC pipe / uPVC pipe (6.00 kg/cm2) 100 mm dia including wastage @ 5 per cent. Average length of each weep hole is taken as one metre for the analysis.	m	31.50	162.70	5,125.05
		MS clamps (assume total 30 nos weep hole)	Nos.	30.00	38.00	1,140.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement mortar 1:4 (For rate refer to item 11.5 II)	cum	0.05	3,012.50	150.63
		b) **Labour**				
		Mate	day	0.03	300.00	9.00
		Mason 1st Class	day	0.50	425.00	212.50
		Mazdoor (Unskilled)	day	0.25	300.00	75.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**1,006.83**
		Cost for 30 Mtr = (a+b+c+d)				7,719.00
		Rate per Mtr = (a+b+c+d)/30				**257.30**
					say	*257.30*

12.8 | **1200** | **Backfilling behind abutment, wing wall & return wall complete as per drawings & MoRD technical specification Clause 1204.3.8.**
Unit = cum

Taking output = 10 cum

l) **Sandy material**

Unit = cum

Taking output = 10 cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) **Material**				
		Sand (local quarry)	cum	12.00	300.00	3,600.00
		b) **Labour**				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		Bhisti	day	0.40	300.00	120.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**1,026.00**
		Cost for 10 cum of sand backfill = a+b+c+d				7,866.00
		Rate per cum = (a+b+c+d)/10				**786.60**
					say	*786.60*

12.9 | **1200** | **Providing & laying filter media with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil & bigger size towards the wall & providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and MoRD technical specification clause 1204.3.8.**

Unit = cum

Taking output = 10 cum

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) **Material**				
		Filter media as per specification	cum	12.00	2,763.00	33,156.00
		b) **Labour**				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	1.00	380.00	380.00
		Bhisti	day	0.50	300.00	150.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**5,475.90**
		Cost for 10 cum of filter media = a+b+c+d				41,981.90
		Rate per cum = (a+b+c+d)/10				**4,198.19**
					say	*4198.20*
12.10	1200	**Supplying, fitting & fixing in position true to line & level elastomeric bearing conforming to IRC:83 (Part-II) Section IX complete including all accessories as per drawings & MoRD technical specification Clause 1207.1.**				
		Unit = cubic centimetre				
		Considering an elastomeric bearing of size 500 x 400 x 96 mm for this analysis,				
		Overall volume = 19200 cu.cm				
		Volume of 6 Nos 488x388x4 mm size reinforcing steel plates = 4545 cu.cm.				
		Hence volume of elastomer = 14655 cu. cm.				
		a) **Labour**				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		Mazdoor Skilled	day	0.50	380.00	190.00
		b) **Material**				
		Elastomeric bearing assembly consisting of 7 internal layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation, complete with all components as per drawing and technical specification	cubic centimetre	19,200	1.03	19,776.00
		Add for anchorage bolts if required and consumables @ 1 per cent on (a+b)				**202.84**
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**3,073.03**
		Cost for 19200 cu.cm. of elastomeric bearing = a+b+c+d				23,559.87
		Rate per cu.cm of elastomeric bearing = (a+b+c+d)/19200				**1.23**
					say	*1.20*

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Note: *For such type of manufactured item, the overhead cost is taken as 30 per cent instead of 20 per cent.*

12.11 | **600, 700, 1200** | **Providing PCC M 20 architectural coping on the top of wing wall, return wall etc. complete including formwork as per drawing & MoRD technical specification Clauses 615, 710 & 1204.3.11.**

Unit = Running m

Taking output = 1 m

Assume wall thickness = 345 mm

Projection of the coping will be 25 mm wide on both side of the wall = 345 + 50 = 395 mm

Quantity = 1 x 0.395 x 0.150 = 0.059

a) PCC M-20 Grade (1:2:4) Nominal Mix

		As per item No. 12.5 (III)(i)	cum	0.059	7,995.80	471.75
		Add 10 per cent extra of cost of (a) being architectural coping				47.18
		Cost of 1 m = a				518.93
		Rate per m = a				**518.93**
					say	*518.90*

12.12 | **1200** | **Providing pressure relief pipes 100 mm dia in bottom slab of box cell on a filter media base of 500 mm x 500 mm as per drawing & MoRD technical specification Clause 1205.5.7.**

Unit = Nos

		a) **Material**				
		AC pipe 100 mm dia i/c wastage of 5 per cent 600 mm long upto the bottom of levelling course	m	0.63	162.70	102.50
		Filter media base with stone aggregate 0.5 m x 0.5 m area 1 m deep	cum	0.25	2,763.00	690.75
		b) **Labour**				
		Mate	day	0.031	300.00	9.30
		Mason 1st Class	day	0.016	425.00	6.80
		Mazdoor (Unskilled)	day	0.80	300.00	240.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**157.40**
		Rate per No = (a+b+c+d)				**1,206.75**
					say	*1206.80*

ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
12.13	1200	**Providing & laying filter media with jhama brick aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil & bigger size towards the wall & providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and MoRD technical specification clause 1204.3.8.**				
		Unit = cum				
		Taking output = 10 cum				
		a) Material				
		Filter media as per specification	cum	12.00	1,993.00	23,916.00
		b) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Unskilled)	day	9.00	300.00	2,700.00
		Mazdoor (Skilled)	day	1.00	380.00	380.00
		Bhisti	day	0.50	300.00	150.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**4,089.90**
		Cost for 10 cum of filter media = a+b+c+d				31,355.90
		Rate per cum = (a+b+c+d)/10				**3,135.59**
					say	*3135.60*
12.14	800,900 & 1200	**Plain cement concrete(using jhama brick aggregate) in substructure complete including formwork as per drawings & MoRD technical specification Clauses 802, 804, 805, 806, 807, 900, 1202 & 1204 (including centering, shuttering, staging etc. but excluding reinforcement)**				
		Unit = cum				
		I. P.C.C grade M 15 (1:2.5:5 Nominal mix)				
		Same as item 11.9.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) Material				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	2,550.00	1,377.00
		20 mm aggregate	cum	0.25	2,975.00	743.75
		10 mm aggregate	cum	0.11	3,110.00	342.10

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				503.17
		e) 0				0.00
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				830.22
		Rate per cum = a+b+c+d+e+f				6,365.04
					say	*6365.00*

II. P.C.C grade M 15

Same as item 11.9.II(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.

(ii) Nominal mix 1:2.5:5 (Hand mixing)

Unit = cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.275	6,100.00	1,677.50
		Sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	2,550.00	1,377.00
		20 mm aggregate	cum	0.25	2,975.00	743.75
		10 mm aggregate	cum	0.11	3,110.00	342.10
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 10% on (a+b)				506.85
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				836.29
		Rate per cum = a+b+c+d+e				6,411.59
					say	*6411.60*

III. P.C.C. grade M 20 (1:2:4) Nominal mix

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		i) Same as item 11.9.III(i) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material, labour & machinery.				
		ii) For height above 5 m up to 10 m same as item no. 11.9.III with following changes:-				
		a. Add 2 percent of cost of material, labour & machinery excluding formwork to cater for extra lift.				
		b. The provision of formwork shall be 12 percent instead of 4 percent of cost of material, labour and machinery.				
		(i) Up to 5 m height				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	2,550.00	918.00
		20 mm aggregate	cum	0.36	2,975.00	1,071.00
		10 mm aggregate	cum	0.18	3,110.00	559.80
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Formwork @ 10% on cost of material, labour and machinery (a+b+c)				**544.20**
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**897.93**
		Rate per cum = a+b+c+d+e+f				**6,884.13**
					say	*6884.10*
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	2,550.00	918.00
		20 mm aggregate	cum	0.36	2,975.00	1,071.00
		10 mm aggregate	cum	0.18	3,110.00	559.80

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) Add 2% of the cost of material, labour and machinery i.e. on (a+b+c) to cater extra lift				108.84
		e) Formwork @ 12% on cost of material, labour & machinery i.e. on (a+b+c)				666.10
		f) 0				0.00
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				932.54
		Rate per cum = a+b+c+d+e+f+g				7,149.48
					say	*7149.50*

IV. P.C.C. grade M 20 (1:2:4) Hand mix

    i) Same as item 11.9.III(ii) up to 5 m height except for formwork which shall be 10 percent instead of 4 percent of cost of material & labour.

    ii) Same III(ii) above.

  (i) Up to 5 m height

    Unit = cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	2,550.00	918.00
		20 mm aggregate	cum	0.36	2,975.00	1,071.00
		10 mm aggregate	cum	0.18	3,110.00	559.80
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 10% out of material and labour (a+b)				547.88
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				904.00
		Rate per cum = a+b+c+d+e				6,930.68

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*6930.70*
		(ii) For height above 5 m upto 10 m				
		Unit = cum				
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Sand	cum	0.45	370.00	166.50
		40 mm aggregate	cum	0.36	2,550.00	918.00
		20 mm aggregate	cum	0.36	2,975.00	1,071.00
		10 mm aggregate	cum	0.18	3,110.00	559.80
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Add 2% of the cost of material, labour i.e. on (a+b) to cater extra lift				**109.58**
		d) Formwork @ 12% on cost of material & labour i.e. on (a+b)				**670.61**
		e) Overhead charges @ on (a+b+c+d)				**0.00**
		f) Contractor's profit @ on (a+b+c+d+e)				**938.85**
		Rate per cum = a+b+c+d+e+f				**7,197.83**
					say	*7197.80*
12.15	600, 700, 1200	**Providing PCC M 20 (with jhama brick aggregate) architectural coping on the top of wing wall, return wall etc. complete including formwork as per drawing & MoRD technical specification Clauses 615, 710 & 1204.3.11.**				
		Unit = Running m				
		Taking output = 1 m				
		Assume wall thickness = 345 mm				
		Projection of the coping will be 25 mm wide on both side of the wall = 345 + 50 = 395 mm				
		Quantity = 1 x 0.395 x 0.150 = 0.059				
		a) PCC M-20 Grade (1:2:4) Nominal Mix				
		As per item No. 12.14 (III)(i)	cum	0.059	6,884.10	406.16
		Add 10 per cent extra of cost of (a) being architectural coping				40.62
		Cost of 1 m = a				446.78
		Rate per m = a				**446.78**
					say	*446.80*

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SUBSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
12.16	1600, 1200	**Plastering with cement mortar (1:4) 12 mm thick on brickwork / C.C. work including a finishing coat of neat cement punning with 2.75 Kg of cement per sqm in substructure as per MoRD technical specification Clauses 613.4 & 1204.**				
		Unit = sqm				
		Taking output = 10 sqm				
		a) Material				
		Cement mortar				
		(Rate as in sub-analysis of item 11.5 II)	cum	0.192	3,012.50	578.40
		Cement for neat cement punning	t	0.028	6,100.00	170.80
		b) Labour				
		Mate	day	0.06	300.00	18.00
		Mason 1st Class	day	0.60	425.00	255.00
		Mazdoor (Unskilled)	day	0.60	300.00	180.00
		Bhisti	day	0.30	300.00	90.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**193.83**
		Rate for 10 sqm = a+b+c+d				**1,486.03**
		Rate per sqm = (a+b+c+d)/ 10				**148.60**
					say	_148.60_

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SUPERSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
13.1	800, 900, 1200	**Providing & laying reinforced cement concrete in superstructure as per drawings & MoRD technical specifications Clauses 800, 900, 1205.4 & 1205.5 (including centering, shuttering, staging etc. but excluding reinforcement).**				
		I. R.C.C grade M 20				
		(i) For nominal mix 1:2:4				
		Unit = cum				
		a) Material				
		Cement	t	0.35	6,100.00	2,135.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	40.00
		d) Add for formwork and staging				
		Height upto 5 m @ 20% of (a+b+c)				1,322.83
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,190.55**
		Rate per cum = a+b+c+d+e+f				**9,127.54**
					say	*9127.50*
		(ii) For nominal mix 1:2:4 (Hand mixed)				
		1. For height up to 5 m				
		Unit = cum				
		a) Material				
		Cement	t	0.35	6,100.00	2,135.00
		Fine sand	cum	0.45	370.00	166.50
		20 cum aggregates	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00

