



STATEWISE MRRP (INCL. GST) OF SAIL TMT - EQR 500 / IS 1786 Fe 500D FOR MAY 2019

(Rs/T)

Branch/Location	State	8 MM	10 MM	12 MM	16 MM	20 MM	25 MM	28/32 MM
KOLKATA	WEST BENGAL 1	57300	55700	55000	55000	54400	54400	54400
DURGAPUR		57300	55700	55000	55000	54400	54400	54400
SILIGURI	WEST BENGAL 2	61600	59900	59300	59300	58600	58600	58600
BHUBANESWAR	ODISHA	57500	55900	55300	55300	54600	54600	54600
ROURKELA		57500	55900	55300	55300	54600	54600	54600
PATNA	BIHAR	58200	56600	55900	55900	55300	55300	55300
BOKARO	JHARKHAND	56000	54500	53800	53800	53200	53200	53200
GUWAHATI	ASSAM	61600	60300	59700	59700	59000	59000	59000
DELHI	DELHI	55400	53900	53300	53300	52700	52700	52700
FARIDABAD	HARYANA	55400	53900	53300	53300	52700	52700	52700
GHAZIABAD	UTTAR PRADESH	55400	53900	53300	53300	52700	52700	52700
KANPUR		54800	53300	52700	52700	52700	52700	52700
ALLAHABAD		54800	53300	52700	52700	52700	52700	52700
AGRA		54800	53300	52700	52700	52700	52700	52700
JALANDHAR	PUNJAB	55900	54500	53900	53900	52900	52900	52900
LUDHIANA		55900	54500	53900	53900	52900	52900	52900
MANDI		55900	54500	53900	53900	52900	52900	52900
CHANDIGARH	CHANDIGARH	55900	54500	53900	53900	52900	52900	52900
RISHIKESH	UTTARAKHAND	55800	54300	53700	53700	52700	52700	52800
SRINAGAR	J&K2	60600	59100	58500	58500	57500	57500	57600
JAMMU	J&K1	57100	55600	55000	55000	54000	54000	54100
LEH	J&K3	64300	62800	62200	62200	61200	61200	61300
KANDRORI	HIMACHAL PRADESH	56100	54600	54000	54000	53000	53000	53000
MUMBAI	MAHARASHTRA	55400	53900	53300	54500	53900	52700	52600
PUNE		55400	53900	53300	54500	53900	52700	52600
NAGPUR		54200	52600	52000	52400	52000	52000	52000
GOA	GOA	56700	55200	54600	55800	55000	53800	53700
AHMEDABAD	GUJARAT	55500	54000	53500	54600	53500	52700	52600
BARODA		55500	54000	53500	54600	53500	52700	52600
BHILAI	CHHATTISGARH	54800	53300	52700	52700	52700	52700	52600
JABALPUR	MADHYA PRADESH	55200	53700	53200	54300	53500	52700	52600
GWALIOR		55200	53700	53200	54300	53500	52700	52600
INDORE		55200	53700	53200	54300	53500	52700	52600
BHOPAL		55200	53700	53200	54300	53500	52700	52600
JAIPUR	RAJASTHAN	55700	54200	53600	53600	53000	53000	52900
KOTA		55700	54200	53600	53600	53000	53000	52900
CHENNAI	TAMILNADU/PONDI-2	55900	54400	53800	54700	53500	53200	53200
TRICHY		56800	55300	54700	55300	54100	53500	53500
COIMBATORE		56800	55300	54700	55300	54100	53500	53500
COCHIN	KERALA/PONDI -1	58000	56500	55900	56500	55300	54800	54800
HYDERABAD	TELANGANA	55300	53800	53200	54400	53200	53200	53200
VIJAYWADA	A.P./PONDI-3	55500	54100	53500	54100	53400	53400	53400
VIZAG		57300	55700	55000	55400	55000	55000	55000
BANGALORE	KARNATAKA	55700	54300	53700	55100	53900	53100	53100

PONDI-1= MAHE, PONDI-2=PONDICHERRY, PONDI-3=YAMAN

In case of Kolkata, Durgapur, Siliguri, Bhubaneswar, Patna, Rourkela, Bokaro, Guwahati, Vizag, Mandi Govindgarh, Allahabad & Nagpur prices are valid for destinations within 100 km of the mentioned locations.

Guwahati		
Dia in mm	Rate	Rate (Deduction 18% GST)
8	61600	52203
10	60300	51102
12	59700	50593
16	59700	50593
20	59000	50000
25	59000	50000
28/32	59000	50000
Average Rate		50642



Price of Bitumen

LOCATIONS		GRADES (SETTING TYPE)		
Applicable from : August 16 , 2019				
		VG-10	VG-30	VG-40
BITUMEN (BULKED)				
KOYALI		32930	33730	28320
MATHURA		31130	31930	32920
PANIPAT		31130	31930	32930
HALDIA		31730	32530	33520
CHENNAI		33030	33830	34820
BARAUNI		32260	32660	33650

Price(Emulsion)

LOCATIONS		GRADES (SETTING TYPE)			
Applicable from : August 16 , 2019					
EMULSION (BULK)	RAPID	MEDIUM	SLOW (SS2)	SLOW (SS1)	
HALDIA		26560			
CHENNAI	27180		28110	42530	
EMULSION (PACKED)					
CHENNAI	31400		32330	46730	

Price of CRMB

Location	GRADES	
Applicable from : August 16 , 2019		
CRMB (BULK)	CRMB-55	CRMB-60
KOYALI	34760	34910
PANIPAT	34000	34160
HALDIA	33900	34130
MATHURA	34110	34300
CHENNAI	34870	34930

Note:
(1) The above prices are in Rs. Per MT
(2) The above prices are exclusive of GST.

Basic Rates of Construction Materials at Project Site**a) HYSD/TMT Reinforcement Steel bars****Source of materials:** Guwahati**Mode of Transportation:**

Guwahati to Central Plant of Project Road by Road

Sl. No.	Items	Unit	Qty	Rate	Amount (₹)	Remarks
1	Steel at Guwahati (Avg of 8 - 32mm)	MT	1	50642	50,642	Excluding GST
2	Carriage (Plain Terrain)	t kms	249	6.60	1,643	
3	Carriage (Hilly Terrain)	kms	202	11.18	2,254	
4	Unloading Charge at central plant	MT	1	293.00	293	
	Total Cost of Steel	MT			54,832	

b) Cement**Source of materials:** Adhunik Cement Jayantia Hills**Mode of Transportation:****From Jayantia Hills via Imphal**

Cement plant to Central Plant of Project Road by Road

Sl. No.	Items	Unit	Qty	Rate	Amount (₹)	Remarks
1	Cement (Dalmia OPC 43 Grade, Adhunik Cement Limited, East Jaintia Hills)	MT	1.00	5,403	5,403	As per local Enquiry
2	Carriage (Plain Terrain)	t km	139	6.60	917	
3	Carriage (Hilly Terrain)	kms	255	11.02	2,809	
4	Unloading Charge at central plant	MT	1	293.00	293	
	Total Cost of Cement	MT			9,423	

c) Bitumen**(i) VG-40 (30/40)****Source of materials:** Barauni**Mode of Transportation:****From Barauni via Kohima**

Barauni to Central Plant of Project Road by Road

Sl. No.	Items	Unit	Qty	Rate	Amount (₹)	Remarks
1	Bitumen (Bulked) Price at Barauni	MT	1	33,650	33,650	
2	Carriage (Plain Terrain)	t km	1,051	6.60	6,937	
3	Carriage (Hilly Terrain)	kms	202	11.18	2,254	
	Total Cost of VG-40 Bitumen	MT			42,840	

d) Bitumen**(ii) VG-10 (80/100)****Source of materials:** Barauni**Mode of Transportation:****From Barauni via Kohima**

Barauni to Central Plant of Project Road by Road

Sl. No.	Items	Unit	Qty	Rate	Amount (Rs.)	Remarks
1	Bitumen (Bulked) Price at Barauni	MT	1	32,260	32,260	
2	Carriage (Plain Terrain)	t km	1,051	6.60	6,937	
3	Carriage (Hilly Terrain)	kms	202	11.18	2,254	
	Total Cost of VG-10 Bitumen	MT			41,450	

Bitumen (Modified graded)**(iii) CRMB-55****Source of materials:** Haldia**Mode of Transportation:****From Haldia via Kohima**

Haldia to Central Plant of Project Road by Road

Sl. No.	Items	Unit	Qty	Rate	Amount (Rs.)	Remarks
1	CRMB (Bulked) Price at Haldia	MT	1	33900.00	33,900	
2	Carriage (Plain Terrain)	t km	1,375	6.60	9,075	
3	Carriage (Hilly Terrain)	kms	202	11.18	2,254	
	Total Cost of CRMB	MT			45,229	

e) Bitumen (Cationic Emulsion)**Source of materials:** Haldia**Mode of Transportation:****From Haldia via Kohima**

Haldia to Central Plant of Project Road by Road

Sl. No.	Items	Unit	Qty	Rate	Amount (Rs.)	Remarks
1	Emulsion (Bulked) Price at Haldia	MT	1	26560.00	26,560	
2	Carriage (Plain Terrain)	t km	1,375	6.60	9,075	
3	Carriage (Hilly Terrain)	kms	202	11.18	2,254	
	Total Cost of Emulsion	MT			37,889	

f) Stone boulder						
Source of materials: Bongmol village (Km 290.5 of NH-39)+ 2 km of approach road						
Mode of Transportation:						
Source to Central Plant of Project Road by Road						
Lead						
Average Lead from Sources to Central Plant of Project Road						15.5 km
Rate at Source						
Rate of material at source per cum						Rs. 575
Average carriage cost @Rs 31 per cum/km.						481
Cost per cum of Stone boulder						Rs. 1,056

g) Sand						
Source of materials: Sekmai, 2 km Approach						
Mode of Transportation:						
Source to Central Plant of Project Road by Road						
Lead						
Average Lead from sources to Central Plant of Project Road					25.00	km
Rate at Source						
Rate of material at source per cum				Rs.	1612.00	
Loading/Unloading & Carriage cost per cum						
Average carriage cost @Rs 23.45 per cum/km.					586	
Cost per cum of Sand				Rs.	2,198	

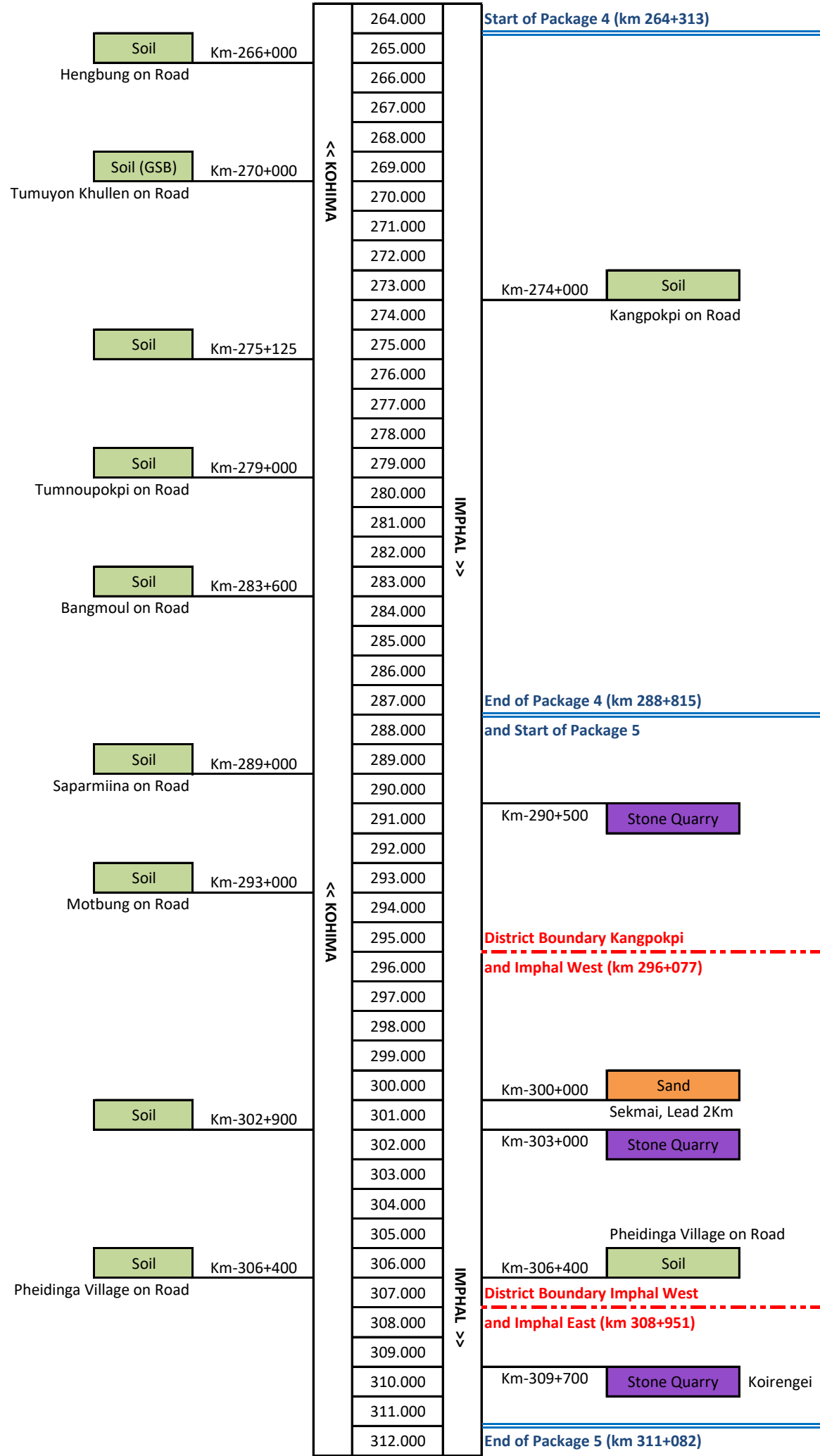
h) Stone boulder for pitching	Bongmol village (Km 290.5 of NH-39)+ 2 km of approach road					
Source of materials:						
Mode of Transportation:						
Source to Central Plant of Project Road by Road						
Lead						
Average Lead from sources to Central Plant of Project Road					15.5	km
Rate at Source						
Rate of material at source per cum				Rs.	575	
Loading/Unloading & Carriage cost per cum						
Average carriage cost @Rs 31 per cum/km.					480.50	
Cost per cum of Stone boulder				Rs.	1055.50	

Aggregate Rates (In Rs.)						
S. No.	Description	Unit	Rate (A) YEAR 2018	Carriage Cost (B)=15.5 Km	Total (A+B)	Remarks
1	Close graded Granular sub-base Material 53 mm to 9.5 mm	Cum	1,243.6	404.9	1,648.6	M-013
2	Close graded Granular sub-base Material 26.5 mm to 9.5 mm	Cum	1,330.6	404.9	1,735.5	M-015
3	Close graded Granular sub-base Material 9.5 mm to 4.75 mm	Cum	1,224.6	404.9	1,629.5	M-016
4	Close graded Granular sub-base Material 9.5 mm to 2.36 mm	Cum	1,224.6	404.9	1,629.5	M-017
5	Close graded Granular sub-base Material 4.75mm to 2.36 mm	Cum	1,174.2	404.9	1,579.1	M-018
6	Close graded Granular sub-base Material 2.36 mm	Cum	1,560.7	404.9	1,965.7	M-020
7	Stone crusher dust finer than 3mm with not more than 10% passing 0.075 sieve.	Cum	1,174.2	404.9	1,579.1	M-021
8	Coarse graded Granular sub-base Material 2.36 mm & below	Cum	1,560.7	404.9	1,965.7	M-022
9	Coarse graded Granular sub-base Material 9.5 mm to 4.75 mm	Cum	1,224.6	404.9	1,629.5	M-025
10	Coarse graded Granular sub-base Material 26.5 mm to 4.75 mm	Cum	1,299.3	404.9	1,704.2	M-026
11	Coarse graded Granular sub-base Material 26.5 mm to 9.5 mm	Cum	1,330.6	404.9	1,735.5	M-027
12	Coarse graded Granular sub-base Material 37.5 mm to 9.5 mm	Cum	1,308.8	404.9	1,713.7	M-028
13	Coarse graded Granular sub-base Material 53 mm to 26 .5mm	Cum	1,115.6	404.9	1,520.6	M-029
14	Aggregates below 5.6 mm	Cum	1,174.2	404.9	1,579.1	M-030
15	Aggregates 22.4 mm to 2.36 mm	Cum	1,322.3	404.9	1,727.2	M-031
16	Aggregates 45 mm to 22.4 mm	Cum	1,303.5	404.9	1,708.4	M-034
17	Aggregates 10 mm to 5 mm	Cum	1,274.9	404.9	1,679.8	M-040
18	Aggregates 11.2 mm to 0.09 mm	Cum	1,336.6	404.9	1,741.5	M-041
19	Aggregates 13.2 mm to 0.09 mm	Cum	1,342.1	404.9	1,747.0	M-042
20	Aggregates 13.2 mm to 5.6 mm	Cum	1,269.2	404.9	1,674.1	M-043
21	Aggregates 13.2 mm to 10 mm	Cum	1,316.7	404.9	1,721.6	M-044
22	Aggregates 20 mm to 10 mm	Cum	1,371.6	404.9	1,776.6	M-045
23	Aggregates 25 mm to 10 mm	Cum	1,330.6	404.9	1,735.5	M-046
24	Aggregates 19 mm to 6 mm	Cum	1,371.6	404.9	1,776.6	M-047
25	Aggregates 37.5 mm to 19 mm	Cum	1,303.5	404.9	1,708.4	M-048
26	Aggregates 37.5 mm to 25 mm	Cum	1,214.5	404.9	1,619.4	M-049
27	Aggregates 6 mm nominal size	Cum	1,174.2	404.9	1,579.1	M-050
28	Aggregates 10 mm nominal size	Cum	1,274.9	404.9	1,679.8	M-051
29	Aggregates 13.2/12.5 mm nominal size	Cum	1,442.1	404.9	1,847.0	M-052
30	Aggregates 20 mm nominal size	Cum	1,481.5	404.9	1,886.4	M-053
31	Aggregates 25 mm nominal size	Cum	1,207.5	404.9	1,612.4	M-054
32	Aggregates 40 mm nominal size	Cum	1,221.5	404.9	1,626.4	M-055

Rates of Aggregate Year 2018-SOR NH

S. No.	Description	Unit	Rate	Page	Clause No
1	63mm	Cum	918.00	1	1.13
2	40mm	Cum	1221.45	1	1.13
3	25mm	Cum	1207.45	1	1.13
4	20mm	Cum	1481.51	1	1.13
5	10 to 12.5 mm	Cum	1358.5	1	1.13
6	10mm	Cum	1274.9	1	1.13
7	6-2.36mm	Cum	1174.2	1	1.13
8	below 2.36mm	Cum	1560.72	1	1.13

Constrction Material Lead Chart for Package: 4&5, Senapati-Imphal Section of NH-39



Aggregate Lead			Sand Lead		
Pkg 4 Start	264.420		Pkg 4 Start	264.420	
Pkg 4 End	288.815		Pkg 4 End	288.815	
Camp location	277.00		Camp location	277.00	
Boulder Source 1	290.50		Sand Source 1	300.00	
Boulder Source 2			Sand Source 2		
Boulder Source 3			Sand Source 3		
Lead upto Camp/Crusher	15.5	Km	Lead upto Camp/Crusher	25.00	Km
Lead for Direct Site	15.5	Km	Lead for Direct Site	25.00	Km
Lead for Mix Materials			Average Lead of Earth		
6.10			3		
			Km		
Other Materials Source Imphal	Dead Lead	10			
Imphal Chainage	311.000	of NH-39			
Other materials lead upto	44.00	Km			
Camp					

NH-39 Chainage at Kohima	186
NH-39 chainage at Senapati	264
NH-39 Chainage at Kohima	311

	Plain/Rolling	Hill	Total
1 Haldia to Guwahati	1126		1126
2 Barauni to Guwahati	802		802
3 Guwahati to Nagaon	109	15	124
4 Nagaon to Dimapur	120	40	160
5 Dimapur to Kohima	20	55	75
6 Kohima to Central Camp		92	92
7 Adhunik Cement to Imphal	105	255	360
8 Imphal to Central Plant	34		34

Guwahati to Central Camp	249	202	451
Adhunik to Central Camp	139	255	394
Barauni to Central Camp	1051	202	1253
Haldia to Central Camp	1375	202	1577

