

No. 3-3-05/SSW-PWD/Vol-I/2020-21/ 66  
Government of Goa  
Office of the Principal Chief Engineer,  
Public Works Department,  
Altinho, Panaji -Goa.

Dated: 11, May, 2020.

**CIRCULAR**

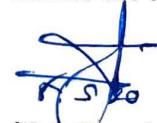
**Sub: Goa Schedule of Rates – 2020 for Roads & Bridges (Part –I – Highway Sector & Part - II - State Sector)**

The Goa Schedule of Rates for Roads & Bridges (Part – I – Highway Sector) was last revised on 20<sup>th</sup> May, 2015 & (Part – II - State Sector) was last revised on 1<sup>st</sup> December, 2015 and is in operation till date. Consequent upon the increase in prices of basic road construction materials, transportation cost, labour and machinery charges etc. it became necessary to revise the Schedule of Rates to match with the prevailing market rates.

Accordingly the new Goa Schedule of Rates – 2020 for Roads & Bridges (Part –I – Highway Sector & Part - II - State Sector) has been prepared on the similar lines of earlier Schedule of Rates by obtaining quotations from the manufacturers or authorized dealers from the local market excluding GST.

This new Goa Schedule of Rates – 2020 for Roads & Bridges (Part –I – Highway Sector & Part - II - State Sector) will be effective immediately from this date i.e. 11<sup>th</sup> May, 2020. superseding all earlier Schedule of Rates for Road Works and any other Circulars issued in this regard.

The Goa Schedule of Rates – 2020 for Roads & Bridges (Part –I – Highway Sector & Part - II - State Sector) shall be followed for preparation of new estimates and for working out of the Reasonable Amounts in accordance with the stipulations under para 20.4.3 of CPWD Works Manual- 2014 for acceptance of tenders of the works for which the tenders are already invited/ being invited based on earlier Schedule of Rates.



(U. P. Parsekar)  
Principal Chief Engineer  
P.W.D.

Copy to:

1. The Principal Chief Engineer, Altinho, Panaji – Goa.
2. The Chief Engineer NH (R&B), I/ II, PWD, Altinho, Panaji – Goa.
3. The Suptdg. Surveyor of Works, PWD, Altinho, Panaji – Goa.
4. The Suptdg. Engineer, C.O. I, II, III, IV, V, VI, VII, VIII, IX, PWD, Goa
5. The Suptdg. Engineer (Mon. & Eva.), PWD, Altinho, Panaji – Goa.
6. The Executive Engineer, Works Div, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, IXX, XX, XXI, XXII, XXIII, XXIV & XXV, PWD, Goa.
7. The Jt. Director of Accounts, PWD, Altinho, Panaji – Goa.

Copy with compliments to:

1. The Secretary, PWD, Govt. of Goa, Secretariat, Porvorim – Goa.
2. The OSD to Hon'ble Minister of PWD, Secretariat, Porvorim – Goa.

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Sd/-  
**(U. P. Parsekar)**  
Principal Chief Engineer  
P.W.D.

Authorized for Issue

**(Antony Mathew)**

Suptdg. Surveyor of Works

Copy to:

1. The Principal Chief Engineer, Altinho, Panaji – Goa.
2. The Chief Engineer NH (R&B), I / II, PWD, Altinho, Panaji – Goa.
3. The Suptdg. Surveyor of Works, PWD, Altinho, Panaji – Goa.
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6. The Executive Engineer, Works Div, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, IXX, XX, XXI, XXII, XXIII, XXIV & XXV, PWD, Goa.
7. The Jt. Director of Accounts, PWD, Altinho, Panaji – Goa.

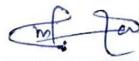
Copy with compliments to:

1. The Secretary, PWD, Govt. of Goa, Secretariat, Porvorim – Goa.
2. The OSD to Hon'ble Minister of PWD, Secretariat, Porvorim – Goa.

## PREFACE

1. The Goa Schedule of Rates 2020 Roads & Bridges, (Part -I – Highway Sector & Part - II - State Sector) is a revised edition of Goa Schedule of Rates 2014 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector).
2. Goa Schedule of Rates 2020 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector), incorporates most of the items of Goa Schedule of Rates 2014 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector). Some items of the Goa Schedule of Rates 2014 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector) have been deleted. Similarly, some of the Rate Analysis have been modified/corrected. The schedule of rates is for estimating purpose only and shall be followed for both original and maintenance work.
3. The Basic Rates of Materials, incorporated in the Analysis of Rates, pertains to materials confirming to CPWD Specifications/MORTH Specifications/ Materials of Good Quality generally available in the market. Labour rates are taken from the minimum wages notification issued by the Government of Goa, Office of the Commissioner, Labour & Employment, vide Notification No. 24/21/2009-LAB-II(14) dated 24<sup>th</sup>May 2016, with the revised Dearness Allowances vide Order No. CLE/PA/MWA-VDA/ (10)/2016/3507 dated 04/09/2018.
4. All the Basic Rates of the Materials considered are excluding taxes (GST) for (Part –I – Highway Sector & Part - II - State Sector). The Item Rates are exclusive of taxes (GST) but inclusive 1% Labour cess for (Part - II - State Sector) only.
5. Lots of efforts have gone into the preparation of Goa Schedule of Rates 2020 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector). I, on behalf of the committee convey my deep appreciation & sincere thanks to all the Engineers of the department for their sincere efforts they made in the preparation of this document.
6. Use of Goa Schedule of Rates 2020 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector) by PSUs, private bodies & individuals shall be at their own discretion. Public Works Department, Goa shall not be responsible for any ambiguity, discrepancy, dispute or financial loss arising directly or indirectly by using or following Analysis of Rates by such Govt. /Private bodies or individuals.
7. Due care has been taken by the committee constituted, to prepare the Goa Schedule of Rates 2020 Roads & Bridges, (Part –I – Highway Sector & Part - II - State Sector) as correctly as possible. It is however possible that, some errors might have crept in,

due to oversight. Acknowledging that '**TO ERR IS HUMAN'**, if any ambiguities/discrepancies/mistakes/omissions, are noticed in the Basic Rates of Materials, Hire Charges for Plants& Machinery for Road Works, GSR Items, Specifications of Items & Rate Analysis, by any Technical Staff or even by Contractors, at any stages of work, (either before execution, during execution or after execution of the work ), the same may be promptly brought to the notice of the Superintending Surveyor of Works, Public Works Department, Altinho, Panaji, Goa, so that the same may be immediately rectified, through a Corrigendum.



(ANTONY MATHEW)  
Superintending Surveyor of Works,  
Public Works Department,  
Altinho, Panaji – Goa.

**Goa Schedule of Rates**

**Roads & Bridges, 2020**

**(Part-I - Highway Sector)**

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**(A) Usage Rates of Plant and Machinery**

<b>Sl. No.</b>	<b>Description of Machine</b>	<b>Activity</b>	<b>Output of Machine</b>	<b>Output</b>	<b>Unit</b>	<b>Rate</b>
P&M-001	Air Compressor/Air Compressor 170 cfm	General Purpose	capacity in cfm	170/250	hour	550.00
P&M-002	Batching and Mixing Plant (a) 30 cum capacity	Concrete Mixing	cum/hour	20	hour	2100.00
P&M-003	Batching and Mixing Plant (b) 15 - 20 cum capacity	Concrete Mixing	cum/hour	13	hour	1670.00
P&M-004	Bitumen Pressure Distributor	Applying bitumen tack coat	sqm/hour	1750	hour	850.00
P&M-005	Bitumen Boiler oil fired	Bitumen Spraying	capacity in litre	1500	hour	562.00
P&M-006	Concrete Paver Finisher with 40 HP Motor	Paving of concrete surface	cum / hour	20	hour	2750.00
P&M-007	Concrete Pump of 45 & 30 cum capacity	Pumping of concrete	cum / hour	33 / 22	hour	290.00
P&M-008	Concrete Bucket	For Pouring concrete	capacity in cum	1	hour	70.00
P&M-009	Concrete Mixer (a) 0.4/0.28 cum	Concrete Mixing	cum/hour	2.5	hour	296.00
P&M-010	Concrete Mixer (b) 1 cum	Concrete Mixing	cum/hour	7.5	hour	256.00
P&M-011	Crane (a) 80 tonnes	Lifting Purpose			hour	1130.00
P&M-012	Cranes b) 35 tonnes	Lifting Purpose			hour	880.00
P&M-013	Cranes c) 3 tonnes	Lifting Purpose			hour	672.00
P&M-014	Dozer D - 80 - A 12/Dozer -80D	Spreading /Cutting / Clearing	cum/hour	300/ 150/250	hour	1200.00
P&M-015	Dozer D - 50 - A 15	Spreading /Cutting / Clearing	cum/hour	200/ 120/150	hour	1400.00
P&M-016	Emulsion Pressure Distributor	Applying emulsion tack coat	sqm/hour	1750	hour	725.00
P&M-017	Front End loader 1 cum bucket capacity	Soil loading / Aggregate loading	cum/hour	60 /25	hour	800.00
P&M-018	Generator (a) 125 KVA	Genration of electric Energy	KVA	100	hour	595.00
P&M-019	Generator( b) 63 KVA	Genration of electric Energy	KVA	50	hour	255.00
P&M-020	GSB Plant 50 cum	Producing GSB	cum/hour	40	hour	1040.00
P&M-021	Hotmix Plant - 120 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	40	hour	12835.00
P&M-022	Hotmix Plant - 100 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	30	hour	9492.00
P&M-023	Hotmix Plant - 60 to 90 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	25	hour	7591.00
P&M-024	Hotmix Plant - 40 to 60 TPH capacity	DBM/BM/SDC/ Premix	cum/hour	17	hour	2150.00
P&M-025	Hydraulic Chip Spreader	Surface Dressing	sqm/hour	1500	hour	196.00

P&M-026	Hydraulic Excavator of 1 cum bucket	Soil Ordinary/Soil Marshy / Soil Unsuitable	cum/hour	60 /60 /60	hour	1600.00
P&M-027	Integrated Stone Crusher 100TPH	Crushing of Spalls	TPH	100	hour	6700.00
P&M-028	Integrated Stone Crusher 200 HP	Crushing of Spalls	TPH	200	hour	6700.00
P&M-029	Kerb Casting Machine	Kerb Making	Rm/hour	80	hour	43.00
P&M-030	Mastic Cooker	Mastic Wearing coat	capacity in tonne	1	hour	108.00
P&M-031	Mechanical Broom Hydraulic	Surface Cleaning	sqm/hour	1250	hour	450.00
P&M-032	Motor Grader 3.35 mtr blade	Clearing /Spreading /GSB /WBM	cum/hour	200/200/50/50	hour	480.00
P&M-033	Mobile slurry seal equipment	Mixing and laying slurry seal	sqm/hour	2700	hour	870.00
P&M-034	Paver Finisher Hydrostatic with sensor control 100 TPH	Paving of DBM/ BM/SDC/ Premix	cum/hour	40	hour	2000.00
P&M-035	Paver Finisher Mechanical 100 TPH	Paving of WMM /Paving of DLC	cum/hour	40/30	hour	1500.00
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	4600.00
P&M-037	Pneumatic Road Roller	Rolling of Asphalt Surface	cum/hour	25	hour	818.00
P&M-038	Pneumatic Sinking Plant	Pneumatic Sinking of wells	cum/hour	1.5 to 2.00	hour	3310.00
P&M-039	Pot Hole Repair Machine	Repair of potholes	cum/hour	4	hour	2355.00
P&M-040	Prestressing Jack with Pump & access	Stressing of steel wires/stands			hour	155.00
P&M-041	Ripper	Scarifying	cum/hour	60	hour	2000.00
P&M-042	Rotavator	Scarifying	cum/hour	25	hour	500.00
P&M-043	Road marking machine	Road marking	Sqm/hour	100	hour	100.00
P&M-044	Smooth Wheeled Roller 8 tonne	Soil Compaction /BM Compaction	cum/hour	70/25	hour	780.00
P&M-045	Tandem vibratory Road Roller(8-10 )	Rolling of Aspalt Surface	cum/hour	30	hour	300.00
P&M-046	Tipper - 5 cum	Transportation of soil, GSB, WMM, Hotmix etc.	Capacity in cum	5.5	km	50.00
P&M-047	Tipper - 5 cum	Transportation of soil, GSB, WMM, Hotmix etc.	Capacity in cum	5.5	tonne. km	9.00
P&M-048	Tipper - 5 cum	Transportation of soil, GSB, WMM, Hotmix etc.	Capacity in cum	5.5	hour	500.00
P&M-049	Transit Mixer 4.0/4.5 cum	Transportation of Concrete Mix to site	cum/hour	4.5	hour	902.00
P&M-050	Transit Mixer 4/4.5 cum	Transportation of Concrete Mix to site	cum/hour	4.5	tonne. km	35.00

P&M-051	Transit Mixer 3.0 cum	Transportation of Concrete Mix to site	cum/hour	3	hour	780.00
P&M-052	Transit Mixer 3.0 cum	Transportation of Concrete Mix to site	cum/hour	3	tonne. km	30.00
P&M-053	Tractor/Tractor (FARM)	Pulling	capacity in HP	50	hour	410.00
P&M-054	Tractor with Rotevator	Rate of Tractor + Rotevator			hour	170.00
P&M-055	Tractor with Ripper	Rate of Tractor 6+ Ripper			hour	170.00
P&M-056	Truck 5.5 cum per 10 tonnes	Material Transport	capacity/c um	4.5	km	80.00
P&M-057	Truck 5.5 cum per 10 tonnes	Material Transport	capacity/c um	4.5	hour	500.00
P&M-058	Truck 5.5 cum per 10 tonnes	Material Transport	capacity/c um	4.5	tonne. km	8.00
P&M-059	Vibratory Roller 8 tonne	Earth or soil / GSB / WBM	cum/hour	100/60/60	hour	1200.00
P&M-060	Water Tanker	Water Transport	capacity in KL	6	hour	300.00
P&M-061	Water Tanker	Water Transport	capacity in KL	6	km	300.00
P&M-062	Wet Mix Plant 60 TPH	Wet Mix	cum/hour	25	hour	1550.00
P&M-063	Air compressor with pneumatic chisel attachment for cutting hard clay.				hour	425.00
P&M-064	Batch type cold mixing plant 100-120 TPH capacity producing an average output of 75 tonne per hour				hour	Input
P&M-065	Belt conveyor system				hour	Input
P&M-066	Boat to carry atleast 20 persons				hour	Input
P&M-067	Cement concrete batch mix plant @ 175 cum per hour (effective output)				hour	2758.00
P&M-068	Cement concrete batch mix plant @ 75 cum per hour				hour	2758.00
P&M-069	Cold milling machine @ 20 cum per hour				hour	Input
P&M-070	Crane 5 tonne capacity				hour	1000.00
P&M-071	Crane 10 tonne capacity				hour	1200.00
P&M-072	Crane 15 tonne capacity				hour	1400.00
P&M-073	Crane 20 tonne capacity				hour	1600.00
P&M-074	Crane 40 T capacity				hour	2600.00
P&M-075	Crane with grab 0.75 cum capacity				hour	456.00
P&M-076	Compressor with guniting equipment along with accessories				hour	425.00
P&M-077	Drum mix plant for cold mixes of appropriate capacity but not less than 75 tonnes/hour.				hour	Input
P&M-078	Epoxy Injection gun				hour	170.00