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SUPERSTRUCTURE

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Bhisti	day	0.27	300.00	81.00
		c) For formwork and staging add @ 20.00 % of (a+b)				1,329.93
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**1,196.94**
		Rate per cum = a+b+c+d+e				**9,176.53**
					say	*9176.50*

2. For height from 5 m to 10 m

Unit = cum

a) Material

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.35	6,100.00	2,135.00
		Fine sand	cum	0.45	370.00	166.50
		20 cum aggregates	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40

b) Labour

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) For formwork and staging add @ 25.00 % of (a+b)				1,662.42
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**1,246.81**
		Rate per cum = a+b+c+d+e				**9,558.89**
					say	*9558.90*

3. For height above 10 m

Unit = cum

a) Material

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.35	6,100.00	2,135.00
		Fine sand	cum	0.45	370.00	166.50
		20 cum aggregates	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40

b) Labour

		Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) For formwork and staging add @ 30.00 % of (a+b)				1,994.90

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) Overhead charges @ on (a+b+c)				**0.00**
		e) Contractor's profit @ on (a+b+c+d)				**1,296.68**
		Rate per cum = a+b+c+d+e				**9,941.24**
					say	_9941.20_

Note: *For formwork and staging add the following percentage on labour and material*
Height up to 50 m   @ 20 %
Height from 5 m to 10 m @ 25 %
Height above 10 m   @ 30 %

(iii) For design mix RCC M 20

1. For height up to 5 m

Unit = cum

		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
				Sub-Total =	*6529.36*	
		d) For formwork and staging add @ 20.00 % of (a+b+c)				1,305.87
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,175.28**
		Rate per cum = a+b+c+d+e+f				**9,010.52**
					say	_9010.50_
		Sub-Analysis (Excluding formwork)				
		Sub-Total			*6529.36*	
		0			*0*	
		Contractor's profit and overheads @ 15 % on sub-total			*979.404*	
		Rate per cum = a+b+c+d+e+f			*7508.76*	

2. For height from 5 m to 10 m

Unit = cum

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) For formwork and staging add @ 25.00 % of (a+b+c)				1,632.34
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,224.26**
		Rate per cum = a+b+c+d+e+f				**9,385.96**
					say	*9386.00*

3. For height above 10 m

Unit = cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.33	6,100.00	2,013.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) For formwork and staging add @ 30.00 % of (a+b+c)				1,958.81
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,273.23**
		Rate per cum = a+b+c+d+e+f				**9,761.39**
					say	*9761.40*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Note: For formwork and staging add the following percentage on labour and material *Height up to 50 m @ 20 %* *Height from 5 m to 10 m @ 25 %* *Height above 10 m @ 30 %*				
		II. R.C.C M 25				
		1. For height up to 5 m				
		Unit =cum				
		a) Material				
		Cement	t	0.40	6,100.00	2,440.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
				Sub-Total =	6956.36	
		d) For formwork and staging add @ 20.00 % of (a+b+c)				1,391.27
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				1,252.14
		Rate per cum = a+b+c+d+e+f				**9,599.78**
					say	9599.80
		Sub-Analysis (Excluding formwork)				
		Sub-Total				*6956.36*
		0				*0*
		Contractor's profit and overheads @ 15 % on sub-total				*1043.454*
		Rate per cum = a+b+c+d+e+f				*7999.81*
		2. For height from 5 m to 10 m				
		Unit =cum				
		a) Material				
		Cement	t	0.40	6,100.00	2,440.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) For formwork and staging add @ 25.00 % of (a+b+c)				1,739.09
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,304.32**
		Rate per cum = a+b+c+d+e+f				**9,999.77**
					say	*9999.80*

3. For height above 10 m

Unit =cum

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.40	6,100.00	2,440.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
		d) For formwork and staging add @ 30.00 % of (a+b+c)				2,086.91
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,356.49**
		Rate per cum = a+b+c+d+e+f				**10,399.76**
					say	*10399.80*

Note: *For formwork and staging add the following percentage on labour and material*
Height up to 50 m @ 20 %
Height from 5 m to 10 m @ 25 %
Height above 10 m @ 30 %

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		III. R.C.C. Grade M 30				
		1. For height up to 5 m				
		Unit =cum				
		a) Material				
		Cement	t	0.43	6,100.00	2,623.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
				Sub-Total =		**7139.36**
		d) For formwork and staging add @ 20.00 % of (a+b+c)				1,427.87
		e) 0				**0.00**
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				**1,285.08**
		Rate per cum = a+b+c+d+e+f				**9,852.32**
					say	9852.30
		Sub-Analysis (Excluding formwork)				
		Sub-Total				*7139.36*
		0				*0*
		Contractor's profit and overheads @ 15 % on sub-total				*1070.904*
		Rate per cum = a+b+c+d+e+f				*8210.26*
		2. For height from 5 m to 10 m				
		Unit =cum				
		a) Material				
		Cement	t	0.43	6,100.00	2,623.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
	d)	**For formwork and staging add @ 25.00 % of (a+b+c)**				1,784.84
	e)	**0**				**0.00**
	f)	**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**1,338.63**
		Rate per cum = a+b+c+d+e+f				**10,262.83**
					say	_10262.80_

3. For height above 10 m

Unit =cum

	a)	**Material**				
		Cement	t	0.43	6,100.00	2,623.00
		Fine sand	cum	0.45	370.00	166.50
		20 mm aggregate	cum	0.54	3,969.00	2,143.26
		10 mm aggregate	cum	0.36	4,040.00	1,454.40
	b)	**Labour**				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.12	425.00	51.00
		Mazdoor (Unskilled)	day	1.73	300.00	519.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
	d)	**For formwork and staging add @ 30.00 % of (a+b+c)**				2,141.81
	e)	**0**				**0.00**
	f)	**Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				**1,392.18**
		Rate per cum = a+b+c+d+e+f				**10,673.34**
					say	_10673.30_

Note: *For formwork and staging add the following percentage on labour and material*
Height up to 50 m   @ 20 %
Height from 5 m to 10 m @ 25 %
Height above 10 m   @ 30 %

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Note: *1* *Quantity of cement provided for various components of the superstructure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly quantity for corase and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design. Use of design mix in place of nominal mix of concrete of M 20 and higher grader shall be prepared. Nominal mix of grades M 20 and M 25 is to be used with adequate supervision and quality control requirements as per technical specification Clause 803.*				
		2 *For higher grades like M 25 and M 30, if adopted, design mix is recommended.*				
		3 ***Sand can be either coarse or fine as required/ available. Here, provision of fine sand is considered only due to non-availability of coarse sand in Tripura. However, design of concrete dictates for use of coarse sand, then separate analysis may be taken as per site condition.***				
13.2	**1000, 1200**	**Supplying, fitting, & placing Thermo-Mechanically treated bar/ Cold twisted deformed steel bar reinforcement in superstructure complete as per drawing & MoRD technical specifications Clauses 1002, 1010 & 1202.**				
		Unit = t				
		a) **Material**				
		Twisted steel/ deformed bars including 5 per cent for laps and wastage	t	1.05	41,020.00	43,071.00
		Binding wire	kg	8.00	58.00	464.00
		b) **Labour for cutting, bending, tying and placing in position**				
		Mate	day	0.44	300.00	132.00
		Blacksmith	day	3.00	403.00	1,209.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**7,091.40**
		Rate per t = a+b+c+d				**54,367.40**
					say	*54367.40*
13.3	**1000, 1200**	**Supplying, fitting, & placing MS bar reinforcement in superstructure complete as per drawing & MoRD technical specifications Clauses 1002, 1010 & 1202.**				
		Unit = t				
		a) **Material**				
		MS bars including 5 per cent for laps and wastage	t	1.05	40,320.00	42,336.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Binding wire	kg	8.00	58.00	464.00
		b) Labour for cutting, bending, tying and placing in position				
		Mate	day	0.44	300.00	132.00
		Blacksmith	day	3.00	403.00	1,209.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**6,981.15**
		Rate per t = a+b+c+d				**53,522.15**
					say	*53522.20*
13.4	800, 1200	**Providing and laying cement concrete wearing course M 30 grade including reinforcement complete as per drawings & MoRD technical specifications Clauses 800 & 1206.3 (including centering, shuttering, staging etc. and reinforcement)**				
		Unit = cum				
		a) Material				
		i) Cement concrete M 30 grade (refer relevant item of concrete in item 13.1.III excluding forwork.	Cum	1.00	8,210.26	8,210.26
		ii) Steel reinforcement (rate as per item 13.2)	t	0.075	54,367.40	4,077.56
		b) Formwork @ 3.00 % of cost of (a)				368.63
		c) Mazdoor (Unskilled) for clearing deck slab concrete s	day	0.15	300.00	45.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (b+c+d)				62.05
		Rate per cum = a+b+c+d+e				**12,763.50**
					say	*12763.50*
13.5	800, 900, 1200	**Construction of R.C.C railing of M 25 grade in cast-in-situ with 20 mm nominal size aggregate, true to line & grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm including reinforcement as per drawing and MoRD technical specifications Clauses 800, 900 and 1208.3 (including centering, shuttering, staging etc. and reinforcement).**				

Unit = Runing m
Taking output = 4x12 m

Span = 48 m

    a) Material

    i) M 25 grade R.C.C.

    No. of vertical posts = (6+1) 4 = 28 nos

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cross-sectional area of vertical post = 0.25x0.275 = 0.069 sqm				
		Concrete in vertical posts = 0.069 x28x1.00 = 1.932 cum				
		Hand rail in 3 tiers = 3x48 = 144 m				
		Cross-sectional area = 0.17x0.175 = 0.03 sqm				
		Concrete in hand rails = 0.03 x 144 = 4.32 cum				
		Total concrete = 1.932+4.32 = 6.252 cum	cum	6.252	7,999.81	50,014.84
		(rate as per item 13.1(II) except cost of formwork)				
		Ad 12.00 % of above for cost of formwork				6,001.78
		ii) Steel reinforcement (Rate as per item 13.2)	t	1.36	54,367.40	73,939.66
		Cost for 48 m = (a)				129,956.28
		Rate per m = (a)/48				**2,707.42**
					say	*2707.40*

Note:
1. *48 m length is the total linear length adding both sides of 2x12 m span*
2. *Quantities of material have been adopted from standard plans of MORTH vide drawing No SD/202*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
13.6	**1200**	**Providing, fitting & fixing mild steel railling complete as per drawing & MoRD technical specifications clause 1208.2.**				
		Unit = Runing m				
		Taking output = 100 m				
		a) Material				
		1) IS MC 100=2.806x1.05=2.946 t	t	2.946	42,670.00	125,705.82
		2) MS Flats = 0.964x1.05 =1.012 t	t	1.012	42,670.00	43,182.04
		3) MS bars = 0.17x1.05=0.18 t	t	0.18	40,320.00	7,257.60
		4) MS bolts, nuts and washers	t	0.15	80,350.00	12,052.50
		b) Labour				
		Mate	day	2.80	300.00	840.00
		Blacksmith	day	30.00	403.00	12,090.00
		Mazdoor (Unskilled)	day	40.00	300.00	12,000.00
		c) Add 5 per cent of (a) for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables				**9,409.90**
		d) Add for cost of concrete for fixing vertical post in the preformed recess @ 1 per cent of (a)				**1,881.98**
		e) Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of (a)				**1,881.98**
		f) 0				**0.00**

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		g) Contractor's profit and overheads @ 15 % on (a+b+c+d+e+f)				33,945.27
		Rate per m = (a+b+c+d+e+f+g)/100				2,602.47
					say	*2602.50*