CARRIGE CHARGE OF MATERIALS BY MECHANICAL TRANSPORT INCLUDING LOADING , UNLOADING AND STACKING INCLUDING OVERHEAD &													Plant			Site		
SN	Material	Capacity per Trip	Net Capacity payable	Unit of Rate	For 1 Km	For 2 Km	For 3 Km	For 4 Km	For 5 Km	For additional 1 Km beyond 5 Km upto 10 Km	For additional 1 Km beyond 10 Km upto 20 Km	For additional 1 Km beyond 20 Km	Lead	Amount	Average Rate	Lead	Amount	Average Rate
1. VALLEY																		
1.11(a)	Lime , moorum, earth, building rubbish	5.66 Cum	5.14	1 cum	163.7	190.6	217	242.3	266.7	26.51	21.37	17.28						
(b)(I)	Sand, stone aggregate below 40mm nominal size	5.66 Ccum	5.38	1 cum	156.4	182.1	207.3	231.5	254.8	25.33	20.42	16.51	25.0	586	23.45	25	586	23.45
(II)	Stone aggregate 40mm above	5.66 Cum	5.22	1 cum	161.1	187.6	213.6	238.6	262.6	26.11	21.04	17.02	15.5	446	28.80			
(III)	Boulder or exavated Rock	5.66 Cum	4.85	1 cum	173.4	202	229.9	256.8	282.6	28.1	22.65	18.31	15.5	480	31.00	15.5	480	31
1.12 BRICK, CEMENT ECT																		
(I)	Traditional Brick	3000 Nos	3000 Nos	1000 Nos	280.4	326.5	371.7	415.2	456.9	45.43	36.62	29.61	44.0	2,187	49.71			
(II)	Cement, Stone Blocks, Steel CGI CC Pipes below 100 mm dia Tar, bitumen and other heavy materials	7.5 tones	7.5	1 tone	112.2	130.6	148.7	166.1	182.8	18.17	14.65	11.84	44.0	875	19.88			
(III)	Timber	5.66 Cum	5.66	1 cum	148.6	173.1	197	220.1	242.2	24.08	19.41	15.69	44.0	1,159	26.34			
2. STONE WARE PIPES																		
a)	75mm dia	1196 pipes of 60cm length	718	1 m	1.17	1.36	1.55	1.73	1.91	0.19	0.15	0.12	44.0	9	0.20			
b)	100mm dia	930 pipes of 60cm length	552	1 m	1.52	1.77	2.02	2.26	2.48	0.25	0.2	0.16	44.0	12	0.27			
c)	150mm dia	460 pipes of 60cm length	276	1 m	3.05	3.55	4.04	4.51	4.97	0.49	0.4	0.32	44.0	24	0.54			
d)	200mm dia	276 pipes of 60cm length	166	1 m	5.07	5.9	6.72	7.5	8.26	0.82	0.66	0.54	44.0	40	0.90			
e)	230mm dia	200 pipes of 60cm length	120	1 m	7.01	8.16	9.29	10.38	11.42	1.14	0.92	0.74	44.0	55	1.25			
f)	250mm dia	166 pipes of 60cm length	100	1 m	8.41	9.79	11.15	12.46	13.71	1.36	1.1	0.89	44.0	66	1.49			
g)	300mm dia	126 pipes of 60cm length	76	1 m	11.07	12.89	14.67	16.39	18.04	1.79	1.45	1.17	44.0	86	1.97			
h)	380mm dia	74 pipes of 60cm length	44	1 m	19.12	22.26	25.35	28.31	31.15	3.1	2.5	2.02	44.0	149	3.39			
i)	450mm dia	56 pipes of 60cm length	34	1 m	24.74	28.81	32.8	36.63	40.32	4.01	3.23	2.61	44.0	193	4.38			
j)	530mm dia	46 pipes of 60cm length	28	1 m	30.04	34.98	39.83	44.48	48.96	4.87	3.92	3.17	44.0	234	5.32			
k)	600mm dia	36 pipes of 60cm length	22	1 m	38.23	44.52	50.69	56.61	62.31	6.19	4.99	4.04	44.0	298	6.78			
3. RCC PIPES, CI PIPER, CC PIPES AND PCC PIPES																		
a)	100 mm dia	92 Pipes of 3.66m Length	336.7	1m	2.5	2.91	3.31	3.7	4.07	0.4	0.33	0.26	44.0	19	0.44			
b)	125 mm dia	74 Pipes of 3.66m Length	270.8	1m	3.11	3.62	4.12	4.6	5.06	0.5	0.41	0.33	44.0	24	0.55			
c)	150 mm dia	58 Pipes of 3.66m Length	212.3	1m	3.96	4.61	5.25	5.87	6.46	0.64	0.52	0.42	44.0	31	0.70			
d)	200 mm dia	36 Pipes of 3.66m Length	131.8	1m	6.38	7.43	8.46	9.45	10.4	1.03	0.83	0.67	44.0	50	1.13			
e)	250 mm dia	26 Pipes of 3.66m Length	95.16	1m	8.84	10.29	11.72	13.09	14.4	1.43	1.15	0.93	44.0	69	1.56			
f)	300 mm dia	20 Pipes of 3.66m Length	73.2	1m	11.49	13.38	15.24	17.02	18.73	1.86	1.5	1.21	44.0	90	2.03			
g)	350 mm dia	14 Pipes of 3.66m Length	51.24	1m	16.42	19.11	21.76	24.31	26.75	2.66	2.14	1.73	44.0	128	2.91			
h)	400 mm dia	10 Pipes of 3.66m Length	36.6	1m	22.98	26.76	30.47	34.03	37.45	3.72	3	2.43	44.0	179	4.07			
i)	450 & 500 mm dia	08 Pipes of 3.66m Length	29.28	1m	28.73	33.45	38.09	42.54	46.82	4.65	3.75	3.03	44.0	224	5.09			
j)	600, 700, 750 & 800 mm dia	06 Pipes of 3.66m Length	21.96	1m	38.3	44.6	50.78	56.72	62.42	6.21	5	4.04	44.0	299	6.79			

(A) Usage Rates of Plant and Machinery								
Sl. No.	Description of Machine	Activity	Output of Machine	Out-put	Unit	Adopted Rate	As per SOR 2018	
							Page	Clause
P&M-001	Air Compressor	General Purpose	capacity in cfm	170/250	hour	1360	8	52-k
P&M-002	Batching and Mixing Plant (a) 30 cum capacity	Concrete Mixing	cum/hour	20	hour	2695	8	52-z
P&M-003	Batching and Mixing Plant (b) 15 - 20 cum capacity	Concrete Mixing	cum/hour	13	hour	1977		
P&M-004	Bitumen Pressure Distributor	Applying bitumen tack coat	sqm/hour	1750	hour	1151	8	52-d -i
P&M-005	Bitumen Boiler oil fired	Bitumen Spraying	capacity in litre	1500	hour	1321	8	52-d-ii
P&M-006	Concrete Paver Finisher with 40 HP Motor	Paving of concrete surface	cum / hour	20	hour	2150		
P&M-007	Concrete Pump of 45 & 30 cum capacity	Pumping of concrete	cum / hour	33 / 22	hour	832	8	52-m
P&M-008	Concrete Bucket	For Pouring concrete	capacity in cum	1	hour	190		
P&M-009	Concrete Mixer (a) 0.4/0.28 cum	Concrete Mixing	cum/hour	2.5	hour	188	8	52-n
P&M-010	Concrete Mixer (b) 1 cum	Concrete Mixing	cum/hour	7.5	hour	737		
P&M-011	Crane (a) 80 tonnes	Lifting Purpose			hour	1538		
P&M-012	Crane b) 35 tonnes	Lifting Purpose			hour	1025		
P&M-013	Crane c) 3 tonnes	Lifting Purpose			hour	428		
P&M-014	Dozer D - 80 - A 12	Spreading /Cutting / Clearing	cum/hour	300/ 150/250	hour	3915	8	52-e
P&M-015	Dozer D - 50 - A 15	Spreading /Cutting / Clearing	cum/hour	200/ 120/150	hour	2815	8	52-q
P&M-016	Emulsion Pressure Distributor	Applying emulsion tack coat	sqm/hour	1750	hour	1151		
P&M-017	Front End loader 1 cum bucket capacity	Soil loading / Aggregate loading	cum/hour	60 /25	hour	1317	7	52-a
P&M-018	Generator (a) 125 KVA	Generation of electric Energy	KVA	100	hour	1291		
P&M-019	Generator (b) 63 KVA	Generation of electric Energy	KVA	50	hour	645		
P&M-020	GSB Plant 50 cum	Producing GSB	cum/hour	40	hour	4424		
P&M-021	Hotmix Plant - 120 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	40	hour	31176		
P&M-022	Hotmix Plant - 100 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	30	hour	23848		
P&M-023	Hotmix Plant - 60 to 90 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	25	hour	19679		
P&M-024	Hotmix Plant - 40 to 60 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	17	hour	18598	8	52-c-iv
P&M-025	Hydraulic Chip Spreader	Surface Dressing	sqm/hour	1500	hour	2091	8	52-y
P&M-026	Hydraulic Excavator of 1 cum bucket	Soil Ordinary/Soil Marshy / Soil	cum/hour	60 /60 /60	hour	3813	8	52-v
P&M-027	Integrated Stone Crusher 100THP	Crushing of Spalls	TPH	100	hour	10417		
P&M-028	Integrated Stone Crusher 200 HP	Crushing of Spalls	TPH	200	hour	21913		
P&M-029	Kerb Casting Machine	Kerb Making	Rm/hour	80	hour	373		
P&M-030	Mastic Cooker	Mastic Wearing coat	capacity in tonne	1	hour	450	8	52-t
P&M-031	Mechanical Broom Hydraulic	Surface Cleaning	sqm/hour	1250	hour	505	8	52-w

Sl. No.	Description of Machine	Activity	Output of Machine	Out-put	Unit	Adopted Rate	As per SOR 2018	
							Page	Clause
P&M-032	Motor Grader 3.35 mtr blade	Clearing /Spreading /GSB /WBM	cum/hour	200/200/50/50	hour	3787	8	52-f-i
P&M-033	Mobile slurry seal equipment	Mixing and laying slurry seal	sqm/hour	2700	hour	1211		
P&M-034	Paver Finisher Hydrostatic with sensor control 100 TPH	Paving of DBM/ BM/SDC/ Premix	cum/hour	40	hour	2570	7	52-a
P&M-035	Paver Finisher Mechanical 100 TPH	Paving of WMM /Paving of DLC	cum/hour	40/30	hour	1716		
P&M-036	Piling Rig with Bantonite Pump	0.75 m dia to 1.2 m dia Boring attachment	Rm/hour	2 to 3	hour	6569		
P&M-037	Pneumatic Road Roller	Rolling of Asphalt Surface	cum/hour	25	hour	1231	8	52-g-iii
P&M-038	Pneumatic Sinking Plant	Pneumatic Sinking of wells	cum/hour	1.5 to 2.00	hour	5013		
P&M-039	Pot Hole Repair Machine	Repair of potholes	cum/hour	4	hour	1090		
P&M-040	Prestressing Jack with Pump & access	Stressing of steel wires/stands			hour	155		
P&M-041	Ripper	Scarifying	cum/hour	60	hour	77		
P&M-042	Rotavator	Scarifying	cum/hour	25	hour	116		
P&M-043	Road marking machine	Road marking	Sqm/hour	100	hour	213	8	52-x
P&M-044	Smooth Wheeled Roller 8 tonne	Soil Compaction /BM Compaction	cum/hour	70/25	hour	1308	8	52-g-ii
P&M-045	Tandem Road Roller	Rolling of Asphalt Surface	cum/hour	30	hour	894	8	52-g-iv
P&M-046	Tipper - 5 cum	Transportation of soil, GSB, WMM, Hotmix	Capacity in cum	5.5	km	64		
P&M-047	Truck 5.5 cum per 10 tonnes	Transportation of soil, GSB, WMM, Hotmix	Capacity in cum	5.5	tonne.k	8		
P&M-048	Tipper - 5 cum	Transportation of soil, GSB, WMM, Hotmix	Capacity in cum	5.5	hour	958	8	52-h
P&M-049	Transit Mixer 4.0/4.5 cum	Transportation of Concrete Mix to site	cum/hour	4.5	hour	1118		
P&M-050	Transit Mixer 4/4.5 cum	Transportation of Concrete Mix to site	cum/hour	4.5	tonne.k	19		
P&M-051	Transit Mixer 3.0 cum	Transportation of Concrete Mix to site	cum/hour	3	hour	1025		
P&M-052	Transit Mixer 3.0 cum	Transportation of Concrete Mix to site	cum/ hour	3	tonne.k	23		
P&M-053	Tractor	Pulling	capacity in HP	50	hour	700	8	52-f-ii
P&M-054	Tractor with Rotevator	Rate of Tractor + Rotevator			hour	886		
P&M-055	Tractor with Ripper	Rate of Tractor 6+ Ripper			hour	847		
P&M-056	Truck 5.5 cum per 10 tonnes	Material Transport	capacity/ cum	4.5	km	53		
P&M-057	Truck 5.5 cum per 10 tonnes	Material Transport	capacity/ cum	4.5	hour	958	8	52
P&M-058	Tipper - 5 cum	Material Transport	capacity/ cum	4.5	tonne.k	5.50		
P&M-059	Vibratory Roller 8 tonne	Earth or soil / GSB / WBM	cum/hour	100/60/60	hour	1308	8	52-g-ii
P&M-060	Water Tanker	Water Transport	capacity in KL	6	hour	744	8	52-i
P&M-061	Water Tanker	Water Transport	capacity in KL	6	km	41		
P&M-062	Wet Mix Plant 60 TPH	Wet Mix	cum/hour	25	hour	4022	8	52-c-ii
P&M-063	Air compressor with pneumatic chisel attachment for cutting hard clay.				hour	77		

Sl. No.	Description of Machine	Activity	Output of Machine	Out-put	Unit	Adopted Rate	As per SOR 2018	
							Page	Clause
P&M-064	Batch type cold mixing plant 100-120 TPH capacity producing an average output of 75 tonne per hour				hour	20631		
P&M-065	Belt conveyor system				hour	1997		
P&M-066	Boat to carry atleast 20 persons				hour	1997		
P&M-067	Cement concrete batch mix plant @ 175 cum per hour (effective output)				hour	3487		
P&M-068	Cement concrete batch mix plant @ 75 cum per hour				hour	7411		
P&M-069	Slip form paver with electronic sensor output @ 175 cum per hour				hour	6900		
P&M-070	Paver with electronic sensor output @ 75 cum per hour				hour	2400		
P&M-071	Cold milling machine @ 20 cum per hour				hour	12500		
P&M-072	Crane 5 tonne capacity				hour	733		
P&M-073	Crane 10 tonne capacity				hour	759		
P&M-074	Crane 15 tonne capacity				hour	1144	8	52-r
P&M-075	Crane 20 tonne capacity				hour	1279		
P&M-076	Crane 40 T capacity				hour	1279		
P&M-077	Crane with grab 0.75 cum capacity				hour	963		
P&M-078	Compressor with guniting equipment along with accessories				hour	799		
P&M-079	Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.				hour	1753		
P&M-080	Epoxy Injection gun				hour	3328		
P&M-081	Generator 33 KVA				hour	448		
P&M-082	Generator 100 KVA				hour	838		
P&M-083	Generator 250 KVA				hour	999		
P&M-084	Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking.				hour	4506		
P&M-085	Joint Cutting Machine with 2-3 blades (for rigid pavement)				hour	124		
P&M-086	Jack for Lifting 40 tonne lifting capacity.				day	500		
P&M-087	Piling rig Including double acting pile driving hammer (Hydraulic rig)				hrs	6569		
P&M-088	Plate compactor				hour	517	8	52-u
P&M-089	Snow blower equipment 140 HP @ 600 cum per hour				hour	1375		
P&M-090	Texturing machine (for rigid pavement)				hour	266		
P&M-091	Truck Trailor 30 tonne capacity				hour	750		
P&M-092	Truck Trailor 30 tonne capacity				t.km	23		
P&M-093	Tunnel Boring machine				hour	26250		
P&M-094	Vibrating Pile driving hammer complete with power unit and accessories.				hour	13750		
P&M-095	Wet Mix Plant 100 TPH				hour	5027		
P&M-096	Wet Mix Plant 75 TPH				hour	4022	8	52-c-ii

(B) Labour					
Sl. No.	Description	Unit	Rate	As per SOR 2018	
				Page	Clause
L-01	Blacksmith (IInd class)	day	500	9	2-b
L-02	Blacksmith (Ist class)/ Welder/ Plumber/ Electrician	day	550	9	2-a
L-03	Blaster (Stone cutter)	day	350	9	13
L-04	Carpenter I Class	day	550	9	3-a
L-05	Chiseller (Head Mazdoor)	day	450	9	5-a
L-06	Driller (Jumper)	day	400	9	12
L-07	Diver	day	500	9	25
L-08	Fitter	day	500	9	8-b
L-09	Mali	day	400	9	9
L-10	Mason (IInd class)	day	500	9	1-b
L-11	Mason (Ist class)	day	550	9	1-a
L-12	Mate / Supervisor	day	550	9	24
L-13	Mazdoor	day	300	9	5-c
L-14	Mazdoor/Dresser (Semi Skilled)	day	400	9	5-b
L-15	Mazdoor/Dresser/Sinker (Skilled)	day	450	9	5-a
L-16	Medical Officer	day	1210		
L-17	Operator(grouting)	day	550	9	22
L-18	Painter I class	day	550	9	4-a
L-19	Para medical personnel	day	715		
(C) Materials					
M-001	Stone Boulder of size 150 mm and below at Cruser Plant	cum	1055.50		
M-002	Supply of quarried stone 150 - 200 mm size for Hand Broken at site	cum	1055.50		
M-003	Boulder with minimum size of 300 mm for Pitching at Site	cum	1055.50		
M-004	Coarse sand at Mixing Plant	cum	2198.25		
M-005	Coarse sand at Site	cum	2198.25		
M-006	Fine sand at Site	cum	2136.25		
M-007	Moorum at Site	cum	2198.25		
M-008	Gravel/Quarry spall at Site	Cum	1055.50		
M-009	Granular Material or hard murrum at site	Cum	110.00	1.00	3.00
M-010	Granular Material or hard murrum at plant	Cum	110.00	1.00	3.00
M-011	Fly ash conforming to IS: 3812 (Part II & I) atHMP Plant / Batching Plant / Crushing Plant	Cum			
M-012	Filter media/Filter Material as per Table 300-3 (MoRT&H Specification)	Cum	1055.50		

Sl. No.	Description	Unit	Rate at Plant	As per SOR 2018	
				Page	Clause
M-013	Close graded Granular sub-base Material 53 mm to 9.5 mm	cum	1648.57		
M-015	Close graded Granular sub-base Material 26.5 mm to 9.5 mm	cum	1735.53		
M-016	Close graded Granular sub-base Material 9.5 mm to 4.75 mm	cum	1629.49		
M-017	Close graded Granular sub-base Material 9.5 mm to 2.36 mm	cum	1629.49		
M-018	Close graded Granular sub-base Material 4.75mm to 2.36 mm	cum	1579.14		
M-020	Close graded Granular sub-base Material 2.36 mm	cum	1965.66		
M-021	Stone crusher dust finer than 3mm with not more than 10% passing 0.075 sieve.	cum	1579.14		
M-022	Coarse graded Granular sub-base Material 2.36 mm & below	cum	1965.66		
M-025	Coarse graded Granular sub-base Material 9.5 mm to 4.75 mm	cum	1629.49		
M-026	Coarse graded Granular sub-base Material 26.5 mm to 4.75 mm	cum	1704.25		
M-027	Coarse graded Granular sub-base Material 26.5 mm to 9.5 mm	cum	1735.53		
M-028	Coarse graded Granular sub-base Material 37.5 mm to 9.5 mm	cum	1713.70		
M-029	Coarse graded Granular sub-base Material 53 mm to 26.5mm	cum	1520.57		
M-030	Aggregates below 5.6 mm	cum	1579.14		
M-031	Aggregates 22.4 mm to 2.36 mm	cum	1727.22		
M-034	Aggregates 45 mm to 22.4 mm	cum	1708.41		
M-040	Aggregates 10 mm to 5 mm	cum	1679.84		
M-041	Aggregates 11.2 mm to 0.09 mm	cum	1741.54		
M-042	Aggregates 13.2 mm to 0.09 mm	cum	1747.02		
M-043	Aggregates 13.2 mm to 5.6 mm	cum	1674.14		
M-044	Aggregates 13.2 mm to 10 mm	cum	1721.64		
M-045	Aggregates 20 mm to 10 mm	cum	1776.57		
M-046	Aggregates 25 mm to 10 mm	cum	1735.53		
M-047	Aggregates 19 mm to 6 mm	cum	1776.57		
M-048	Aggregates 37.5 mm to 19 mm	cum	1708.41		
M-049	Aggregates 37.5 mm to 25 mm	cum	1619.39		
M-050	Aggregates 6 mm nominal size	cum	1579.14		
M-051	Aggregates 10 mm nominal size	cum	1679.84		
M-052	Aggregates 13.2/12.5 mm nominal size	cum	1847.04		
M-053	Aggregates 20 mm nominal size	cum	1886.45		
M-054	Aggregates 25 mm nominal size	cum	1612.39		
M-055	Aggregates 40 mm nominal size	cum	1626.39		
M-056	AC pipe 100 mm dia	metre	160	7	51