P&M-079	Generator 33 KVA	hour	490.00
P&M-080	Generator 100 KVA	hour	755.00
P&M-081	Generator 250 KVA	hour	800.00
P&M-082	Induction, deinduction and erection of plant and equipment including all components and accessories for pneumatic method of well sinking.	hour	12750.00
P&M-083	Joint Cutting Machine with 2-3 blades (for rigid pavement)/Joint concrete cutting machine	hour	57.00
P&M-084	Jack for Lifting 40 tonne lifting capacity.	day	10200.00
P&M-085	Piling rig Including double acting pile driving hammer (Hydraulic rig)	hrs	5313.00
P&M-086	Plate compactor	hour	69.00
P&M-087	Snow blower equipment 140 HP @ 600 cum per hour	hour	Input
P&M-088	Texturing machine (for rigid pavement)/Texturing machine	hour	155.00
P&M-089	Truck Trailor 30 tonne capacity	hour	1500.00
P&M-090	Truck Trailor 30 tonne capacity	t.km	50.00
P&M-091	Tunnel Boring machine	hour	Input
P&M-092	Vibrating Pile driving hammer complete with power unit and accessories.	hour	1020.00
P&M-093	Wet Mix Plant 100 TPH	hour	7520.00
P&M-094	Wet Mix Plant 75 TPH	hour	5619.00
P&M-095	2006 Bomag Propapver 813 RT	hour	780.00
P&M-096	1999 CEC road Runner	hour	1051.00
P&M-097	CEC road Runner	hour	1339.00
P&M-098	2001 Gilcrest Propaver 813 RT	hour	388.00
P&M-099	2012 Mauldin 1550D Superpaver	hour	1016.00
P&M-100	1998 Rayner Roadsaver II	hour	1923.00
P&M-101	2004 Bomag Propaver 813 RT	hour	789.00
P&M-102	2007 BOMAG Propaver 814-2	hour	963.00
P&M-103	2012 CEC Road Runner	hour	8355.00
P&M-104	2009 CEC Road Runner	hour	3998.00
P&M-105	2003 CEC Road Runner	hour	2010.00
P&M-106	2007 Elgin Road Wizard	hour	1050.00

P&M-107	2010 Getman Road Builder	hour	2544.00
P&M-108	1999 Gilcrest Propaver 413	hour	73.00
P&M-109	2004 Gilcrest Propaver 813 RT	hour	805.00
P&M-110	2003 Gilcrest Propaver 813 RT	hour	353.00
P&M-111	2002 Gilcrest Propaver 813 RT	hour	344.00
P&M-112	2001 Gilcrest Propaver 813 RT	hour	299.00
P&M-113	1998 Gilcrest Propaver 813 RT	hour	264.00
P&M-114	1996 Gilcrest Propaver 813 RT	hour	217.00
P&M-115	Gilcrest Propaver 813 RT	hour	326.00
P&M-116	2014 Gilcrest Propaver 4410	hour	571.00
P&M-117	1998 Mauldin 1500 Superpaver	hour	641.00
P&M-118	1987 Mauldin 1500 Superpaver	hour	169.00
P&M-119	2012 Mauldin 1550 D Superpaver	hour	1604.00
P&M-120	2001 Mauldin 1750 Superpaver	hour	257.00
P&M-121	1973 Rincheval Roadsprayer	hour	111.00

**(B) Labour**

<b>Sl. No.</b>	<b>Description of Labour</b>	<b>Unit</b>	<b>Rate</b>
L-01	Blacksmith (IIInd class)	day	386.00
L-02	Blacksmith (Ist class)/ Welder/ Plumber/ Electrician	day	441.00
L-03	Blaster (Stone cutter)	day	386.00
L-04	Carpenter I Class	day	441.00
L-05	Chiseller (Head Mazdoor)	day	386.00
L-06	Driller (Jumper)	day	386.00
L-07	Diver	day	441.00
L-08	Fitter	day	441.00
L-09	Mali	day	325.00
L-10	Mason (IIInd class)	day	386.00
L-11	Mason (Ist class)	day	441.00
L-12	Mate / Supervisor	day	325.00
L-13	Mazdoor	day	386.00
L-14	Mazdoor/Dresser (Semi Skilled)/Beldar/Bhisti/Chowkidar(Unskilled)	day	325.00
L-15	Mazdoor/Dresser/Sinker (Skilled)	day	386.00
L-16	Medical Officer	day	483.00
L-17	Operator(grouting)	day	386.00
L-18	Painter I class	day	441.00
L-19	Para medical personnel	day	483.00

### (C) Materials

Sr. No.	Description	Unit	Rate
M-001	Stone Boulder of size 150 mm and below at Cruser Plant	cum	850.00
M-002	Supply of quarried stone 150 - 200 mm size for Hand Broken at site/Granitic/basaltic boulders 150-200 mm/Soling stone(Basaltic or granitic) 150-200mm	cum	600.00
M-003	Boulder with minimum size of 300 mm for Pitching at Site	cum	850.00
M-004	Coarse sand at Mixing Plant	cum	1071.00
M-005	Coarse sand at Site/Sand(river/manufactured:Coarse/fine)	cum	1300.00
M-006	Fine sand at Site	cum	1020.00
M-007	Moorum at Site/Murrum	cum	150.00
M-008	Gravel/Quarry spall at Site	Cum	536.00
M-009	Granular Material or hard murrum for GSB works at Site	Cum	536.00
M-010	Granular Material or hard murrum for GSB works at Mixing Plant	Cum	536.00
M-011	Fly ash conforming to IS: 3812 ( Part II & I) atHMP Plant / Batching Plant / Crushing Plant	Cum	340.00
M-012	Filter media/Filter Material as per Table 300-3 (MoRT&H Specification)	Cum	714.00
M-013	Close graded Granular sub-base Material 53 mm to 9.5 mm	cum	1200.00
M-014	Close graded Granular sub-base Material 37.5 mm to 9.5 mm	cum	1250.00
M-015	Close graded Granular sub-base Material 26.5 mm to 9.5 mm	cum	1250.00
M-016	Close graded Granular sub-base Material 9.5 mm to 4.75 mm	cum	1300.00
M-017	Close graded Granular sub-base Material 9.5 mm to 2.36 mm	cum	1300.00
M-018	Close graded Granular sub-base Material 4.75mm to 2.36 mm	cum	1150.00
M-019	Close graded Granular sub-base Material 4.75mm to 75 micron mm		1150.00
M-020	Close graded Granular sub-base Material 2.36 mm	cum	1150.00
M-021	Stone crusher dust finer than 3mm with not more than 10% passing 0.075 sieve.	cum	800.00
M-022	Coarse graded Granular sub-base Material 2.36 mm & below	cum	1040.00

M-023	Coarse graded Granular sub-base Material 4.75mm to 75 micron mm	cum	1040.00
M-024	Coarse graded Granular sub-base Material 4.75 mm to 2.36 mm	cum	1040.00
M-025	Coarse graded Granular sub-base Material 9.5 mm to 4.75 mm	cum	1040.00
M-026	Coarse graded Granular sub-base Material 26.5 mm to 4.75 mm	cum	882.00
M-027	Coarse graded Granular sub-base Material 26.5 mm to 9.5 mm	cum	882.00
M-028	Coarse graded Granular sub-base Material 37.5 mm to 9.5 mm	cum	745.00
M-029	Coarse graded Granular sub-base Material 53 mm to 26 .5mm	cum	745.00
M-030	Aggregates below 5.6 mm	cum	1150.00
M-031	Aggregates 22.4 mm to 2.36 mm	cum	1300.00
M-032	Aggregates 22.4 mm to 5.6 mm	cum	1300.00
M-033	Aggregates 45 mm to 2.8 mm	cum	1250.00
M-034	Aggregates 45 mm to 22.4 mm	cum	1250.00
M-035	Aggregates 53 mm to 2.8 mm	cum	1200.00
M-036	Aggregates 53 mm to 22.4 mm	cum	1200.00
M-037	Aggregates 63 mm to 2.8 mm	cum	745.00
M-038	Aggregates 63 mm to 45 mm	cum	1100.00
M-039	Aggregates 90 mm to 45 mm	cum	1000.00
M-040	Aggregates 10 mm to 5 mm	cum	1200.00
M-041	Aggregates 11.2 mm to 0.09 mm	cum	1300.00
M-042	Aggregates 13.2 mm to 0.09 mm	cum	1300.00
M-043	Aggregates 13.2 mm to 5.6 mm	cum	1300.00
M-044	Aggregates 13.2 mm to 10 mm	cum	1200.00
M-045	Aggregates 20 mm to 10 mm	cum	1300.00
M-046	Aggregates 25 mm to 10 mm	cum	1200.00
M-047	Aggregates 19 mm to 6 mm	cum	1300.00
M-048	Aggregates 37.5 mm to 19 mm	cum	1250.00
M-049	Aggregates 37.5 mm to 25 mm	cum	1100.00
M-050	Aggregates 6 mm nominal size	cum	1150.00
M-051	Aggregates 10 mm nominal size	cum	1300.00
M-052	Aggregates 13.2/12.5 mm nominal size	cum	1300.00
M-053	Aggregates 20 mm nominal size	cum	1300.00
M-054	Aggregates 25 mm nominal size	cum	1250.00

M-055	Aggregates 40 mm nominal size	cum	1250.00
M-056	AC pipe 100 mm dia	metre	177.00
M-057	Acrylic polymer bonding coat	litre	298.00
M-058	Alluminium Paint	litre	246.00
M-059	Aluminium alloy plate 2mm Thick	sqm	46750.00
M-060	Aluminium alloy/galvanised steel	tonne	46750.00
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 as applicable	sqm	12576.00
M-062	Aluminium studs 100 x 100 mm fitted with lense reflectors	nos	168.00
M-063	Barbed wire	kg	74.00
M-064	Bearing (Cost of parts)	nos	850.00
M-065	Bearing (Cast steel rocker bearing assembly of 250 tonne )	nos	29750.00
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	21250.00
M-067	Bearing (Forged steel roller bearing of 250 tonne	nos	27625.00
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 cast steel assemblies/fabricated structural steel assemblies duly painted with all components	nos	37188.00
M-069	Bearing (PTFE sliding plate bearing assembly of 80 tonnes )	nos	11900.00
M-070	Bearing (Supply of sliding plate bearing of 80 tonne)	nos	11900.00
M-071	Bentonite	kg	5.00
M-072	Binding wire	kg	63.00
M-073	Bitumen ( Cationic Emulsion )	tonne	35830.00
M-074	Bitumen (60-70 grade) vg30-PACKED	tonne	36670.00
M-075	Bitumen (80-100 grade )-vg 10-BULK	tonne	31930.00
M-076	Bitumen (Cutback )	tonne	-
M-077	Bitumen (emulsion)/Emulsified bitumen(Cationic)	tonne	35830.00

M-078	Bitumen (modified graded) /crumbed rubber bitumen-CRMB 60-/Bulk(VG30 Base)	tonne	32155.00
M-079	Brick/Brick IIInd class	each	5.00
M-080	C.I.shoes for the pile	kg	40.00
M-081	Cement	tonne	5313.00
M-082	Cold twisted bars (HYSD Bars)/HYSD Reinforcement/TMT Steel reinforcement from secondary producers	tonne	43000.00
M-083	Coller for joints 300 mm dia	nos	2125.00
M-084	Compressible Fibre Board(20mm thick)	sqm	298.00
M-085	Connectors/ Staples	each	255.00
M-086	Copper Plate(12m long x 250mmwide)	kg	77.00
M-087	Corrosion resistant Structural steel	tonne	42500.00
M-088	Corrugated sheet, 3 mm thick, "Thrie" beam section railing	kg	74.00
M-089	Credit for excavated rock found suitable for use	cum	255.00
M-090	Curing compound	liter	170.00
M-091	Delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	497.00
M-092	Earth Cost or compensation for earth taken from private land	cum	350.00
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	5100.00
M-094	Electric Detonators @ 1 detonator for 1/2 gelatin stick of 125 gms each	100 nos	1200.00
M-095	Epoxy compound with accessories for preparing epoxy mortar	kg	319.00
M-096	Epoxy mortar/Epoxy ready made mortar	kg	175.00
M-097	Epoxy primer	kg	275.00
M-098	Epoxy resin-hardner mix for prime coat	kg	425.00
M-099	Flag of red color cloth 600 x 600 mm	each	21.00
M-100	Flowering Plants	each	43.00
M-101	Galvanised MS flat clamp	nos	9.00
M-102	Galvanised steel wire crates of mesh size 100 mm x 100 mm woven with 4mm dia. GI wire in rolls of required size.	sqm	170.00