Note: *A typical drawing for MS railing has been followed for estimate purpose. Rate may be worked out as per design to be followed*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
13.7	1200	**Providing & fixing in position pipe railling consisting of IS Rolled steel joist posts designation IS MB 100 (100 x 75) at 2.5 m interval & three rows of 50 mm dia steel pipes (light) including fixing in position on bridge deck complete as per drawing and MoRD technical specifications Clause 1208.2.**				
		Unit = Running m				
		Taking output = 2 x 10 m = 20 m				
		a) **Material**				
		i) Steel posts IS MB 100 (100 x 75)	t	0.13	42,670.00	5,547.10
		5 x 2 x 11.5 x 1.1 x 1.05 = 130 kg				
		ii) 50 mm dia steel pipes	t	0.257	51,250.00	13,173.30
		20 x 3x 4.08 x 1.05 = 257.04 kg				
		iii) M.S Bolts, nuts and washers	t	0.05	80,350.00	4,017.50
		Add @ 5 per cent of (a) for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables				1,136.90
		Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of (a)				227.38
		b) **Labour**				
		Mate	day	0.56	300.00	168.00
		Blacksmith	day	6.00	403.00	2,418.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**4,363.23**
		Cost for 20 m steel railing = a+b+c+d				33,451.40
		Rate per metre = (a+b+c+d)/20				**1,672.57**
					say	*1672.60*
13.8	600, 900, 1200	**Brick masonry work in cement mortar 1:3 in parapet excluding pointing & plastering as per drawing & plastering as per drawing & MoRD technical specifications Clauses 600, 900 & 1208.4.**				
		Rate same as in item 12.1 (I)	cum	1.00	5,882.60	5,882.60

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
					say	*5882.60*
13.9	1200	**Providing and fixing in position Drainage spouts complete as per drawing & MoRD technical specifications Clause 1209.**				
		Unit = 1 No				
		a) **Material**				
		i) Corrosion resistant structural steel grating including 5 per cent wastage	kg	4.00	68.32	273.28
		ii) G I pipe 100 mm dia (medium)	m	1.00	930.00	930.00
		b) **Labour**				
		For fabrication				
		Mate	day	0.02	300.00	6.00
		Blacksmith, Welder etc. (Skilled)	day	0.02	403.00	8.06
		Mazdoor (Unskilled)	day	0.20	300.00	60.00
		For fixing in position				
		Mate	day	0.01	300.00	3.00
		Mason (1st Class)	day	0.01	425.00	4.25
		Mazdoor (Unskilled)	day	0.20	300.00	60.00
		Add @ 5 per cent of cost of material and labour (a+b) for electrodes, gas cutting, sealant, anti-corrrosive bituminous paint, mild steel grating etc.				67.23
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**211.77**
		Rate per no = a+b+c+d				**1,623.59**
					say	*1623.60*
13.10	800, 1200	**P.C.C. M 15 oridinary grade (1:2.5:5) levelling course below approach slab complete as per drawing & MoRD technical specifications Clauses 800 and 1211 (including centering, shuttering, staging etc. but excuding reinforcement)**				
		I **P.C.C Grade M15**				
		(i) Nominal mix (1:2.5:5)				
		Unit = cum				
		a) **Material**				
		Cement	t	0.275	6,100.00	1,677.50
		Fine sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.24	3,969.00	952.56
		10 mm aggregate	cum	0.12	4,040.00	484.80
		b) **Labour**				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.08	300.00	24.00
		Mason (1st Class0	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
	c)	**Machinery**				
		Concrete mixer 0.4/0.28 cum capacity	hour	0.40	193.00	77.20
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**887.02**
		Rate per cum = a+b+c+d+e+f				**6,800.46**
					say	*6800.50*
	(ii)	**Nominal mix 1:2.5:5 (Hand mixing)**				
		Unit = cum				
	a)	**Material**				
		Cement	t	0.275	6,100.00	1,677.50
		Fine sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.54	3,532.00	1,907.28
		20 mm aggregate	cum	0.24	3,969.00	952.56
		10 mm aggregate	cum	0.12	4,040.00	484.80
	b)	**Labour**				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**892.54**
		Rate per cum = a+b+c+d				**6,842.78**
					say	*6842.80*
13.11	**800, 1200**	**Reinforced Cement Concrete M 25 grade approach slab including reinforcement & formwork complete as per drawing & MoRD technical specifications Clauses 800 & 1211 (including centering, shuttering, staging etc. and reinforcement)**				
		Unit = cum				
	a)	**Material**				
		Reinforced cement concrete M 25 grade				
		Rate as per Item 13.1 II	cum	1.00	9,599.80	9,599.80
		steel reinforcement				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate as per item 13.2	t	0.05	54,367.40	2,718.37
		Rate per cum = (a)				**12,318.17**
					say	_12318.20_
13.12	1200, 500	**Providing bituminous wearing coat comprising of 20 mm thick premix carpet with seal coat Type B for culverts as per drawing & MoRD technical specifications Clauses 1206.2 and 500.**				
		i. Rate for wearing coat as per item No. 5.8 of Chapter 5	sqm	1.00	215.90	215.90
		ii. Rate for seal coat Type B as per item No. 5.11 of Chapter 5	sqm	1.00	55.90	55.90
		Rate per sqm = (i+ ii)				**271.80**
					say	_271.80_

> **Note:** *This type of wearing coat may be adopted where a cushion is provided over the culvert and the adjoining road pavement is continued over it.*

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
14.1	1300	**Providing and laying of apron with cement concrete blocks of size as per Table 1300.1 cast-in-situ and made with nominal mix of M-15 grade cement concrete as per drawing and MoRD technical specification Clause 1301(rate includes preparation of bed, nominal surface re-inforcement and filling of granular material in recesses between blocks).**				
		Unit = cum				
		a) Concrete grade M 15				
		(Rate as per item No 11.4 II (i)	cum	1.00	7,071.60	7,071.60
		Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between				141.43
		Rate per cum = (a)				**7,213.03**
					say	*7213.00*
14.2	1300	**Single bamboo palasiding/walling of whole 2ⁿᵈ class bamboo (Jati or Bethua) 65 to 75 mm dia and closely packed & driven @ 150 mm c/c including fitting fixing with half bamboo kamis horizontally in three rows with cane or tying with wire complete and struts 1.5 m apart longitudinally and providing bitumen drum sheet walling fixed with nails as per drawing and MoRD technical specification Clause 1302.5.**				
		A) Driven at least 900 mm below ground and 1200 mm above ground Unit = Running metre				
		Taking Output = 3.00 metre				
		a) Materials				
		2nd Class Bamboo 65 mm to 75 mm dia, (1.2 m to 3.0 m)	m	52.80	15.45	815.76
		Bitumen drum sheet with nails	sqm	3.60	300.00	1,080.00
		Binding Wire (G.I 2mm)	kg	0.15	64.00	9.60
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) Sundries (LS) @ 1.00 % of (a+b)	LS			**22.17**
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**335.93**
		Cost for 3 metre = a+b+c+d+e				**2,575.46**
		Rate per metre = (a+b+c+d+e) / 3.00				**858.49**
					say	*858.50*
		B) Driven at least 900 mm below ground and 900 mm above ground on average				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Materials				
		2nd Class Bamboo 65 mm to 75 mm dia, (1.2 m to 3.0 m)	m	46.80	15.45	723.06
		Bitumen drum sheet with nails	sqm	3.60	300.00	1,080.00
		Binding Wire (G.I 2mm)	kg	0.15	64.00	9.60
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) Sundries (LS) @ 1.00 % of (a+b)	LS			**21.25**
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**321.89**
		Cost for 3 m = a+b+c+d+e				**2,467.79**
		Rate per m = (a+b+c+d+e) / 3.00				**822.60**
					say	*822.60*
14.3	1300	**Providing and laying flooring laid over cement concrete bedding complete as per drawing and MoRD technical specification Clause 1303.**				
		I. Cement concrete blocks cast in situ grade M15 (size 400 mm x 400 mm x 150 mm) over cement concrete (with M10) bedding of 150 mm thick				
		Unit = Sqm				
		Taking Output = 21.00 sqm				
		a) Cement concrete blocks grade M 15 Rate as per item 11.4 (II) (i)	cum	3.12	7,071.60	22,063.39
		using 400 mm x 400 mm x 150 mm blocks				
		Add for cement concrete bedding M10 Rate as per item 11.4 (I) (i)	cum	3.15	6,890.10	21,703.82
		Add 1 per cent of cost to account for excavation for preparation of bed.				437.67
		Cost for 21 sqm =				**44,204.88**
		Rate per sqm = (a) / 21				**2,104.99**
					say	*2105.00*
		II. Brick on edge laid in cement mortar (1:3)				
		Unit=cum				
		a) Material				
		Bricks	Nos	380.00	8.03	3,051.40
		Cement mortar (1:3) [(Rate as in item 11.5 (i)]	cum	0.15	3,805.50	570.83
		Cement mortar bedding (1:5) [(Rate as in item 12	cum	0.25	2,585.50	646.38
		b. Labour				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.10	300.00	30.00
		Mason 1st Class	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	60.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**776.79**
		Rate per cum = a+b+c+d				**5,955.39**
					say	**_5955.40_**

Note: Labour cost includes labour required for trimming of slope to proper profile and preparation of bed.

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
14.4	**1300**	**Providing and laying curtain walls complete as per drawing and MoRD technical specification Clause 1304.**				
		Unit = cum				
		I. Brick masonry in cement mortar (1:4)				
		(Rate same as per item 12.I (II))	cum	1.00	5,652.80	5,652.80
		II. Cement concrete grade M 10				
		(Rate same as per item 11.4 I (i))	cum	1.00	6,890.10	6,890.10

Note: 1 Other items like excavation for foundation, filling behind wall, filter media, weep holes, etc. shall be added separately as per approved design.

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
14.5	**1300**	**Construction of toe walls for protection of slopes as per Drawing and MoRD technical specifications Clause 1302.5 (including centering, shuttering staging etc. but excluding reinforcement)**				
		I. Brick masonry in cement mortar 1:4 in case of brick pitching				
		Unit = cum				
		a) Material				
		Brick	Nos.	380.00	8.03	3,051.40
		Cement mortar 1:4	cum	0.24	3,012.50	723.00
		Rates as per sub-analysis below				
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.80	425.00	340.00
		Mazdoor (Unskilled)	day	1.60	300.00	480.00
		Bhisti	day	0.20	300.00	60.00
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**702.21**
		Rate per cum = a+b+c				**5,383.61**
					say	**_5383.60_**

Sub-analysis

Cement mortar 1:4 (1 cement : 4 sand)

Unit = cum

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Material				
		Cement	t	0.38	6,100.00	2,318.00
		Sand	cum	1.05	370.00	388.50
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	0.90	300.00	270.00
		Bhisti	day	0.08	300.00	24.00
		Total material and labour = (a+b)				**3,012.50**

II. Cement concrete grade M 10 in case of concrete block pitching

Unit = cum

I. P.C.C grade M 20

(i) Nominal mix 1:3:6

Unit = cum

a) Material

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.250	6,100.00	1,525.00
		Fine sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.576	3,532.00	2,034.43
		20 mm aggregate	cum	0.288	3,969.00	1,143.07
		10 mm aggregate	cum	0.096	4,040.00	387.84

b) Labour

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00

c) Machinery

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	193.00	77.20
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				239.27
		e) 0				0.00
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				933.14
		Rate per cum = a+b+c+d+e+f				**7,154.05**
					say	*7154.00*

(ii) Nominal mix 1:3:6 (Hand mixing)

Unit = cum

a) Material

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cement	t	0.250	6,100.00	1,525.00
		Fine sand	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.576	3,532.00	2,034.43
		20 mm aggregate	cum	0.288	3,969.00	1,143.07
		10 mm aggregate	cum	0.096	4,040.00	387.84
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 4% on cost of material, labour and machinery (a+b)				240.74
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				938.88
		Rate per cum = a+b+c+d+e				**7,198.06**
					say	*7198.10*

14.6 1300 Single bamboo spur and palasiding of whole 2nd class bamboo (Jati or Bethua) 65 mm to 75 mm dia @ 150 mm c/c and closely packed & driven including fitting fixing with half bamboo kamis horizontally in three rows with cane or tying wire complete and struts 1500 mm apart longitudinally and providing brush wood as per drawing and technical specification Clause 1302.5.