Sl. No.	Description	Unit	Rate	As per SOR 2018	
				Page	Clause
M-057	Acrylic polymer bonding coat	litre	275		
M-058	Alluminium Paint	litre	258		
M-059	Aluminium alloy plate 2mm Thick	sqm	812.5		
M-060	Aluminium alloy/galvanised steel	tonne	59324		
M-061	Aluminium sheeting fixed with encapsulated lens type reflective sheeting including 2% towards lettering, cost of angle iron, cost of drilling holes, nuts, bolts etc.and signs	sqm	10722		
M-062	Aluminium studs 100 x 100 mm fitted with lense reflectors	nos	320	3	19-b-i
M-063	Barbed wire	kg	74.00	5	25-a
M-064	Bearing (Cost of parts)	nos	62500		
M-065	Bearing (Cast steel rocker bearing assembly of 250 tonne)	nos	333506		
M-066	Bearing (Elastomeric bearing assembly consisting of 7 internal layers of elastomer bonded to 6 nos. internal reinforcing steel laminates by the process of vulcanisation,)	nos	16008		
M-067	Bearing (Forged steel roller bearing of 250 tonne	nos	293486		
M-068	Bearing (Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with	nos	410		
M-069	Bearing (PTFE sliding plate bearing assembly of 80 tonnes)	nos	32800	5	26-iv-ii
M-070	Bearing (Supply of sliding plate bearing of 80 tonne)	nos	16008		
M-071	Bentonite	kg	11.00	6	39
M-072	Binding wire	kg	63	5	24-g
M-073	Bitumen (Cationic Emulsion)	tonne	37,888.58		
M-074	Bitumen VG-40(30-40 grade)	tonne	42,840.18		
M-075	Bitumen VG-10 (80-100 grade)	tonne	41,450.18		
M-076	Bitumen (Cutback)	tonne	37,888.58		
M-077	Bitumen (emulsion)	tonne	37,888.58		
M-078	Bitumen (modified graded) -CRMB-55	tonne	45,228.58		
M-079	Brick	each	12.00	1	4-a
M-080	C.I.shoes for the pile	kg	83.53		
M-081	Cement	tonne	9,422.63		
M-082	Cold twisted bars (HYSD Bars)	tonne	54,831.63		
M-083	Coller for joints 300 mm dia	nos	140		
M-084	Compressible Fibre Board(20mm thick)	sqm	757		
M-085	Connectors/ Staples	each	61		
M-086	Copper Plate(12m long x 250mmwide)	kg	733		
M-087	Corrosion resistant Structural steel	tonne	67710		
M-088	Corrugated sheet, 3 mm thick, "Thrie" beam section railing	kg	67		

Sl. No.	Description	Unit	Rate	As per SOR 2018	
				Page	Clause
M-089	Credit for excavated rock found suitable for use	cum	250		
M-090	Curing compound	liter	363		
M-091	Delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	990		
M-092	Earth Cost or compensation for earth taken from private land	cum	60.5	1	3-a
M-093	Elastomeric slab seal expansion joint assembly manufactured by using chloroprene, elastomer for elastomeric slab unit conforming to clause 915.1 of IRC: 83 (part II),	metre	10989		
M-094	Electric Detonators @ 1 detonator for 1/2 gelatin stick of 125 gms each	100 nos	1561.3	5	37-a
M-095	Epoxy compound with accessories for preparing epoxy mortar	kg	244		
M-096	Epoxy mortar	kg	400		
M-097	Epoxy primer	kg	278		
M-098	Epoxy resin-hardner mix for prime coat	kg	167		
M-099	Flag of red color cloth 600 x 600 mm	each	67		
M-100	Flowering Plants	each	14		
M-101	Galvanised MS flat clamp	nos	31		
M-102	Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. Gl wire in rolls of required size.	sqm	189		
M-103	Galvanised structural steel plate 200 mm wide, 6 mm thick, 24 m long	kg	220		
M-104	Gelatin 80%	kg	168	5	35
M-105	Geo grids	sqm	275		
M-106	Geomembrane	sqm	375		
M-107	Geonets	sqm	344		
M-108	Geotextile	sqm	50		
M-109	Geotextile filter fabric	sqm	156		
M-110	Gl bolt 10 mm Dia	nos	42		
M-111	Grouting pump with agitator	hour	182		
M-112	Grass (Doob)	kg	14		
M-113	Grass (Fine)	kg	14		
M-114	HDPE pipes 75mm dia	metre	46		
M-115	HDPE pipes 90mm dia	metre	219		
M-116	Hedge plants	each	9		
M-117	Helical pipes 600mm diameter	metre	1276		
M-118	Hot applied thermoplastic compound	litre	316	3	16-ii
M-119	HTS strand	tonne	71281	5	32
M-120	Joint Sealant Compound	kg	334		

Sl. No.	Description	Unit	Rate	As per SOR 2018	
				Page	Clause
M-121	Jute netting, open weave, 2.5 cm square opening for seeding and Mulching	sqm	14		
M-122	LDO for steam curing	litre	44		
M-123	M.S. Clamps	nos	63		
M-124	M.S. Clamps	kg	243		
M-125	M.S.shoes @ 35 Kg per pile of 15 m	kg	47		
M-126	Mild Steel bars	tonne	48,180		
M-127	Modular strip/box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm assembly comprising of edge beams,	metre	19650		
M-128	Modular strip/box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm box/box seal joint assembly containing 3 modules/cells and	metre	255255		
M-129	Nipples 12mm	nos	30		
M-130	Nuts and bolts	kg	87.50	4	24-f-g
M-131	Paint	litre	236	2	14.3-a
M-132	Pavement Marking Paint	litre	316	3	16-ii
M-133	Paving Fabric	sqm	287.5		
M-134	Perforated geosynthetic pipe 150 mm dia	metre	250		
M-135	Perforated pipe of cement concrete, internal dia 100 mm	metre	94		
M-136	Pesticide	kg	340		
M-137	Pipes 200 mm dia, 2.5 m long for drainage	metre	344		
M-138	Plastic sheath, 1.25 mm thick for dowel bars	sqm	1		
M-139	Plastic tubes 50 cm dia, 1.2 m high	nos	4375		
M-140	Polymer braids	metre	438		
M-141	Pre moulded Joint filler,25 mm thick for expansion joint.	sqm	1012	5	28-c
M-142	Pre-coated stone chips of 13.2 mm nominal size	cum	1989		
M-143	Preformed continuous chloroprene elastomer or closed cell foam sealing element with high tear strength, vulcanised in a single operation for the full length of a joint to	metre	4862		
M-144	Pre-moulded asphalt filler board	sqm	66		
M-145	Pre-packed cement based polymer concrete of strength 45 Mpa at 28 days	kg	36		
M-146	Primer	kg	188		
M-147	Quick setting compound	kg	55		
M-148	Random Rubble Stone	cum	996		
M-149	RCC Pipe NP 4 heavy duty non presure pipe 1000 mm dia	metre	7800	7	47.4-e
M-150	RCC Pipe NP 4 heavy duty non presure pipe 1200 mm dia	metre	8800		
M-151	RCC Pipe NP 4 heavy duty non presure pipe 300 mm dia	metre	2400	7	47.4-a
M-152	Reflectorising glass beads	kg	129	3	16-iii

Sl. No.	Description	Unit	Rate	As per SOR 2018	
				Page	Clause
M-153	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Copper Strips)	metre	1125		
M-154	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Galvanised carbon steel strips)	metre	250		
M-155	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Glass reinforced polymer/fibre reinforced polymer/polymeric strips)	metre	687.5		
M-156	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Stainless steel strips)	metre	687.5		
M-157	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. Aluminium strips)	metre	361		
M-158	Rivets	each	1		
M-159	Sand bags (Cost of sand and Empty cement bag)	nos	10		
M-160	Sapling 2 m high 25 mm dia	each	97		
M-161	Scrap tyres of size 900 x 20	nos	134		
M-162	Seeds	kg	334		
M-163	Selected earth	cum	200		
M-164	Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	30		
M-165	Sheathing duct	metre	109		
M-166	Shrubs	each	12		
M-167	Sludge / Farm yard manure @ 0.18 cum per 100 sqm at site of work for turfing	cum	134		
M-168	Sodium vapour lamp	each	2006		
M-169	Square Rubble Coursed Stone	cum	1200		
M-170	Steel circular hollow pole of standard specification for street lighting to mount light at 5 m height above deck level	each	6078		
M-171	Steel circular hollow pole of standard specification for street lighting to mount light at 9 m height above road level	each	10028		
M-172	Steel drum 300 mm dia 1.2 m high/empty bitumen drum	nos	66		
M-173	Steel helmet and cushion block on top of pile head during driving.	kg	200		
M-174	Steel pipe 25 mm external dia as per IS:1239	metre	212		
M-175	Steel pipe 50 mm external dia as per IS:1239	metre	425		
M-176	Steel wire rope 20 mm	kg	271		
M-177	Steel wire rope 40 mm	kg	244		
M-178	Strip seal expansion joint	metre	29850	5	27-i
M-179	Structural Steel	tonne	63217		
M-180	Super plastisizer admixture IS marked as per 9103-1999	kg	279.66		
M-181	Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	400		
M-182	Through and bond stone	each	14		
M-183	Tie rods 20mm diameter	nos	273		
M-184	Tiles size 300 x 300 mm and 25 mm thick	each	0		

Sl. No.	Description	Unit	Rate	As per SOR 2018	
				Page	Clause
M-185	Timber	cum	27073		
M-186	Traffic cones with 150 mm reflective sleeve	nos	1459		
M-187	Tube anchorage set complete with bearing plate, permanent wedges etc	nos	4619		
M-188	Unstaked lime	tonne	11100	2	14.5
M-189	Water	KL	125	1	5
M-190	Water based cement paint	litre	85		
M-191	Welded steel wire fabric	kg	66		
M-192	Wire mesh 50mm x 50mm size of 3mm wire	kg	160		
M-193	Wooden ballies 2" Dia for bracing	each	42		
M-194	Wooden ballies 8" Dia and 9 m long	each	547		
M-195	Wooden packing	cum	16023		
M-196	Wooden staff for fastening of flag 25 mm dia, one m long	each	66		
	Overheads for Road Works	4%			
	Contractors profit for Road Works	10 %			
	Overheads for Bridge Works	16 %	for input of Overheads or Contractors profit please type in collum C as like below		
	Overheads for Bridge Works (Rehabilitation)	26 %	Type symble of apostrophe(') then input value then one space then symble of percentage (%) for example '08 %		
	Contractors profit for Bridge Works	10 %			
	Lead beyond 1 km from Mixing Plant to working site	6 km			
	Lead for E/W borow area to site	3 km			
	Lead for fly ash from source to site	km			

Summary of Rate Analysis			
Item No.	Descriptions	Unit	Rate
	CHAPTER-1		
	CARRIAGE OF MATERIALS		
1.1	Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum. (Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip)	cum	156.00
1.3	Loading and Unloading of Cement or Steel by Manual Means and stacking.	tonne	293.00
1.4	Cost of Haulage Excluding Loading and Unloading		
(i)	Surfaced Road	tonne.km	7.60
	CHAPTER-2		
	SITE CLEARANCE		
2.3	Clearing and Grubbing Road Land . (Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.)		
(i)	By Manual Means:-		
B	In area of thorny jungle	hectare	75275.00
2.4	Dismantling of Structures (Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres)		
II	By Mechanical Means		
A	Cement Concrete Grade M-15 & M-20	cum	1177.00
B	Prestressed / Reinforced cement concrete grade M-20 & above	cum	1879.00
2.5	Dismantling of Flexible Pavements (Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately)		
I	By Manual Means:-		
A	Bituminous course	cum	857.00
2.7	Dismantling Guard Rails (Dismantling guard rails by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable materials and unserviceable materials separately.)	metre	95.00
	CHAPTER-3		
	EARTH WORK, EROSION CONTROL AND DRAINAGE		
3.13	Excavation for Structures (Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)		
(i)	Ordinary soil		
B	Mechanical Means (Depth upto 3 m)	cum	97.00
(ii)	Ordinary rock (not requiring blasting)		
A	Manual Means (Depth upto 3 m)	cum	368.00
B	Mechanical Means	cum	131.00
3.15	Scarifying existing bituminous surface to a depth of 50 mm by mechanical means (Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres.)	sqm	7.00
3.16	Embankment Construction with Material Obtained from Borrow Pits (Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2)	cum	328.00
3.17	Construction of Embankment with Material Deposited 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 table 300-2)	cum	151.00
3.18	Construction of Subgrade and Earthen Shoulders (Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2)	cum	378.00
3.24	Surface Drains in Soil (Construction of unlined surface drains of average cross sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309. Excavated material to be used in embankment within a lead of 50 metres (average lead 25 metres))		
A	Mechanical means	metre	153.00

Summary of Rate Analysis			
Item No.	Descriptions	Unit	Rate
3.32	Excavation in Hill Area in Soil by Mechanical Means (Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres)	cum	197.00
3.33	Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting. (Excavation in hilly area in ordinary rock not requiring ballasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres)	cum	283.00
3.34	Excavation in Hilly Areas in Hard Rock Requiring Blasting (Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres.)	cum	393.00
	CHAPTER-4		
	SUB-BASES, BASES (NON- BITUMINOUS) AND SHOULDERS		
4.2	Granular Sub-Base with Coarse Graded Material (Table:- 400- 2) (Construction of granular sub-base by providing coarse 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 vibratory roller to achieve the desired density, complete as per clause 401)		
(i)	for grading- I Material	cum	2725.00
4.12	Wet Mix Macadam (Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)	cum	3136.00
4.13	Construction of Median and Island with Soil Taken from Roadway Cutting (Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 407)	cum	356.00
	CHAPTER-5		
	BASES AND SURFACE COURSES (BITUMINOUS)		
5.1	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.)	sqm	29.00
5.2	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	12.00
5.6	Dense Graded Bituminous Macadam (Providing and laying dense bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5% by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.)		
(i)	for Grading I (40 mm nominal size)	cum	9013.00
5.8	Bituminous Concrete (Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects)		
(i)	for Grading-I (13 mm nominal size)	cum	10622.00
	CHAPTER-8		
	TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES		
8.1	Cast in Situ Cement Concrete M20 kerb (Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)		
A	Using Concrete Mixer	metre	435.00
B	Using Concrete Batching and Mixing Plant	metre	440.00
8.2	Cast in Situ Cement Concrete M 20 Kerb with Channel (Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCC M20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)		
B	Using Concrete Batching and Mixing Plant	metre	830.00

Summary of Rate Analysis			
Item No.	Descriptions	Unit	Rate
8.4	Retro- reflectorised Traffic signs (Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing)		
(i)	90 cm equilateral triangle	each	6811.00
(ii)	60 cm equilateral triangle	each	4431.00
(iii)	60 cm circular	each	5989.00
(iv)	80 mm x 60 mm rectangular	each	8405.00
(v)	60 cm x 45 cm rectangular	each	5830.00
(vi)	60 cm x 60 cm square	each	6934.00
(vii)	90 cm high octagon	each	10761.00
8.5	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing)	sqm	15329.00
8.6	Direction and Place Identification signs with size more than 0.9 sqm size board. (Providing and erecting direction and place identification retro- reflectorised sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 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 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing)	sqm	15855.00
8.13	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	sqm	1270.00
8.14	Kilo Metre Stone (Reinforced cement concrete M15 grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc)		
(i)	5th kilometre stone (precast)	each	5072.00
(ii)	Ordinary Kilometer stone (Precast)	each	3072.00
(iii)	Hectometer stone (Precast)	each	826.00
8.15	Road Delineators (Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide stripes, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and confirming to IRC-79 and the drawings.)	each	1258.00
8.16	Boundary pillar	each	797.00
	Reinforced Cement Concrete Crash Barrier (Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified)	metre	5324.00
8.23	Metal Beam Crash Barrier		
A	Type - A, "W" : Metal Beam Crash Barrier (Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810)	metre	3662.00
8.35	Road Markers/Road Stud with Lense Reflector	each	410.00

Summary of Rate Analysis			
Item No.	Descriptions	Unit	Rate
	CHAPTER-9		
	PIPE CULVERTS		
9.2	Laying Reinforced Cement Concrete Pipe NP4/prestrssed concrete pipe on first class bedding in single row . (Laying Reinforced cement concrete pipe NP4/prestrssed concrete pipe 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 .)		
A	1000 mm dia	metre	9170.00
	CHAPTER-12		
	FOUNDATIONS		
12.1	Excavation for Structures (Earth work in excavation of foundation of structures as per drawing and technical specification, 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.)		
I	Ordinary soil		
B	Mechanical Means		
(i)	Depth upto 3 m	cum	135.00
(ii)	Depth 3 m to 6 m	cum	155.00
(iii)	Depth above 6m	cum	185.00
II	Ordinary rock (not requiring blasting)		
B	Mechanical Means	cum	176.00
12.7	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification		
(a)	Square Rubble Coursed rubble masonry(first sort)	cum	6482.00
12.8	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications		
A	PCC Grade M15	cum	7905.00
B	PCC Grade M20	cum	8717.00
C	RCC Grade M20		
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	8832.00
E	RCC Grade M25		
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9509.00
G	RCC Grade M30		
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	9530.00
H	RCC Grade M35		
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	9674.00
12.21	Sand filling in wells complete as per drawing and technical specifications	cum	3393.00
12.40	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation complete as per drawing and technical specifications	tonne	77927.00
	CHAPTER-13		
	SUB-STRUCTURE		
13.5	Plain/Reinforced cement concrete in sub-structure complete as per drawing and technical specifications		
G	RCC Grade M30		
(p)	Height upto 5m		
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10128.00
(q)	Height 5m to 10m		
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10414.00
H	RCC Grade M35		
(p)	Height upto 5m		
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10332.00
(q)	Height 5m to 10m		
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10557.00
13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	tonne	78076.00
13.8	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical specifications	each	333.00

Summary of Rate Analysis			
Item No.	Descriptions	Unit	Rate
13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification		
A	Granular material	cum	626.00
13.10	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and technical specification.	cum	1970.00
13.16	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved technical specifications.	tonne capacity	532.00
	CHAPTER-14		
	SUPER-STRUCTURE		
14.1	Furnishing and Placing Reinforced/Prestressed cement concrete in super-structure as per drawing and Technical Specification		
C	RCC Grade M 30		
Case I	Using Concrete Mixer		
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	11127.00
(q)	Height 5m to 10m	cum	11591.00
D	RCC/PSC Grade M35		
Case II	Using Batching Plant, Transit Mixer and Concrete Pump		
(i)	For solid slab super-structure, 18-28% of (a+b+c)		
(p)	Height upto 5m	cum	11086.00
E	PSC Grade M-40		
Case 1	Using concrete mixer.		
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	12773.00
F	PSC Grade M-45		
(i)	For solid slab/voided slab super-structure, 16-26% of cost of concrete (a+b+c)		
(r)	Height above 10m	cum	13334.00
G	PSC Grade M-50		
(i)	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55% of cost of concrete		
(q)	Height 5m to 10m	cum	15832.00
14.2	a) Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	tonne	79583.00
14.3	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	tonne	133786.00
14.5	Mastic Asphalt (Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	sqm	522.00
14.8	Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification	metre	4096.00
14.9	Drainage Spouts complete as per drawing and Technical specification	each	2202.00
14.11	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum	13296.00
14.16	Painting on concrete surface (Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 Sq.m.)	metre	87.00

Summary of Rate Analysis			
Item No.	Descriptions	Unit	Rate
14.19	Asphaltic Plug joint (Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.)	metre	3360.00
14.22	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	metre	40042.00
	CHAPTER-15		
	RIVER TRAINING AND PROTECTION WORKS		
15.4	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications		
A	Stone/Boulder	cum	2177.00
15.5	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	cum	2178.00
15.8	Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concrete bedding.		
C	150mm thick Flat Stone with concrete Grade M15	cum	6733.00
15.8 New	Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concrete bedding.		
A	Rubble stone laid in cement mortar 1:3	cum	5457.00
15.11	Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.	cum	2232.00