M-103	Galvanised structural steel plate 200 mm wide, 6 mm thick, 24 m long	kg	47.00
M-104	Gelatin 80%	kg	73.00
M-105	Geo grids	sqm	-
M-106	Geomembrane	sqm	76.00
M-107	Geonets	sqm	60.00
M-108	Geotextile	sqm	60.00
M-109	Geotextile filter fabric	sqm	-
M-110	GI bolt 10 mm Dia	nos	9.00
M-111	Grouting pump with agitator	hour	425.00
M-112	Grass (Doob)	kg	25.00
M-113	Grass (Fine)	kg	100.00
M-114	HDPE pipes 75mm dia	metre	100.00
M-115	HDPE pipes 90mm dia	metre	340.00
M-116	Hedge plants	each	25.00
M-117	Helical pipes 600mm diameter	metre	5100.00
M-118	Hot applied thermoplastic compound	litre	146.00
M-119	HTS strand	tonne	63750.00
M-120	Joint Sealant Compound	kg	128.00
M-121	Jute netting, open weave, 2.5 cm square opening for seeding and Mulching	sqm	43.00
M-122	LDO for steam curing	litre	46.00
M-123	M.S. Clamps	nos	3.00
M-124	M.S. Clamps	kg	3.00
M-125	M.S.shoes @ 35 Kg per pile of 15 m	kg	55.00
M-126	Mild Steel bars	tonne	45000.00
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, central beam,2 modules chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative	metre	32000.00
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 comprising of edge beams, two central beams, chloroprene seal, anchorage elements, support and control system, all steel sections protected against corrosion and installed by the manufacturer or his authorised representative	metre	65000.00

M-129	Nipples 12mm	nos	13.00
M-130	Nuts and bolts	kg	120.00
M-131	Paint	litre	104.00
M-132	Pavement Marking Paint/Road Marking paint	litre	268.00
M-133	Paving Fabric	sqm	128.00
M-134	Perforated geosynthetic pipe 150 mm dia	metre	179.00
M-135	Perforated pipe of cement concrete, internal dia 100 mm	metre	177.00
M-136	Pesticide	kg	190.00
M-137	Pipes 200 mm dia, 2.5 m long for drainage	metre	140.00
M-138	Plastic sheath, 1.25 mm thick for dowel bars	sqm	170.00
M-139	Plastic tubes 50 cm dia, 1.2 m high	nos	425.00
M-140	Polymer braids	metre	340.00
M-141	Pre moulded Joint filler,25 mm thick for expansion joint.	sqm	1105.00
M-142	Pre-coated stone chips of 13.2 mm nominal size	cum	1530.00
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 ensure water tightness.	metre	255.00
M-144	Pre-moulded asphalt filler board	sqm	170.00
M-145	Pre-packed cement based polymer concrete of strength 45 Mpa at 28 days	kg	102.00
M-146	Primer	kg	162.00
M-147	Quick setting compound	kg	170.00
M-148	Random Rubble Stone	cum	17.00
M-149	RCC Pipe NP 4 heavy duty non pressure pipe 1000 mm dia	metre	9489.00
M-150	RCC Pipe NP 4 heavy duty non pressure pipe 1200 mm dia	metre	11684.00
M-151	RCC Pipe NP 4 heavy duty non pressure pipe 300 mm dia	metre	1236.00
M-152	Reflectorising glass beads	kg	65.00
M-153	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Copper Strips)	metre	264.00
M-154	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Galvanised carbon steel strips)	metre	119.00
M-155	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Glass reinforced polymer/fibre reinforced polymer/polymeric strips)	metre	94.00

M-156	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. (Stainless steel strips)	metre	119.00
M-157	Reinforcement strips 60 mm wide 5 mm thick as per clause 3102. Aluminium strips)	metre	132.00
M-158	Rivets	each	2.00
M-159	Sand bags (Cost of sand and Empty cement bag)	nos	
M-160	Sapling 2 m high 25 mm dia	each	50.00
M-161	Scrap tyres of size 900 x 20	nos	128.00
M-162	Seeds	kg	17.00
M-163	Selected earth /selected earth for refilling	cum	223.00
M-164	Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	77.00
M-165	Sheathing duct	metre	128.00
M-166	Shrubs	each	50.0
M-167	Sludge / Farm yard manure @ 0.18 cum per 100 sqm at site of work for turfing/Manure	cum	1500.00
M-168	Sodium vapour lamp	each	850.00
M-169	Square Rubble Coursed Stone	cum	17.00
M-170	Steel circular hollow pole of standard specification for street lighting to mount light at 5 m height above deck level	each	8500.00
M-171	Steel circular hollow pole of standard specification for street lighting to mount light at 9 m height above road level	each	12750.00
M-172	Steel drum 300 mm dia 1.2 m high/empty bitumen drum	nos	150.00
M-173	Steel helmet and cushion block on top of pile head during driving.	kg	60.00
M-174	Steel pipe 25 mm external dia as per IS:1239	metre	174.00
M-175	Steel pipe 50 mm external dia as per IS:1239	metre	197.00
M-176	Steel wire rope 20 mm	kg	77.00
M-177	Steel wire rope 40 mm	kg	77.00
M-178	Strip seal expansion join	metre	4564.00
M-179	Structural Steel	tonne	43000.00
M-180	Super plastisizer admixture IS marked as per 9103-1999	kg	149.00
M-181	Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	-
M-182	Through and bond stone	each	19.00

M-183	Tie rods 20mm diameter	nos	85.00
M-184	Tiles size 300 x 300 mm and 25 mm thick	each	40.00
M-185	Timber	cum	
M-186	Traffic cones with 150 mm reflective sleeve	nos	425.00
M-187	Tube anchorage set complete with bearing plate, permanent wedges etc	nos	425.00
M-188	Unslaked lime/Lime filler	tonne	9500.00
M-189	Water	KL	85.00
M-190	Water based cement paint	litre	170.00
M-191	Welded steel wire fabric	kg	107.00
M-192	Wire mesh 50mm x 50mm size of 3mm wire	kg	102.00
M-193	Wooden ballies 2" Dia for bracing/Jungle wood ballies 50 mm 2.75 m. long	each	130.00
M-194	Wooden ballies 8" Dia and 9 m long	each	468.00
M-195	Wooden packing	cum	21250.00
M-196	Wooden staff for fastening of flag 25 mm dia, one m long	each	51.00

## CHAPTER-1

<b>CARRIAGE OF MATERIALS</b>			
1.1	<b>Loading and unloading of stone boulder / stone aggregates / sand / kanker / moorum.</b> (Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip)	cum	94.00
1.2	<b>Loading and Unloading of Boulders by Manual Means</b>	cum	154.00
1.3	<b>Loading and Unloading of Cement or Steel by Manual Means and stacking.</b>	tonne	218.00
1.4	<b>Cost of Haulage Excluding Loading and Unloading</b>		
(i)	Surfaced Road	tonne.km	4.00
(ii)	Unsurfaced Gravelled Road	tonne.km	5.00
(iii)	Katcha Track and Track in river bed / nallah bed and choe bed.	tonne.km	10.00
1.5	<b>Hand Broken Stone Aggregates 63 mm nominal size</b> (Supply of quarried stone, hand breaking into coarse aggregate 63 mm nominal size (passing 80 mm and retained on 50 mm sieve) and stacking as directed)	cum	1523.00
1.6	<b>Crushing of stone aggregates 13.2 mm nominal size.</b> (Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 13 mm nominal size.)	cum	1444.00

1.7	<b>Crushing of stone aggregates 20 mm nominal size</b> (Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 20 mm nominal size.)	cum	1225.00
1.8	<b>Crushing of stone aggregates 40 mm nominal size</b> (Crushing of stone boulders of 150 mm size in an integrated stone crushing unit of 200 tonnes per hour capacity comprising of primary and secondary crushing units, belt conveyor and vibrating screens to obtain stone aggregates of 40 mm nominal size.)	cum	1034.00

## CHAPTER-2

<b>SITE CLEARANCE</b>			
2.1	<b>Cutting of Trees, including Cutting of Trunks, Branches and Removal</b> (Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 mtrs and earth filling in the depression/pit.)		
(i)	Girth from 300 mm to 600 mm	each	338.00
(ii)	Girth from 600 mm to 900 mm	each	585.00
(iii)	Girth from 900 mm to 1800 mm	each	1164.00
(iv)	Girth above 1800 mm	each	2229.00
2.2	<b>Clearing Grass and Removal of Rubbish</b>	hectare	24140.00
2.3	<b>Clearing and Grubbing Road Land</b> .(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:-		
A	In area of light jungle	hectare	72915.00
B	In area of thorny jungle	hectare	97550.00
(ii)	By Mechanical Means		
A	In area of light jungle	hectare	16947.00
B	In area of thorny jungle	hectare	21065.00
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)		
(i)	Lime /Cement Concrete		
I	By Manual Means		
A	Lime Concrete, cement concrete grade M-10 and below	cum	493.00

B	Cement Concrete Grade M-15 & M-20	cum	590.00
C	Prestressed / Reinforced cement concrete grade M-20 & above	cum	1569.00
II	By Mechanical Means for items No. 202( b) & ( c)		
A	Cement Concrete Grade M-15 & M-20	cum	642.00
B	Prestressed / Reinforced cement concrete grade M-20 & above	cum	1102.00
(ii)	Dismantling Brick / Tile work		
A	In lime mortar	cum	300.00
B	In cement mortar	cum	397.00
C	In mud mortar	cum	262.00
D	Dry brick pitching or brick soling	cum	242.00
(iii)	Dismantling Stone Masonry		
A	Rubble stone masonry in lime mortar	cum	339.00
B	Rubble stone masonry in cement mortar.	cum	397.00
C	Rubble Stone Masonry in mud mortar.	cum	300.00
D	Dry rubble masonry	cum	281.00
E	Dismantling stone pitching/ dry stone spalls.	cum	262.00
F	Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials.	cum	300.00
(iv)	Wood work wrought framed and fixed in frames of trusses upto a height of 5 m above plinth level	cum	713.00
(v)	Steel work in all types of sections upto a height of 5 m above plinth level excluding cutting of rivet.		
A	Including dismembering	tonne	1885.00
B	Excluding dismembering.	tonne	1404.00
C	Extra over item No( V ) A and( V ) B for cutting rivets.	tonne	13.00
(vi)	Scraping of bricks dismantled from brick work including stacking.		
A	In lime/Cement mortar	1000 numbers	1690.00
B	In mud mortar	1000 numbers	603.00
(vii)	Scraping of Stone from dismantled stone masonry		
A	In cement and lime mortar	cum	677.00
B	In Mud mortar	cum	144.00
(viii)	Scarping plaster in lime or cement mortar from brick/ stone masonry	sqm	21.00

(ix)	Removing all type of hume pipes and stacking within a lead of 1000 metres including earthwork and dismantling of masonry works.		
A	Up to 600 mm dia	metre	251.00
B	Above 600 mm to 900 mm dia	metre	339.00
C	Above 900 mm	metre	580.00
2.5	<b>Dismantling of Flexible Pavements</b> (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 courses	cum	913.00
B	Granular courses	cum	647.00
II	By Mechanical Means		
A	Bituminous course	cum	336.00
2.6	<b>Dismantling of Cement Concrete Pavement</b> (Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately)	cum	1375.00
2.7	<b>Dismantling Guard Rails</b> (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	97.00
2.8	<b>Dismantling Kerb Stone</b> (Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres)	metre	17.00
2.9	<b>Dismantling Kerb Stone channel</b> (Dismantling kerb stone channel by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metres)	metre	26.00
2.10	<b>Dismantling Kilometre Stone</b> (Dismantling of kilometre stone including cutting of earth, foundation and disposal of dismantled material with all lifts and lead upto 1000 m and back filling of pit.)		
A	<b>5th KM stone</b>	each	476.00
B	<b>Ordinary KM Stone</b>	each	291.00
C	<b>Hectometre Stone</b>	each	58.00

2.11	<b>Dismantling of Fencing</b> (Dismantling of barbed wire fencing/ wire mesh fencing including posts, foundation concrete, back filling of pit by manual means including disposal of dismantled material with all lifts and up to a lead of 1000 metres, stacking serviceable material and unserviceable material separately.)	metre	64.00
2.12	<b>Dismantling of CI Water Pipe Line</b> (Dismantling of CI water pipe line 600 mm dia including disposal with all lifts and lead upto 1000 metres and stacking of serviceable material and unserviceable material separately under supervision of concerned department)	metre	166.00
2.13	<b>Removal of Cement Concrete Pipe of Sewer Gutter</b> (Removal of cement concrete pipe of sewer gutter 1500 mm dia under the supervision of concerned department including disposal with all lifts and up to a lead of 1000 metres and stacking of serviceable and unserviceable material separately but excluding earth excavation and dismantling of masonry works.)	metre	217.00
2.14	<b>Removal of Telephone / Electric Poles and Lines</b> (Removal of telephone / Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and up to a lead of 1000 metres and stacking the serviceable and unserviceable material separately)	each	222.00

	<b>CHAPTER-3</b>		
	<b>EARTH WORK, EROSION CONTROL AND DRAINAGE</b>		
3.1	<b>Excavation in Soil by Manual Means.</b> (Excavation for roadway in soil using manual means including loading in truck for carrying of cut earth to embankment site with all lifts and lead upto1000 metres.)	cum	231.00
3.2	<b>Excavation in ordinary rock by manual means</b> (Excavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with in all lifts and leads upto 1000 metres )	cum	332.00
3.3	<b>Excavation in Soil with Dozer with lead upto 100 metres</b> (Excavation for road way in soil by mechanical means including cutting and pushing the earth to site of embankment upto a distance of 100 metres (average lead50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.)	cum	54.00
3.4	<b>Excavation in Ordinary Rock with Dozer with lead upto 100 metres</b> (Excavation for roadway in ordinary rock by deploying a dozer, 80 HP including cutting and pushing the cut earth to site of embankment upto a distance of 100 metres ( average lead 50 metres ), trimming bottom and side slopes in accordance with the requirements of lines, grades and cross sections.)	cum	94.00
3.5	<b>Excavation in Hard Rock (requiring blasting) with disposal upto 1000 metres</b> (Excavation for roadway in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres )	cum	52.00
3.6	<b>Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with disposal upto 1000 metres.</b> (Excavation for roadwork in soil with hydraulic excavator of0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m)	cum	62.00