A) Driven at least 900 mm below ground and 1800 mm above ground on average

Unit = Running metre
Taking output = 3.00 metre

		Description	Unit	Quantity	Rate	Amount
		a) Materials				
		2nd class bamboo (65 mm to 75 mm dia 3 m long	m	64.80	15.45	1,001.16
		Binding wire	Kg.	0.15	64.00	9.60
		Brush Wood (LS) @ 1.50 %				15.16
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) Sundries (LS) @ 1.00 % of (a)				10.26
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				202.23
		Cost for 3 metre = a+b+c+d+e				**1,550.41**

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Rate per metre = (a+b+c+d+e)/3				**516.80**
					say	*516.80*
		B) Driven at least 900 mm below ground and 900 mm above ground on average				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		2nd class bamboo (65 mm to 75 mm dia 3 m long)	m	46.80	15.45	723.06
		Binding wire	Kg.	0.15	64.00	9.60
		Brush Wood (LS) @ 0.75 %				5.49
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) Sundries (LS) @ 1.50 % of (a)				11.07
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**159.18**
		Cost for 3.00 metre = a+b+c+d+e				1,220.41
		Rate per metre = (a+b+c+d+e)/3				**406.80**
					say	*406.80*
14.7	Suggestive	**Single bamboo spur and palasiding of whole 1st class bamboo (Bholuka or Barua or barak) 85 mm to 100 mm dia and closely packed & driven @ 150 mm c/c including fitting, fixing with half 2nd class bamboo (Jati or Bethua) horizontally in three rows with cane or tying wire complete and struts 1500 mm apart longitudinally and providing brush wood as per drawings and technical specifications.**				
		A) Driven at least 900 mm below ground and 1800 mm above ground				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85 mm - 100 mm dia)	m	60.30	20.80	1,254.24
		2nd class bamboo	m	4.50	15.45	69.53
		Binding Wire (G.I 2mm)	Kg.	0.15	64.00	9.60
		Brush Wood (LS) @ 1.00 %				13.33
		b) Labour				
		Mate	day	0.05	300.00	15.00
		Mazdoor (Unskilled)	day	1.20	300.00	360.00

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) Sundries (LS) @ 1.00 % of (a)				13.47
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**260.27**
		Cost for 3 metre = a+b+c+d+e				1,995.44
		Rate per metre = (a+b+c+d+e)/3				**665.15**
					say	*665.10*
	B)	Driven at least 900 mm below ground and 900 mm above ground on average				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85 mm - 100 mm dia)	m	42.30	20.80	879.84
		2nd class bamboo	m	4.50	15.45	69.53
		Binding Wire (G.I 2mm)	Kg.	0.15	64.00	9.60
		Brush Wood (LS) @ 1.50 %				14.38
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) Sundries (LS) @ 1.50 % of (a)				14.60
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**194.99**
		Cost for 3.00 metre = a+b+c+d+e				1,494.94
		Rate per metre = (a+b+c+d+e)/3.00				**498.31**
					say	*498.30*
	C)	Driven at least 600 mm below ground and 1200 mm above ground on average.				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) Materials				
		1st class bamboo (85 mm - 100 mm dia)	m	42.30	20.80	879.84
		2nd class bamboo	m	4.50	15.45	69.53
		Binding Wire (G.I 2mm)	Kg.	0.15	64.00	9.60
		Brush Wood (LS) @ 1.50 %				14.38
		b) Labour				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) Sundries (LS) @ 1.50 % of (a)				14.60

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				194.99
		Cost for 3.00 metre = a+b+c+d+e				1,494.94
		Rate per metre = (a+b+c+d+e)/3.00				**498.31**
					say	*498.30*
14.8	Suggestive	**Bamboo spur 'A' type with whole bamboo placed 230 mm centre to centre driven 900 mm below ground and 1200 mm to 1500 mm above ground tied with 2nd class bamboo (Jati or Bethua) on either side at 450 mm apart horizontally with galvanished wire etc. complete as per drawings and technical specifications.**				
		A) 2nd class bamboo (jati or Bethua) 65 mm to 75 mm dia				
		Unit= Running metre				
		Taking output = 3.00 metre				
		a) **Materials**				
		2nd class bamboo (65 mm to 75 mm dia)	m	43.50	15.45	672.08
		Binding Wire (G.I 2mm)	Kg.	0.75	64.00	48.00
		b) **Labour**				
		Mate	day	0.04	300.00	12.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		c) **Sundries (LS) @ 2.50 % of (a)**				18.00
		d) 0				0.00
		e) **Contractor's profit and overheads @ 15 % on (a+b+c+d)**				157.51
		Cost for 3 m = a+b+c+d+e				1,207.59
		Rate per metre = (a+b+c+d+e)/3				**402.53**
					say	*402.50*
		B) 1st class bamboo (Bholuka or Barua) 85 mm to 100 mm dia				
		Unit = Running metre				
		Taking output = 3.00 metre				
		a) **Materials**				
		1st class bamboo (85-100 mm dia)	m	31.50	20.80	655.20
		2nd class bamboo (65-75 mm dia)	m	12.00	15.45	185.40
		Binding Wire (G.I 2mm)	Kg.	1.00	64.00	64.00
		Brush Wood (LS) @ 2.00 %				18.09
		b) **Labour**				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.40	300.00	420.00
		c) **Sundries (LS) @ 2.00 % of (a)**				18.45

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		d)　0				**0.00**
		e)　Contractor's profit and overheads @ 15 % on (a+b+c+d)				**206.87**
		Cost for 3 m = a+b+c+d+e				1,586.02
		Rate per metre = (a+b+c+d+e)/3				**528.67**
					say	**528.70**
14.9	Suggestive	**Providing 'A' type single spur with 1st class bamboo (Bholuka or Barua) 85 mm to 100 mm dia closely placed 230 mm centre to centre, driven 1200 mm to 1500 mm below ground and 3 m to 4 m above ground and tied with cane or coir string, half 2nd class bamboo (Jati or Bethua) horizontally on both face placed not more than one metre apart and 2 nos. of purlin at top and bottom fitted with vertical struts at 1500 mm apart and filling with brushwood or jungle wood inside the spur complete as per drawing and technical specifications.**				
		Unit= Running metre				
		Taking output = 3.00 metre				
		a)　**Materials**				
		1st class bamboo (85-100 mm dia)	m	87.00	20.80	1,809.60
		2nd class bamboo (65-75 mm dia)	m	18.00	15.45	278.10
		Binding wire (GI 2 mm)	Kg.	2.00	64.00	128.00
		Coir Rope (LS) @ 1.00 % of (a)				22.16
		Brush wood (LS) @ 1.00 % of (a)				22.16
		b)　**Labour**				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.50	300.00	450.00
		c)　**Sundries (LS) @ 1.00 % of (a)**				22.60
		d)　**0**				**0.00**
		e)　**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**412.59**
		Cost for 3 metre = a+b+c+d+e				3,163.21
		Rate per metre = (a+b+c+d+e)/3				**1,054.40**
					say	**1054.40**
14.10	1300	**Providing close bamboo toe walling consisting of 65 mm to 75 mm diameter bamboos driven 900 mm below ground and 900 mm above ground at 150 mm C/C and provided with three horizontal split bamboo runner fixed with nails. All bamboos to be duly protected by coal tar painting.**				
		Unit = Running Metre				
		Taking output = 10.00 running metre				
		a)　**Materials**				

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		2nd class bamboo (65mm-75mm dia)	m	120.60	15.45	1,863.27
		2nd class bamboo (65mm-75mm dia)	m	15.00	15.45	231.75
		Coal tar	kg	10.00	32.00	320.00
	b)	**Labour**				
		Mate	day	0.06	300.00	18.00
		Mazdoor (Unskilled)	day	1.50	300.00	450.00
	c)	**Sundries (LS) @ 1.00 % of (a)**				24.15
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**436.08**
		Cost for 10 Running Metre = a+b+c+d+e				3,343.25
		Rate per Sqm = (a+b+c+d+e)/10				**334.32**
					say	*334.30*
14.11	Suggestive	**Double timber spur with two rows at 800 mm c/c apart of 1st class local wood piles with timber of Sal/ Nahar/ Nageswar wood piles of 150 mm dia placed at 400 mm centre to centre, driven 2000 mm minimum below ground and 3600 mm above ground average and placing and fixing bracings etc. of 100 mm x 75 mm size 1st class local wood longitudinally & crosswise at 800 mm apart, at ends fitted with 10 mm dia bolts and nuts etc. including coaltarring of timber members and cost of necessary bamboo staging etc. as directed by the Engineer as per drawing and technical specifications.**				
		Unit =RM				
		Taking output = 4.00 RM				
	a)	**Material**				
		1st class local wood piles 150-200 mm dia, 6m long	m	123.20	513.00	63,201.60
		2nd class local wood (100 mm x 75 mm) for collar, bracing and belt	cum	2.04	19,400.00	39,576.00
		Nuts and Bolts	Kg	10.00	80.35	803.50
		1st Class Bamboo	m	30.00	20.80	624.00
		2nd class bamboo	m	25.00	15.45	386.25
		Coir Rope (LS) @ 0.20 % of (a)				219.64
		Coal tar	Kg	40.00	32.00	1,280.00
	b)	**Labour**				
		Carpenter 1st Class	Nos	1.20	425.00	510.00
		Mate	Nos	1.20	300.00	360.00
		Mazdoor (Unskilled)	Nos	30.00	300.00	9,000.00
	c)	**Sundries (LS) @ 0.40 % of (a)**				424.36
	d)	**0**				**0.00**

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**17,457.80**
		Cost for 4 RM = (a+b+c+d+e)				133,843.16
		Rate per metre = (a+b+c+d+e)/4				**33,460.79**
					say	*33460.80*
14.12	Suggestive	**Supplying and filling up hollows of the timber spur to an average height of 3600 mm above ground with jungle wood branches as per drawing and technical specifications as directed by the Engineer.**				
		Unit = RM				
		Taking output = 20.00 RM				
		a) Labour				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	5.00	300.00	1,500.00
		b) Sundries (LS) @ 3.00 % of (a)				46.80
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**241.02**
		Cost for 20 RM = (a+b+c+d)				1,847.82
		Rate per metre = (a+b+c+d)/20				**92.39**
					say	*92.40*