CHAPTER-1								
CARRIAGE OF MATERIALS								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
1.1			Loading and Unloading of Stone Boulder/Stone aggregates/Sand/Kanker/Moorum.	cum				
			Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip					
			Unit = cum					
			Taking output = 5.5 cum					
			Time required for					
			i) Positioning of tipper at loading point		1 Min			
			ii) Loading by front end loader 1 cum bucket capacity @ 25 cum per hour		13 Min			
			iii) Maneuvering, reversing, dumping and turning for return		2 Min			
			iv) Waiting time, unforeseen contingencies etc		4 Min			
			Total		20 Min			
			a) Machinery					
			Tipper 5.5 tonnes capacity	hour	0.330	958.45	316.29	P&M-048
			Front end-loader 1 cum bucket capacity @ 25 cum/hour	hour	0.330	1316.50	434.45	P&M-017
			b) Overhead charges @ 4% on (a)				30.03	
			c) Contractor's profit @ 10 % on (a+b)				78.08	
			Cost for 5.5 cum = a+b+c				858.84	
			Rate per cum = (a+b+c)/ 5.5				156.15	
		Note	Unloading will be by tipping.			say	156.00	
1.3			Loading and Unloading of Cement or Steel by Manual Means and Stacking.					
			Unit = tonne					
			Taking output = 10 tonnes					
			a) Labour					
			Mate	day	0.080	550.00	44.00	L-12
			Mazdoor for loading and unloading	day	2.000	300.00	600.00	L-13
			b) Machinery					
			Truck 10 tonne capacity	hour	2.000	958.45	1916.91	P&M-057
			c) Overhead charges @ 4% on (a+b)				102.44	
			d) Contractor's profit @ 10 % on (a+b+c)				266.33	
			Cost for 10 tonnes = a+b+c+d				2929.68	
			Rate per tonnes = (a+b+c+d)/10				292.97	
						say	293.00	
1.4			Cost of Haulage Excluding Loading and Unloading					
			Haulage of materials by tipper excluding cost of loading, unloading and stacking.					
			Unit = t.km					
			Taking output 10 tonnes load and lead 10 km = 100 t.km					
		(i)	Surfaced Road					
			Speed with load : 25 km / hour.					
			Speed while Returning empty : 35 km / hour.					
			a) Machinery.					
			Tipper 10 tonne capacity					
			Time taken for onward haulage with load	hour	0.400	958.45	383.38	P&M-048
			Time taken for empty return trip.	hour	0.290	958.45	277.95	P&M-048
			b) Overhead charges @ 4% on (a)				26.45	
			c) Contractor's profit @ 10 % on (a+b)				68.78	
			cost for 100 t km = a+b+c				756.57	
			Rate per t.km = (a+b+c)/100				7.57	
						say	7.60	

CHAPTER-2								
SITE CLEARANCE								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
2.3	201		Clearing and Grubbing Road Land .					
			Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness					
			Unit = Hectare					
			Taking output = 1 Hectare					
		(i)	By Manual Means:-					
2.3 (i)		B	In area of thorny jungle					
			a) Labour					
			Mate	day	8.000	550.00	4400.00	L-12
			Mazdoor	day	200.000	300.00	60000.00	L-13
			b) Machinery					
			Tractor-trolley	hour	2.000	700.00	1400.00	P&M-053
			c) Overhead charges @ 4% on (a+b)				2632.00	
			d) Contractor's profit @ 10 % on (a+b+c)				6843.20	
			Rate per Hectare = a+b+c+d				75275.20	
						say	75275.00	
2.4	202		Dismantling of Structures					
			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres					
			Unit = cum					
			Taking output = 1.25 cum					
2.4		II	By Mechanical Means for items No. 202(b)& (c)					
		A	Cement Concrete Grade M-15 & M-20					
			a) Labour					
			Mate	day	0.020	550.00	11.00	L-12
			Mazdoor for loading and unloading	day	0.250	300.00	75.00	L-13
			Mazdoor with Pneumatic breaker	day	0.250	400.00	100.00	L-14
			b) Machinery					
			Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1.5 cum per hour	hour	0.670	1359.75	911.03	P&M-001
			Tractor-trolley	hour	0.270	700.00	189.00	P&M-053
			c) Overhead charges @ 4% on (a+b)				51.44	
			d) Contractor's profit @ 10 % on (a+b+c)				133.75	
			Cost for 1.25 cum = a+b+c+d				1471.22	
			Rate per cum = (a+b+c+d)/ 1.25				1176.98	
						say	1177.00	
2.4 II		B	Prestressed / reinforced cement concrete grade M-20 & above					
			a) Labour					
			Mate	day	0.050	550.00	27.50	L-12
			Mazdoor with Pneumatic breaker	day	0.660	400.00	264.00	L-14
			Blacksmith	day	0.250	550.00	137.50	L-02
			Mazdoor for loading and unloading	day	0.250	300.00	75.00	L-13
			b) Machinery					
			Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1.00 cum per hour	hour	1.000	1359.75	1359.75	P&M-001

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Tractor-trolley	hour	0.270	700.00	189.00	P&M-053
		c) Overhead charges @ 4% on (a+b)				82.11	
		d) Contractor's profit @ 10 % on (a+b+c)				213.49	
		Cost for 1.25 cum = a+b+c+d				2348.35	
		Rate per cum = (a+b+c+d)/ 1.25				1878.68	
					say	1879.00	
		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.					
2.5	202	Dismantling of Flexible Pavements					
		Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately					
		Unit = cum					
		Taking output = 1 cum					
		I By Manual Means					
		A Bituminous courses					
		a) Labour					
		Mate	day	0.060	550.00	33.00	L-12
		Mazdoor for dismantling, loading and unloading	day	1.500	300.00	450.00	L-13
		b) Machinery					
		Tractor-trolley	hour	0.380	700.00	266.00	P&M-053
		c) Overhead charges @ 4% on (a+b)				29.96	
		d) Contractor's profit @ 10 % on (a+b+c)				77.90	
		Rate per cum = a+b+c+d				856.86	
					say	857.00	
2.7	202	Dismantling of Guard Rails					
		Dismantling guard rails by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable materials and unserviceable materials separately.					
		Unit = running metre					
		Taking output = 1 metre					
		a) Labour					
		Mate	day	0.006	550.00	3.30	L-12
		Mazdoor including loading and unloading	day	0.150	300.00	45.00	L-13
		b) Machinery					
		Tractor-trolley	hour	0.050	700.00	35.00	P&M-053
		c) Overhead charges @ 4% on (a+b)				3.33	
		d) Contractor's profit @ 10 % on (a+b+c)				8.66	
		Rate per metre = a+b+c+d				95.30	
					say	95.00	

CHAPTER - 3								
EARTH WORK, EROSION CONTROL AND DRAINAGE								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
3.13	304		Excavation for Structures					
			Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.					
		(i)	Ordinary soil					
3.13 (i)		B	Mechanical Means (Depth upto 3 m)					
			Unit = cum					
			Taking output = 300 cum					
			a) Labour					
			Mate	day	0.320	550.00	176.00	L-12
			Mazdoor	day	8.000	300.00	2400.00	L-13
			b) Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.000	3812.50	22875.00	P&M-026
			c) Overhead charges @ 4% on (a+b)				1018.04	
			d) Contractor's profit @ 10 % on (a+b+c)				2646.90	
			Cost for 300 cum = a+b+c+d				29115.94	
			Rate per cum = (a+b+c+d)/300				97.05	
						say	97.00	
		Note	Cost of dewatering upto 5 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions..					
3.13		(ii)	Ordinary Rock (not requiring blasting)					
		A	Manual Means (Depth upto 3 m)					
			Unit = cum					
			Taking output = 10 cum					
			a) Labour					
			Mate	day	0.400	550.00	220.00	L-12
			Mazdoor	day	10.000	300.00	3000.00	L-13
			b) Overhead charges @ 4% on (a)				128.80	
			c) Contractor's profit @ 10 % on (a+b)				334.88	
			Cost for 10 cum = a+b+c				3683.68	
			Rate per cum = (a+b+c)/10				368.37	
						say	368.00	
		Note	Cost of dewatering upto 10 per cent of labour cost may be added, where required. Assessment for dewatering shall be made as per site conditions..					
3.13 (ii)		B	Mechanical Means					
			Unit = cum					
			Taking output = 216 cum					
			a) Labour					
			Mate	day	0.240	550.00	132.00	L-12
			Mazdoor	day	6.000	300.00	1800.00	L-13
			b) Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.000	3812.50	22875.00	P&M-026
			c) Overhead charges @ 4% on (a+b)				992.28	
			d) Contractor's profit @ 10 % on (a+b+c)				2579.93	
			Cost for 216 cum = a+b+c+d				28379.21	
			Rate per cum = (a+b+c+d)/216				131.39	
						say	131.00	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Note	1. Cost of dewatering upto 5 per cent of (a+b), may be added, where required Assessment for dewatering shall be made as per site conditions.					
			2. In case of rock, foundation beyond 3 m is not dug and hence not included.					
3.15	305.4.3		Scarifying Existing Bituminous Surface to a depth of 50 mm by Mechanical Means					
			Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres.					
			Unit = sqm					
			Taking output = 100 sqm					
			a) Labour					
			Mate	day	0.010	550.00	5.50	L-12
			Mazdoor	day	0.250	300.00	75.00	L-13
			b) Machinery					
			Tractor with ripper attachment @ 60 cum per hour	hour	0.080	847.00	67.76	P&M-055
			Front end loader 1 cum bucket capacity @ 25 cum per hour	hour	0.200	1316.50	263.30	P&M-017
			Tipper 5.5 cum capacity, 4 trips per hour.	hour	0.230	958.45	220.44	P&M-048
			c) Overhead charges @ 4% on (a+b)				25.28	
			d) Contractor's profit @ 10 % on (a+b+c)				65.73	
			Cost for 100 sqm = a+b+c+d				723.01	
			Rate per sqm = (a+b+c+d)/100				7.23	
						say	7.00	
3.16	305		Construction of Embankment with Material obtained from Borrowpits					
			Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.					
			Unit = cum					
			Taking output = 100 cum					
			a) Labour					
			Mate	day	0.040	550.00	22.00	L-12
			Mazdoor	day	1.000	300.00	300.00	L-13
			b) Machinery					
			Hydraulic Excavator 1 cum bucket capacity @ 60 cum per hour	hour	1.670	3812.50	6366.88	P&M-026
			Tipper 10 tonne capacity	tonne.km	160 x L	5.50	2640.00	Lead = 3 km & P&M-058
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				264.00	
			Dozer 80 HP for spreading @ 200 cum per hour	hour	0.500	3914.88	1957.44	P&M-014
			Motor grader for grading @ 100 cum per hour	hour	1.000	3786.88	3786.88	P&M-032
			Water tanker 6 KL capacity	hour	4.000	744.25	2977.00	P&M-060
			Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.000	1307.50	1307.50	P&M-059
			c) Material					
			Cost of water	KL	24.000	125.00	3000.00	M-189
			Compensation for earth taken from private land	cum	100.000	60.50	6050.00	M-092
			d) Overhead charges @ 4% on (a+b+c)				1146.87	
			e) Contractor's profit @ 10 % on (a+b+c+d)				2981.86	
			Cost for 100 cum = a+b+c+d+e				32800.41	
			Rate per cum = (a+b+c+d+e)/100				328.00	
						say	328.00	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		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.					
3.17	305		Construction of Embankment with Material Deposited 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 table 300-2.					
			Unit = cum					
			Taking output = 100 cum					
			a) Labour					
			Mate	day	0.020	550.00	11.00	L-12
			Mazdoor	day	0.500	300.00	150.00	L-13
			b) Machinery					
			Dozer 80 HP for spreading @ 200 cum per hour	hour	0.500	3914.88	1957.44	P&M-014
			Motor grader for grading @ 100 cum per hour	hour	1.000	3786.88	3786.88	P&M-032
			Water tanker 6 KL capacity	hour	4.000	744.25	2977.00	P&M-060
			Vibratory roller 8-10 tonnes @ 100 cum per hour	hour	1.000	1307.50	1307.50	P&M-059
			c) Material					
			Cost of water	KL	24.000	125.00	3000.00	M-189
			d) Overhead charges @ 4% on (a+b+c)				527.59	
			e) Contractor's profit @ 10 % on (a+b+c+d)				1371.74	
			Rate for 100 cum = a+b+c+d+e				15089.15	
			Rate per cum = (a+b+c+d+e)/100				150.89	
						say	151.00	
		Note	In case the earth cutting is done by dozer and pushed for filling in the embankment, the input of dozer in the cost of embankment shall be deleted as the same is already provided in the cost of excavation. However, if the earth is dumped by tippers from roadway cutting, the input of dozer for spreading is required to be provided.					
3.18	305		Construction of Subgrade and Earthen Shoulders					
			Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2					
			Unit = cum					
			Taking output = 100 cum					
			a) Labour					
			Mate	day	0.040	550.00	22.00	L-12
			Mazdoor	day	1.000	300.00	300.00	L-13
			b) Machinery					
			Hydraulic excavator 1 cum bucket capacity @ 60 cum per hour	hour	1.670	3812.50	6366.88	P&M-026
			Tipper 10 tonne capacity	tonne.km	175xL	5.50	2887.50	Lead =3 km & P&M-058
			Add 10 per cent of cost of carriage to cover cost of loading and unloading				288.75	
			Dozer 80 HP for spreading @ 200 cum per hour	hour	0.500	3914.88	1957.44	P&M-014
			Motor grader for grading @ 50 cum per hour	hour	2.000	3786.88	7573.75	P&M-032
			Water tanker with 6 km lead	hour	4.000	744.25	2977.00	P&M-060
			Vibratory roller 8-10 tonnes @ 80 cum per hour	hour	1.250	1307.50	1634.38	P&M-059
			c) Material					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Cost of water	KL	24.000	125.00	3000.00	M-189
		Compensation for earth taken from private land	cum	100.000	60.50	6050.00	M-092
		d) Overhead charges @ 4% on (a+b+c)				1322.31	
		e) Contractor's profit @ 10 % on (a+b+c+d)				3438.00	
		Cost for 100 cum = a+b+c+d+e				37817.99	
		Rate per cum = (a+b+c+d+e)/100				378.18	
					say	<u>378.00</u>	
3.24	309	Surface Drains in Soil					
		Construction of unlined surface drains of average cross sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309. Excavated material to be used in embankment within a lead of 50 metres (average lead 25 metres)					
		Unit = metre					
		Taking output = 10 metres					
	A	Mechanical means					
		a) Labour					
		Mate	day	0.010	550.00	5.50	L-12
		Mazdoor for dressing of bed and side of drain	day	0.250	300.00	75.00	L-13
		b) Machinery					
		Hydraulic Excavator 0.3 cum bucket capacity @ 30 metres per hour	hour	0.330	3812.50	1258.13	P&M-026
		c) Overhead charges @ 4% on (a+b)				53.55	
		d) Contractor's profit @ 10 % on (a+b+c)				139.22	
		Cost for 10 metres = a+b+c+d				1531.39	
		Rate per metre = (a+b+c+d)/10				153.14	
					say	<u>153.00</u>	
	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 masonry as the case may be.					
3.32	301	Excavation in Hill Area in Soil by Mechanical Means					
		Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres.					
		Unit = cum					
		Taking output = 260 cum					
		a) Labour					
		Mate	day	0.240	550.00	132.00	L-12
		Mazdoor for trimming slopes and helping in excavation etc.	day	6.000	300.00	1800.00	L-13
		b) Machinery					
		Dozer 80 HP (D-80 A 12)@ 43.28 cum per hour	hour	6.000	3914.88	23489.25	P&M-014
		Front end loader	hour	6.000	1316.50	7899.00	P&M-017
		Tipper 5.5cum capacity, 4 trips per hour.	hour	12.000	958.45	11501.45	P&M-048
		c) Overhead charges @ 4% on (a+b)				1792.87	
		d) Contractor's profit @ 10 % on (a+b+c)				4661.46	
		Cost for 260 cum = a+b+c+d				51276.02	
		Rate per cum = (a+b+c+d)/260				197.22	
					say	<u>197.00</u>	
	Note	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.					
3.33	301	Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting.					

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			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 all lift and lead upto 1000 metres.					
			Unit = cum					
			Taking output = 170 cum					
			a) Labour					
			Mate	day	0.320	550.00	176.00	L-12
			Mazdoor	day	8.000	300.00	2400.00	L-13
			b) Machinery					
			Dozer 80 HP (D-80 A 12)@ 28.32 cum per hour	hour	6.000	3914.88	23489.25	P&M-014
			Front end loader	hour	7.000	1316.50	9215.50	P&M-017
			Tipper 5.5cum capacity, 4 trips per hour.	hour	7.000	958.45	6709.18	P&M-048
			c) Overhead charges @ 4% on (a+b)				1679.60	
			d) Contractor's profit @ 10 % on (a+b+c)				4366.95	
			Cost for 170 cum = a+b+c+d				48036.48	
			Rate per cum = (a+b+c+d)/170				282.57	
						say	<u>283.00</u>	
		Note	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 can be disposed off on the valley side.					
3.34	301		Excavation in Hilly Areas in Hard Rock Requiring Blasting					
			Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres.					
			Unit = cum					
			Taking output = 170 cum					
			a) Labour					
			Mate	day	0.490	550.00	269.50	L-12
			Mazdoor	day	10.000	300.00	3000.00	L-13
			Driller	day	2.000	400.00	800.00	L-06
			Blaster	day	0.250	350.00	87.50	L-03
			b) Machinery					
			Dozer 80 HP (D-80 A 12)@ 28.32 cum per hour	hour	6.000	3914.88	23489.25	P&M-014
			Air compressor 250 cfm with two jack hammer @ 20 cum per hour	hour	5.000	1359.75	6798.75	P&M-001
			Front end loader	hour	7.000	1316.50	9215.50	P&M-017
			Tipper 5.5cum capacity, 4 trips per hour.	hour	7.000	958.45	6709.18	P&M-048
			c) Materials					
			Gelatine 80 per cent	kg	35.000	167.90	5876.50	M-104
			Electric Detonators @ 1 Detonator for 2 Gelatine sticks of 125 gms each	each	140.000	15.61	2185.76	M-094 /100
			d) Overhead charges @ 4% on (a+b+c)				2337.28	
			e) Contractor's profit @ 10 % on (a+b+c+d)				6076.92	
			Cost for 170 cum = a+b+c+d+e				66846.14	
			Rate per cum = (a+b+c+d+e)/170				393.21	
						say	<u>393.00</u>	

CHAPTER - 4								
SUB-BASES, BASES (NON- BITUMINOUS) AND SHOULDERS								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
4.2	401		Granular Sub-Base with Coarse Graded Material (Table:- 400- 2)					
			Construction of granular sub-base by providing coarse 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 vibratory roller to achieve the desired density, complete as per clause 401.					
			Unit = cum					
			Taking output = 300 cum					
			a) Labour					
			Mate	day	0.480	550.00	264.00	L-12
			Mazdoor skilled	day	2.000	450.00	900.00	L-15
			Mazdoor	day	10.000	300.00	3000.00	L-13
			b) Machinery					
			Mortar Grader 110 HP @ 50 cum per hour	hour	6.000	3786.88	22721.25	P&M-032
			Vibratory roller 8 -10 tonne	hour	6.000	1307.50	7845.00	P&M-059
			Tractor with Rotavator and blade @ 25 cum per hour	hour	12.000	885.50	10626.00	P&M-054
			Water tanker 6 KL capacity	hour	3.000	744.25	2232.75	P&M-060
			Tipper 10 tonne	tonne.k m	450 x L	5.50	14850.00	Lead =6 km & P&M- 058
			c) Material					
			For coarse graded Granular sub-base Materials per table 400-2					
			For grading-V Material					
			53 mm to 26.5 mm @ 50 per cent	cum	192.000	1520.57	291949.60	M-029
			9.5 mm to 2.36 mm @ 15 per cent	cum	57.600	1629.49	93858.48	M-026
			2.36 mm below @ 35 per cent (Coarse Sand)	cum	134.400	1965.66	264184.37	M-022
			Cost of water	KL	18.000	125.00	2250.00	M-189
			OR					
			For Grading-VI Material					
			53 mm to 26.5 mm @ 35 per cent	cum	134.400	1520.57	204364.72	M-026
			9.5 mm to 2.36 mm @ 47.5 per cent	cum	182.400	1629.49	297218.52	M-026
			2.36 mm below @ 17.5 per cent		67.200	1965.66	132092.18	M-022
			Cost of water	KL	18.000	125.00	2250.00	M-189
			OR					
			For Grading-III Material					
			9.5 mm to 4.75 mm @ 66 per cent	cum	255.000	1629.49	415519.31	M-025
			2.36 mm below @ 34 per cent	cum	129.000	1965.66	253569.82	M-022
			Cost of water	KL	18.000	125.00	2250.00	M-189
4.2		(i)	Rate per cum for grading-V Material					
			d) Overhead charges @ 4% on (a+b+c)				28587.26	
			e) Contractor's profit @ 10 % on (a+b+c+d)				74326.87	
			Cost for 300 cum = a+b+c+d+e				817595.58	
			Rate per cum = (a+b+c+d+e)/300				2725.32	
						say	2725.00	
4.12	406		Wet Mix Macadam					
			Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Unit = cum					
		Taking output = 225 cum (495 tonnes)					
		a) Labour					
		Mate	day	0.480	550.00	264.00	L-12
		Mazdoor skilled	day	2.000	450.00	900.00	L-15
		Mazdoor	day	10.000	300.00	3000.00	L-13
		b) Machinery					
		Wet mix plant of 75 tonne hourly capacity	hour	6.600	4021.88	26544.38	P&M-096
		Electric generator 125 KVA	hour	6.000	1290.53	7743.16	P&M-018
		Front end loader 1 cum capacity	hour	6.000	1316.50	7899.00	P&M-017
		Paver finisher	hour	6.000	1716.38	10298.25	P&M-035
		Vibratory roller 8 - 10 tonne	hour	6x0.65	1307.50	5099.25	P&M-059
		or					
		Smooth 3 wheeled steel roller @ 8-10 tonnes.	hour	12.000			
		Water tanker 6 KL capacity	hour	3.000	744.25	2232.75	P&M-060
		Tipper	tonne.km	495 x L	5.50	16335.00	Lead =6 km & P&M-058
		Add 10 per cent of cost of carriage to cover cost of loading and unloading				1633.50	
		c) Material (Table 400-11)					
		45 mm to 22.4 mm@ 30 per cent	cum	89.100	1708.41	152219.11	M-034
		22.4 mm to 2.36 mm @ 40 per cent	cum	118.800	1727.22	205193.14	M-031
		2.36 mm to 75 micron@ 30 per cent	cum	89.100	1965.66	175140.08	M-022
		Cost of water	KL	18.000	125.00	2250.00	M-189
		d) Overhead charges @ 4% on (a+b+c)				24670.06	
		e) Contractor's profit @ 10 % on (a+b+c+d)				64142.17	
		Cost for 225 cum = a+b+c+d+e				705563.86	
		Rate per cum = (a+b+c+d+e)/225				3135.84	
					say	3136.00	
		Note					
		1. Though vibratory roller is required only for 3 hours as per norms, the same is required to be available at site for 6 hours to match with other machines. The usage rates of vibratory roller may be multiplied with a factor of 0.65					
		2. As three wheeled smooth steel rollers are commonly in use, the same has been provided as an alternative which can be used if the thickness of individual layer does not exceed 100 mm..					
4.13	407	Construction of Median and Island with Soil Taken from Roadway Cutting					
		Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 407					
		Unit = cum					
		Taking output =21 cum					
		a) Labour					
		Mate	day	0.240	550.00	132.00	L-12
		Mazdoor	day	6.000	300.00	1800.00	L-13
		b) Machinery					
		Water tanker 6 KL with 5 km lead and 1 trip per hour	hour	1.000	744.25	744.25	P&M-060
		Plate compactor @ 3.5 cum per hour	hour	6.000	516.67	3100.00	P&M-088
		c) Material					
		Cost of water	KL	6.000	125.00	750.00	M-189
		d) Overhead charges @ 4% on (a+b+c)				261.05	
		e) Contractor's profit @ 10 % on (a+b+c+d)				678.73	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			Cost for 21 cum = a+b+c+d+e				7466.03	
			Rate per cum = (a+b+c+d+e)/21				355.53	
						say	<u>356.00</u>	