3.7	<b>Excavation in Ordinary Rockusing Hydraulic ExcavatorCK-90 and Tippers with disposal upto 1000 metres.</b> (Excavation for roadway in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site within all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.)	cum	80.00
3.8	<b>Excavation in Hard Rock (blasting prohibited)</b> (Excavation for roadway in hard rock (blasting prohibited) with rock breakers including breaking rock, loading in tippers and disposal within all lifts and lead upto 1000 metres, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.)		
A	<b>Mechanised</b>	cum	412.00
B	<b>Manual Method</b>	cum	1197.00
3.9	<b>Excavation in Hard Rock (controlled blasting) with disposal upto 1000 metres</b> (Excavation for roadway in hard rock with controlled blasting by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres )	cum	116.00
3.10	<b>Excavation in Marshy Soil</b> (Excavation for roadway in marshy soil with hydraulic excavator 0.9 cum bucket capacity including cutting and loading in tippers and disposal with in all lifts and lead upto 1000 metres, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections.)	cum	69.00
3.11	<b>Removal of Unserviceable Soil with Disposal upto 1000 metres</b> (Removal of unserviceable soil including excavation, loading and disposal upto 1000 metres lead but excluding replacement by suitable soil which shall be paid separately as per clause 305.)	cum	62.00
3.12	<b>Pre-splitting of Rock Excavation Slopes</b> (Carrying out excavation in hard rock to achieve a specified slope of the rock face by controlled use of explosives and blasting accessories in properly aligned and spaced drill holes, collection of the excavated rock by a 80 HP dozer, loading in tipper by a front end loader and disposing of the material with all lifts and lead upto 1000 m, all as specified in clause No. 303)	sqm	98.00

3.13	<b>Excavation for Structures</b> (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		
A	Manual Means (Depth upto 3 m)	cum	386.00
B	Mechanical Means (Depth upto 3 m)	cum	52.00
(ii)	Ordinary rock (not requiring blasting)		
A	Manual Means (Depth upto 3 m)	cum	483.00
B	Mechanical Means	cum	67.00
(iii)	Hard rock ( requiring blasting )		
A	Manual Means	cum	735.00
(iv)	Hard rock ( blasting prohibited )		
A	Mechanical Means	cum	907.00
(v)	Marshy soil		
A	Manual means ( upto 3 m depth)	cum	750.00
B	Mechanical Means	cum	292.00
3.14	<b>Scarifying Existing Granular Surface to a Depth of 50 mm by Manual Means</b> (Scarifying the existing granular road surface to a depth of 50 mm and disposal of scarified material within all lifts and leads upto 1000 metres. )	sqm	32.00
3.15	<b>Scarifying existing bituminous surface to a depth of 50 mm by mechanical means</b> (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	5.00
3.16	<b>Embankment Construction with Material Obtained from Borrow Pits</b> (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	613.00
3.17	<b>Construction of Embankment with Material Deposited from Roadway Cutting</b> (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	69.00

3.18	<b>Construction of Subgrade and Earthen Shoulders</b> (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	630.00
3.19	<b>Compacting Original Ground</b>		
Case-I	<b>Compacting original ground supporting subgrade</b> (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.)	cum	36.00
Case-II	<b>:Compacting original ground supporting embankment</b>	cum	28.00
3.20	<b>Stripping and Storing Top Soil</b> (Stripping, storing of top soil by road side at 15 m internal and re-application on embankment slopes, cut slopes and other areas in localities where the available embankment material is not conducive to plant growth)	cum	256.00
3.21	<b>Stripping, storing and re-laying top soil from borrow areas in agriculture fields.</b> (Stripping of top soil from borrow areas located in agriculture fields, storing at a suitable place, spreading and re-laying after taking the borrow earth to maintain fertility of the agricultural field, finishing it to the required levels and satisfaction of the farmer.)	cum	32.00
3.22	<b>Turfing with Sods</b> (Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other locations shown on the drawing or as directed by the engineer including preparation of ground, fetching of rods and watering)	sqm	42.00
3.23	<b>Seeding and Mulching</b> (Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including watering for 3 months all as per clause 308)	sqm	153.00
3.24	<b>Surface Drains in Soil</b> (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	<b>Mechanical means</b>	metre	76.00

B	<b>Manual Means</b>	metre	97.00
3.25	<b>Surface Drains in Ordinary Rock</b> (Construction of unlined surface drain of average cross sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and to the requirement of clause 301 to 309. Excavated material to be used in embankment at site.)		
A	<b>Mechanical Means</b>	metre	154.00
B	<b>Manual Means</b>	metre	145.00
3.26	<b>Surface Drains in Hard Rock</b> (Rate per metre may be worked out based on quantity of hard rock as per design.)	metre	
3.27	<b>Sub Surface Drains with Perforated Pipe</b> (Construction of subsurface drain with perforated pipe of 100 mm internal diameter of metal/ asbestos cement/ cement concrete/PVC, closely jointed, perforations ranging from 3 mm to 6 mm depending upon size of material surrounding the pipe, with 150 mm bedding below the pipe and 300 mm cushion above the pipe, cross section of excavation 450 x 550 mm. Excavated material to be utilised in roadway at site )	metre	517.00
3.28	<b>Aggregate Sub- Surface Drains</b> (Construction of aggregate sub surface drain 300 mm x 450 mm with aggregates conforming to table 300-4, excavated material to be utilised in roadway )	metre	187.00
3.29	<b>Underground Drain at Edge of Pavement</b> (Construction of an underground drain 1 m x 1 m (inside dimensions) lined with RCC-20 cm thick and covered with RCC slab10 cm in thickness on urban roads)	metre	4310.00
3.30	<b>Preparation and Surface Treatment of formation.</b> (Preparation and surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with 8-10 tonne smooth wheeled roller, complete as per clause 310.)	sqm	3.00
3.31	<b>Construction of Rock fill Embankment</b> (Construction of rock fill embankment with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per clause 313)	cum	49.00
3.32	<b>Excavation in Hill Area in Soil by Mechanical Means</b> (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	cum	95.00

	1000 metres)		
3.33	<b>Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting.</b> (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	139.00
3.34	<b>Excavation in Hilly Areas in Hard Rock Requiring Blasting</b> (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	201.00
3.35	<b>Work in Urban Roads</b> (The cost of earth work in urban roads inhabited area will be comparatively higher due to following reasons:)		To be worked out as per site conditions
3.36	<b>Construction of embankment</b> with Flyash conforming to table 1 of IRC: SP: 58 - 2001 obtained from coal or lignite burning thermal power stations as waste material, spread and compacted in layer of 200mm thickness each at OMC, all as specified in IRC: SP: 58-2001 and as per approved plans.	cum	397.00

## CHAPTER-4

<b>SUB-BASES, BASES ( NON- BITUMINOUS) AND SHOULDERS</b>			
4.1	<b>Granular Sub-base with Close Graded Material (Table:- 400-1)</b>		
A	<b>Plant Mix Method</b> (Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 )		
(i)	for grading- I Material	cum	2726.00
(ii)	for grading- II Material	cum	2918.00
(iii)	for grading-III Material	cum	2907.00
B	<b>By Mix in Place Method</b> (Construction of granular sub-base by providing close 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	1940.00
(ii)	for grading- II Material	cum	1971.00
(iii)	for grading-III Material	cum	1940.00
4.2	<b>Granular Sub-Base with Coarse Graded Material (Table:- 400- 2)</b> (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	2161.00
(ii)	for grading- II Material	cum	2312.00
(iii)	for grading-III Material	cum	2553.00

	<b>Lime Stabilisation for Improving Subgrade</b> (Laying and spreading available soil in the subgrade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 3 % slaked lime having minimum content of 70% of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade)		
A	By Mechanical Means	cum	696.00
B	By Manual Means	cum	792.00
4.4	<b>Lime Treated Soil for Sub- Base</b> (Providing, laying and spreading soil on a prepared sub grade, pulverising, mixing the spread soil in place with rotavator with 3 % slaked lime with minimum content of 70% of CaO, grading with motor grader and compacting with the road roller at OMC to achieve at least 98%of the max dry density to form a layer of sub base.)	cum	843.00
4.5	<b>Cement Treated Soil Sub Base/ Base</b> (Providing, laying and spreading soil on a prepared sub grade, pulverising, adding the designed quantity of cement to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	cum	689.00
4.6	<b>Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base</b> (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)		
(i)	<b>For Sub-Base course</b>	cum	2447.00
(ii)	<b>For Base course</b>	cum	2077.00
4.7	<b>Making 50 mm x 50 mm Furrows</b> (Making 50 mm x 50 mm furrows, 25mm deep, 450 to the center line of the road and at one metre interval in the existing thin bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead)	sqm	1055.00

4.8	<b>Inverted Choke</b> (Construction of inverted choke by providing, laying, spreading and compacting screening B type/ coarse sand of specified grade in uniform layer on a prepared surface with motor grader and compacting with power roller etc)	cum	1623.00
4.9	<b>Water Bound Macadam</b> (Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.)		
A	<b>By Manual Means</b>		
(i)	Grading- I (Using Screening Crushable type such as Moorum or Gravel)		
(a)	Using Screening Crushable type such as Moorum or Gravel	cum	1946.00
(b)	Using Screening Type-A (13.2mm Agg.)	cum	2331.00
(ii)	Grading- II (Using Screening Crushable type such as Moorum or Gravel)		
(a)	Using Screening Crushable type such as Moorum or Gravel	cum	2091.00
(b)	Using Screening Type-A (13.2mm Agg.)	cum	2304.00
(c)	Using Screening Type-B (11.2mm Agg.)	cum	2430.00
(iii)	Grading- III (Using Screening Crushable type such as Moorum or Gravel)		
(a)	Using Screening Crushable type such as Moorum or Gravel	cum	2238.00
(b)	Using Screening Type-B (11.2mm Agg.)	cum	2576.00
B	<b>By Mechanical Means:</b>		
(i)	Grading- I (Using Screening Crushable type such as Moorum or Gravel)		
(a)	Using Screening Crushable type such as Moorum or Gravel	cum	1643.00
(b)	Using Screening Type-A (13.2mm Agg.)	cum	2027.00
(ii)	Grading- II (Using Screening Crushable type such as Moorum or Gravel)		
(a)	Using Screening Crushable type such as Moorum or Gravel	cum	1788.00
(b)	Using Screening Type-A (13.2mm Agg.)	cum	2001.00
(c)	Using Screening Type-B (11.2mm Agg.)	cum	2127.00

(iii)	Grading- III (Using Screening Crushable type such as Moorum or Gravel)		
(a)	Using Screening Crushable type such as Moorum or Gravel	cum	1934.00
(b)	Using Screening Type-B (11.2mm Agg.)	cum	2273.00
4.10	<b>Crushed Cement Concrete Sub-base / Base</b> (Breaking and crushing of material obtained by breaking damaged cement concrete slabs to size range not exceeding 75 mm as specified in table 400.7 transporting the aggregates obtained from breaking of cement concrete slabs at a lead of L km., laying and compacting the same as sub base/base course, constructed as WBM to clause 404 except the use of screening or binding Material.)	cum	755.00
4.11	<b>Penetration Coat Over Top Layer of Crushed Cement Concrete Base</b> (Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.13 cum per 10 sqm by a mechanical gritter and rolling the surface as per MORT& H Specifications,Fifth Edition.	sqm	31.00
4.12	<b>Wet Mix Macadam</b> (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	3230.00
4.13	<b>Construction of Median and Island with Soil Taken from Roadway Cutting</b> (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	208.00
4.14	<b>Construction of Median and Island with Soil Taken from Borrow Areas</b> (Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 407)	cum	342.00
4.15	<b>Construction of Shoulders</b> (A. Earthen Shoulders)		

4.16	<b>Footpaths and Separators</b> (Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with precast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel..)	sqm	978.00
4.17	<b>Crusher Run Macadam Base</b> (Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 410 to form a layer of sub-base/Base)		
A	By Mix in Place Method		
(i)	For 53 mm maximum size	cum	1960.00
(ii)	For 45 mm maximum size	cum	2038.00
B	By Mixing Plant		
(i)	For 53 mm maximum size	cum	2781.00
(ii)	For 45 mm maximum size	cum	1792.00
4.18	Supplying and stacking laterite stones of size 150-200 mm(contractor's stone) for soling at site	cum	1092.00
4.19	Stacking of material like soling of material like soling stone, aggregates, sand boulders, laterite stone etc. for measurements.	cum	68.00
4.20.	Supplying and stacking of (contractor's material) Murrum at site,having P.I. Value not more than 6	cum	447.00
4.21	Laying stone soiling including packing with smaller stones and consolidation with road roller including spreading, watering and consolidating of binding material Murrum or earth etc.(payment to be made for quantity of only soling stone used excluding binding material).	cum	398.00
4.22	Laying and spreading 6 mm thick layer of granular material(gravel or murrum) including watering and rolling with hand roller etc. complete.	cum	7.00

4.23	Supplying of laterite stone soling of size 150-200 mm size and murrum having P.I. Value not more than 6 and laying including packing with smaller stones and consolidation with power road roller including spreading, watering and consolidation of binding material etc.(Measurements shall be considered on finished item) .	cum	1480.00
4.24	Supplying and stacking of grantic or basaltic stones of size 150-200 mm size for soling work(contractor's material) at site.	cum	1549.00
4.25	Supplying of granitic or basaltic stone soling of size 15-20 cm and Murrum having P.I. Value not more than 6 and laying including packing with smaller stones and consolidation with power roller including spreading waters and consolidation of binding material etc. complete.(Measurements shall be considered on finished item.and and layer of WBM of 50/75mm thick shall be taken seperately over this sub-base to obtain smooth surface, as per the directives of Engineerin-charge).	cum	1943.00
4.26	Rubble packing with hard laterite stone under floors including watering, ramming & consolidating etc. complete	cum	1278.00

## CHAPTER-5

<b>BASES AND SURFACE COURSES (BITUMINOUS)</b>			
5.1	<b>Prime coat</b> (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	28.00
5.2	<b>Tack coat</b>		
	<b>Providing and applying tack coat with bitumen emulsion</b> using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	11.00
5.3	<b>Bituminous Macadam</b> (Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per MORT& H Specifications, Fifth Edition.		
(i)	for Grading I ( 40 mm nominal size )	cum	6878.00
(ii)	for Grading II(19 mm nominal size)	cum	6893.00
5.4	<b>Bituminous Penetration Macadam</b> (Construction of penetration macadam over prepared Base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with a smooth wheeled steel roller 8-10 tonne capacity to achieve the desired degree of compaction)as per MORT& H Specifications, Fifth Edition.		
A	50 mm thick	sqm	343.00
B	75 mm thick	sqm	464.00