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		ADDITIONAL ITEMS BY USING JHAMA BRICK AGGREGATE (i.e. LOCALLY AVAILABLE MATERIALS)				
14.13	1300	**Providing and laying of apron with cement concrete blocks of size as per Table 1300.1 cast-in-situ and made with nominal mix of M-15 grade cement concrete (using jhama brick aggregate)as per drawing and MoRD technical specification Clause 1301 (rate includes preparation of bed, nominal surface re-inforcement and filling of granular material in recesses between blocks).**				
		Unit = cum				
		a) Concrete grade M 15				
		Rate as per item No 11.9. II (i)	cum	1.00	6,017.90	6,017.90
		Add 2 per cent of cost to account for excavation for preparation of bed, nominal surface reinforcement and filling of granular material in recesses between blocks.				120.36
		Rate per cum = (a)				**6,138.26**
					say	*6138.30*
14.14	1300	**Providing and laying flooring laid over cement concrete bedding complete as per drawing and MoRD technical specification Clause 1303.**				
		I. Cement concrete blocks cast in situ grade M15 (size 400 mm x 400 mm x 150 mm) over cement concrete (with M10, using jhama brick aggregate) bedding of 150 mm thick				
		Unit = Sqm				
		Taking Output = 21.00 sqm				
		a) Cement concrete blocks grade M 15 Rate as per item 11.9 (II) (i) using 400 mm x 400 mm x 150 mm blocks	cum	3.12	6,017.90	18,775.85
		Add for cement concrete bedding M10 Rate as per item 11.9 (I) (i)	cum	3.15	5,837.10	18,386.87
		Add 1 per cent of cost to account for excavation for preparation of bed.				371.63
		Cost for 21 sqm =				**37,534.34**
		Rate per sqm = (a) / 21				**1,787.35**
					say	*1787.30*
14.15	1300	**Providing and laying curtain walls complete as per drawing and MoRD technical specification Clause 1304.**				
		Unit = cum				
		Taking Output = 1.00 m				

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		I. Brick masonry in cement mortar (1:4)				
		a) Excavation in soil for foundtation				
		Rate as per item No.11.1.A.I(i) of Chapter 11	cum	2.34	287.00	671.58
		b) PCC M10 grade (using jhama brick aggregate)				
		(Rate same per item No.11.9.I(ii) of Chapter 11)	cum	0.18	5,881.10	1,058.60
		c) Brick masonry in cement mortar (1:4)				
		(Rate same as per item 11.5 (II) of chapter 11)	cum	0.69	5,383.60	3,714.68
		Rate per m =				**5,444.86**
					say	*__5444.90__*
		II. PCC grade M10 with jhama brick aggregate (including centering, shuttering staging etc. and reinforcement)				
		a) Excavation in soil for foundtation				
		Rate as per item No.11.1.A.I(i) of Chapter 11	cum	4.68	287.00	1,343.16
		b) PCC M10 grade (using jhama brick aggregate)				
		(Rate same per item No.11.9.I(ii) of Chapter 11)	cum	0.72	5,881.10	4,234.39
		c) Twisted steel/ deformed bar				
		(Rate same as per item 11.6 of chapter 11)	t	0.054	53,066.80	2,865.61
		Rate per m =				**8,443.16**
					say	*__8443.20__*
14.16	1300	**Construction of toe walls for protection of slopes as per Drawing and MoRD technical specifications Clause 1302.5 (including centering, shuttering staging etc. but excluding reinforcement)**				
		I. **Cement concrete grade M 10 (using jhama brick aggregate) in case of concrete block pitching**				
		Unit = cum				
		I. **P.C.C grade M 20**				
		(i) **Nominal mix 1:3:6**				
		Unit = cum				
		a) **Material**				
		Cement	t	0.250	6,100.00	1,525.00
		Sand (Fine)	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.576	2,550.00	1,468.80
		20 mm aggregate	cum	0.288	2,975.00	856.80
		10 mm aggregate	cum	0.096	3,110.00	298.56

Chapter 14
PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		b) Labour				
		Mate	day	0.08	300.00	24.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	1.63	300.00	489.00
		Bhisti	day	0.27	300.00	81.00
		c) Machinery				
		Mechnical concrete mixer 0.4/0.28 cum capacity fitted with water measuring device and preferably also with load cell.	hour	0.40	193.00	77.20
		d) Formwork @ 4% on cost of material, labour and machinery (a+b+c)				**201.62**
		e) Overhead charges @ on (a+b+c+d)				**0.00**
		f) Contractor's profit @ on (a+b+c+d+e)				**786.31**
		Rate per cum = a+b+c+d+e+f				**6,028.39**
					say	*6028.40*
		(ii) Nominal mix 1:3:6 (Hand mixing)				
		Unit = cum				
		a) Material				
		Cement	t	0.250	6,100.00	1,525.00
		Sand (Fine)	cum	0.48	370.00	177.60
		40 mm aggregate	cum	0.576	2,550.00	1,468.80
		20 mm aggregate	cum	0.288	2,975.00	856.80
		10 mm aggregate	cum	0.096	3,110.00	298.56
		b) Labour				
		Mate	day	0.09	300.00	27.00
		Mason (1st Class)	day	0.10	425.00	42.50
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Bhisti	day	0.27	300.00	81.00
		c) Formwork @ 4% on cost of material, labour and machinery (a+b)				**203.09**
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**792.05**
		Rate per cum = a+b+c+d+e				**6,072.40**
					say	*6072.40*

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PROTECTION WORKS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Chapter - 14 : Protection Works

	A
For U/s	1800
For D/s	2100
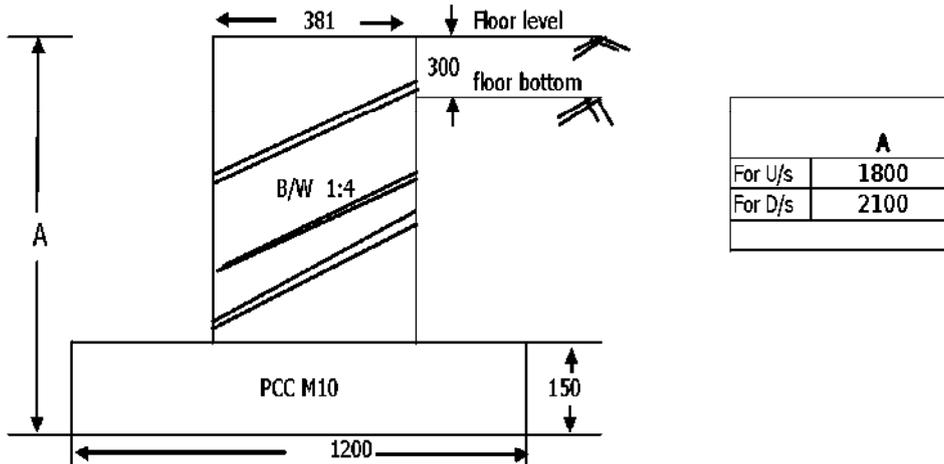
Drawing of Curtain Wall for Item No. 14.15.I of Chapter - 14

	A
For U/s	1800
For D/s	2100
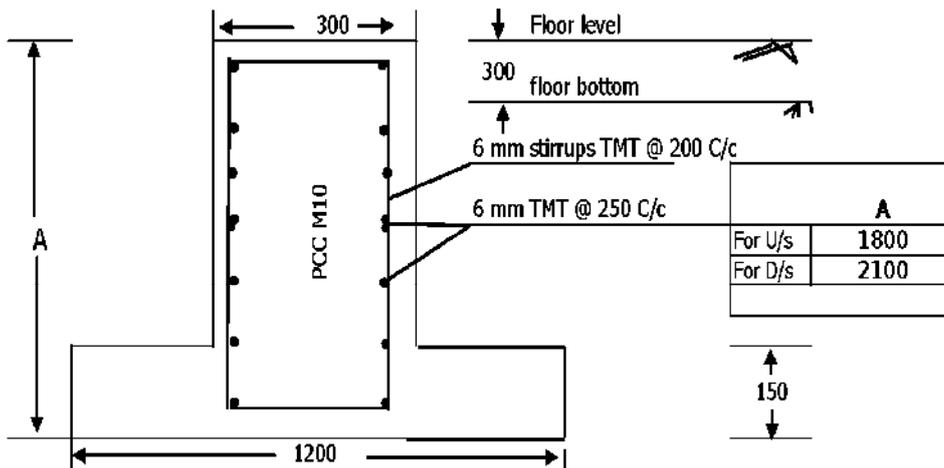
Drawing of Curtain Wall for Item No. 14.15.II of Chapter - 14

Note :   1 All Dimensions are in mm

2 Not to scale.

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
15.1	1900	**Restoration of Rain Cuts**				
		i) Restoration of rain cuts with soil , moorum gravel or a mixture of these, clearing the loose soil, benching for 300 mm width laying fresh material in layers not exeeding 250 mm and compaction with plate compactor or power rammer to restore the original alignment, level and slopes as per drawings and MoRD technical specification Clause 1902.				
		A. Manual Means				
		Unit = cum				
		Taking output = 10 cum				
		a) Labour				
		Mate	day	0.24	300.00	72.00
		Mazdoor (Unskilled)	day	6.00	300.00	1,800.00
		b) Machinery				
		Plate compactor	hour	3.00	143.00	429.00
		c) Materials				
		Compensation for earth Taken from private la	cum	7.50	18.00	135.00
		d) 0				**0.00**
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				**365.40**
		Cost for 10 cum = a+b+c+d				2,801.40
		Rate per cum = a+b+c+d/10				**280.14**
					say	*280.10*
		B. Mechanical Means				
		Unit = cum				
		Taking output = 50 cum				
		a) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b. Machinery				
		Hydraulic Excavator 0.9 cum bucket capacty @ 60 cum/h	hour	0.83	1,296.00	1,075.68
		Tipper 5.5 cum, 10 t capacity	hour	2.27	321.00	728.67
		Add 10% cost of carriage towards loading and unloading charges				72.87
		Plate compactor	hour	15.00	143.00	2,145.00
		c. Materials				
		Compensation for earth taken from private la	cum	37.50	18.00	675.00
		d. 0				**0.00**
		e. Contractor's profit and overheads @ 15 % on (a+b+c+d)				**1,172.58**

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 50 cum = a+b+c+d+e				8,989.80
		Rate per cum a+b+c+d+e/50				**179.80**
					say	*179.80*

Note: *Only 75% of fresh material has been provided as 25% can be retrieved from site from earth i.e. flown down the slop in the form of slurry and deposited at the foot of rain cuts.*

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
15.2	1900	**1. Maintenance of Earthen shoulder (filling with fresh selected soil)**				
		Making up loss of material / irregularities on shoulders to the design level by adding fresh approved selected soil and compacting it with appropriate equipment at OMC upto a lead of 1000 m as per MoRD technical specification Clause 1903.				
		Unit = sqm				
		Taking output = 100 sqm				
		Assuming average thickness of filling to be 150 mm				
		Quality of fresh material = 15 cum				
		a. Labour				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	5.00	300.00	1,500.00
		b. Machinery				
		Hydraulic Excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	0.25	1,296.00	324.00
		Tipper 5.5 cum	hour	0.68	321.00	218.28
		Add 10% cost of transportation to cover cost of loading and unloading				54.23
		Plate compactor @ 25 sqm per hour	hour	4.00	143.00	572.00
		c. Material				
		Compensation of earth	cum	15.00	18.00	270.00
		d. 0				**0.00**
		e. Contractor's profit and overheads @ 15 % on (a+b+c+d)				**449.78**
		Cost for 100 sqm = a+b+c+d+e				3,448.28
		Rate per sqm = (a+b+c+d+e)/100				**34.48**
					say	*34.50*
		2. Maintenance of Earhen shoulder (stripping of excess soil)				
		Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor at OMC as per drawing and MoRD technical specification Clause 1903.				
		Unit = sqm				
		Taking output = 100 sqm				