CHAPTER - 5								
BASES AND SURFACE COURSES (BITUMINOUS)								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
5.1	502		Prime Coat					
			Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.					
			Unit = sqm					
			Taking output = 3500 sqm					
			a) Labour					
			Mate	day	0.080	550.00	44.00	L-12
			Mazdoor	day	2.000	300.00	600.00	L-13
			b) Machinery					
			Mechanical broom @ 1250 sqm per hour	hour	2.800	505.00	1414.00	P&M-031
			Air compressor 250 cfm	hour	2.800	1359.75	3807.30	P&M-001
			Bitumen pressure distributor @ 1750 sqm per hour	hour	2.000	1150.50	2301.00	P&M-004
			Water tanker 6 KL capacity @ 1 trip per hour	hour	1.000	744.25	744.25	P&M-060
			c) Material					
			Bitumen emulsion @ 0.6 kg per sqm	tonne	2.100	37888.58	79566.02	M-077
			Cost of water	KL	6.000	125.00	750.00	M-189
			d) Overhead charges @ 4% on (a+b+c)				3569.06	
			e) Contractor's profit @ 10 % on (a+b+c+d)				9279.56	
			Cost for 3500 sqm = a+b+c+d+e				102075.19	
			Rate per sqm = (a+b+c+d+e)/3500				29.16	
						say	29.00	
		Note	Bitumen primer has been provided @ 0.60 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.					
5.2	503		Tack Coat					
			Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.					
			Unit = sqm					
			Taking output = 3500 sqm					
			a) Labour					
			Mate	day	0.080	550.00	44.00	L-12
			Mazdoor	day	2.000	300.00	600.00	L-13
			b) Machinery					
			Mechanical broom @ 1250 sqm per hour	hour	2.800	505.00	1414.00	P&M-031
			Air compressor 250 cfm	hour	2.800	1359.75	3807.30	P&M-001
			Emulsion pressure distributor @ 1750 sqm per hour	hour	2.000	1150.50	2301.00	P&M-004
			c) Material					
			Bitumen emulsion @ 0.225 kg per sqm	tonne	0.788	37888.58	29837.26	M-077
			d) Overhead charges @ 4% on (a+b+c)				1520.14	
			e) Contractor's profit @ 10 % on (a+b+c+d)				3952.37	
			Cost for 3500 sqm = a+b+c+d+e				43476.07	
			Rate per sqm = (a+b+c+d+e)/3500				12.42	
						say	12.00	
		Note	1. Bitumen emulsion has been provided @ 0.20 kg per sqm as per clause 503.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and actual quantity approved by the Engineer after preliminary trials referred to in clause No. 503.4.3					
			2. An output of 3500 sqm has been considered in case of prime coat and tack coat which can be covered by bituminous courses on the same day.					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
5.6	507	Dense Graded Bituminous Macadam					
		Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.840	550.00	462.00	L-12
		Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	300.00	4800.00	L-13
		Skilled mazdoor for checking line & levels	day	5.000	450.00	2250.00	L-15
		b) Machinery					
		Batch mix HMP @ 75 tonne per hour	hour	6.000	23847.74	143086.43	P&M-022
		Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	2569.85	15419.10	P&M-034
		Generator 250 KVA	hour	6.000	999.00	5994.00	P&M-083
		Front end loader 1 cum bucket capacity	hour	6.000	1316.50	7899.00	P&M-017
		Tipper 10 tonne capacity	tonne.k m	450 x L	5.50	14850.00	Lead =6 km & P&M- 058
		Add 10 per cent of cost of carriage to cover cost of loading and unloading				1485.00	
		smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	5.00x0.65*	1307.50	5099.25	P&M-044
		Vibratory roller 8 tonnes for intermediate rolling.	hour	5.00x0.65*	1307.50	5099.25	P&M-059
		Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	5.00x0.65*	893.75	3485.61	P&M-045
		c) Materials					
		Bitumen @ 4.0 per cent of weight of mix	tonne	18.000	42840.18	771123.22	M-074
		Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 18.00 tonnes					
		Weight of aggregate = 450 -18.00 = 432 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 287.25 cum					
		Grading - I40 mm (Nominal Size)					
		37.5 - 25 mm 22 per cent	cum	63.360	1619.39	102604.39	M-049
		25 - 10 mm 13 per cent	cum	37.440	1735.53	64978.15	M-046
		10 -4.75 mm 19 per cent	cum	54.720	1679.84	91920.71	M-040
		4.75 mm and below 44 per cent	cum	126.720	1579.14	200108.30	M-030
		Filler @ 2 per cent of weight of aggregates.	tonne	8.620	11100.00	95682.00	M-188
		or					
		Grading - II19 mm (Nominal Size)					
		25 - 10 mm 30 per cent	cum	86.160	1735.53	149533.05	M-046
		10 - 5 mm 28 per cent	cum	80.430	1679.84	135109.33	M-040
		5 mm and below 40 per cent	cum	114.900	1579.14	181442.90	M-030
		Filler @ 2 per cent of weight of aggregates.	tonne	8.620	11100.00	95682.00	M-188

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		* Any one of the alternative may be adopted as per approved design					
	(i)	For Grading I (40 mm nominal size)					
		d) Overhead charges @ 4% on (a+b+c)				61453.86	
		e) Contractor's profit @ 10 % on (a+b+c+d)				159780.03	
		Cost for 205 cum = a+b+c+d+e				1757580.29	
		Rate per cum = (a+b+c+d+e)/195 (For Grading I)				9013.23	
					say	<u>9013.00</u>	
5.8	509	Bituminous Concrete					
		Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.2 to 5.4 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects					
		Unit = cum					
		Taking output = 191 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.840	550.00	462.00	L-12
		Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	300.00	4800.00	L-13
		Skilled mazdoor for checking line & levels	day	5.000	450.00	2250.00	L-15
		b) Machinery					
		Batch mix HMP @ 75 tonne per hour	hour	6.000	23847.74	143086.43	P&M-022
		Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	2569.85	15419.10	P&M-034
		Generator 250 KVA	hour	6.000	999.00	5994.00	P&M-083
		Front end loader 1 cum bucket capacity	hour	6.000	1316.50	7899.00	P&M-017
		Tipper 10 tonne capacity	tonne.k m	450 x L	5.50	14850.00	Lead =6 km & P&M-058
		Add 10 per cent of cost of carriage to cover cost of loading and unloading				1485.00	
		Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	5.00x0.65*	1307.50	5099.25	P&M-044
		Vibratory roller 8 tonnes for intermediate rolling.	hour	5.00x0.65*	1307.50	5099.25	P&M-059
		Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	5.00x0.65*	893.75	3485.61	P&M-045
		c) Material					
		i) Bitumen@ 5.2 per cent of weight of mix	tonne	23.400	42840.18	1002460.19	M-074
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 23.4 tonnes					
		Weight of aggregate = 450 -23.40 = 426.60 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 284.4 cum					
		* Grading - I-19 mm (Nominal Size)					
		20 - 10 mm 35 per cent	cum	99.540	1776.57	176840.19	M-045
		10 - 5 mm 23 per cent	cum	65.412	1679.84	109881.53	M-040
		5 mm and below 40 per cent	cum	113.760	1579.14	179642.68	M-030
		Filler @ 2 per cent of weight of aggregates.	tonne	8.532	11100.00	94705.20	M-188

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			or					
			Grading - II-13 mm (Nominal Size)					
			13.2 - 10 mm 30 per cent	cum	85.500	1721.64	147200.01	M-044
			10 - 5 mm 25 per cent	cum	71.250	1679.84	119688.42	M-040
			5 mm and below 43 per cent	cum	122.550	1579.14	193523.30	M-030
			Filler @ 2 per cent of weight of aggregates.	tonne	8.620	11100.00	95682.00	M-188
			*Any one of the alternative may be adopted as per approved design					
		(i)	for Grading-I (19 mm nominal size)					
			d) Overhead charges @ 4% on (a+b+c)				70938.38	
			e) Contractor's profit @ 10 % on (a+b+c+d)				184439.78	
			Cost for 205 cum = a+b+c+d+e				2028837.59	
			Rate per cum = (a+b+c+d+e)/191				10622.19	
						say	<u>10622.00</u>	

CHAPTER-8								
TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
8.1	408		Cast in Situ Cement Concrete M20 Kerb					
			Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408					
			Unit = Running metre					
			Taking output = 360 metre					
		A.	Using Concrete Mixer					
			Cement Concrete					
			Cement concrete of grade M20 = 12.60 cum					
			Cement concrete of grade M10 for base= 11.61 cum					
			Total Concrete = 24.21 cu.m					
			a) Labour					
			Mate	day	0.72	550.00	396.00	L-12
			Mason	day	2.00	550.00	1100.00	L-11
			Mazdoor	day	16.00	300.00	4800.00	L-13
			b) Machinery					
			Kerb casting machine @ 60 metres/hour	hour	6.00	373.00	2238.00	P&M-029
			Concrete mixer 0.48/0.28 cum capacity	hour	12.00	187.50	2250.00	P&M-009
			Water tanker6 KL capacity	hour	5.00	744.25	3721.25	P&M-060
			c) Material					
			Crushed stone aggregate 20 mm nominal size 59 per cent	cum	21.79	1886.45	41105.69	M-053
			Coarse sand 30 per cent	cum	10.90	2198.25	23960.93	M-005
			Cement 11 per cent	tonne	5.70	9422.63	53708.98	M-081
			Cost of water	KL	30.00	125.00	3750.00	M-189
			d) Overhead charges @ 4% on (a+b+c)				5481.23	
			e) Contractor's profit @ 10 % on (a+b+c+d)				14251.21	
			Cost for 360 meter = a+b+c+d+e				156763.29	
			Rate per metre = (a+b+c+d+e)/360				435.45	
						say	435.00	
		B	Using Concrete Batching and Mixing Plant					
			Cement Concrete					
			Cement concrete of grade M20 = 12.60 cum					
			Cement concrete of grade M10 for base = 11.61 cum					
			Total Concrete = 24.21 cu.m					
			a) Labour					
			Mate	day	0.12	550.00	66.00	L-12
			Mason	day	1.00	550.00	550.00	L-11
			Mazdoor	day	2.00	300.00	600.00	L-13
			b) Machinery					
			Kerb casting machine @ 60 metres/hour	hour	6.00	373.00	2238.00	P&M-029
			Concrete batching and mixing plant @ 15 cum/hr.	hour	1.60	1976.70	3162.72	P&M-003
			Water tanker6 KL capacity	hour	5.00	744.25	3721.25	P&M-060
			Tipper 5.5 cum capacity	hour	6.00	958.45	5750.72	P&M-048
			c) Material					
			Crushed stone aggregate 20 mm nominal size 59 per cent	cum	21.79	1886.45	41105.69	M-053
			Coarse sand 30 per cent	cum	10.90	2198.25	23960.93	M-004
			Cement 11 per cent	tonne	5.70	9422.63	53708.98	M-081
			Cost of water	KL	30.00	125.00	3750.00	M-189
			d) Overhead charges @ 4% on (a+b+c)				5544.57	
			e) Contractor's profit @ 10 % on (a+b+c+d)				14415.89	
			Cost for 360 meter = a+b+c+d+e				158574.75	
			Rate per metre = (a+b+c+d+e)/360				440.49	
						say	440.00	
8.2	408		Cast in Situ Cement Concrete M 20 Kerb with Channel					

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408					
8.2		B	Using Concrete Batching and Mixing Plant					
			Unit = Running metre					
			Taking output = 300 metre length					
			Cement Concrete					
			Cement concrete of grade M20= 17.48 cum					
			Cement concrete of grade M10 for base = 23.18 cum					
			Total Concrete = 40.66 cum					
			a) Labour					
			Mate	day	0.12	550.00	66.00	L-12
			Mason	day	1.00	550.00	550.00	L-11
			Mazdoor	day	2.00	300.00	600.00	L-13
			b) Machinery					
			Kerb casting machine @ 50 metres/hour for laying kerb and channel	hour	6.00	373.00	2238.00	P&M-029
			Concrete batching and mixing plant @ 15 cum/hr.	hour	2.70	1976.70	5337.09	P&M-003
			Water tanker 6 KL capacity	hour	6.00	744.25	4465.50	P&M-060
			Tipper of 5.5 cum capacity	hour	6.00	958.45	5750.72	P&M-048
			c) Material					
			Crushed stone aggregate 20 mm nominal size 60 per cent	cum	36.59	1886.45	69025.11	M-053
			Coarse sand 30 per cent	cum	18.30	2198.25	40227.98	M-004
			Cement 10 per cent	tonne	9.01	9422.63	84897.88	M-081
			Cost of water	KL	36.00	125.00	4500.00	M-189
			d) Overhead charges @ 4% on (a+b+c)				8706.33	
			e) Contractor's profit @ 10 % on (a+b+c+d)				22636.46	
			Cost for 300 meter = a+b+c+d+e				249001.07	
			Rate per metre = (a+b+c+d+e)/300				830.00	
						say	830.00	
8.4	801		Retro-Reflectorised Traffic Signs					
			Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing					
			Unit = Each					
			Taking output = one traffic sign					
			i) Excavation for foundation	cum	0.22	295.00	63.72	
			ii) Cement concrete M15 grade	cum	0.12	7905.00	948.60	
			iii) Painting angle iron post two coats	sqm	0.43	72.90	31.35	
			a) Labour (For fixing at site)					
			Mate	day	0.01	550.00	5.50	L-12
			Mazdoor	day	0.25	300.00	75.00	L-13
			b) Material					
			Mild steel angle iron 75 x 75 x 6 mm	kg	19.00	63.22	1201.12	M-179 /1000
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size including lettering and signs as applicable					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.					
	(i)	90 cm equilateral triangle	sqm	0.35	10721.96	3752.69	M-061
		or					
	(ii)	60 cm equilateral triangle	sqm	0.16	10721.96	1672.63	M-061
		or					
	(iii)	60 cm circular	sqm	0.28	10721.96	3034.32	M-061
		or					
	(iv)	80 mm x 60 mm rectangular	sqm	0.48	10721.96	5146.54	M-061
		or					
	(v)	60 cm x 45 cm rectangular	sqm	0.27	10721.96	2894.93	M-061
		or					
	(vi)	60 cm x 60 cm square	sqm	0.36	10721.96	3859.91	M-061
		or					
	(vii)	90 cm high octagon	sqm	0.67	10721.96	7205.16	M-061
		c) Machinery					
		Tractor-trolley	hour	0.01	700.00	7.00	P&M-053
	(i)	90 cm equilateral triangle					
		d) Overhead charges @ 4% on (a+b+c)				201.65	
		e) Contractor's profit @ 10 % on (a+b+c+d)				524.30	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				6810.93	
					say	<u>6811.00</u>	
	(ii)	60 cm equilateral triangle					
		d) Overhead charges @ 4% on (a+b+c)				118.45	
		e) Contractor's profit @ 10 % on (a+b+c+d)				307.97	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				4431.34	
					say	<u>4431.00</u>	
	(iii)	60 cm circular					
		d) Overhead charges @ 4% on (a+b+c)				172.92	
		e) Contractor's profit @ 10 % on (a+b+c+d)				449.59	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				5989.11	
					say	<u>5989.00</u>	
	(iv)	80 mm x 60 mm rectangular					
		d) Overhead charges @ 4% on (a+b+c)				257.41	
		e) Contractor's profit @ 10 % on (a+b+c+d)				669.26	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				8405.50	
					say	<u>8405.00</u>	
	(v)	60 cm x 45 cm rectangular					
		d) Overhead charges @ 4% on (a+b+c)				167.34	
		e) Contractor's profit @ 10 % on (a+b+c+d)				435.09	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				5829.65	
					say	<u>5830.00</u>	
	(vi)	60 cm x 60 cm square					
		d) Overhead charges @ 4% on (a+b+c)				205.94	
		e) Contractor's profit @ 10 % on (a+b+c+d)				535.45	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				6933.59	
					say	<u>6934.00</u>	
	(vii)	90 cm high octagon					
		d) Overhead charges @ 4% on (a+b+c)				339.75	
		e) Contractor's profit @ 10 % on (a+b+c+d)				883.35	
		Rate per traffic sign = (i+ii+iii+a+b+c+d+e)				10760.56	
					say	<u>10761.00</u>	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		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.Rate for excavation, cement concrete M-15 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.					
8.5	801		Direction and Place Identification Signs upto 0.9 sqm Size Board.					
			Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing					
			Unit = sqm					
			Taking output = 0.9 sqm					
			i) Excavation for foundation	cum	0.22	295.00	63.72	
			ii) Cement concrete M15 grade	cum	0.12	7905.00	948.60	
			iii) Painting angle iron post two coats	sqm	0.43	72.90	31.35	
			a) Labour (For fixing at site)					
			Mate	day	0.01	550.00	5.50	L-12
			Mazdoor	day	0.20	300.00	60.00	L-13
			b) Material					
			Mild steel angle iron 75 mm x 75 mm x 6 mm,2.85 metres long	kg	19.00	63.22	1201.12	M-179 /1000
			Aluminium sheeting fixed with encapsulated lens type reflective sheeting of size 0.9 sqm	sqm	0.90	10721.96	9649.77	M-061
			Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.				217.02	
			c) Machinery					
			Tractor-trolley	hour	0.02	700.00	14.00	P&M-053
			d) Overhead charges @ 4% on (a+b+c)				445.90	
			e) Contractor's profit @ 10 % on (a+b+c+d)				1159.33	
			Cost for 0.9 sqm =I+ii+iii+ a+b+c+d+e				13796.30	
			Rate per sqm (for sign having area upto 0.9 sqm) = (I+ii+iii+a+b+c+d+e)/0.90				15329.23	
						say	15329.00	
8.6	801		Direction and Place Identification Signs with size more than 0.9 sqm size Board.					
			Providing and erecting direction and place identification retro-reflectorised sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area exceeding 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 concrete45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing					
			Unit = sqm					
			Taking output = 1.50 sqm					
			i) Excavation for foundation	cum	0.43	295.00	126.85	
			ii) Cement concrete M15 grade	cum	0.24	7905.00	1897.20	
			iii) Painting angle iron post 2 coats	sqm	0.86	72.90	62.69	
			a) Labour (For fixing at site)					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Mate	day	0.01	550.00	5.50	L-12
		Mazdoor	day	0.30	300.00	90.00	L-13
		b) Material					
		Mild steel angle iron 75 mm x 75 mm x 6 mm, 2.85 metres long, 2 nos	kg	38.00	63.22	2402.25	M-179 /1000
		Aluminium sheeting fixed with encapsulated lens type reflective sheeting	sqm	1.50	10721.96	16082.95	M-061
		Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.				369.70	
		c) Machinery					
		Tractor-trolley	hour	0.02	700.00	14.00	P&M-053
		d) Overhead charges @ 4% on (a+b+c)				758.58	
		e) Contractor's profit @ 10 % on (a+b+c+d)				1972.30	
		Cost for 1.5 sqm =I+ii+ii+ a+b+c+d+e				23782.02	
		Rate per sqm (for sign having area more than 0.9 sqm) = (i+ii+iii+a+b+c+d+e)/1.50				15854.68	
					say	15855.00	
8.13	803	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface					
		Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.					
		Unit = sqm					
		Taking output = 640 sqm					
		a) Labour					
		Mate	day	0.50	550.00	275.00	L-12
		Mazdoor	day	2.00	300.00	600.00	L-13
		b) Machinery					
		Road marking machine @ 80 sqm per hour	hour	8.00	212.50	1700.00	P&M-043
		Tractor-trolley	hour	8.00	700.00	5600.00	P&M-053
		c) Material					
		Hot applied thermoplastic compound	Litre	2000.00	316.07	632140.00	M-118
		Reflectorising glass beads	kg	200.00	128.57	25714.00	M-152
		d) Overhead charges @ 4% on (a+b+c)				26641.16	
		e) Contractor's profit @ 10 % on (a+b+c+d)				69267.02	
		Cost for 640 sqm = a+b+c+d+e				761937.18	
		Rate per sqm = a+b+c+d+e)/640				1269.90	
					say	1270.00	
		Note					
		1. A sealing primer may be applied in advance on cement concrete pavement to ensure proper bonding. Any laitance and/or curing compound to be removed where paint is required to be applied on concrete surface.					
		2. Cost of painter is already included in hire charges of road marking machine.					
8.14	804	Kilometre Stone					
		Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc					
		(i) 5th kilometre stone (precast)					
		Unit = Nos.					
		Taking output = 6 Nos.					
		a) M-15 grade of concrete	cum	2.35	7905.00	18576.75	
		b) Steel reinforcement @ 5 kg per sqm	kg	22.08	78.08	1723.92	
		c) Excavation in soil for foundation	cum	1.68	295.00	495.60	