5.5	<b>Built-Up-Spray Grout</b> (Providing, laying and rolling of built-up-spray grout layer over prepared base consisting of a two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates. key stone chips spreader may be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a Base conforming to the line, grades and cross-section specified, the compacted layer thickness being 75 mm)	sqm	309.00
5.6	<b>Dense Graded Bituminous Macadam</b> (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. 505 complete in all respects.)		
(i)	for Grading I ( 40 mm nominal size )	cum	8273.00
(ii)	for Grading II(19 mm nominal size)	cum	8330.00
5.7	<b>Semi - Dense Bituminous Concrete</b> (Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 % 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 MORT& H Specifications, Fifth Edition.		
(i)	for Grading I ( 13 mm nominal size )	cum	8686.00
(ii)	for Grading II(10 mm nominal size)	cum	9175.00

5.8	<b>Bituminous Concrete</b> (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. 507 complete in all respects)		
(i)	for Grading-I ( 13 mm nominal size )	cum	9252.00
(ii)	for Grading-II(10 mm nominal size)	cum	9345.00
5.9	<b>Surface Dressing</b> (Providing and laying surface dressing as wearing course in single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller)as per MORT& H Specifications, Fifth Edition.		
Case -1	19 mm nominal chipping size	sqm	81.00
Case - II	13 mm nominal size chipping	sqm	65.00
5.10	<b>Open - Graded Premix Surfacing</b> (Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or cut-back or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades.)		
(i)	Case - I: Mechanical method using Penetration grade Bitumen and HMP of appropriate capacity not less than 75 tonnes/hour .	sqm	142.00
(ii)	<b>Case - II: Open-Graded Premix Surfacing using cationic Bitumen Emulsion</b>	sqm	165.00

5.11	<b>Close Graded Premix Surfacing/Mixed Seal Surfacing</b> (Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour. Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type-a) or 13.2 mm to 0.09 mm (Type-b) aggregates using penetration grade bitumen to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a Smooth wheeled roller 8-10 tonne capacity, and finishing to required level and grade.)	sqm	175.00
5.12	<b>Seal Coat</b> (Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A and B seal coats)		
(i)	<b>Case - I : Type A</b>	sqm	59.00
(ii)	<b>Case - II : Type B</b> (Providing and laying of premix sand seal coat with HMP of appropriate capacity not less than 75 tonnes/ hours using crushed stone chipping 6.7 mm size and penetration bitumen of suitable grade.)	sqm	44.00
5.13	<b>Mastic Asphalt</b> (Providing and laying 25 mm thick mastic asphalt wearing course 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 13.2 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 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	sqm	721.00
5.14	<b>Slurry Seal</b> Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface)		
(i)	5 mm thickness	sqm	66.00
(ii)	3 mm thickness	sqm	45.00
(iii)	1.5 mm thickness	sqm	27.00
5.15	Fog Spray	sqm	34.00

5.16	<b>1.In case it is decided by the engineer to blind the fog spray, the following may be added</b>	sqm	5.00
5.17	<b>Sand Asphalt Base Course</b> (Providing, laying and rolling sand-asphalt base course composed of sand, mineral filler and bituminous binder on a prepared sub-grade or sub-base to the lines, levels, grades and cross sections as per the drawings including mixing in a plant of suitable type and capacity, transporting, laying, compacting and finishing.)	cum	8282.00
5.18	<b>Crack Prevention Courses</b>		
(i)	<b>Stress Absorbing Membrane (SAM) crack width less than 6 mm</b> (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width below 6 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 9 kg per 10 sqm and spreading 5.6 mm crushed stone aggregates @ 0.11 cum per 10 sqm with hydraulic chip spreader, sweeping the surface for uniform spread of aggregates and surface finished as per MORT& H Specifications, Fifth Edition.)	sqm	51.00
(ii)	<b>Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm</b> (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished as per MORT& H Specifications, Fifth Edition.)	sqm	61.00
(iii)	<b>Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 %</b> (Providing and laying a single coat of a stress absorbing membrane over a cracked road surface, with crack width above 9 mm and cracked area above 50 % after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 15 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)	sqm	80.00

## CHAPTER-6

<b>GEOSYNTHETICS AND REINFORCED EARTH</b>			
6.1	<b>Reinforced Earth Retaining Wall</b> (Reinforced earth retaining walls have four main components as under: a) Excavation for foundation, foundation concrete and cement concrete grooved seating in the foundation for facing elements (facia material). b) Facia material and its placement. c) Assembling, joining with facing elements and laying of the reinforcing elements. d) Earthfill with granular material which is to be retained by the wall.)		
(i)	Facing elements of RCC	sqm	1682.00
(ii)	Assembling, joining and laying of reinforcing elements.		
A	With reinforcing element of steel / Aluminium strips / polymeric strips.		
(a)	Galvanised carbon steel strips	metre	167.00
(b)	Glass reinforced polymer/fibre reinforced polymer/polymeric strips	metre	134.00

## CHAPTER-7

<b>TRAFFIC SIGNS, MARKINGS &amp; OTHER ROAD APPURTENANCES</b>			
7.1	<b>Cast in Situ Cement Concrete M20 kerb</b> (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 409)		
A	Using Concrete Mixer	metre	296.00
B	Using Concrete Batching and Mixing Plant	metre	281.00
7.2	<b>Cast in Situ Cement Concrete M 20 Kerb with Channel</b> (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 409)		
A	Using Concrete Mixer	metre	550.00
B	Using Concrete Batching and Mixing Plant	metre	535.00
7.3	<b>Printing new letter and figures of any shade</b> (Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade)		
(i)	<b>Hindi</b> ( Matras commas and the like not to be measured and paid for Half letter shall be counted as half )	cm height per letter	1.00
(ii)	<b>English and Roman</b>	cm height per letter	1.00

	<b>Retro- reflectorised Traffic signs</b> (Providing and fixing of retro- reflectorised cautionary, mandatory and informative sign as per IRC :67 2012 made of high intensity Grade sheeting using ASTM sheeting "C' type XI micro prismatic retro reflective material vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm 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)etc complete as per MORT &H Specifications Fifth Edition. A 10 years warranty for Retro Reflective Sheetings from the original sheeting manufacturer & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be submitted by the contractor.		
( i )	90 cm equilateral triangle	each	7204.00
( ii )	60 cm equilateral triangle	each	4252.00
( iii )	60 cm circular	each	6185.00
( iv )	80 mm x 60 mm rectangular	each	9183.00
( v )	60 cm x 45 cm rectangular	each	5987.00
( vi )	60 cm x 60 cm square	each	7356.00
( vii )	90 cm high octagon	each	12104.00
7.5	<b>Direction and Place Identification signs upto 0.9 sqm size board.</b> (Providing and erecting direction and place identification retro-reflectorised sign as per IRC :67 2012 made of high intensity Grade sheeting using ASTM sheeting "C' type XI micro prismatic retro reflective material vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm 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)etc complete as per MORT &H Specifications Fifth Edition. A 10 years warranty for Retro Reflective Sheetings from the original sheeting manufacturer & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be submitted by the contractor.	sqm	17284.00

7.6	<b>Direction and Place Identification signs with size more than 0.9 sqm size board.</b> (Providing and erecting direction and place identification retro-reflectorised sign as per IRC :67 2012 made of high intensity Grade sheeting using ASTM sheeting "C' type XI micro prismatic retro reflective material 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)etc complete as per MORT &H Specifications Fifth Edition. A 10 years warranty for Retro Reflective Sheeting from the original sheeting manufacturer & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be submitted by the contractor.	sqm	17647.00
7.7	<b>Overhead Signs</b> (Providing and erecting overhead signs with a corrosion resistant aluminium alloy sheet as per IRC :67 2012 made of high intensity Grade sheeting using ASTM sheeting "C' type XI micro prismatic retro reflective material with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of aluminium alloy or galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans)A 10 years warranty for Retro Reflective Sheeting from the original sheeting manufacturer & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be submitted by the contractor.		
A	<b>Truss and Vertical Support</b>	tonne	74760.00
B	<b>Aluminium alloy plate for over head sign</b>	Sqm	56700.00
7.8	<b>Painting Two Coats on New Concrete Surfaces</b> (Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces)	sqm	93.00
7.9	<b>Painting on Steel Surfaces</b> (Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade)	sqm	55.00
7.10	<b>Painting on Wood Surfaces</b> (Providing and applying two coats of ready mix paint of approved brand on wood surface after through cleaning of surface to give an even shade)	sqm	59.00

7.11	<b>Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work</b> (Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control )		
(i)	Over 10 cm in width	sqm	153.00
(ii)	Up to 10 cm in width	sqm	132.00
7.12	<b>Painting Lines, Dashes, Arrows etc on Roads in Two Coats on Old Work</b> (Painting lines, dashes, arrows etc on roads in two coats on old work with ready mixed road marking paint confirming to IS: 164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control )		
(i)	Over 10 cm in width	sqm	106.00
(ii)	Up to 10 cm in width	sqm	114.00
7.13 (i)	<b>Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface</b> (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	464.00
7.13 (ii)	Providing and laying of hot applied thermoplastic compound rumbler strips in two layers 2.5 mm thick each, top layer with reflectorising glass beads @ 250 gms per sqm area, total thickness of 5.00 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	752.00
7.14	<b>Kilo Metre Stone</b> (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)	each	3977.00
(ii)	Ordinary Kilometer stone (Precast)	each	2362.00
(iii)	Hectometer stone (Precast)	each	653.00

7.15	<b>Road Delineators</b> (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 toIRC-79 and the drawings.)	each	678.00
7.16	<b>Boundary pillar</b> (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)	each	632.00
7.17	<b>G.I Barbed wire Fencing 1.2 metre high</b> (Providing and fixing 1.2 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 807 )	metre	279.00
7.18	<b>G.I Barbed wire Fencing 1.8 metre high</b> (Providing and fixing 1.8 metres high GI barbed wire fencing with 2.4 m angle iron posts 50 mm x 50 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 807 )	metre	446.00
7.19	<b>Fencing with welded steel wire Fabric 75 mm x 50 mm (Suggestive)</b> (Providing 1.20 metre high fencing with angle iron posts 50 mm x 50 mm x 6 mm at 3 metre center to center with 0.40 metre embedded in M15 grade cement concrete, corner, end and every 10th post to be strutted, provided with welded steel wire fabric of 75 mm x 50 mm mesh or 75 mm x 25 mm mesh and fixed to iron posts by flat iron 50 x 5 mm and bolts etc. complete in all respects.)	metre	947.00

7.20	<b>Tubular Steel Railing on Medium Weight steel channel ( ISMC series) 100 mm x 50 mm</b> (Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings)	metre	1792.00
7.21	<b>Tubular Steel Railing on Precast RCC posts, 1.2 m high above ground level</b> (Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M20 grade RCC vertical posts 1.8 metres high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 metres centre to, complete as per approved drawing)	metre	1490.00
7.22	<b>Reinforced Cement Concrete Crash Barrier</b> (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)		
(i)	M 20 grade concrete	metre	4456.00
7.23	<b>Metal Beam Crash Barrier</b>		

A	<p>Providing and erecting a "W" metal beam crash barrier \providing and erecting "W" Beam Crash barrier comprising of following three factory made unites-viz. 1) W Beam 2) Spacer Block 3) Vertical Post. The "W" beam 3mm thick cold roll formed guard rail raw material Conforming to IS-5986-2011 with minimum Grade 255 &amp; with minimum yield stress of 255 Mpa which is fixed by bolted connection to spacer block C-channel of size 150mm* 75mm &amp; 5mm thick, 33cm height spaced 2meter centre to centre, fixed to Vertical Post C-channel of size 150mm*75mm&amp;5mm thick cold roll formed section made from HR coils raw material conforming to IS-5986-2011 with minimum Grade 255 &amp; with minimum yield stress of 255MPa, with 70cms free height above road or Ground level, and embedded to 110cms deep in cement concrete block of size 35cm*35*115cm or as directed by Engineer Incharge, assembled &amp; fixed as per drawings of MORTH&amp;H Circular No.RW/NH/33022/1/94-DO/III, dated 24/6/1994 &amp; construction operation as per 811 or relevant MORT&amp;H specifications for Roads &amp; Bridge Works (latest edition). All fittings (bolts, nuts, fasteners, washers etc.) shall be conforming to IS:1367 &amp; IS:1364 &amp; galvanized by hot dip zinc coated process @0.55kg/m2 conforming to relevant IS specifications all etc. complete</p>	metre	2540.00
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B	Type - B, Providing and erecting a "Thrie" metal beam crash barrier \providing and erecting "Thrie Beam" Crash barrier comprising of following three factory made unites-viz. 1) Thrie Beam 2) Spacer Block 3) Vertical Post. The Thrie beam 3mm thick cold roll formed guard rail raw material Conforming to IS-5986-2011 with minimum Grade 255 & with minimum yield stress of 255 Mpa which is fixed by bolted connection to spacer block C-channel of size 150mm* 75mm & 5mm thick, 54.6cm height spaced 2meter centre to centre, fixed to Vertical Post C-channel of size 150mm*75mm&5mm thick cold roll formed section made from HR coils raw material conforming to IS-5986-2011 with minimum Grade 255 & with minimum yield stress of 255MPa, with 85cms free height above road or Ground level, and embedded to 115cms deep in cement concrete block of size 35cm*35*115cm or as directed by Engineer Incharge, assembled & fixed as per drawings of MORTH&H Circular No.RW/NH/33022/1/94-DO/III, dated 24/6/1994 & construction operation as per 811 or relevant MORT&H specifications for Roads & Bridge Works (latest edition). All fittings (bolts, nuts, fasteners, washers etc.) shall be conforming to IS:1367 & IS:1364 & galvanized by hot dip zinc coated process @0.55kg/m2 conforming to relevant IS specifications all etc. complete	metre	4377.00
7.24	<b>Street Lighting</b> (Providing and erecting street light mounted on a steel circular hollow pole of standard specifications for street lighting, 9 m high spaced 40 m apart, 1.8 m overhang on both sides if fixed in the median and on one side if fixed on the footpath, fitted with sodium vapour lamp and fixed firmly in concrete foundation.)		
(i)	For Fixing in Median	each	17974.00
(ii)	For fixing in Footpath	each	17912.00
7.25	<b>Lighting on Bridges</b> (Providing and fixing lighting on bridges, mounted on steel hollow circular poles of standard specifications, 5 m high fixed on parapets with cement concrete, 20 m apart and fitted with sodium vapour lamp)	each	11880.00