Chapter 15
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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Assuming height of stripping as 75 mm				
		Quantity of earth cutting involved = 7.5 cum				
		a. Labour				
		Mate	day	0.10	300.00	30.00
		Mazdoor (Unskilled)	day	2.50	300.00	750.00
		b. Machinery				
		Plate compactor	hour	4.00	143.00	572.00
		c. 0				**0.00**
		d. Contractor's profit and overheads @ 15 % on (a+b+c)				**202.80**
		Cost for 100 sqm = a+b+c+d				1,554.80
		Rate per sqm = a+b+c+d/100				**15.55**
					say	*15.50*
15.3	500, 1900	**Maintenace of bituminous surface road**				
	I	Repair to pot holes by removal of failed material, trimming the sides to vertical and levelling the bottom, cleaning the same with compressed air or any appropriate method, filled with 75 mm B.M, after applying bitumen emulsion prime coat at the bottom and bitumen emulsion tack coat on sides and on bottom as per MoRD technical specification Clauses 1900, 502, 503 and 504.				
		Unit = cum				
		Taking output = 187.5x0.075 = 14.06 cum = (30.94 Tonne)				
		(5% area of one km)				
		a) Labour				
		Mate	day	0.80	300.00	240.00
		Mazdoor (Unskilled)	day	20.00	300.00	6,000.00
		b) Machinery				
		Jack hammer 25 kg with tractor	hour	4.00	337.00	1,348.00
		Compressor 210 cfm with tractor	hour	2.00	321.00	642.00
		Emulsion pressure distributor	hour	4.00	735.48	2,941.92
		Mixall 6/10 t capacity	hour	4.00	762.00	3,048.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	379.00	1,516.00
		c) Material				
		Primer with bitumen emulsion (SS-1) @ 9 kg/10 sqm 187.5x9 = 168.75 kg.	Tonne	0.1688	39,435.00	6,656.63
		Tack coat with bitumen emulsion (RS-1) @ 3.0 kg/ 10 sqm)				
		Bottom = 187.5				
		Sides = 28.27	Tonne	0.0647	36,443.00	2,357.86

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MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Total = 215.77				
		Bitumen (VG-30) for BM @ 3.5% by weight of mix = 30.94 x 3.5 / 100 = 1.082	Tonne	1.082	37,787.00	40,885.53
		Weight of mix (BM) 14.06 cum = (30.94 tonne)				
		Weight of Bitumen = 1.082				
		Weight of aggregate 30.94 -1.082 = 29.86				
		Taking density of aggregate 1.5 t per cum				
		Volume of aggregate 29.86 / 1.5 = 19.90 cum				
		Grading (1) (40 mm nominal size)				
		37.5 - 25 mm 15%	cum	2.985	3,324.00	9,922.14
		25 - 10 mm 45%	cum	8.96	3,645.00	32,640.98
		10 - 5 mm 25%	cum	4.975	4,045.00	20,123.88
		5 mm and below 15%	cum	2.99	4,125.00	12,313.13
d)		0				0.00
e)		Contractor's profit and overheads @ 15 % on (a+b+c+d)				21,095.41
		Cost of 14.06 cum = a+b+c+d+e				161,731.47
		Rate per cum = a+b+c+d+e/14.06				**11,502.95**
					say	*11502.90*

II. Patch repair on already filled pot holes with 75 mm BM with 20 mm premix carpet and seal coat type A as per drawing and MoRD technical specification Clauses 1904.2, 508 and 510.

Unit = sqm

Takign output = 200 sqm

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
a)		**Labour**				
		Mate	day	0.64	300.00	487.68
		Mazdoor (Unskilled)	day	16.00	300.00	4,800.00
b)		**Machinery**				
		Mixall 6/10 tonne	hour	2.00	762.00	1,524.00
		Bitumen pressure distributior	hour	2.00	735.48	1,470.96
		Three wheeled 80-100 kN Static Roller	hour	4.00	379.00	1,516.00
c)		**Material**				
		Bitumen (VG-30) for pre-mix carpet @ 14.60 kg/10 sqm 200x14.60/10 =292 kg	tonne	0.292	37,787.00	11,033.80
		Bitumen (RS-1) for tack coat @ 2 kg per 10 sqm 200 x 2 / 10 = 40 kg	tonne	0.04	36,443.00	1,457.72
		Bitumen (VG-30) for seal coat @ 6.8 kg per 10 sqm	tonne	0.136	37,787.00	5,139.03

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Crushed stone aggregate 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	4,045.00	21,843.00
		Crushed stone passing 2.36 mm sieve and retained on 180 mircon sieve @ 0.06 cum per 10 sqm 200 x 0.06 / 10 = 1.20 cum	cum	1.20	2,643.00	3,171.60
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**7,866.57**
		Cost of 200 sqm = a+b+c+d+e				60,310.37
		Rate/sqm = a+b+c+d+e/200				**301.55**
					say	*301.60*
III.		Repair to pot holes and removal of loose material, trimming of sides, cleaning of surface, providing tack coat, 20 mm thick premix carpet and seal coat type B as per drawing and MoRD technical specification clauses 1904.2, 503 and 508.1.				
		Unit = sqm Taking output = 200 sqm				
	a)	**Labour**				
		Mate	day	0.80	300.00	240.00
		Mazdoor (Unskilled)	day	20.00	300.00	6,000.00
	b)	**Machinery**				
		Air compressor 210 cfm with tractor	hour	2.00	321.00	642.00
		Bitumen pressure distributor	hour	2.00	735.48	1,470.96
		Mixall 6/10t capacity	hour	2.00	762.00	1,524.00
		Three wheeled 80-100 kN Static Roller	hour	4.00	379.00	1,516.00
	c)	**Material**				
		Bitumen (RS-1) for tack coat @ 3kg per 10 sqm 200 x 3 / 10 = 60 kg	tonne	0.064	36,443.00	2,332.35
		Bitumen (VG-30) for pre-mix carpet @ 14.60 kg per 10 sqm = 200 x 14.6 / 10 = 292 kg	tonne	0.292	37,787.00	11,033.80
		Bitumen (VG-30) for seal coat @ 6.8 kg per 10 sqm = 200 x 6.8 / 10 = 136 kg	tonne	0.136	37,787.00	5,139.03
		Crushed stone aggregate 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	4,045.00	21,843.00
		Sand @ 0.06 cum per 10 sqm 200 x 0.06 / 10 = 1.20 cum	cum	1.20	370.00	444.00
	d)	**0**				0.00
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				7,827.77

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 200 sqm = a+b+c+d+e				60,012.92
		Rate per sqm = a+b+c+d+e/200				300.06
					say	*300.10*
IV.		Repair to pot holes and removal of loose material, trimming of sides, cleaning of surface, providing tack coat with bitumen emulsion, 20 mm thick premix carpet using cationic bitumen emulsion and seal coat type B with bitumen emulsion as per MoRD technical specification clauses 1904.2, 503 and 508.2.				
		Unit = sqm				
		Taking output = 200 sqm				
	a)	**Labour**				
		Mate	day	0.64	300.00	192.00
		Mazdoor (Unskilled)	day	16.00	300.00	4,800.00
	b)	**Machinery**				
		Concrete mixer 0.4 / 0.28 cum capacity	hour	2.50	193.00	482.50
		Air compressor 210 CFM with tractor	hour	2.00	321.00	642.00
		Emulsion pressur distributor	hour	2.00	735.48	1,470.96
		Three wheeled 80-100 kN Static Roller	hour	4.00	379.00	1,516.00
	c)	**Materials**				
		Bitumen Emulsion (RS-1) for tack coat @ 3 kg per 10 sqm 200 x 3 / 10 = 60 kg	tonne	0.06	36,443.00	2,186.58
		Bitumen Emulsion (SS-1) for premix carpet @ 21.50 kg per 10 sqm 200 x 21.50 / 10 = 430 kg	tonn	0.43	39,435.00	16,957.05
		Bitumen Emulsion (SS-1) for seal coat @ 10 kg per 10 sqm = 200 x 10 / 10 = 200 kg	tonn	0.20	39,435.00	7,887.00
		Crushed stone aggregate 13.2 mm to 0.09 mm @ 0.27 cum per 10 sqm = 200 x 0.27 / 10 = 5.4 cum	cum	5.40	4,045.00	21,843.00
		Sand @ 0.06 cum per 10 sqm 200 x 0.06 / 10 = 1.20 cum	cum	1.20	370.00	444.00
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**8,763.16**
		Cost for 200 sqm = a+b+c+d+e				67,184.25
		Rate per sqm = a+b+c+d+e/200				**335.92**
					say	*335.90*
15.4	**1900**	**Maintenance of Drains**				
		The maintenance of drains include erosion, repair, clearing, cleaning, reshaping, regrading, deepening of side drains as well as catch water drains as per MoRD technical specification Clause 1907.				

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Unit - Per Metre				
		Taking output one km = 1000 metre				
		a) **Labour**				
		Mate	day	0.32	300.00	96.00
		Mazdoor (Unskilled)	day	8.00	300.00	2,400.00
		b) **0**				**0.00**
		c) **Contractor's profit and overheads @ 15 % on (a+b)**				**374.40**
		Cost for 1000 metre = a+b+c				2,870.40
		Rate per Metre = a+b+c/1000				**2.87**
					say	*2.90*
15.5	**1900**	**(I)** **Maintenance of Culverts Hume Pipe type**				
		Maintenance of Hume pipe Culvert by way of clearing, cleaning, erosion repair, repairs to cracks, parapet wall and protection work as per drawing and MoRD technical specification Clause 1908.				
		Unit = One No. Hume pipe (1000 mm dia)				
		Taking output = One No.H.P. Culvert				
		a) **Labour**				
		Mate	day	0.10	300.00	30.00
		Mazdoor (Unskilled)	day	1.00	300.00	300.00
		Mason 2nd Class	day	1.40	380.00	532.00
		b) **Material**				
		Cement, Sand, Brick, Boulder etc. @ 100.00 % c	L.S			862.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**258.60**
		Cost for one No. Hume pipe culvert = a+b+c+d				1,982.60
		Rate per hume pipe Culvert = a+b+c+d				**1,982.60**
					say	*1982.60*
		(II) **Maintenance of Culverts Slab type**				
		Maintenance of Slab Type Culverts by way of clearing, cleaning, erosion repair, repairs to cracks, parapet wall and protection work as per drawing and MoRD technical specification 1908.				
		Unit = One No. Culvert (2 m span)				
		Taking output = one No. Slab Culvert				
		a) **Labour**				
		Mate	day	0.20	300.00	60.00
		Mazdoor (Unskilled)	day	4.00	300.00	1,200.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Mason 2nd Class	day	1.00	380.00	380.00
		b) **Material**				
		Cement, Sand, Brick, Boulder etc. @ 80.00 % of	L.S			1,312.00
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**442.80**
		Cost for One Slab Culverts =a+b+c+d				3,394.80
		Rate per Culvert = a+b+c+d				**3,394.80**
					say	*__3394.80__*
15.6	**1900**	**Maintenance of Road Signs**				
		Maintenance of road signs by way of cleaning and repainting of mandatory/ regulatory / cautionary / informatory and place identification sign board as per drawings and MoRD technical specification Clause 1910.				
		Unit = 1 km				
		Taking output = one km				
		All types of signs in one Km				
		a) **Labour**				
		Mate	day	0.09	300.00	27.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		Painter 1st Class	day	0.125	340.00	42.50
		b) **Material**				
		Synthetic Enamel Paint, Engineering grade tape, welding machine etc. @ 150.00 % on (a)	LS			1,004.25
		c) **0**				**0.00**
		d) **Contractor's profit and overheads @ 15 % on (a+b+c)**				**251.06**
		Cost for one Km = a+b+c+d				1,924.81
		Rate per km = a+b+c+d				**1,924.81**
					say	*__1924.80__*
15.7	**1900**	**Maintenance of steel and RCC Railing**				
		(i) Repair of steel railing to bring it to original shape, cleaning and repainting as per drawing and MoRD technical specification Clause 1911.				
		Steel Railing				
		Unit = Running metre				
		Taking output = 10 metre				
		It is assumed that damage is to the extent of 10%				
		a) **Labour**				
		Mate	day	0.024	300.00	7.20
		Mazdoor (Unskilled)	day	0.30	300.00	90.00

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Painter 1st Class	day	0.10	340.00	34.00
		Blacksmith	day	0.20	403.00	80.60
	b)	**Materials**				
		Mild steel (structural steel)				
		ISMC = 0.039T	t	0.039	42,670.00	1,664.13
		MS Flat = 0.01	t	0.010	42,670.00	426.70
		Nuts and bolts	t	0.001	80,350.00	80.35
	c)	**Machinery**				
		Welding set @ 10.00 % on (a+b)	LS			238.30
	d)	**0**				**0.00**
	e)	**Contractor's profit and overheads @ 15 % on (a+b+c+d)**				**393.19**
		Cost for 10 metre = a+b+c+d+e				3,014.47
		Rate per metre = a+b+c+d+e/10				**301.45**
					say	*301.40*

(ii) Repair of RCC railing to bring it to the original shape, cleaning and repainting as per drawings and MoRD technical Specification Clause 1911.