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		d) Painting two coats on concrete surface	sqm	9.85	96.70	952.50	
		e) Lettering on km post (average 30 letters of 10 cm height each)	per cm per letter	1800.00	0.71	1278.00	
		Transportation and fixing					
		f) Labour					
		Mate	day	0.26	550.00	143.00	L-12
		Mason	day	0.60	550.00	330.00	L-11
		Mazdoor including loading/unloading	day	6.00	300.00	1800.00	L-13
		g) Machinery					
		Tractor-trolley	hour	6.00	700.00	4200.00	P&M-053
		h) Overhead charges @ 4% on (f+g)				258.92	
		i) Contractor's profit @ 10 % on (f+g+h)				673.19	
		Cost for 6 Nos. 5th km stone = a+b+c+ d+e +f+g+h +i				30431.88	
		Rate for each 5th km stone = (a+b+c+ d+e +f+g+h +i) /6				5071.98	
					say	<u>5072.00</u>	
8.14	(ii)	Ordinary kilometer stone (precast)					
		Unit = Nos.					
		Taking output = 14 Nos.					
		a) M-15 grade of concrete	cum	3.77	7905.00	29801.85	
		b) Steel reinforcement @ 5 kg per sqm	kg	26.32	78.08	2054.96	
		c) Excavation in soil for foundation	cum	2.77	295.00	817.15	
		d) Painting two coats on concrete surface	sqm	11.41	96.70	1103.35	
		e) Lettering on km post (average 12 letters of 10 cm height each)	per cm per letter	1680.00	0.71	1192.80	
		Transportation and fixing					
		f) Labour					
		Mate	day	0.32	550.00	176.00	L-12
		Mason	day	1.00	550.00	550.00	L-11
		Mazdoor	day	7.00	300.00	2100.00	L-13
		g) Machinery					
		Tractor-trolley	hour	6.00	700.00	4200.00	P&M-053
		h) Overhead charges @ 4% on (f+g)				281.04	
		i) Contractor's profit @ 10 % on (f+g+h)				730.70	
		Cost for 14 Nos. ordinary km stone = (a+b+ c +d+e+f+g+h+i)				43007.85	
		Rate for each ordinary km stone = (a+b+ c +d+e+f+g+h+j) /14				3071.99	
					say	<u>3072.00</u>	
8.14	(iii)	Hectometer stone (precast)					
		Unit = Nos.					
		Taking output = 33 Nos.					
		a) M-15 grade of concrete	cum	1.58	7905.00	12489.90	
		b) Steel reinforcement @ 5 kg per sqm	kg	66.00	78.08	5153.02	
		c) Excavation in soil for foundation	cum	1.39	295.00	410.05	
		d) Painting two coats on concrete surface	sqm	6.27	96.70	606.31	
		e) Lettering on km post (average 1 letter of 10 cm height each)	per cm per letter	330.00	0.71	234.30	
		Transportation and fixing					
		f) Labour					
		Mate	day	0.34	550.00	187.00	L-12
		Mason	day	1.50	550.00	825.00	L-11
		Mazdoor	day	7.00	300.00	2100.00	L-13

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			g) Machinery					
			Tractor-trolley	hour	6.00	700.00	4200.00	P&M-053
			h) Overhead charges @ 4% on (f+g)				292.48	
			i) Contractor's profit @ 10 % on (f+g+h)				760.45	
			Cost for 33 Nos. Hectometer stone = (a+b +c +d+e+f+ g+h+i)				27258.50	
			Rate for each Hectometer stone = (a+b +c +d+e+f+ g+h+i) / 33				826.02	
						say	826.00	
		Note	The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective chapters.					
8.15	805		Road Delineators					
			Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC-79 and the drawings.					
			Unit = Each					
			Taking output= 30 Nos.					
			a) Labour					
			Mate	day	0.04	550.00	22.00	L-12
			Mazdoor for fixing	day	1.00	300.00	300.00	L-13
			b) Material					
			Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	30.00	990.00	29700.00	M-091
			Add 10 per cent cost of material for installation				2970.00	
			c) Overhead charges @ 4% on (a+b)				1319.68	
			d) Contractor's profit @ 10 % on (a+b+c)				3431.17	
			Cost for 30 Nos. delineators = (a+b+ c+d)				37742.85	
			Rate per delineators = (a+b+c+d) /30				1258.09	
						say	1258.00	
8.16	806		Boundary pillar					
			Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting					
			Unit = Each					
			Taking output = 57 Nos.					
			a) M-15 grade of the boundary stone	cum	1.25	7905.00	9881.25	
			b) Steel reinforcement	kg	79.80	78.08	6230.46	
			c) Excavation in soil	cum	10.72	295.00	3162.40	
			d) Lettering, each 10 cm high	per letter per cm high	2280.00	0.71	1618.80	
			Transportation and fixing					
			e) Labour					
			Mate	day	0.57	550.00	313.50	L-12
			Mazdoor	day	14.25	300.00	4275.00	L-13
			f) Machinery					
			Tractor-trolley	hour	6.00	700.00	4200.00	P&M-053
			g) Material					
			Stone spall	cum	11.97	1055.50	12634.34	M-008
			h) Overhead charges @ 4% on (e+f+g)				856.91	
			i) Contractor's profit @ 10 % on (e+f+g+h)				2227.97	

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Cost for 57 Nos. boundary pillar = (a+b +c+d +e+ f+g+h+i)				45400.64	
		Rate for each boundary pillar = (a+b+c+d+e+ f+g+h+i)/57				796.50	
					say	797.00	
		Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-30 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified					
		Unit = Linear metre					
		Taking output = 10 m					
		a) M 30 grade concrete					
		M 30 grade concrete	cum	3.00	11069.00	33207.00	
		b) Labour					
		Mate	day	0.04	550.00	22.00	L-12
		Mazdoor	day	1.00	300.00	300.00	L-13
		c) Material					
		HYSD steel reinforcement including dowel bars	tonne	0.28	54831.63	15352.86	M-082
		Pre-moulded asphalt filler board	sqm	0.32	66.30	21.22	M-144
		d) Overhead charges @ 16 % on (b+c)				2511.37	
		e) Contractor's profit @ 10 % on (b+c+d)				1820.74	
		Cost for 10 metre = a+b+c+d+e				53235.19	
		Rate per metre = (a+b+c+d+e)/10				5323.52	
					say	5324.00	
8.23	810	Metal Beam Crash Barrier					
	A	Type - A, "W" : Metal Beam Crash Barrier					
		Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810					
		Unit = Running metre					
		Taking output = 4.5 metre length					
		a) Labour					
		Mate	day	0.06	550.00	33.00	L-12
		Blacksmith	day	0.50	550.00	275.00	L-02
		Mazdoor	day	1.00	300.00	300.00	L-13
		b) Machinery					
		Tractor-trolley	hour	0.10	700.00	70.00	P&M-053
		c) Material					
		Corrugated sheet,3 mm thick, "W" beam section railing,4.5 m in length	kg	41.21	63.22	2605.17	M-179 /1000
		Channel post 150 x 75 x 5 mm,1.8 m long,3 Nos @ 16.4 kg per metre	kg	88.56	63.22	5598.50	M-179 /1000
		Spacer 150 x 75 x 5 mm channel 0.33 m long,3 Nos @ 16.4 kg per metre	kg	16.24	63.22	1026.64	M-179 /1000

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Nuts and bolts	kg	20.00	87.50	1750.00	M-130
		Add 25 per cent of the cost of material for fabrication, nuts, bolts and washers etc.)				2745.08	
		d) Overhead charges @ 4% on (a+b+c)				576.14	
		e) Contractor's profit @ 10 % on (a+b+c+d)				1497.95	
		Cost for 4.5 metre = a+b+c+d+e				16477.49	
		Rate per metre = (a+b+c+d+e)/4.5				3661.66	
					say	<u>3662.00</u>	
8.35	Suggestive	Road Markers/Road Stud with Lense Reflector					
		Providing and fixing of road stud 100x 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 hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973					
		Unit = Nos					
		Taking output = 50Nos					
		a) Labour					
		Mate	day	0.04	550.00	22.00	L-12
		Mazdoor	day	1.00	300.00	300.00	L-13
		b) Material					
		Aluminium studs 100 x 100 mm fitted with lense reflectors	each	50.00	320.00	16000.00	M-062
		Add 10 per cent of cost of material for fixing and installation				1600.00	
		c) Overhead charges @ 4% on (a+b)				716.88	
		d) Contractor's profit @ 10 % on (a+b+c)				1863.89	
		Cost for 50 studs = a+b+c+d				20502.77	
		Rate per studs = (a+b+c+d)/50				410.06	
					say	<u>410.00</u>	

CHAPTER-9								
PIPE CULVERTS								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
9.2	2900		Laying Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row .					
			Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe 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 .					
			Unit = metre					
			Taking output = 12.5 metres (5 pipes of 2.5 m length each)					
		A	1000 mm dia					
			a) Labour					
			Mate	day	0.180	550.00	99.00	L-12
			Mason	day	0.500	550.00	275.00	L-11
			Mazdoor	day	4.000	300.00	1200.00	L-13
			b) Material					
			Sand at site	cum	0.070	2198.25	153.88	M-005
			Cement at site	tonne	0.050	9422.63	471.13	M-081
			RCC pipe NP-4 /prestressed concrete pipe including collar at site	metre	12.500	7800.00	97500.00	M-149
			Granular material passing 5.6 mm sieve for bedding	cum	4.500	110.00	495.00	M-009
			c) Overhead charges @ 4% on (a+b)				4007.76	
			d) Contractor's profit @ 10 % on (a+b+c)				10420.18	
			Cost for 12.5 metres = a+b+c+d				114621.95	
			Rate per metre = (a+b+c+d)/12.5				9169.76	
						say	9170.00	
		Note	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .					
			2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections					

CHAPTER-12								
FOUNDATIONS								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
12.1	304		Excavation for Structures					
			Earth work in excavation of foundation of structures as per drawing and technical specification, 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.					
		I	Ordinary soil					
12.1 (I)		B	Mechanical Means					
		(i)	Depth upto 3 m					
			Unit = cum					
			Taking output = 240 cum					
		a)	Labour					
			Mate	day	0.32	550.00	176.00	L-12
			Mazdoor	day	8.00	300.00	2400.00	L-13
		b)	Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	3812.50	22875.00	P&M-026
		c)	Overhead charges @ 16 % on (a+b)				4072.16	
		d)	Contractor's profit @ 10 % on (a+b+c)				2952.32	Rate
			Cost for 240 cum = a+b+c+d				32475.48	with 4%
			Rate per cum = (a+b+c+d)/240				135.31	Over head
						say	135.00	122.00
		Note	Cost of dewatering upto 5 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions..					
12.1 (I) B		(ii)	Depth 3 m to 6 m					
			Unit = cum					
			Taking output = 210 cum					
		a)	Labour					
			Mate	day	0.32	550.00	176.00	L-12
			Mazdoor	day	8.00	300.00	2400.00	L-13
		b)	Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	3812.50	22875.00	P&M-026
		c)	Overhead charges @ 16 % on (a+b)				4072.16	
		d)	Contractor's profit @ 10 % on (a+b+c)				2952.32	Rate
			Cost for 210 cum = a+b+c+d				32475.48	with 4%
			Rate per cum = (a+b+c+d)/210				154.65	Over head
						say	155.00	140.00
		Note	Cost of dewatering upto 7.5 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions..					
12.1 (I) B		(iii)	Depth above 6m					
			Unit = cum					
			Taking output = 180 cum					
		a)	Labour					
			Mate	day	0.40	550.00	220.00	L-12
			Mazdoor	day	10.00	300.00	3000.00	L-13
		b)	Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	3812.50	22875.00	P&M-026
		c)	Overhead charges @ 16 % on (a+b)				4175.20	
		d)	Contractor's profit @ 10 % on (a+b+c)				3027.02	
			Cost for 180 cum = a+b+c+d				33297.22	
			Rate per cum = (a+b+c+d)/180				184.98	
						say	185.00	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Note	1. Cost of dewatering upto 10 per cent of (a+b) may be added, where required. Assessment for dewatering shall be made as per site conditions..					
			2.Labour provided for excavation by mechanical means includes that required for trimming of bottom and side slopes.					
12.1		II	Ordinary Rock (not requiring blasting)					
12.1(II)		B	Mechanical Means					
			Unit = cum					
			Taking output = 180 cum					
			a) Labour					
			Mate	day	0.24	550.00	132.00	L-12
			Mazdoor	day	6.00	300.00	1800.00	L-13
			b) Machinery					
			Hydraulic excavator 1.0 cum bucket capacity	hour	6.00	3812.50	22875.00	P&M-026
			c) Overhead charges @ 16 % on (a+b)				3969.12	
			d) Contractor's profit @ 10 % on (a+b+c)				2877.61	Rate
			Cost for 180 cum = a+b+c+d				31653.73	with 4%
			Rate per cum = (a+b+c+d)/180				175.85	Over head
						say	176.00	158.00
12.7	1400		Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications.					
			Unit = cum					
			Taking output = 5 cum					
	1405.4	(A)	Square Rubble Coursed Rubble Masonry (first sort)					
			a) Material					
			Stone	cum	5.50	1200.00	6600.00	M-169
			Through and bond stone	each	35.00	14.37	502.78	M-182
			(35no.x0.24mx0.24mx0.39m = 0.79 cu.m)					
			Cement mortar 1:3 (Rate as in Item 12.6 A sub-analysis)	cum	1.50	7406.00	11109.00	
			b) Labour					
			Mate	day	0.66	550.00	363.00	L-12
			Mason	day	7.50	550.00	4125.00	L-11
			Mazdoor	day	9.00	300.00	2700.00	L-13
			c) Overhead charges @ 16 % on (a+b)				4063.96	
			d) Contractor's profit @ 10 % on (a+b+c)				2946.37	
			Cost for 5 cum = a+b+c+d				32410.11	
			Rate per cum (a+b+c+d)/5				6482.02	
						say	6482.00	
			c) Overhead charges @ 4% on (a+b)				1015.99	
			d) Contractor's profit @ 10 % on (a+b+c)				2641.58	
			Cost for 5 cum = a+b+c+d				29057.34	
			Rate per cum (a+b+c+d)/5				5811.47	
						say	5811.00	
12.8	1500, 1700 & 2100		Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.					
		A	PCC Grade M15					
			Unit = cum					
			Taking output = 15 cum					
			a) Material					
			Cement	tonne	4.13	9422.63	38915.45	M-081

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Coarse sand	cum	6.75	2198.25	14838.19	M-005
		40 mm Aggregate	cum	8.10	1626.39	13173.74	M-055
		20 mm Aggregate	cum	4.05	1886.45	7640.11	M-053
		10 mm Aggregate	cum	1.35	1847.04	2493.50	M-051
		b) Labour					
		Mate	day	0.86	550.00	473.00	L-12
		Mason	day	1.50	550.00	825.00	L-11
		Mazdoor	day	20.00	300.00	6000.00	L-13
		c) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	187.50	1125.00	P&M-009
		Generator 63 KVA	hour	6.00	645.26	3871.58	P&M-019
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		5958			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				3574.22	
		Cost for 15 cum = a+b+c+d+e+f				118578.42	
		Rate per cum = (a+b+c+d+e+f)/15				7905.23	
					say	7905.00	
		e) Overhead charges @ 4% on (a+b+c+d)				3717.19	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				9664.70	
		Cost for 15 cum = a+b+c+d+e+f				106311.69	
		Rate per cum = (a+b+c+d+e+f)/15				7087.45	
					say	7087.00	
	Note	Needle Vibrator is an item of minor T & P which is already included in overhead charges. Hence not added in rate analysis of cement concrete works.					
12.8	B	PCC Grade M20					
		Unit : cum					
		Taking output = 15 cum					
		a) Material					
		Cement	tonne	5.16	9422.63	48620.76	M-081
		Coarse sand	cum	6.75	2198.25	14838.19	M-005
		40 mm Aggregate	cum	5.40	1626.39	8782.49	M-055
		20 mm Aggregate	cum	5.40	1886.45	10186.82	M-053
		10 mm Aggregate	cum	2.70	1847.04	4987.00	M-051
		b) Labour					
		Mate	day	0.86	550.00	473.00	L-12
		Mason	day	1.50	550.00	825.00	L-11
		Mazdoor	day	20.00	300.00	6000.00	L-13
		c) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	187.50	1125.00	P&M-009
		Generator 33 KVA	hour	6.00	448.00	2688.00	P&M-081
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		6569			
		d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				3941.05	
		e) Overhead charges @ 16 % on (a+b+c+d)				16394.77	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				11886.21	
		Cost for 15 cum = a+b+c+d+e+f				130748.29	
		Rate per cum = (a+b+c+d+e+f)/15				8716.55	
					say	8717.00	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			e) Overhead charges @ 4% on (a+b+c+d)				4098.69	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				10656.60	
			Cost for 15 cum = a+b+c+d+e+f				117222.60	
			Rate per cum = (a+b+c+d+e+f)/15				7814.84	
						say	<u>7815.00</u>	
12.8		C	RCC Grade M20					
12.8 C		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Unit : cum					
			Taking Output = 120 cum					
			a) Material					
			Cement	tonne	41.66	9422.63	392546.69	M-081
			Coarse Sand	cum	54.00	2198.25	118705.50	M-004
			20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
			10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051
			b) Labour					
			Mate	day	0.84	550.00	462.00	L-12
			Mason	day	3.00	550.00	1650.00	L-11
			Mazdoor	day	18.00	300.00	5400.00	L-13
			c) Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
			Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
			Loader 1 cum capacity	hour	6.00	1316.50	7899.00	P&M-017
			Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	1118.00	16770.00	P&M-049
			Lead beyond 1 km, L-lead in km	tonne. km	300L	19.00	34200.00	P&M-050 Lead= 6 km
			Concrete Pump	hour	6	831.75	4990.50	P&M-007
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		6656			
			d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				31945.30	
			e) Overhead charges @ 16 % on (a+b+c+d)				132892.44	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				96347.02	
			Cost for 120 cum = a+b+c+d+e+f				1059817.22	
			Rate per cum = (a+b+c+d+e+f)/120				8831.81	
						say	<u>8832.00</u>	
			e) Overhead charges @ 4% on (a+b+c+d)				33223.11	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				86380.09	
			Cost for 120 cum = a+b+c+d+e+f				950180.96	
			Rate per cum = (a+b+c+d+e+f)/120				7918.17	
						say	<u>7918.00</u>	
12.8		E	RCC Grade M25					
12.8 E		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Unit: cum					
			Taking Output = 120 cum					
			a) Material					
			Cement	tonne	48.38	9422.63	455866.75	M-081
			Coarse sand	cum	54.00	2198.25	118705.50	M-004
			20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
			10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051
			b) Labour					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Mate	day	0.84	550.00	462.00	L-12
		Mason	day	3.00	550.00	1650.00	L-11
		Mazdoor	day	18.00	300.00	5400.00	L-13
		c) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
		Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
		Loader 1 cum capacity 1 cum	hour	6.00	1316.50	7899.00	P&M-017
		Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	1118.00	16770.00	P&M-049
		Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne. km	300L	19.00	34200.00	P&M-050 Lead= 6 km
		Concrete Pump	hour	6.00	831.75	4990.50	P&M-007
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		7183			
		d) Formwork @ 3.75 per cent on cost of concrete i.e. cost of material, labour and machinery				32323.22	
		e) Overhead charges @ 16 % on (a+b+c+d)				143084.12	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				103735.99	
		cost of 120 cum = a+b+c+d+e+f				1141095.85	
		Rate per cum (a+b+c+d+e+f)/120				9509.13	
					say	<u>9509.00</u>	
		e) Overhead charges @ 4% on (a+b+c+d)				35771.03	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				93004.68	
		cost of 120 cum = a+b+c+d+e+f				1023051.45	
		Rate per cum (a+b+c+d+e+f)/120				8525.43	
					say	<u>8525.00</u>	
12.8	G	RCC Grade M30					
12.8 G	Case II	Using Batching Plant, Transit Mixer and Concrete Pump					
		Unit = cum					
		Taking output = 120 cum					
		a) Material					
		Cement	tonne	48.80	9422.63	459824.25	M-081
		Coarse sand	cum	54.00	2198.25	118705.50	M-004
		20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
		10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051
		b) Labour					
		Mate	day	0.84	550.00	462.00	L-12
		Mason	day	3.00	550.00	1650.00	L-11
		Mazdoor	day	18.00	300.00	5400.00	L-13
		c) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
		Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
		Loader 1 cum capacity	hour	6.00	1316.50	7899.00	P&M-017
		Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	1118.00	16770.00	P&M-049
		Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne. km	300L	19.00	34200.00	P&M-050 Lead= 6 km
		Concrete Pump	hour	6.00	831.75	4990.50	P&M-007
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		7216			
		d) Formwork @ 3.5 per cent of cost of concrete i.e. cost of material, labour and machinery				30306.85	
		e) Overhead charges @ 16 % on (a+b+c+d)				143394.70	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				103961.16	Rate