	<b>Cable Duct Across the Road</b> (Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings.)		
(i)	Single Row for one utility service	metre	3331.00
(ii)	Double Row for two utility services	metre	6428.00
(iii)	Triple Row for three utility services	metre	9545.00
7.27	<b>Highway Patrolling and Traffic Aid Post</b> (It is proposed to locate one Traffic Aid Post every 50-60 km of the highway. )		As per actuals
7.28	<b>Items related to under pass/ subway/ overhead bridge/ overhead foot bridge</b> (The items involved for underpass/ subway/ overhead bridge/ overhead foot bridge are earthwork, plain cement concrete, plastering, painting, information sign etc. The rates for these items are available in respective chapters which can be adopted for the quantities derived from the approved designs and drawings)		
7.29	<b>Gantry Mounted Variable Message Sign board</b> (Providing and erecting gantry mounted variable message sign board electronically operated capable of flashing the desired message over a designed support system of aluminium alloy or galvanised steel, erected as per approved design and drawings and with lateral clearance as per clause 802.3)		
(i)	<b>Gantry Support System</b>	tonne	71019.00
(ii)	<b>Message Display</b> (Message display board 6 sqm electronically operated with complete electronic fitments for flashing the pre-determined messages.)		As per market rate
7.30	<b>Traffic Impact Attenuators at Abutments and Piers</b>		

A	<b>With Scrap Tyres</b> (Provision and installation of traffic attenuators at abutment/pier of flyovers bridges using scrap tyres of size 100 x 20 retrieved from trucks laid in 2 rows and 4 tiers, one above the other and tied with 20 mm wire rope as per approved design and drawings.)	sqm	1443.00
B	<b>Using Plastic/Steel Barrel, Filled with Sand</b> (Provision and installation of traffic impact attenuator at abutment/pier of flyovers bridges using plastic/steel barrels 0.60 m dia and 1.0 m in height, filled with sand in three rows and tied with 20 mm steel wire rope as per approved design and drawings)	sqm	1172.00
C	<b>With HI - DRO cell Sandwich (Patented)</b> ((In this patented HI - DRO cell system, water gets discharged from plastic tubes on impact over a pre-determined time, thus absorbing the energy))	sqm	3414.00
7.31	<b>Road Markers/Road Stud with Lense Reflector</b> (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)	each	233.00
7.32	<b>Traffic Cone</b> (Provision of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873)	each	519.00
7.33	<b>Drum Delineator in Construction Zone</b> (Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55-2001)	each	502.00

## CHAPTER-8

<b>PIPE CULVERTS</b>			
8.1	<b>PCC 1:3:6 in Foundation</b> (Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.)	cum	4625.00
8.2	<b>Laying Reinforced Cement Concrete Pipe NP4/prestrssed concrete pipe on first class bedding in single row .</b> (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	444.00
B	1200 mm dia	metre	582.00
8.3	<b>Laying Reinforced Cement Concrete Pipe NP 4 /prestrssed concrete pipe on first class bedding in double row .</b> (Laying Reinforced cement concrete pipe NP4 /prestrssed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets . )		
A	1000 mm dia	metre	1071.00
B	1200 mm dia	metre	1359.00

## CHAPTER-9

<b>MAINTENANCE OF ROADS</b>			
9.1	<b>Restoration of Rain Cuts</b> (Restoration of rain cuts with soil, moorum, gravel or a mixture of these, clearing the loose soil, benching for 300 mm width, laying fresh material in layers not exceeding 250 mm and compacting with plate compactor or power rammers to restore the original alignment, levels and slopes)	cum	190.00
9.2	<b>Maintenance of Earthen Shoulder (filling with fresh soil)</b> (Making up loss of material/ irregularities on shoulder to the design level by adding fresh approved soil and compacting it with appropriate equipment.)	sqm	49.00
9.3	<b>Maintenance of Earth Shoulder (stripping excess soil)</b> (Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor)	sqm	15.00
9.4	<b>Filling Pot- holes and Patch Repairs with open - graded Premix surfacing, 20mm.</b> (Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 511, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2)	sqm	137.00
9.5	<b>Filling Pot- holes and Patch Repairs with - Bituminous concrete, 40mm.</b> (Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2)		
(i)	for grading I Material	sqm	340.00
(ii)	for grading II Material	sqm	365.00
9.6	<b>Crack Filling</b> (Filling of crack using slow - curing bitumen emulsion and applying crusher dust in case crack are wider than 3mm.)	metre	4.00
9.7	<b>Dusting</b> (Applying crusher dust to areas of road where bleeding of excess bitumen has occurred.)	sqm	2.00

9.8 A	<b>Fog Seal</b> (ref item 5.15)	sqm	34.00
B	<b>Crack Prevention courses.</b> (ref item 5.18)		
(i)	Stress Absorbing Membrane (SAM) crack width less than 6 mm	sqm	51.00
(ii)	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm	sqm	61.00
(iii)	Stress Absorbing Membrane (SAM) crack width above 9 mm and cracked area above 50 %	sqm	80.00
C	<b>Slurry Seal</b> (ref item 5.14)		
(i)	5 mm thickness	sqm	66.00
(ii)	3 mm thickness	sqm	45.00
(iii)	1.5 mm thickness	sqm	27.00
D	<b>Surface Dressing for maintenance works.</b> (ref item 5.9)		
(i)	19 mm nominal chipping size	sqm	81.00
(ii)	13 mm nominal size chipping	sqm	65.00
9.9	<b>Repair of joint Grooves with Epoxy Mortar</b> Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete)	metre	521.00
9.10	<b>Repair of old Joints Sealant</b> (Removal of existing sealant and re sealing of contraction, longitudinal or expansion joints in concrete pavement with fresh sealant material)	metre	49.00
9.11	<b>Hill Side Drain Clearance</b> (Removal of earth from the choked hill side drain and disposing it on the valley side manually)	metre	50.00
9.12	<b>Land Slide Clearance in soil</b> (Clearance of land slides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side)	cum	29.00
a	Extra for Emergency clearance during Day time	cum	As per prevailing circulars
b	Extra for Emergency clearance during Night time	cum	As per prevailing circulars
9.13	<b>Land slide Clearance in Hard Rock Requiring Blasting</b> (Clearing of land slide in hard rock requiring blasting for 50% of the boulders and disposal of the same on the valley side.)	cum	78.00
a	Extra for Emergency clearance during Day time	cum	As per prevailing circulars

b	Extra for Emergency clearance during Night time	cum	As per prevailing circulars
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## CHAPTER-10

<b>HORTICULTURE</b>			
10.1	<b>Spreading of Sludge Farm Yard Manure or/and good Earth</b> (Spreading of sludge farm yard manure or/ and good earth in required thickness (cost of sludge, farm-yard manure or/and good earth to be paid for separately)	cum	32.00
10.2	<b>Grassing with ' Doobs' Grass</b> (Grassing with 'Doobs' grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed)		
(i)	In rows 15 cm apart in either direction	sqm	41.00
(ii)	In rows 7.5 cm apart in either direction	sqm	75.00
10.3	<b>Making Lawns including Ploughing and Dragging with 'Swagha' Breaking of Clod</b> (Making lawns including ploughing and breaking of clod, removal of rubbish, dressing and supplying doobs grass roots and planting at 15 cm apart, including supplying and spreading of farm yard manure at rate of 0.18 cum per 100 sqm)	sqm	133.00
10.4	<b>Maintenance of Lawns or Turfing of Slopes</b> (Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc)	sqm	186.00
10.5	<b>Turfing Lawns with Fine Grassing including Ploughing, Dressing</b> (Turfing lawns with fine grassing including ploughing, dressing including breaking of clods, removal of rubbish, dressing and supplying doobs grass roots at 10 cm apart, including supplying and spreading of farm yard manure at rate of 0.6 cum per 100 sqm)	sqm	145.00
10.6	<b>Maintenance of Lawns with Fine Grassing for the First Year</b>	sqm	174.00
10.7	<b>a) Planting Permanent Hedges including Digging of Trenches</b> (Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metres and supplying and planting hedge plants at 30 cm apart)	metre	367.00

(b)	Maintenance of Hedge for one year	metre	259.00
10.8	a) Planting Flowering Plants and Shrubs in Central Verge	km	186385.00
(b)	Maintenance of Flowering Plants and Shrubs in Central Verge for one Year	km	260192.00
10.9	<b>Planting of Trees and their Maintenance for one Year</b> (Planting of trees by the road side (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year)	each	1299.00
10.10	<b>Renovation Lawns including, Weeding, Forking the Ground, Top Dressing with Forked Soil</b> (Renovation lawns including, weeding, forking the ground, top dressing with forked soil, watering and maintenance the lawns, for 30 days or more, till the grass forms a thick lawn, free from weeds, and fit for moving and disposal of rubbish as directed, including supplying good earth, if needed but excluding the cost of well decayed farm yard manure)	sqm	19.00
10.11	<b>Half Brick Circular Tree Guard, in 2nd class Brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground</b> (Half brick circular tree guard, in 2nd class brick, internal diametre 1.25 metres, and height 1.2 metres, above ground and 0.20 metre below ground, bottom two courses laid dry, and top three courses in cement mortar 1:6 ( 1 cement 6 sand) and the intermediate courses being in dry honey comb masonry, as per design complete)	each	1771.00
10.12	<b>Edging with 2nd class Bricks, laid dry lengthwise</b> <b>(Edging with 2nd class bricks, laid dry lengthwise, including excavation, refilling, consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metres)</b>	metre	35.00
10.13	<b>Making Tree Guard 53 cm dia and 1.3 m high as per design from empty bitumen drum</b> (Making tree guard 53 cm dia and 1.3 m high as per design from empty bitumen drum, slit suitably to permit sun and air, (supplied by the department at stock issue rate) including providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets, complete in all respect)	each	389.00

10.14	<b>Making Tree Guard 53 cm dia and 2 metres high as per design from empty bitumen drums</b> (Making tree guard 53 cm dia and 2 metres high as per design from empty bitumen drums, slit suitably to permit sun and air, ( supplied by the department at stock issue rate) including providing and fixing four legs 40 cm long of 30 x 3 mm MS riveted to tree guard and providing and fixing 2 nos MS sheet rings 50 x 0.5 mm with rivets complete in all respects)	each	711.00
10.15	<b>Wrought Iron and Mild Steel Welded Work (Wrought iron and mild steel welded work)</b> (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately)	quintal	8057.00
10.16	<b>Tree Guard with MS Iron</b> (Providing and fixing MS iron tree guard 60 cm dia and 2 metre high above ground level formed of 4 Nos (25 x 6 mm) and 8 Nos (25 x 3 mm) vertical MS riveted to 3 Nos (25 x 6 mm) iron rings in two halves, bolted together with 8 mm dia and 30 mm long bolts including painting two coats with paint of approved brand over a coat of priming, complete in all respects.)	each tree guard	1885.00
10.17	<b>Tree Guard with MS Angle Iron and Steel Wire</b> (Providing and fixing tree guard 0.60 metre square, 2.00 metre high fabricated with MS angle iron 30 x 30 x 3 mm, MS iron 25 x 3 mm and steel wire3 mm dia welded and fabricated as per design in two halves bolted together)	each tree guard	3004.00
10.18	<b>Compensatory Afforestation</b> (Planting trees as compensatory afforestation at the rate of 290 trees per hectare at a spacing of 6 m by grubbing and leveling the ground upto a depth of 150 mm, digging holes 0.9 m dia, 1 m deep, mixing farm yard/sludge manure with soil, planting of sapling 2 m high with 25 cm dia stem, backfilling the hole and watering)	hectare	200627.00

## CHAPTER-11

<b>FOUNDATIONS</b>			
11.1	<b>Excavation for Structures</b> (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		
A	Manual Means		
(i)	upto 3 m depth	cum	184.00
(ii)	3 m to 6 m depth	cum	237.00
(iii)	Above 6 m depth	cum	316.00
B	Mechanical Means		
(i)	Depth upto 3 m	cum	70.00
(ii)	Depth 3 m to 6 m	cum	80.00
(iii)	Depth above 6m	cum	100.00
II	Ordinary rock (not requiring blasting)		
A	Manual Means		
(i)	Depth upto 3 m	cum	263.00
B	Mechanical Means	cum	88.00
III	Hard rock ( requiring blasting )		
A	Manual Means	cum	589.00
IV	Hard rock ( blasting prohibited )		
A	Mechanical Means	cum	699.00
V	Marshy soil		
(i)	upto 3 m depth		
A	Manual means	cum	671.00
B	Mechanical Means	cum	171.00
VI	Back Filling in Marshy Foundation Pits	cum	444.00
11.2	<b>Filling Annular Space Around Footing in Rock</b> (Lean cement concrete 1:3:6 nominal mix. Rate may be taken as per items 11.4)		
11.3	<b>Sand Filling in Foundation Trenches as per Drawing &amp; Technical Specification</b>	cum	1773.00

11.4	<b>PCC 1:3:6 in Foundation</b> (Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.)	cum	5039.00
11.5	Brick masonry work in cement mortar 1:3 in foundation complete excluding pointing and plastering, as per drawing and technical specifications	cum	6027.00
11.6 A	Cement mortar1:3 (1cement :3 sand)	cum	4435.00
B	Cement mortar1:2 (1cement :2 sand)	cum	5140.00
C	Cement mortar1:4 (1cement :4 sand)	cum	3959.00
D	Cement mortar1:6 (1cement :6 sand)	cum	3629.00
11.7	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	3803.00
(b)	Random Rubble Masonry	cum	3684.00
11.8	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications		
A	PCC Grade M15	cum	5476.00
B	PCC Grade M20	cum	6118.00
C	RCC Grade M20		
Case I	Using concrete mixer	cum	6167.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	8550.00
D	PCC Grade M25		
Case I	Using concrete Mixer	cum	6506.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	8738.00
E	RCC Grade M25		
Case I	Using concrete Mixer	cum	6560.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	8937.00
F	PCC Grade M30		
Case I	Using Concrete Mixer	cum	6534.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8756.00
G	RCC Grade M30		