RCC Railing

Unit = running metre

Taking output = 1 metre

It is assumed that damage is to the extent of 10%

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
	a)	**Labour**				
		Mate	day	0.012	300.00	3.60
		Mazdoor (Unskilled)	day	0.20	300.00	60.00
		Mason 1st Class	day	0.10	425.00	42.50
	b)	**Materials**				
		M 30 grade cement concrete				
		Rate as per item no. 13.1 (III) of Chapter 13	cum	0.10	9,852.30	985.23
		Steel bars reinforcement				
		Rate as per item no.13.2 of Chapter 13	t	0.013	54,367.40	706.78
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+c)**				**15.92**
		Rate per metre = a+b+c+d+e				**1,814.02**
					say	*1814.00*

15.8   1900   Maintenance of 200 metre and km stones

Chapter 15
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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Maintenance of 200 metre and Km stone by way of refixing of tilted stones repairing with cement mortar, cleaning, repairing and lettering on 200 metre, km stone and 5th km stone as per drawing and MoRD technical specification Clause 1912.				

Unit = 1 km

Assuming 1 km stone, 4 nos 200 metre stone and 1/5th 5km stone

			Unit	Quantity	Rate (₹)	Amount (₹)
(i)		Painting two coats with synthetic enamel paint				
		200 m stone 4 nos = 0.760 sqm.				
		One km stone = 0.815 sqm.				
		5th km stone 1x1/5 = 0.320 sqm.				
		Total = 1.895 sqm.				
		As per item No. 10.5 of chapter 10	sqm	1.895	85.40	161.83
(ii)		Printing letters and figures of any shade with synthtic enamel paint of any approved colour to give an even shade				
		200 m stone 4 Nos. = 40 per cm height per letter				
		One no km stone = 120 per cm height per letter				
		5th km stones 1/5th = 60 per cm height per letter Total = 220 per cm height per letter				
		Rate as per item no 10.1 of chapter 10	per cm height per	220.00	0.50	110.00
	a)	**Labour**				
		Mate	day	0.024	300.00	7.20
		Mazdoor	day	0.50	300.00	150.00
		Mason 1st Class	day	0.10	425.00	42.50
	b)	**Materials**				
		Cement, sand, aggregates etc. @ 200.00 % of (a	LS			399.40
		(LS = Rs.100.00)				
	c)	**0**				**0.00**
	d)	**Contractor's profit and overheads @ 15 % on (a+b+c)**				**89.87**
		Cost for one km = (i+ii+a+b+c+d)				960.80
		Rate per/km = (i+ii+a+b+c+d)				**960.80**
					say	*960.80*

15.9	1900	**Cutting of branches of trees shrubs and trimming of grass and weeds**				
	(i)	Cutting of branches of trees and shrubs from the roadway or within R.O.W including disposal of wood and leaves to suitable location as per MoRD technical specification Clause 1914.				
		Unit = one tree				
		Taking output = 10 trees of 900 mm average girth				

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Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		a) Labour				
		Mate	day	0.12	300.00	36.00
		Mazdoor (Skilled)	day	1.00	380.00	380.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**152.40**
		Cost for 10 trees = (a+b+c)				1,168.40
		Rate per tree = (a+b+c)/10				**116.84**
					say	*116.80*
(ii)		Cutting of shrubs from the roadway or within R.O.W and disposal of shrubs to suitable locations as per MoRD technical specification Clause 1914.				
		Unit=Each				
		Taking output = 100 nos shrubs				
		a) Labour				
		Mate	day	0.08	300.00	24.00
		Mazdoor (Unskilled)	day	2.00	300.00	600.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**93.60**
		Cost for 100 shurbs = a+b+c				**717.60**
		Rate per shurb = a+b+c/100				**7.18**
					say	*7.20*
(iii)		Trimming of grass and weeds from the shoulders/berms and disposing off the same to suitable location as per MoRD technical specification Clause 1914.				
		Unit = sqm				
		Taking output = 1500 sqm				
		a) Labour				
		Mate	day	0.40	300.00	120.00
		Mazdoor (Unskilled)	day	10.00	300.00	3,000.00
		b) 0				**0.00**
		c) Contractor's profit and overheads @ 15 % on (a+b)				**468.00**
		Cost for 1500 sqm = a+b+c				3,588.00
		Rate per sqm = a+b+c/1500				**2.39**
					say	*2.40*

15.10   1900   White washing of parapet walls of CD work and tree truncks

Chapter 15
MAINTENANCE OF ROADS

Sr. No.	Ref. to MORD Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning scraping etc. as per MoRD technical specification Clause 1915.				
		Unit = sqm				
		Taking output = 9 sqm				
		a) Labour				
		Mate	day	0.01	300.00	3.00
		Mazdoor (Unskilled)	day	0.143	300.00	42.86
		White washer	day	0.143	340.00	48.57
		b) Materials				
		Lime	kg	0.450	8.00	3.60
		Fevicol adhesive	kg	0.10	135.00	13.50
		Indigo	kg	0.013	65.00	0.85
		c) 0				**0.00**
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				**16.86**
		Cost for 9 sqm = a+b+c+d				129.23
		Rate per sqm = a+b+c+d/9				**14.36**
					say	*14.40*
15.11	1900, 500	**Periodical Renewal to existing bituminous surface**				
		1 Open graded Premix carpet 20 mm thick				
		Unit = sqm				
		(i) Tack coat				
		With bituminous Emulsion (RS-1)				
		Rates as per item 5.2 (ii)	sqm	**13.00**		
		(ii) Pre-mix carpet using bituminous (viscocity grade/ modified bitumen) binder				
		Rates as per item No. 5.8	sqm	**215.90**		
		as relevant				
		Or				
		(iii) Premix carpet using bitumen Emulsion				
		Rates as per item No. 5.9	sqm	**223.60**		
		(iv) Seal coat Type A, B or C				
		Rates as per item No. 5.11	sqm	**As applicable**		
		2 Surface dressing single coat/first coat or 2nd coat				
		Rates as per item No. 5.5	sqm	**95.40**		

CHAPTER-16
Pile Foundation & Well Foundation for Bridge

Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
16.1	1100, 1200, 1500, 1700	Bored Cast-in-Situ piles 1200 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.				
		Unit = meter				
		Sub-Analysis for R.C.C grade M 25				
		Unit = cum				
		Taking output = 15 cum				
		a) Material				
		Cement	tonne	5.99	6100.00	36539.00
		Fine sand	cum	6.75	370.00	2497.50
		40 mm Aggregate	cum	5.40	3532.00	19072.80
		20 mm Aggregate	cum	5.40	3969.00	21432.60
		10 mm Aggregate	cum	2.70	4040.00	10908.00
		Admixture	kg	21.60	41.00	885.60
		b) Labour				
		Mate	day	1.20	300.00	360.00
		Mason(1st class)	day	1.80	425.00	765.00
		Mazdoor (unskilled)	day	25.95	300.00	7785.00
		Bhisti	day	4.05	300.00	1215.00
		c) Machinery				
		Concrete mixer 0.40/0.28 cum capacity	hour	6.00	193.00	1158.00
		Generator 33 KVA	hour	6.00	258.00	1548.00
		Light crane 3 t capacity for lohandling tremie pipe	hour	6.00	355.00	2130.00
		Cost for 15.00 cum =		*106296.50*		
		Per Cum Basic Cost of Labour, Material & Machinery = (a+b+c)/ 15		*7086.50*		
		Analysis for PILING				
		Unit = Metre				
		Taking output = 9 Metre of Pile				
		a) Materials				
		Concrete Grade M25	cum	10.17	7086.50	72069.71
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	385.00	3.22	1239.70
		b) Labour				
		Mate	day	0.18	300.00	54.00
		Mazdoor(unskilled)	day	4.50	300.00	1350.00
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5457.00	32742.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	355.00	177.50
		Front loader 1 cum bucket capacity.	hour	0.50	963.00	481.50
		Tipper 5.5 cum capacity for disposal of muck	hour	0.50	321.00	160.50
		d) 0				0.00

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		e) Contractor's profit and overheads @ 15 % ,on (a+b+c+d),				16241.24
		Cost for 9 m = a+b+c+d+d+e				124516.14
		Rate per metre (a+b+c+d+e)/9				13835.13
					say	*__13835.10__*
16.2	1100, 1200, 1500, 1700	**Bored Cast-in-Situ piles 1000 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 10 m of pile				
		a) Materials				
		Concrete Grade M25	cum	7.85	7086.50	55629.03
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	350.00	3.22	1127.00
		b) Labour				
		Mate	day	0.16	300.00	48.00
		Mazdoor(unskilled)	day	4.00	300.00	1200.00
		c) Machinery(for boring and construction)				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5457.00	32742.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	355.00	177.50
		Front loader 1 cum bucket capacity.	hour	0.40	963.00	385.20
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.40	321.00	128.40
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % ,on (a+b+c+d)				13715.57
		Cost for 10 m = a+b+c+d+d+e				105152.69
		Rate per metre (a+b+c+d+e)/10				10515.27
					say	*__10515.30__*
16.3	1100, 1200, 1500, 1700	**Bored Cast-in-Situ piles 750 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 15 m of pile				
		a) Materials				
		Concrete Grade M25	cum	6.62	7086.50	46912.63
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	300.00	3.22	966.00
		b) Labour				
		Mate	day	0.14	300.00	42.00
		Mazdoor(unskilled)	day	3.50	300.00	1050.00

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		c) **Machinery(for boring and construction)**				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5457.00	32742.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	355.00	177.50
		Front loader 1 cum bucket capacity.	hour	0.30	963.00	288.90
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	321.00	96.30
		d) **0**				0.00
		e) **Contractor's profit and overheads @ 15 % ,on (a+b+c+d)**				12341.30
		Cost for 15 m = a+b+c+d+d+e				94616.63
		Rate per metre (a+b+c+d+e)/15				6307.78
					say	***6307.80***
16.4	1100, 1200, 1500, 1700	**Bored Cast-in-Situ piles 600 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				
		Taking output = 17 m of pile				
		a) **Materials**				
		Concrete Grade M25	cum	4.80	7086.50	34015.20
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	275.00	3.22	885.50
		b) **Labour**				
		Mate	day	0.12	300.00	36.00
		Mazdoor(unskilled)	day	3.50	300.00	1050.00
		c) **Machinery(for boring and construction)**				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5457.00	32742.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	355.00	177.50
		Front loader 1 cum bucket capacity.	hour	0.30	963.00	288.90
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	321.00	96.30
		d) **0**				0.00
		e) **Contractor's profit and overheads @ 15 % ,on (a+b+c+d)**				10393.71
		Cost for 17 m = a+b+c+d+d+e				79685.11
		Rate per metre (a+b+c+d+e)/17				4687.36
					say	***4687.40***
16.5	1100, 1200, 1500, 1700	**Bored Cast-in-Situ piles 500 mm dia , M-25 grade RCC pile excluding reinforcement complete as per drawing and technical specification and removal of excavated earth with all lifts and lead upto 1000 m as per MoRT&H specification clause 1100, 1200, 1500, 1700.**				
		Unit = meter				