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			cost of 120 cum = a+b+c+d+e+f				1143572.74	with 4%
			Rate per cum (a+b+c+d+e+f)/120				9529.77	Over head
						say	9530.00	8577.00
			Rate per cum (a+b+c+d)/120 Excluding OH & CP				7,468.00	
12.8		H	RCC Grade M35					
12.8 H		Case II	Using Batching Plant, Transit Mixer and Concrete Pump					
			Unit ; cum					
			Taking Output = 120 cum					
			a) Material					
			Cement	tonne	50.64	9422.63	477161.89	M-081
			Coarse sand	cum	54.00	2198.25	118705.50	M-004
			20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
			10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051
			b) Labour					
			Mate	day	0.84	550.00	462.00	L-12
			Mason	day	3.00	550.00	1650.00	L-11
			Mazdoor	day	18.00	300.00	5400.00	L-13
			c) Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
			Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
			Loader 1 cum capacity	hour	6.00	1316.50	7899.00	P&M-017
			Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15.00	1118.00	16770.00	P&M-049
			Transit Mixer 4 cum capacity lead beyond 1 Km, L - lead in Kilometer	tonne. km	300L	19.00	34200.00	P&M-050 Lead= 6 km
			Concrete Pump	hour	6.00	831.75	4990.50	P&M-007
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		7361			
			d) Formwork @ 3 per cent on cost of concrete i.e. cost of material, labour and machinery				26497.43	
			e) Overhead charges @ 16 % on (a+b+c+d)				145559.21	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				105530.43	
			cost of 120 cum = a+b+c+d+e+f				1160834.74	
			Rate per cum = (a+b+c+d+e+f)/120				9673.62	
						say	9674.00	
			e) Overhead charges @ 4% on (a+b+c+d)				36389.80	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				94613.49	
			cost of 120 cum = a+b+c+d+e+f				1040748.39	
			Rate per cum = (a+b+c+d+e+f)/120				8672.90	
						say	8673.00	
12.21	1207		Sand Filling in Wells complete as per Drawing and Technical Specifications.					
			Unit = 1 cum					
			Taking output = 1 cum					
			a) Material					
			Sand (assuming 20 per cent voids)	cum	1.20	2136.25	2563.50	M-006
			b) Labour					
			Mate	day	0.01	550.00	5.50	L-12
			Mazdoor	day	0.30	300.00	90.00	L-13
			c) Overhead charges @ 16 % on (a+b)				425.44	
			d) Contractor's profit @ 10 % on (a+b+c)				308.44	
			Rate per cum (a+b+c+d)				3392.88	
						say	3393.00	

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		c) Overhead charges @ 4% on (a+b)				106.36	
		d) Contractor's profit @ 10 % on (a+b+c)				276.54	
		Rate per cum (a+b+c+d)				3041.90	
					say	<u>3042.00</u>	
12.40	1600	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
		HYSD bars including 5 per cent overlaps and wastage	tonne	1.05	54832	57573.21	M-082
		Binding wire	Kg	6.00	63.00	378.00	M-072
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
		Mate	day	0.40	550.00	220.00	L-12
		Blacksmith	day	2.00	550.00	1100.00	L-02
		Mazdoor	day	6.00	300.00	1800.00	L-13
		d) Overhead charges @ 16 % on (a+b+c)				9771.39	
		e) Contractor's profit @ 10 % on (a+b+c+d)				7084.26	
						77926.86	
					say	<u>77927.00</u>	
		d) Overhead charges @ 4% on (a+b+c)				2442.85	
		e) Contractor's profit @ 10 % on (a+b+c+d)				6351.41	
						69865.46	
					say	<u>69865.00</u>	

CHAPTER-13								
SUB-STRUCTURE								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
13.5	1500, 1700 & 2200		Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications					
13.5		G	RCC Grade M30					
13.5 G (p)		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case II				7216.00	
			d) formwork					
			Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork		10.00		721.60	
			e) Overhead charges @ 16 % on (a+b+c+d)				1270.02	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				920.76	
			Rate perm (a+b+c+d+e+f)				10128.38	
						say	<u>10128.00</u>	
			e) Overhead charges @ 4% on (a+b+c+d)				317.50	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				825.51	
			Rate perm (a+b+c+d+e+f)				9080.61	
						say	<u>9081.00</u>	
13.5 G		(q)	Height 5m to 10m					
			For height, upto 10m, add 1.6 per cent of cost as above excluding formwork. For cost of formwork add 11.5 per cent of cost of material, labour and machinery					
13.5 G (q)		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (G) Case II				7216.00	
			d) formwork					
			Add 11.5 per cent of cost of material, labour and machinery (a+b+c) for Formwork		11.50		829.84	
			Add 1.6 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift		1.60		115.46	
			e) Overhead charges @ 16 % on (a+b+c+d)				1305.81	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				946.71	
			Rate perm (a+b+c+d+e+f)				10413.81	
						say	<u>10414.00</u>	
13.5		H	RCC Grade M35					
		(p)	Height upto 5m					
			Same as Item 12.8 (H) upto 5m height, excluding formwork. For cost of formwork, add 10 per cent of cost of material, labour and machinery instead of 3 per cent .					
13.5 H (p)		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II				7361.00	
			d) formwork					
			Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork		10.00		736.10	
			e) Overhead charges @ 16 % on (a+b+c+d)				1295.54	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				939.26	
			Rate perm (a+b+c+d+e+f)				10331.90	
						say	<u>10332.00</u>	
			e) Overhead charges @ 4% on (a+b+c+d)				323.88	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				842.10	
			Rate perm (a+b+c+d+e+f)				9263.08	
						say	<u>9263.00</u>	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
13.5 H		(q)	Height 5m to 10m					
			For height, upto 10m, add 1.4 per cent of cost as above excluding formwork. For cost of formwork add 11 per cent of cost of material, labour and machinery .					
13.5 H (q)		Case II	With Batching Plant, Transit Mixer and Concrete Pump					
			Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II				7361.00	
			d) formwork					
			Add 11 per cent of cost of material, labour and machinery (a+b+c) for Formwork		11.00		809.71	
			Add 1.4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift		1.40		103.05	
			e) Overhead charges @ 16 % on (a+b+c+d)				1323.80	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				959.76	
			Rate perm (a+b+c+d+e+f)				10557.32	
						say	<u>10557.00</u>	
13.6	Section 1600 & 2200		Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications					
			Output: MT					
			Taking output = 1 MT					
			a) Material					
			HYSD bars including 5 per cent overlaps and wastage	tonne	1.05	54831.63	57573.21	M-082
			Binding wire	kg	6.00	63.00	378.00	M-072
			b) Labour for cutting, bending, shifting to site, tying and placing in position					
			Mate	day	0.34	550.00	187.00	L-12
			Blacksmith	day	2.00	550.00	1100.00	L-02
			Mazdoor	day	6.50	300.00	1950.00	L-13
			c) Overhead charges @ 16 % on (a+b)				9790.11	
			d) Contractor's profit @ 10 % on (a+b+c)				7097.83	
			Rate for per MT (a+b+c+d)				78076.15	
						say	<u>78076.00</u>	
			Rate for per MT (a+b) excluding OH & CP				61,188.00	
			c) Overhead charges @ 4% on (a+b)				2447.53	
			d) Contractor's profit @ 10 % on (a+b+c)				6363.57	
			Rate for per MT (a+b+c+d)				69999.31	
						say	<u>69999.00</u>	
13.8	2706 & 2200		Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications					
			Unit = Nos.					
			Taking output = 30 Nos.					
			a) Material					
			AC pipe 100 mm dia. (including wastage @ 5 per cent)	metre	31.50	160.00	5040.00	M-056
			Average length of weep hole is taken as one metre for the purpose of estimating.					
			MS clamp	each.	30.00	63.00	1890.00	M-123
			collar for AC pipe (average) taking 10% of above pipe rate	each.	10.00	16.00	160.00	M-056/10
			Cement mortar 1:3 (Rate as in Item 12.6)	cum	0.05	7406.00	370.30	
			b) Labour					

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			Mate	day	0.03	550.00	16.50	L-12
			Mason	day	0.50	550.00	275.00	L-11
			Mazdoor	day	0.25	300.00	75.00	L-13
			c) Overhead charges @ 16 % on (a+b)				1252.29	
			d) Contractor's profit @ 10 % on (a+b+c)				907.91	
			Cost for 30 m = a+b+c+d				9987.00	
			Rate per m (a+b+c+d)/30				332.90	
						say	<u>333.00</u>	
			c) Overhead charges @ 4% on (a+b)				313.07	
			d) Contractor's profit @ 10 % on (a+b+c)				813.99	
			Cost for 30 m = a+b+c+d				8953.86	
			Rate per m (a+b+c+d)/30				298.46	
						say	<u>298.00</u>	
13.9	710.1.4.of IRC:78 & 2200		Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification					
			Unit = cum					
			Taking output = 10 cum					
		A	Granular material					
			a) Labour					
			Mate	day	0.28	550.00	154.00	L-12
			Mazdoor	day	7.00	300.00	2100.00	L-13
			b) Material					
			Granular material	cum	12.00	110.00	1320.00	M-009
			c) Machinery					
			Plate compactor/power rammer	hour	2.50	516.67	1291.67	P&M-088
			Water Tanker	hour	0.05	744.25	37.21	P&M-060
			d) Overhead charges @ 16 % on (a+b+c)				784.46	
			e) Contractor's profit @ 10 % on (a+b+c+d)				568.73	
			Cost for 10 cum of granular backfill = a+b+c+d+e				6256.07	
			Rate per cum = (a+b+c+d+e)/10				625.61	
						say	<u>626.00</u>	
			d) Overhead charges @ 4% on (a+b+c)				196.12	
			e) Contractor's profit @ 10 % on (a+b+c+d)				509.90	
			Cost for 10 cum of granular backfill = a+b+c+d+e				5608.89	
			Rate per cum = (a+b+c+d+e)/10				560.89	
						say	<u>561.00</u>	
13.10	710.1.4.of IRC:78 and 2200		Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.					
			Unit = cum					
			Taking output = 10 cum.					
			a) Labour					
			Mate	day	0.32	550.00	176.00	L-12
			Mazdoor for filling, watering, ramming etc.	day	7.00	300.00	2100.00	L-13
			Mazdoor (Skilled)	day	1.00	450.00	450.00	L-15
			b) Material					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Filter media of stone aggregate conforming to clause 2504.2.2. of MoRTH specifications.	cum	12.00	1055.50	12666.00	M-012
		c) Machinery					
		Water Tanker of 6 KL capacity	hour	0.06	744.25	44.66	P&M-060
		d) Overhead charges @ 16 % on (a+b+c)				2469.86	
		e) Contractor's profit @ 10 % on (a+b+c+d)				1790.65	
		cost for 10 cum of Fiter Media = a+b+c+d+e				19697.17	
		Rate per cum = (a+b+c+d+e)/10				1969.72	
					say	1970.00	
		d) Overhead charges @ 4% on (a+b+c)				617.47	
		e) Contractor's profit @ 10 % on (a+b+c+d)				1605.41	
		cost for 10 cum of Fiter Media = a+b+c+d+e				17659.53	
		Rate per cum = (a+b+c+d+e)/10				1765.95	
					say	1766.00	
13.16	2000 & 2200	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.					
		Unit: one tonne capacity			387.20		
		Considering a Pot bearing assembly of 250 tonne capacity for this analysis.					
		a) Labour					
		Mate	day	0.08	550.00	44.00	L-12
		Mazdoor	day	1.50	300.00	450.00	L-13
		Mazdoor (Skilled)	day	0.50	450.00	225.00	L-15
		b) Material					
		Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies/fabricated structural steel assemblies duly painted with all components as per clause 2006 and complete as per drawings and Technical Specifications.	each.	1.00	102500	102500.00	M-068
		Add 1 per cent of cost of bearing assembly for foundation anchorage bolts and consumables.				1025.00	
		c) Overhead charges @ 16 % on (a+b)				16679.04	
		d) Contractor's profit @ 10 % on (a+b+c)				12092.30	
		cost for 250 tonnes capacity bearing = a+b+c+d				133015.34	
		Rate per tonne capacity = (a+b+c+d)/250				532.06	
					say	532.00	

CHAPTER-14								
SUPER-STRUCTURE								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
14.1	1500 & 1600 1700		Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification					
14.1		C	RCC Grade M 30					
		Case I	Using Concrete Mixer					
			<i>Unit = 1 cum</i>					
			<i>Taking output = 15 cum</i>					
			a) Material					
			Cement	tonne	6.10	9422.63	57478.03	M-081
			Coarse sand	cum	6.75	2198.25	14838.19	M-005
			20 mm Aggregate	cum	8.10	1886.45	15280.22	M-053
			10 mm Aggregate	cum	5.40	1847.04	9974.00	M-051
			b) Labour					
			Mate	day	0.90	550.00	495.00	L-12
			Mason	day	1.50	550.00	825.00	L-11
			Mazdoor	day	21.00	300.00	6300.00	L-13
			c) Machinery					
			Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	187.50	1125.00	P&M-009
			Generator 33 KVA	hour	6.00	448.00	2688.00	P&M-081
			Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum		109003			
			For formwork and staging add the following:					
14.1C		(i)	For solid slab super-structure, 20-30 per cent of (a+b+c)					
Case I		(p)	Height upto 5m					
			Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				109003.45	
			d) Formwork and staging 20 per cent of (a+b+c)				21800.69	
			e) Overhead charges @ 16 % on (a+b+c+d)				20928.66	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				15173.28	
			Cost for 15 cum = a+b+c+d+e+f				166906.08	
			Rate per cum = (a+b+c+d+e+f)/15				11127.07	
						say	<u>11127.00</u>	
			e) Overhead charges @ 4% on (a+b+c+d)				5232.17	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				13603.63	
			Cost for 15 cum = a+b+c+d+e+f				149639.94	
			Rate per cum = (a+b+c+d+e+f)/15				9976.00	
						say	<u>9976.00</u>	
14.1C		(q)	Height 5m to 10m					
Case I (i)			Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				109003.45	
			d) Formwork and staging 25 per cent of (a+b+c)				27250.86	
			e) Overhead charges @ 16 % on (a+b+c+d)				21800.69	
			f) Contractor's profit @ 10 % on (a+b+c+d+e)				15805.50	
			Cost for 15 cum = a+b+c+d+e+f				173860.50	
			Rate per cum = (a+b+c+d+e+f)/15				11590.70	
						say	<u>11591.00</u>	
14.1		D	RCC/PSC Grade M35					
		Case II	Using Batching Plant, Transit Mixer and Concrete Pump					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Unit = cum					
		Taking output = 120 cum					
		a) Material					
		Cement	tonne	50.64	9422.63	477161.89	M-081
		Coarse sand	cum	54.00	2198.25	118705.50	M-004
		20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
		10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051
		b) Labour					
		Mate	day	0.88	550.00	484.00	L-12
		Mason	day	3.00	550.00	1650.00	L-11
		Mazdoor	day	19.00	300.00	5700.00	L-13
		c) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
		Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
		Loader	hour	6.00	1316.50	7899.00	P&M-017
		Transit Mixer (capacity 4.0 cu.m)					
		Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	1118.00	16770.00	P&M-049
		Lead beyond 1 Km, L - lead in Kilometer	tonne.k m	300L	19.00	34200.00	Lead =7 km & P&M- 050
		Concrete Pump	hour	6.00	831.75	4990.50	P&M-007
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		883570			
		For formwork and staging add the following:					
14.1D Case II	(i)	For solid slab super-structure, 18-28 per cent of (a+b+c)					
	(p)	Height upto 5m					
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				883569.67	
		d) Formwork and staging 18 per cent of (a+b+c)				159042.54	
		e) Overhead charges @ 16 % on (a+b+c+d)				166817.95	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				120943.02	Rate
		Cost for 120 cum = a+b+c+d+e+f				1330373.18	with 4%
		Rate per cum = (a+b+c+d+e+f)/120				11086.44	Over head
					say	<u>11086.00</u>	9977.00
14.1	E	PSC Grade M-40					
	Case 1	Using concrete mixer.					
		Unit = 1 cum					
		Taking output = 15 cum					
		a) Material					
		Cement	tonne	6.45	9422.63	60775.95	M-081
		Coarse sand	cum	6.75	2198.25	14838.19	M-005
		20 mm Aggregate	cum	8.10	1886.45	15280.22	M-053
		10 mm Aggregate	cum	5.40	1847.04	9974.00	M-051
		Admixture @ 0.4 per cent of cement	kg	25.80	279.66	7215.23	M-180
		b) Labour					
		Mate	day	0.96	550.00	528.00	L-12
		Mason	day	2.00	550.00	1100.00	L-11
		Mazdoor	day	22.00	300.00	6600.00	L-13
		c) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	187.50	1125.00	P&M-009
		Generator 33 KVA	hour	6.00	448.00	2688.00	P&M-081
		Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum		120125			

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
			For formwork and staging add the following:					
14.1E Case I		(ii)	For T-beam & slab, 25-35 per cent of (a+b+c)					
		(p)	Height upto 5m					
			Basic Cost of Labour, Material & Machinery (a+b+c) for 15 cum				120124.60	
		d)	Formwork and staging 25 per cent of (a+b+c)				30031.15	
		e)	Overhead charges @ 16 % on (a+b+c+d)				24024.92	
		f)	Contractor's profit @ 10 % on (a+b+c+d+e)				17418.07	
			Cost for 15 cum = a+b+c+d+e+f				191598.74	
			Rate per cum = (a+b+c+d+e+f)/15				12773.25	
						say	<u>12773.00</u>	
14.1F		F	PSC Grade M-45					
			Unit = 1 cum					
			Taking output = 120 cum					
		a)	Material					
			Cement	tonne	55.80	9422.63	525782.65	M-081
			Coarse sand	cum	54.00	2198.25	118705.50	M-004
			20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
			10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051
			Admixture @ 0.4 per cent of cement	kg	223.20	279.66	62420.11	M-180
		b)	Labour					
			Mate	day	0.94	550.00	517.00	L-12
			Mason	day	3.50	550.00	1925.00	L-11
			Mazdoor	day	20.00	300.00	6000.00	L-13
		c)	Machinery					
			Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
			Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
			Loader	hour	6.00	1316.50	7899.00	P&M-017
			Transit Mixer (capacity 4.0 cu.m)					
			Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	1118.00	16770.00	P&M-049
			Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	19.00	34200.00	Lead =7 km & P&M-050
			Concrete Pump	hour	6.00	831.75	4990.50	P&M-007
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		995219			
			For formwork and staging add the following:					
14.1F (i)		(r)	Height above 10m					
			Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				995218.54	
		d)	Formwork and staging 26 per cent of (a+b+c)				258756.82	
		e)	Overhead charges @ 16 % on (a+b+c+d)				200636.06	
		f)	Contractor's profit @ 10 % on (a+b+c+d+e)				145461.14	
			Cost for 120 cum = a+b+c+d+e+f				1600072.56	
			Rate per cum = (a+b+c+d+e+f)/120				13333.94	
						say	<u>13334.00</u>	
14.1		G	PSC Grade M-50					
			Unit = 1 cum					
			Taking output = 120 cum					
		a)	Material					
			Cement	tonne	58.80	9422.63	554050.53	M-081
			Coarse sand	cum	54.00	2198.25	118705.50	M-004
			20 mm Aggregate	cum	64.80	1886.45	122241.80	M-053
			10 mm Aggregate	cum	43.20	1679.84	72568.98	M-051