Case I	Using Concrete Mixer	cum	6568.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8941.00
H	RCC Grade M35		
Case I	Using Concrete Mixer	cum	6647.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	9008.00
11.9	Providing and constructing temporary island 16 m diameter for construction of well foundation for 8m dia. Well.		
A	Assuming depth of water 1.0 m and height of island to be 1.25m.	each	147682.00
B	Assuming depth of water 4.0 m and height of island 4.5 m.	each	656925.00
C	Providing and constructing one span service road to reach island location from one pier location to another pier location	metre	8602.00
11.10	Providing and laying cutting edge of mild steel weighing 40 kg per metre for well foundation complete as per drawing and technical specification.	tonne	87621.00
11.11	Plain/Reinforced cement concrete, in well foundation complete as per drawing and technical specification		
A	Well curb		
(i)	RCC M20 Grade		
Case I	Using concrete mixer	cum	7117.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9867.00
(ii)	RCC M25 Grade		
Case I	Using concrete mixer	cum	7587.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10337.00
(iii)	RCC M35 Grade		
Case I	Using concrete mixer	cum	7744.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10496.00
B	Well steining		
(I)	PCC M15 Grade	cum	5792.00
(ii)	PCC M20 Grade	cum	6472.00
(iii)	RCC M20 Grade		

Case I	Using concrete mixer	cum	6524.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9045.00
(iv)	PCC M25 Grade		
Case I	Using concrete mixer	cum	6898.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9265.00
(v)	RCC M25 Grade		
Case I	Using concrete mixer	cum	6955.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9476.00
(vi)	PCC M30 Grade		
Case I	Using concrete mixer	cum	6945.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9307.00
(vii)	RCC M30 Grade		
Case I	Using concrete mixer	cum	6981.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9503.00
(viii)	RCC M35 Grade		
Case I	Using concrete mixer	cum	7099.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9621.00
(ix)	RCC M40 Grade		10054.00
C	Bottom Plug		
(i)	PCC Grade M20		
Case I	Using Concrete Mixer	cum	6959.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	8892.00
(ii)	PCC Grade M25		
Case I	Using Concrete Mixer	cum	7217.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	9147.00
(iii)	PCC Grade M30		
Case I	Using Concrete Mixer	cum	7261.00

Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	9193.00
(iv)	PCC Grade M35		
Case I	Using Concrete Mixer	cum	7364.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	9294.00
D	Intermediate plug		
(I)	Grade M20 PCC		
Case I	Using Concrete Mixer	cum	6666.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	8626.00
(ii)	Grade M25 PCC		
Case I	Using Concrete Mixer	cum	6910.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	8869.00
(iii)	Grade M30 PCC		
Case I	Using Concrete Mixer	cum	6952.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	8913.00
E	Top plug		
(i)	Grade M15 PCC		
Case I	Using Concrete Mixer	cum	5265.00
(ii)	Grade M20 PCC		
Case I	Using Concrete Mixer	cum	5883.00
(iii)	Grade M25 PCC		
Case I	Using Concrete Mixer	cum	6271.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	8423.00
(iv)	Grade M30 PCC		
Case I	Using Concrete Mixer	cum	6314.00
Case II	Using Batching Plant, Transit Mixer and Crane/concrete pump	cum	8461.00
F	Well cap		
(i)	RCC Grade M20		
Case	Using concrete Mixer	cum	6123.00

I			
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8505.00
(ii)	RCC Grade M25		
Case I	Using concrete Mixer	cum	6560.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8938.00
(iii)	RCC Grade M30		
Case I	Using Concrete Mixer	cum	6568.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8940.00
(iv)	RCC Grade M35		
Case I	Using Concrete Mixer	cum	6647.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump	cum	9008.00
(v)	RCC M40 Grade	cum	9450.00
11.12	<b>Sinking of 6 m external diameter well</b> ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	Depth below bed level upto 3.0 M	metre	2743.00
(ii)	Beyond 3m upto 10m depth	metre	3760.00
(iii)	<b>Beyond 10m upto 20m</b>		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	4966.00
(iv)	<b>Beyond 20m upto 30 m</b>		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	9317.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	11180.00
(v)	<b>Beyond 30m upto 40 m</b>		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	22137.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	26564.00
B	<b>Clayey soil ( 6m dia. Well )</b>		
(i)	Depth below bed level upto 3.0 M	metre	3780.00

(ii)	Beyond 3m upto 10m depth	metre	8795.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	11616.00
b	Add for dewatering @ 5% of cost, if required.	metre	12197.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	21789.00
b	Add 5% of cost for dewatering of the cost, if required	metre	28599.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	27237.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	51767.00
b	Add 5% of cost for dewatering, if required	metre	65227.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	62121.00
C	Soft rock (6m dia well )		
(i)	Depth of soft rock strata upto 3m	metre	16383.00
D	Hard rock (6m dia well )		
(i)	Depth of soft rock strata upto 3m	metre	16580.00
11.13	Sinking of 7 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	Depth below bed level upto 3.0 M	metre	7732.00
(ii)	Beyond 3m upto 10m depth	metre	5108.00
(iii)	Beyond 10m upto 20m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	6746.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	12652.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	15182.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	30059.00

b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	36071.00
B	Clayey soil ( 7m dia. Well )		
(I)	Depth below bed level upto 3.0 M	metre	5108.00
(ii)	Beyond 3m upto 10m depth	metre	7217.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	9532.00
b	Add for dewatering @ 5% of cost, if required.	metre	10008.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	17881.00
b	Add 5% of cost for dewatering on the cost, if required	metre	22351.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	23469.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	42483.00
b	Add 5% of cost for dewatering, if required	metre	50980.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	53529.00
C	Soft rock ( 7m dia well )		
(i)	Depth of soft rock strata upto 3m	metre	12898.00
D	Hard rock ( 7m dia well )		
(i)	Depth upto 3 m	metre	20684.00
11.14	Sinking of 8 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	Depth below bed level upto 3.0 M	metre	4777.00
(ii)	Beyond 3m upto 10m depth	metre	5811.00
(iii)	Beyond 10m upto 20m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	7674.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	14395.00

b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	17274.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	5060.00
b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	6072.00
B	Clayey soil ( 8m dia. Well )		
(i)	Depth upto 3.0 M	metre	6257.00
(ii)	Beyond 3m upto 10m depth	metre	9474.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	12512.00
b	Add for dewatering @ 5% of cost, if required.	metre	13138.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	23470.00
b	Add 5% of cost for dewatering on the cost, if required	metre	30805.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	29338.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	55763.00
b	Add 5% of cost for dewatering, if required	metre	70261.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	66916.00
C	Soft rock ( 8m dia well )		
(i)	Depth in soft rock strata upto 3m	metre	14369.00
D	Hard rock ( 8m dia well )		
(i)	Depth in hard rock strata upto 3 m	metre	22167.00
11.15	<b>Sinking of 9 m external diameter well</b> (other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	Depth below bed level upto 3.0 M	metre	4888.00
(ii)	Beyond 3m upto 10m depth	metre	6365.00
(iii)	Beyond 10m upto 20m		

a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	8405.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	15766.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	18919.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	37458.00
b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	44950.00
B	Clayey soil ( 9m dia. Well )		
(i)	Depth below bed level upto 3.0 M	metre	6665.00
(ii)	Beyond 3m upto 10m depth	metre	10183.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	13448.00
b	Add for dewatering @ 5% of cost, if required.	metre	14120.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	25224.00
b	Add 5% of cost for dewatering on the cost, if required	metre	33107.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	31530.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	59931.00
b	Add 5% of cost for dewatering, if required	metre	75512.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	71917.00
C	Soft rock ( 9m dia well )		
(i)	Depth upto 3m	metre	17425.00
D	Hard rock ( 9m dia well )		
(i)	Depth of hard rock strata upto 3 m	metre	25294.00
11.16	Sinking of 10 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		

A	Sandy soil		
(i)	Depth below bed level upto 3.0 M	metre	5662.00
(ii)	Beyond 3m upto 10m depth	metre	6782.00
(iii)	Beyond 10m upto 20m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	8958.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	16805.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	20166.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	39928.00
b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	47914.00
B	Clayey soil (10m dia. Well )		
(i)	Depth below bed level upto 3.0 M	metre	7713.00
(ii)	Beyond 3m upto 10m depth	metre	10501.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	13869.00
b	Add for dewatering @ 5% of cost, if required.	metre	14562.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	26015.00
'b	Add 5% of cost for dewatering on the cost, if required	metre	34145.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	32519.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	61810.00
b	Add 5% of cost for dewatering, if required	metre	77881.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	74172.00
C	Soft rock (10m dia well )		
(i)	Depth of soft rock strata upto 3m	metre	17706.00
D	Hard rock (10m dia well )		
(i)	Depth of hard rock strata upto 3 m	metre	27164.00

11.17	Sinking of 11 m external diameter well ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	Depth from bed level upto 3.0 M	metre	12485.00
(ii)	Beyond 3m upto 10m depth	metre	11471.00
(iii)	Beyond 10m upto 20m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	15149.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	28414.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	34097.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	67510.00
b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	81012.00
B	Clayey soil (11 m dia. Well )		
(i)	Depth from bed level upto 3.0 M	metre	12824.00
(ii)	Beyond 3m upto 10m depth	metre	22060.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	29134.00
b	Add for dewatering @ 5% of cost, if required.	metre	30591.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	54648.00
b	Add 5% of cost for dewatering on the cost, if required	metre	71725.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	68310.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	129834.00
b	Add 5% of cost for dewatering, if required	metre	163591.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	155801.00

C	Soft rock (11m dia well )		
(i)	Depth of soft rock strata upto 3m	metre	39291.00
D	Hard rock (11m dia well )		
(i)	Depth of hard rock upto 3 m	metre	59618.00
11.18	<b>Sinking of 12 m external diameter well</b> ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	I) Depth below bed level upto 3.0 M	metre	26699.00
(ii)	Beyond 3m upto 10m depth	metre	31096.00
(iii)	Beyond 10m upto 20m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	41069.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	77033.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	92440.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	183020.00
b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	219623.00
B	Clayey soil (12 m dia. Well )		
(i)	Depth below bed level upto 3.0 M	metre	30904.00
(ii)	Beyond 3m upto 10m depth	metre	51932.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	68585.00
b	Add for dewatering @ 5% of cost, if required.	metre	72014.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	128647.00
b	Add 5% of cost for dewatering on the cost, if required	metre	168850.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	160810.00
(v)	Beyond 30m upto 40 m		

a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	305650.00
b	Add 5% of cost for dewatering, if required	metre	385119.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	366780.00
C	Soft rock (12m dia well )		
(i)	Depth of soft rock strata upto 3m	metre	89505.00
D	Hard rock (12m dia well )		
(i)	Depth of hard rock strata upto 3 m	metre	127367.00
11.19	<b>Sinking of Twin D Type well</b> ( other than pneumatic method of sinking ) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.		
A	Sandy soil		
(i)	Depth from bed level upto 3.0 M	metre	5973.00
(ii)	Beyond 3m upto 10m depth	metre	6502.00
(iii)	Beyond 10m upto 20m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	8586.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	16105.00
b	Add 20% of cost for Kentledge including supports, loading arrangement and Labour .	metre	19326.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	38266.00
b	Add 20% of cost for Kentledge including supports, loading arrangement, and Labour etc.	metre	45919.00
B	Clayey soil (Twin D Type Well )		
(i)	Depth below bed level upto 3.0 M	metre	7240.00
(ii)	Beyond 3m upto 10m depth	metre	11616.00
(iii)	Beyond 10 m upto 20 m		
a	Add 5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	15341.00
b	Add for dewatering @ 5% of cost, if required.	metre	16107.00
(iv)	Beyond 20m upto 30 m		
a	Add 7.5% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	28774.00

b	Add 5% of cost for dewatering on the cost, if required	metre	37766.00
c	Add 25% of cost for Kentledge including supports, loading arrangement and Labour ).	metre	35967.00
(v)	Beyond 30m upto 40 m		
a	Add 10% for every additional meter depth of sinking over the rate of sinking for the previous meter	metre	68364.00
b	Add 5% of cost for dewatering, if required	metre	86139.00
c	Add 20% of cost for Kentledge including supports, loading arrangement and Labour).	metre	82037.00
C	Soft rock (Twin D Type well )		
(i)	Depth of soft rock strata upto 3m	metre	19649.00
D	Hard rock (Twin D Type well )		
(i)	Depth of hard rock strata upto 3 m	metre	28032.00
11.20	Pneumatic sinking of wells with equipment of approved design, drawing and specifications worked by competent and trained personnel and comprising of compression and decompression chambers, reducers, two air locks separately for men and plant & materials, arrangement for supply of fresh air to working chambers, check valves, exhaust valves, shafts made from steel plates of riveted construction not less than 6 mm thick to withstand an air pressure of 0.50 MPa, controlled blasting of hard rock where required, staircases and 1 m wide landing plate forms with railing, arrangement for compression and decompression, electric lighting of 50 V maximum, proper rooms for rest and medical examinations and compliance with safety precautions as per IS:4138, all as per clause 1207.6 of MoRTH Specifications.		To be derived based on market rate
11.21	Sand filling in wells complete as per drawing and technical specifications	cum	1773.00
11.22	Providing steel liner 10 mm thick for curbs and 6mm thick for steining of wells including fabricating and setting out as per detailed drawing	tonne	77156.00
11.23	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-750 mm)	metre	6849.00
11.24	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-1000 mm)	metre	11494.00