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Taking output = 22 m of pile				
		a) **Materials**				
		Concrete Grade M25	cum	4.32	7086.50	30613.68
		Rate for concrete adopted same as for sub-analysis of item no. 16.1 above				
		Bentonite	kg	250.00	3.22	805.00
		b) **Labour**				
		Mate	day	0.10	300.00	30.00
		Mazdoor(unskilled)	day	3.25	300.00	975.00
		c) **Machinery(for boring and construction)**				
		Hydraulic piling Rig with bentonite pump.	hour	6.00	5457.00	32742.00
		Light crane 3 t capacity for lowering reinforcement cage	hour	0.50	355.00	177.50
		Front loader 1 cum bucket capacity.	hour	0.30	963.00	288.90
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.30	321.00	96.30
		d) **0**				0.00
		e) **Contractor's profit and overheads @ 15 % ,on (a+b+c+d)**				9859.26
		Cost for 22 m = a+b+c+d+d+e				75587.64
		Rate per metre (a+b+c+d+e)/22				3435.80
					say	***3435.80***
16.6	1200, 1500, 1700	**Providing and laying RCC with M-25 grade concrete in Well Curb including cost of centering & shuttering, but excluding cost of reinforcement complete as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit = cum				
		Taking output = 15 cum				
		a) **Material**				
		Cement	tonne	6.05	6100.00	36905.00
		Fine sand	cum	6.75	370.00	2497.50
		20 mm Aggregate	cum	8.10	3969.00	32148.90
		10 mm Aggregate	cum	5.40	4040.00	21816.00
		b) **Labour**				
		Mate	day	1.20	300.00	360.00
		Mason (1st calss)	day	1.80	425.00	765.00
		Mazdoor(unskilled)	day	25.95	300.00	7785.00
		Bhisti	day	4.05	300.00	1215.00
		c) **Machinery**				
		Concrete mixer (0.40/0.28 cum)	hour	6.00	193.00	1158.00
		Electric generator 33 KVA	hour	6.00	258.00	1548.00
		d) **Formwork for Well Curb** @ 20.00 % on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				21239.68
		e) **0**				0.00
		f) **Contractor's profit and overheads @ 15 % on (a+b+c+d+e)**				19115.71

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Cost for 15 cum = a+b+c+d+e+f				146553.79
		Rate per cum = (a+b+c+d+e+f)/15				9770.25
					say	*9770.30*
16.7	1200, 1500, 1700	**Providing and laying RCC with M-20 grade concrete in Well Steining including cost of centering & shuttering, but excluding cost of reinforcement complete as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit : cum				
		Taking Output = 15 cum				
		a) Material				
		Cement	tonne	5.16	6100.00	31476.00
		Fine sand	cum	6.75	370.00	2497.50
		40 mm Aggregate	cum	5.40	3532.00	19072.80
		20 mm Aggregate	cum	5.40	3969.00	21432.60
		10 mm Aggregate	cum	2.70	4040.00	10908.00
		b) Labour				
		Mate	day	1.20	300.00	360.00
		Mason (1st calss)	day	1.80	425.00	765.00
		Mazdoor(unskilled)	day	29.95	300.00	8985.00
		Bhisti	day	4.05	300.00	1215.00
		c) Machinery				
		Concrete mixer (0.40/0.28 cum)	hour	6.00	193.00	1158.00
		Electric generator 33 KVA	hour	6.00	258.00	1548.00
		d) Formwork for Well Steining @ 10.00 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				9941.79
		e) 0				0.00
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				16403.95
		cost of 15 cum = a+b+c+d+e+f				125763.64
		Rate per cum (a+b+c+d+e+f)/15				8384.24
					say	*8384.20*
16.8	1200, 1500, 1700	**Providing and laying cast-in-situ PCC with M-20 grade concrete with 10% extra cement in bottom plug of well with minimum cement content 363 Kg/m3 as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit = cum				
		Taking output = 15 cum				
		a) Material				
		Cement including 10 % extra	tonne	5.45	6100.00	33245.00

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Fine sand	cum	6.75	370.00	2497.50
		40 mm Aggregate	cum	5.40	3532.00	19072.80
		20 mm Aggregate	cum	5.40	3969.00	21432.60
		10 mm Aggregate	cum	2.70	4040.00	10908.00
		Admixture	Kg	18.60	41.00	762.60
		b) Labour				
		Mate	day	1.20	300.00	360.00
		Mason(1st class)	day	1.80	425.00	765.00
		Mazdoor (unskilled)	day	25.95	300.00	7785.00
		Bhisti	day	4.05	300.00	1215.00
		c) Machinery				
		Concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	193.00	1158.00
		Generator 33 KVA	hour	6.00	258.00	1548.00
		Light Crane 3 tonnes capacity for handling tremie pipe	hour	6.00	355.00	2130.00
		Add extra for false steining required at the time of bottom plugging @ 5.00 % .				5143.98
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				16203.52
		cost of 15 cum = a+b+c+d+e				124227.00
		Rate per cum = (a+b+c+d+e)/15				8281.80
					say	*__8281.80__*
16.9	1200, 1500, 1700	**Providing and laying cast-in-situ PCC with M-20 grade concrete in top plug of well as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit = cum				
		Taking output = 15 cum				
		a) Material				
		Cement including 10 % extra	tonne	5.16	6100.00	31476.00
		Fine sand	cum	6.75	370.00	2497.50
		40 mm Aggregate	cum	5.40	3532.00	19072.80
		20 mm Aggregate	cum	5.40	3969.00	21432.60
		10 mm Aggregate	cum	2.70	4040.00	10908.00
		b) Labour				
		Mate	day	1.20	300.00	360.00
		Mason(1st class)	day	1.80	425.00	765.00
		Mazdoor (unskilled)	day	25.95	300.00	7785.00
		Bhisti	day	4.05	300.00	1215.00
		c) Machinery				

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Concrete mixer (capacity 0.40/0.28 cum)	hour	6.00	193.00	1158.00
		Generator 33 KVA	hour	6.00	258.00	1548.00
		d) 0				0.00
		e) Contractor's profit and overheads @ 15 % on (a+b+c+d)				14732.69
		cost of 15 cum = a+b+c+d+e				112950.59
		Rate per cum = (a+b+c+d+e)/15				7530.04
					say	*__7530.00__*
16.10	1200, 1500, 1700	**Providing and laying RCC with M-25 grade concrete in well cap including the cost of centering & shuttering but excluding the cost of reinforcement as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1500, 1700.**				
		Unit : cum				
		Taking Output = 15 cum				
		a) Material				
		Cement	tonne	6.05	6100.00	36905.00
		Fine sand	cum	6.75	370.00	2497.50
		20 mm Aggregate	cum	8.10	3969.00	32148.90
		10 mm Aggregate	cum	5.40	4040.00	21816.00
		b) Labour				
		Mate	day	1.20	300.00	360.00
		Mason (1st calss)	day	1.80	425.00	765.00
		Mazdoor(unskilled)	day	25.95	300.00	7785.00
		Bhisti	day	4.05	300.00	1215.00
		c) Machinery				
		Concrete mixer (0.40/0.28 cum)	hour	6.00	193.00	1158.00
		Electric generator 33 KVA	hour	6.00	258.00	1548.00
		d) Formwork for Well Cap @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery i.e. on (a+b+c)				3982.44
		e) 0				0.00
		f) Contractor's profit and overheads @ 15 % on (a+b+c+d+e)				16527.13
		cost of 15 cum = a+b+c+d+e+f				126707.97
		Rate per cum (a+b+c+d+e+f)/15				8447.20
					say	*__8447.20__*

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
16.11	1200	Sinking of wells of circular shape in all kinds of soil with or without water by all methods, other than pneumatic sinking including construction of cofferdams, wherever necessary including dressing for laying the well curbs, removal of underground snags, if any, such as logs, isolated boulders etc. encountered during sinking including use of Kentledge including supports, loading and unloading of weight etc.as per drawing and technical specification and removal of earths etc. with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200.				
		Rates may be taken from the relevant items of chapter - 12 for Highways and MDRs. Rates given in item no. 16.11 is for analysis purpose only.				
16.12	1200, 1600, 1700 & 1900	**Supplying, fabricating and placing in position MS cutting edge of well curbs consisting of MS flats, plates, angles etc. complete including the cost of nuts and bolts as per drawing and technical specification with all lifts and lead upto 1000 m as per MoRT&H specification clause 1200, 1600, 1700, 1900.** *Unit = 1 MT* *Taking output = 1 Tonne* **a) Material**				
		Structural steel in plates, angles, etc including 5 per cent wastage	tonne	1.05	42670.00	44803.50
		Nuts & bolts	Kg	20.00	80.35	1607.00
		Electrodes, cutting gas and other consumables for fabrication @ 10 per cent of cost of (a)				4641.05
		b) Labour				
		Mate	day	1.32	300.00	396.00
		Fitter	day	5.50	340.00	1870.00
		Blacksmith	day	5.50	403.00	2216.50
		Welder	day	5.50	425.00	2337.50
		Mazdoor(unskilled)	day	16.50	300.00	4950.00
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				9423.23
		Cost per Tonne (a+b+c+d+e)				72244.78
					say	***72244.80***
16.13	2600	**Supplying and installing strip seal type Elastomeric expansion joint of approved design and make as per drawing and technical specification clause 2600 of MoRT&H with all lifts and lead upto 1000 m.** Unit = Metre Taking ourtput = 1 Metre **a) Material**				

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)
		Strip seal joint	m	1.00	8,760.00	8,760.00
		Add 5 per cent for supervision by manufacturer				438.00
		b) Labour				
		Mate	day	0.10	300.00	30.00
		Mazdoor (Skilled)	day	1.00	380.00	380.00
		Mazdoor (Unskilled)	day	0.50	300.00	150.00
		Mason (1st calss)	day	0.50	425.00	212.50
		c) 0				0.00
		d) Contractor's profit and overheads @ 15 % on (a+b+c)				1495.58
		Cost for 1.00 m = a+b+c+d				11,466.08
		Rate per m = (a+b+c+d)/1				**11,466.08**
					say	*11466.10*
16.14	2000	**Supplying, fitting & fixing in position true to line & level elastomeric bearing conforming to IRC : 83 (Part-II) Section IX complete including all accessories with additional steel fixtures as per drawings & MoRT&H technical specification clause 2000 with all lifts and lead upto 1000 m.**				
		Unit: one cubic centimetre				
		Taking out put = 11400 cu.cm				
		Considering an elastomeric bearing of size 47.50 x 30.00 x 8.00 Cm for this analysis.				
		a) Material *Sub-Analysis of rate*				
		Steel	kg	1.00	42.67	42.67
		Add for machine charges including drilling holes @ 20.00 %				8.53
				Total cost	*51.20*	
		Steel fixtures	kg	68.00	51.20	3481.87
		Add for 8 nos studs (4 short & 4 long) @ 10.00 %				348.19
		c) 0				0.00
		c) Contractor's profit and overheads @ 15 % on (a+b)				574.51
		cost for 11400 cu.cm of elastomeric bearing = a+b+c				4404.57
		Rate per cu.cum of elastomeric bearing = (a+b+c+d)/11400				0.39
					say	*0.40*
		i. Cost of elestomeric bearing including fitting fixing				
		(Rate as per item no. 12.10 of Chapter 12	cu.cm	1.00	1.20	1.20
		ii. Cost for providing additional steel fixtures	cu.cm	1.000	0.40	0.40
		Cost per cu.cum including fixtures = (i+ii)				1.60
					say	*1.60*

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Sr. No.	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate (₹)	Amount (₹)

Note

1. Initial and Routine load test and Lateral load tests for piles may be done with the items available in the Chapter - 12 of the Highways & MDRs.

2. Sand can be either coarse or fine as required/ available. Here, provision of fine sand is considered only due to non-availability of coarse sand in Tripura. However, design of concrete dictates for use of coarse sand, then separate analysis may be taken as per site condition.