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Admixture @ 0.4 per cent of cement	kg	235.20	279.66	65776.03	M-180
		b) Labour					
		Mate	day	0.94	550.00	517.00	L-12
		Mason	day	3.50	550.00	1925.00	L-11
		Mazdoor	day	20.00	300.00	6000.00	L-13
		c) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	2695.00	16170.00	P&M-002
		Generator 100 KVA	hour	6.00	838.00	5028.00	P&M-082
		Loader	hour	6.00	1316.50	7899.00	P&M-017
		Transit Mixer (capacity 4.0 cu.m)					
		Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	1118.00	16770.00	P&M-049
		Lead beyond 1 Km, L - lead in Kilometer	tonne.km	300L	19.00	34200.00	Lead =7 km & P&M-050
		Concrete Pump	hour	6.00	831.75	4990.50	P&M-007
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		1026842			
		For formwork and staging add the following:					
14.1G (i)	(q)	Height 5m to 10m					
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				1026842.35	
		d) Formwork and staging 45 per cent of (a+b+c)				462079.06	
		e) Overhead charges @ 16 % on (a+b+c+d)				238227.43	
		f) Contractor's profit @ 10 % on (a+b+c+d+e)				172714.88	
		Cost for 120 cum = a+b+c+d+e+f				1899863.72	
		Rate per cum = (a+b+c+d+e+f)/120				15832.20	
					say	15832.00	
14.2	1600	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
		HYSD bars including 5 per cent for laps and wastage	tonne	1.05	54831.63	57573.21	M-082
		Binding wire	Kg	8.00	63.00	504.00	M-072
		b) Labour for cutting, bending, tying and placing in position					
		Mate	day	0.44	550.00	242.00	L-12
		Blacksmith	day	3.00	550.00	1650.00	L-02
		Mazdoor	day	8.00	300.00	2400.00	L-13
		Basic Cost of Labour & Material (a+b)		62369			
		c) Overhead charges @ 16 % on (a+b)				9979.07	Rate
		d) Contractor's profit @ 10 % on (a+b+c)				7234.83	with 4%
		Rate per MT = a+b+c+d				79583.11	Over head
					say	79583.00	71625.00
14.3	1800	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications					
		Unit = 1 MT					
		Taking output = 0.377 MT					
		Details of cost for 12T13 strand 40 m long cable (weight = 0.377 MT)					
		a) Material					
		H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	0.39	71281.20	27443.26	M-119

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Sheathing duct ID 66 mm along with 5 per cent extra length $40 \times 1.05 = 42$ m.	metre	42.00	109.40	4594.59	M-165
		Tube anchorage set complete with bearing plate, permanent wedges etc	each	2.00	4618.90	9237.80	M-187
		Cement for grouting including 3 per cent wastage @ 3.00 kg/m = $3 \times 1.03 \times 40 = 123.60$ kg (say, = 125 kg)	tonne	0.125	9422.63	1177.83	M-081
		Add 0.50 per cent cost of material for Spacers, Insulation tape and miscellaneous items				2122.67	
		b) Labour					
		i) For making and fixing cables, anchorages					
		Mate	day	0.16	550.00	88.00	L-12
		Blacksmith	day	1.00	550.00	550.00	L-02
		Mazdoor	day	3.00	300.00	900.00	L-13
		ii) For prestressing					
		Mate/Supervisor	day	0.05	550.00	27.50	L-12
		Prestressing operator / Fitter	day	0.25	500.00	125.00	L-08
		Mazdoor	day	1.00	300.00	300.00	L-13
		iii) For grouting					
		Mate/Supervisor	day	0.05	550.00	27.50	L-12
		Mason	day	0.25	550.00	137.50	L-11
		Mazdoor	day	1.00	300.00	300.00	L-13
		c) Machinery					
		Stressing jack with pump	hour	2.50	155.00	387.50	P&M-040
		Grouting pump with agitator	hour	1.00	182.33	182.33	M-111
		Generator 33 KVA.	hour	3.50	448.00	1568.00	P&M-081
		d) Overhead charges @ 16 % on (a+b+c)				734.93	
		e) Contractor's profit @ 10 % on (a+b+c+d)				532.83	
		Cost for 0.377 MT (a+b+c+d+e)				50437.24	
		Rate per MT = (a+b+c+d+e)/0.377				133785.78	
					say	133786.00	
		Note Cost of HT steel has been taken for delivery at site. Hence carriage has not been considered.					
14.5	515 & 2702	Mastic Asphalt					
		Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.					
		Unit = sqm					
		Taking output = $72.46 \text{ sqm} (2 \text{ tonnes}) / (0.869 \text{ cum})$ assuming a density of 2.3 tonnes/cum.					
		a) Labour					
		Mate	day	0.49	550.00	269.50	L-12
		Mazdoor	day	11.00	300.00	3300.00	L-13
		Mazdoor (Skilled)	day	1.25	450.00	562.50	L-15
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	0.06	505.00	30.30	P&M-031
		Air compressor 250 cfm	hour	0.06	1359.75	81.59	P&M-001

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Mastic cooker 1 tonne capacity	hour	6.00	450.00	2700.00	P&M-030
		Bitumen boiler 1500 litres capacity	hour	6.00	1321.44	7928.63	P&M-005
		Tractor for towing and positioning of mastic cooker and bitumen boiler	hour	1.00	700.00	700.00	P&M-053
		c) Material					
		Base mastic (without coarse aggregates) = 60 per cent					
		Coarse aggregate(3.35mm to 9.5 mm size) = 40 per cent .					
		Proportion of material required for mastic asphalt with coarse aggregates (based on mix design done by CRRI for a specific case)					
		i) Bitumen 80/100 or 60/70 @ 10.2 per cent by weight of mix. $2 \times 10.2/100 = 0.204$	tonne	0.204	41450.18	8455.84	M-074
		ii) Crusher stone dust @ 31.9 per cent by weight of mix = $2 \times 31.9/100 = 0.638$ tonnes = $0.638/1.625 = 0.39$	cum	0.39	1579.14	615.86	M-021
		iii) Lime stone dust filler with calcium carbonate content not less than 80 per cent by weight @ 17.92 per cent by weight of mix = $2 \times 17.92/100 = 0.36$	tonne	0.36	11100.00	3996.00	M-188
		iv) Coarse aggregates 9.5 mm to 3.35 mm size @ 40 per cent by weight of mix = $2 \times 40/100 = 0.8$ MT = $0.8/1.456 = 0.55$	cum	0.55	1629.49	896.22	M-051
		v) Pre-coated stone chips of 9.5 mm nominal size for skid resistance = $72.46 \times 0.005/10 = 0.036$	cum	0.036	1679.84	60.47	M-142
		vi) Bitumen for coating of chips @ 2 per cent by weight = $0.036 \times 1.456 \times 2/100 = 0.001048$ MT = 1.05kg	kg	1.05	42.84	44.98	M-074/1000
		d) Overhead charges @ 16 % on (a+b+c)				4742.70	
		e) Contractor's profit @ 10 % on (a+b+c+d)				3438.46	Rate
		Cost for 72.46 sqm = a+b+c+d+e				37823.04	with 4%
		Rate per sqm = (a+b+c+d+e)/72.46				521.99	Over head
					say	522.00	470.00
		Note 1.The rates for 6 mm or any other thickness may be worked out on pro-rata basis.					
		2. Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately.					
		3.The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design.					
		4.This rate analysis is based on design made by CRRI for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case.					
		5.The quantity of bitumen works out 17 per cent of the mastic asphalt blocks without aggregates and falls within the standards laid down by MoRTH Specifications.					
14.8	2703.2 & 1900	Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification					
		Unit = 1 RM					
		Taking output = 2 x 50 m span = 100 m					
		a) Material:					
		1) ISMC 100 = $2.806 \times 1.05 = 2.946$ MT	tonne	2.95	63217.05	186237.43	M-179
		2) MS Flat = $0.964 \times 1.05 = 1.012$ MT	tonne	1.01	63217.05	63975.65	M-179
		3) MS bars = $0.17 \times 1.05 = 0.180$ MT	tonne	0.18	63217.05	11379.07	M-179
		4) MS bolts, nuts and washers	tonne	0.15	87500.00	13125.00	M-130*1000
		Add @ 5 per cent of cost of material for painting one shop coat with red oxide primer and three coats of synthetic enamel paint and consumables to safeguard against weathering and corrosion.				13735.86	

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Add for cost of concrete for fixing vertical posts in the performed recess @ 1 per cent of cost of material.				2747.17	
		Add for electricity charges, welding and drilling equipment, electrodes and other consumables @ 1 per cent of cost of material.				2747.17	
		b) Labour					
		Mate	day	2.80	550.00	1540.00	L-12
		Mazdoor (Skilled)	day	30.00	450.00	13500.00	L-15
		Mazdoor	day	40.00	300.00	12000.00	L-13
		c) Overhead charges @ 16 % on (a+b)				51357.98	
		d) Contractor's profit @ 10 % on (a+b+c)				37234.53	
		Cost for 100 m steel railing = a+b+c+d				409579.86	
		Rate per metre (a+b+c+d)/100				4095.80	
					say	<u>4096.00</u>	
		c) Overhead charges @ 4% on (a+b)				12839.49	
		d) Contractor's profit @ 10 % on (a+b+c)				33382.68	
		Cost for 100 m steel railing = a+b+c+d				367209.53	
		Rate per metre (a+b+c+d)/100				3672.10	
					say	<u>3672.00</u>	
14.9	2705	Drainage Spouts complete as per drawing and Technical specification					
		Unit = 1 No.					
		Taking output = 1 No.					
		a) Material					
		Corrosion resistant Structural steel including 5 per cent wastage	Kg	4.00	67.71	270.84	M-087/1000
		GI pipe 100mm dia	metre	6.00	160.00	960.00	M-056
		GI bolt 10 mm Dia	each	6.00	41.99	251.94	M-110
		Galvanised MS flat clamp	each	2.00	31.00	62.00	M-101
		b) Labour					
		For fabrication					
		Mate	day	0.02	550.00	11.00	L-12
		Skilled (Blacksmith, welder etc.)	day	0.02	550.00	11.00	L-02
		Mazdoor	day	0.02	300.00	6.00	L-13
		For fixing in position					
		Mate	day	0.01	550.00	5.50	L-12
		Mason	day	0.01	550.00	5.50	L-11
		Mazdoor	day	0.20	300.00	60.00	L-13
		Add @ 5 per cent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.				82.19	
		c) Overhead charges @ 16 % on (a+b)				276.16	
		d) Contractor's profit @ 10 % on (a+b+c)				200.21	
		Rate per metre (a+b+c+d)				2202.34	
					say	<u>2202.00</u>	
		c) Overhead charges @ 4% on (a+b)				69.04	
		d) Contractor's profit @ 10 % on (a+b+c)				179.50	
		Rate per metre (a+b+c+d)				1974.51	
					say	<u>1975.00</u>	
14.11	1500,1600, 1700 & 2704	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification					
		Unit = 1 cum					

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Taking output = 1 cum					
		a) Material					
		Cement concrete M30 Grade Refer relevant item of concrete in item 12.8(G) by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1.00	7216.00	7216.00	
		(Refer relevant item of concrete in item No. 13.8 (G) except that form work may be added at the rate of 2 per cent of cost against 3.5 per cent provided in the foundation concrete.				144.32	
		HYSD bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.05	61188.00	3059.40	
		b) Overhead charges @ 16 % on (a)				1667.16	
		c) Contractor's profit @ 10 % on (a+b)				1208.69	
		Rate per cum (a+b+c)				13295.56	
					say	13296.00	
		b) Overhead charges @ 4% on (a)				416.79	
		c) Contractor's profit @ 10 % on (a+b)				1083.65	
		Rate per cum (a+b+c)				11920.16	
					say	11920.00	
14.16	800	Painting on concrete surface					
		Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.					
		Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
		Mate	day	0.01	550.00	5.50	L-12
		Painter	day	0.25	550.00	137.50	L-18
		Mazdoor (Skilled)	day	0.25	450.00	112.50	L-15
		b) Material					
		Water based paint of approved quality for cement concrete surface	Litres	5.00	85.09	425.43	M-190
		c) Overhead charges @ 16 % on (a+b)				108.95	
		d) Contractor's profit @ 10 % on (a+b+c)				78.99	Rate
		Cost for 10 sqm (a+b+c+d)				868.86	with 4%
		Rate per sqm (a+b+c+d)/10				86.89	Over head
					say	87.00	78.00
14.19	2600	Asphaltic Plug joint					
		Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.					
		Unit = Running meter					
		Taking output = 12 m					
		a) Labour					
		Mate	day	0.052	550.00	28.60	L-12
		Mazdoor	day	1.00	300.00	300.00	L-13

Sr No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
		Mazdoor (Skilled)	day	0.30	450.00	135.00	L-15
		b) Material					
		Crushed stone aggregate 12.5 mm nominal size	cum	0.75	1847.04	1385.28	M-052
		Polymer modified bitumen	kg	77.50	45.23	3505.21	M-078/ 1000
		Galvanised structural steel plate 200 mm wide, 6 mm thick, 12 m long (2.4 sqm) @ 47.10 kg/sqm including 5 per cent wastage	kg	113.00	219.78	24835.14	M-103
		Add 1 per cent for welding and foam caulking/backer rod and other incidentals.				301.89	
		c) Machinery					
		Mastic cooker 1 tonne capacity	hour	1.00	450.00	450.00	P&M-030
		Smooth 3-wheeled steel roller 8-10 capacity	hour	0.50	1307.50	653.75	P&M-044
		d) Overhead charges @ 16 % on (a+b+c)				5055.18	
		e) Contractor's profit @ 10 % on (a+b+c+d)				3665.01	Rate
		Cost for 12 m asphalt plug joint = (a+b+c+d+e)				40315.06	with 4%
		Rate per m = (a+b+c+d+e)/12				3359.59	Over head
					say	3360.00	3024.00
		Note The nominal size of aggregates shall be 12.5 mm for depth of joint upto 75 mm and 20 mm for joints of depth more than 75 mm.					
14.22	2607	Strip Seal Expansion Joint					
		Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.					
		Unit = Running meter					
		Taking output = 12 m					
		a) Labour					
		Mate	day	0.05	550.00	27.50	L-12
		Mazdoor	day	1.00	300.00	300.00	L-13
		Mazdoor (Skilled)	day	0.25	450.00	112.50	L-15
		b) Material					
		Supply of complete assembly of strip seal expansion joint comprising of edge beams, anchorage, strip seal element and complete accessories as per approved specifications and drawings.	metre	12.00	29850.00	358200.00	M-178
		Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals.				17932.00	
		c) Overhead charges @ 16 % on (a+b)				60251.52	
		d) Contractor's profit @ 10 % on (a+b+c)				43682.35	
		Cost for 12 m = (a+b+c+d)				480505.87	
		Rate per m = (a+b+c+d)/12				40042.16	
					say	40042.00	

CHAPTER - 15								
RIVER TRAINING AND PROTECTION WORKS								
Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
15.4	2504		Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications					
		A	Stone/Boulder					
			Unit = cum					
			Taking output = 1 cum					
			a) Material					
			Stone weighing not less than 40kg	cum	1.00	1055.50	1055.50	M-003
			Stone spalls of minimum 25 mm size	cum	0.20	1055.50	211.10	M-008
			b) Labour					
			Mate	day	0.04	550.00	22.00	L-12
			Mason	day	0.35	550.00	192.50	L-11
			Mazdoor	day	0.75	300.00	225.00	L-13
			c) Overhead charges @ 16 % on (a+b)				272.98	
			d) Contractor's profit @ 10 % on (a+b+c)				197.91	
			Rate per cum = (a+b+c+d)				2176.98	
						say	2177.00	
			c) Overhead charges @ 4% on (a+b)				68.24	
			d) Contractor's profit @ 10 % on (a+b+c)				177.43	
			Rate per cum = (a+b+c+d)				1951.78	
						say	1952.00	
15.5	2504		Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification					
			Unit = cum					
			Taking output = 1 cum					
			a) Material					
			Graded stone aggregate of required size	cum	1.20	1055.50	1266.60	M-012
			b) Labour					
			Mate	day	0.05	550.00	27.50	L-12
			Mazdoor (Skilled)	day	0.25	450.00	112.50	L-15
			Mazdoor *	day	1.00	300.00	300.00	L-13
			c) Overhead charges @ 16 % on (a+b)				273.06	
			d) Contractor's profit @ 10 % on (a+b+c)				197.97	
			Rate per cum = (a+b+c+d)				2177.62	
						say	2178.00	
			c) Overhead charges @ 4% on (a+b)				68.26	
			d) Contractor's profit @ 10 % on (a+b+c)				204.79	
			Rate per cum = (a+b+c+d)				1979.66	
						say	1980.00	
15.8	2505		Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concert bedding.					
		C	150mm thick Flat Stone with concrete Grade M15					
			150mm thick Flat Stone. (Rate as per item No. 12.8 (A) including OH & CP.	cum	0.33	5811.00	1917.63	
			Add for cement concrete bedding (M15 Nominal mix) vide Item 12.8 (A) including OH & CP. Quantity shall be adopted as per design (Assume Cement Concrete blocks thickness 300mm and cement concrete bedding thickness 100mm)	cum	0.67	7087.00	4748.29	
			Add 1 per cent of cost to account for excavation for preparation of bed.				66.66	
			Rate per cum				6732.58	
						say	6733.00	

Sr No	Ref. to MoRTH Spec.		Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
15.8 new	2505		Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concert bedding.					
		A	Rubble stone laid in cement mortar 1:3					
			<i>Unit = cum</i>					
			<i>Taking output = 1 cum</i>					
			a) Cement mortar 1:3 (Rate as in Item 12.6 sub-analysis) excluding OH & CP	cum	0.00	7406.00	0.00	
			b) Add for cement concrete bedding (M15 Nominal mix) vide Item 12.8 (A) excluding OH & CP . Quantity shall be adopted as per design (Assume Rubble stone Flooring thickness 150mm and cement concrete bedding thickness 150mm)	cum	0.67	5958.00	3991.86	
			Add 1 per cent of cost to account for excavation for preparation of bed.				39.92	
			c) Material					
			Stone	cum	0.33	1055.50	348.32	M-003
			Stone Spalls	cum	0.00	1055.50	0.00	M-008
			d) Labour					
			Mate	day	0.08	550.00	44.00	L-12
			Mason	day	0.50	550.00	275.00	L-11
			Mazdoor (for laying stones, filling of quarry spalls)	day	1.50	300.00	450.00	L-13
			e) Overhead charges @ 16 % on (a+c+d)				178.77	Rate
			f) Contractor's profit @ 10 % on (a+c+d+e)				129.61	with 4%
			Rate per cum = (a+b+c+d+e+f)				5457.47	Over head
						say	5457.00	4911.00
15.11	2507.2		Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.					
			<i>Unit = cum</i>					
			<i>Taking Output = 1 cum</i>					
			a) Material					
			Stone	cum	1.00	1055.50	1055.50	M-003
			Stone Spalls	cum	0.20	1055.50	211.10	M-008
			b) Labour					
			Mate	day	0.05	550.00	27.50	L-12
			Mason	day	0.25	550.00	137.50	L-11
			Mazdoor	day	1.00	300.00	300.00	L-13
			Add 1 per cent of cost of (a+b) for trimming and preparation of bed.				17.32	
			c) Overhead charges @ 16 % on (a+b)				279.83	
			d) Contractor's profit @ 10 % on (a+b+c)				202.87	
			Rate per cum = (a+b+c+d)				2231.62	
						say	2232.00	
			c) Overhead charges @ 4% on (a+b)				69.96	
			d) Contractor's profit @ 10 % on (a+b+c)				181.89	
			Rate per cum = (a+b+c+d)				2000.76	
						say	2001.00	