11.25	Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. (Pile diameter-1200 mm)	metre	15241.00
11.26	Driven cast-in-place vertical M35 grade R.C.C. pile excluding reinforcement complete as per drawing and & Technical Specification (Pile diameter - 750 mm)	metre	5528.00
11.27	Driven cast-in-place vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile diameter - 1000 mm)	metre	9228.00
11.28	Driven cast-in-place vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile diameter - 1200 mm)	metre	13397.00
11.29	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile Diameter=500 mm)	metre	2549.00
11.30	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile Diameter=750 mm)	metre	4989.00
11.31	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Pile Diameter=1000 mm)	metre	8103.00
11.32	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Size of pile - 300 mm x 300 mm)	metre	1526.00
11.33	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Size of pile - 500 mm x 500 mm)	metre	3065.00
11.34	Driven precast vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and & Technical Specification (Size of pile - 750 mm x 750 mm)	metre	6119.00
11.35	Driven vertical steel piles complete as per drawing and & Technical Specification (Section of the pile - H Section steel column 400 x 250 mm (ISHB Series) )	metre	5197.00
11.36	Driven vertical steel piles complete as per drawing and & Technical Specification (Section of the pile - H Section steel column 450 x 250 mm (ISHB Series) )	metre	5868.00
11.37	Pile load test on single vertical pile in accordance with IS:2911(Part-IV)		To be as per design
11.38	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification		
A	RCC Grade M20		
(i)	Using Concrete Mixer	cum	6152.00

(ii)	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8562.00
B	RCC Grade M25		
(i)	Using concrete mixer.	cum	6575.00
(ii)	Using Batching Plant, Transit Mixer and Concrete Pump	cum	8974.00
C	RCC Grade M30		
(i)	Using concrete mixer.	cum	6629.00
(ii)	Using Batching Plant, Transit Mixer and Concrete Pump	cum	9038.00
D	RCC Grade M35		
(i)	Using concrete mixer.	cum	6740.00
(ii)	Using Batching Plant, Transit Mixer and Concrete Pump	cum	9139.00
11.39	Levelling course for Pile cap	cum	5382.00
11.40	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation complete as per drawing and technical specifications	tonne	64490.00
11.41	Supplying, fitting and placing un-coated Mild steel reinforcement complete in foundation as per drawing and technical specification	tonne	67675.00

## CHAPTER-12

<b>SUB-STRUCTURE</b>			
12.1	Brick masonry work in 1:3 in sub-structure complete excluding pointing and plastering, as per drawing and technical specifications	cum	5884.00
12.2	Pointing with cement mortar (1:3 ) on brick work in substructure as per Technical specifications	sqm	739.00
12.3	Plastering with cement mortar (1:3 ) on brick work in sub-structure as per Technical specifications	sqm	1406.00
12.4	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications		
A	Random Rubble Masonry	cum	3657.00
B	Coursed rubble masonry (first sort )	cum	3828.00
C	Ashlar masonry ( first sort )	cum	5195.00
12.5	Plain/Reinforced cement concrete in sub-structure complete as per drawing and technical specifications		
A	PCC Grade M15		
(p)	Height upto 5m	cum	5792.00
B	PCC Grade M20		
(p)	Height upto 5m	cum	6472.00
C	PCC Grade M25		
(p)	Height upto 5m		
Case I	Using concrete Mixer	cum	6898.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9265.00
(q)	Height 5m to 10m		
Case I	Using concrete Mixer	cum	7149.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9602.00
(r)	Height above 10m		
Case I	Using concrete Mixer	cum	7463.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10023.00
D	PCC Grade M30		
(p)	Height upto 5m		
Case I	Using concrete Mixer	cum	6945.00

Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9307.00
(q)	Height 5m to 10m		
Case I	Using concrete Mixer	cum	7197.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9646.00
(r)	Height above 10m		
Case I	Using concrete Mixer	cum	7513.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10069.00
E	RCC Grade M20		
(p)	Height upto 5m		
Case I	Using concrete Mixer	cum	6524.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9045.00
(q)	Height 5m to 10m		
Case I	Using concrete Mixer	cum	6761.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9373.00
(r)	Height above 10m		
Case I	Using concrete Mixer	cum	7058.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9785.00
F	RCC Grade M25		
(p)	Height upto 5m		
Case I	Using concrete Mixer	cum	6955.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9476.00
(q)	Height 5m to 10m		
Case I	Using concrete Mixer	cum	7183.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9786.00
(r)	Height above 10m		
Case I	Using concrete Mixer	cum	7524.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10251.00
G	RCC Grade M30		

(p)	Height upto 5m		
Case I	Using concrete Mixer	cum	6981.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9503.00
(q)	Height 5m to 10m		
Case I	Using concrete Mixer	cum	7178.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9771.00
(r)	Height above 10m		
Case I	Using concrete Mixer	cum	7457.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10151.00
H	RCC Grade M35		
(p)	Height upto 5m		
Case I	Using concrete Mixer	cum	7099.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9621.00
(q)	Height 5m to 10m		
Case I	Using concrete Mixer	cum	7254.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	9831.00
(r)	Height above 10m		
Case I	Using concrete Mixer	cum	7486.00
Case II	With Batching Plant, Transit Mixer and Concrete Pump	cum	10146.00
12.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	tonne	64719.00
12.7	Supplying, fitting and placing Mild steel reinforcement complete in sub-structure as per drawing and technical specification	tonne	66665.00
12.8	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 foce. Complete as per drawing and Technical specifications	each	281.00
12.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification		

A	Granular material	cum	1242.00
B	Sandy material	cum	2010.00
12.10	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	1555.00
12.11	Supplying, fitting and fixing in position true to line and level cast steel rocker bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	tonne capacity	162.00
12.12	Supplying, fitting and fixing in position true to line and level forged steel roller bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	tonne capacity	150.00
12.13	Supplying, fitting and fixing in position true to line and level sliding plate bearing with PTFE surface sliding on stainless steel complete including all accessories as per drawing and Technical Specifications and BS: 5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of MoRTH Specifications.	tonne capacity	208.00
12.14	Supplying, fitting and fixing in position true to line and level elastomeric bearing conforming to IRC: 83 (Part-II) section IX and clause 2005 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	cubic centimetre	2.00
12.15	Supplying, fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and Technical Specifications.	tonne capacity	206.00

12.16	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, completre 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 asper drawing and approved technical specifications.	tonne capacity	203.00

## CHAPTER-13

<b>SUPER-STRUCTURE</b>			
13.1	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification		
A	RCC Grade M20		
Case I	Using Concrete Mixer		
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	7065.00
(q)	Height 5m to 10m	cum	7360.00
(r)	Height above 10m	cum	7654.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	7360.00
(q)	Height 5m to 10m	cum	7654.00
(r)	Height above 10m	cum	7948.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump		
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	9814.00
(q)	Height 5m to 10m	cum	10223.00
(r)	Height above 10m	cum	10631.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	10223.00
(q)	Height 5m to 10m	cum	10631.00
(r)	Height above 10m	cum	11040.00
B	RCC Grade M25		
Case I	Using Concrete Mixer		
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	7553.00
(q)	Height 5m to 10m	cum	7868.00
(r)	Height above 10m	cum	8183.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	7868.00
(q)	Height 5m to 10m	cum	8183.00
(r)	Height above 10m	cum	8497.00
Case	Using Batching Plant, Transit Mixer and Concrete Pump		

II			
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	10309.00
(q)	Height 5m to 10m	cum	10739.00
(r)	Height above 10m	cum	11169.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	10739.00
(q)	Height 5m to 10m	cum	11169.00
(r)	Height above 10m	cum	11598.00
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	7657.00
(q)	Height 5m to 10m	cum	7976.00
(r)	Height above 10m	cum	8295.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	7976.00
(q)	Height 5m to 10m	cum	8295.00
(r)	Height above 10m	cum	8614.00
Case II	Using Batching Plant, Transit Mixer and Concrete Pump.		
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	10379.00
(q)	Height 5m to 10m	cum	10812.00
(r)	Height above 10m	cum	11244.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	10812.00
(q)	Height 5m to 10m	cum	11244.00
(r)	Height above 10m	cum	11677.00
D	RCC/PSC Grade M35		
Case 1	Using concrete mixer.		
(i)	For solid slab super-structure, 18-28% of (a+b+c)		
(p)	Height upto 5m	cum	7656.00
(q)	Height 5m to 10m	cum	7981.00
(r)	Height above 10m	cum	8305.00
(ii)	For T-beam & slab, 23-33% of (a+b+c)		
(p)	Height upto 5m	cum	7981.00

(q)	Height 5m to 10m	cum	8305.00
(r)	Height above 10m	cum	8630.00
(iii)	For box girder and balanced cantilever, 38-58% of cost of concrete.		
(p)	Height upto 5m	cum	8954.00
(q)	Height 5m to 10m	cum	9603.00
(r)	Height above 10m	cum	10252.00
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	10326.00
(q)	Height 5m to 10m	cum	10763.00
(r)	Height above 10m	cum	11201.00
(ii)	For T-beam & slab, 23-33% of (a+b+c)		
(p)	Height upto 5m	cum	10763.00
(q)	Height 5m to 10m	cum	11201.00
(r)	Height above 10m	cum	11638.00
(iii)	For box girder and balanced cantilever, 38-58% of cost of concrete.		
(p)	Height upto 5m	cum	12076.00
(q)	Height 5m to 10m	cum	12951.00
(r)	Height above 10m	cum	13826.00
E	PSC Grade M-40		
Case 1	Using concrete mixer.		
(i)	For solid slab super-structure, 20-30% of (a+b+c)		
(p)	Height upto 5m	cum	8326.00
(q)	Height 5m to 10m	cum	8673.00
(r)	Height above 10m	cum	9019.00
(ii)	For T-beam & slab, 25-35% of (a+b+c)		
(p)	Height upto 5m	cum	8673.00
(q)	Height 5m to 10m	cum	9019.00
(r)	Height above 10m	cum	9366.00
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	10400.00
(q)	Height 5m to 10m	cum	10841.00
(r)	Height above 10m	cum	11281.00

(ii)	For T-beam & slab, 23-33% of (a+b+c)		
(p)	Height upto 5m	cum	10841.00
(q)	Height 5m to 10m	cum	11281.00
(r)	Height above 10m	cum	11722.00
(iii)	For box girder and balanced cantilever, 38-58% of cost of concrete.		
(p)	Height upto 5m	cum	12163.00
(q)	Height 5m to 10m	cum	13044.00
(r)	Height above 10m	cum	13925.00
F	PSC Grade M-45		
(i)	For solid slab/voided slab super-structure, 16-26% of cost of concrete (a+b+c)		
(p)	Height upto 5m	cum	10933.00
(q)	Height 5m to 10m	cum	11404.00
(r)	Height above 10m	cum	11875.00
(ii)	For I-beam & slab including launching of precast girders by launching truss upto 40 m span, 21-31% of cost of concrete.		
(p)	Height upto 5m	cum	11404.00
(q)	Height 5m to 10m	cum	11875.00
(r)	Height above 10m	cum	12346.00
(iii)	For cast-in-situ box girder, segmental construction and balanced cantilever, 36-56% of cost of concrete.		
(p)	Height upto 5m	cum	12818.00
(q)	Height 5m to 10m	cum	13760.00
(r)	Height above 10m	cum	14703.00
G	PSC Grade M-50		
(i)	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55% of cost of concrete		
(p)	Height upto 5m	cum	12987.00
(q)	Height 5m to 10m	cum	13949.00
(r)	Height above 10m	cum	14911.00
H	PSC Grade M- 55		
(i)	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55% of cost of concrete		
(p)	Height upto 5m	cum	13399.00
(q)	Height 5m to 10m	cum	14392.00
(r)	Height above 10m	cum	15384.00

13.2	a) Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	tonne	66275.00
13.3	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	tonne	105767.00
13.4	Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications	cum	13697.00
13.5	<b>Mastic Asphalt</b> (Providing and laying 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.)		
a	<b>12 mm thick</b>	sqm	390.00
b	<b>25 mm thick</b>	sqm	780.00
13.6	Construction of precast RCC railing of M30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolurence of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.	metre	2067.00
13.7	Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolurence of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.	metre	2020.00
13.8	Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification	metre	3136.00
13.9	Drainage Spouts complete as per drawing and Technical specification	each	1957.00
13.10	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification	cum	5265.00

13.11	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum	12126.00
13.12	Providing anti-corrosive treatment to HYSD reinforcement with Fusion Bonded Epoxy Coating (FBEC) (To be taken as per the prevailing market rates.)	tonne	As per market rate
13.13	<b>Precast - pretensioned Girders</b> (Providing, precasting, transportation and placing in position precast pretensioned concrete girders as per drawing and technical specifications)	cum	29339.00
13.14	<b>Providing and fixing Helical pipes in voided concrete slabs</b>	metre	7314.00
13.15	<b>Crash Barriers</b> (The rate analysis for rigid crash barrier in reinforced cement concrete, semi-rigid crash barrier with metal beam and flexible crash barrier with wire ropes have been made and included in chapter-7 on Traffic and Transportation.)		
13.16	<b>Painting on concrete surface</b> (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	140.00
13.17	<b>Burried Joint</b> (Providing and laying a burried expansion joint, expansion gap being 20 mm, covered with 12 mm thick, 200 mm wide galvanised wieldable structural steel plate as per IS: 2062, placed symmetrical to centre line of the joint, resting freely over the top surface of the deck concrete, welding of 8 mm dia. 100 mm long galvanised nails spaced 300 mm c/c along the centre line of the plate, all as specified in clause 2604.)	metre	1260.00
13.18	<b>Filler joint</b>		
(i)	Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.	metre	510.00
(ii)	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.	metre	107.00
(iii)	Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6% bitumen by weight	metre	32.00

13.19	<b>Asphaltic Plug joint</b> (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	1088.00
13.20	<b>Elastomeric Slab Steel Expansion Joint</b> (Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg., moderately curved with maximum horizontal movement upto 50 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 and clause 2606 of MoRTH specifications for road & bridge works.)	metre	7134.00
13.21	<b>Strip Seal Expansion Joint</b> (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	6383.00
13.22	<b>Modular Strip / Box Seal Joint</b> (Providing and laying of a modular strip Box steel expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, 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	42301.00
13.23	<b>Modular Strip / Box Seal Joint</b> (Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm, 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	85877.00

## CHAPTER-14

<b>RIVER TRAINING AND PROTECTION WORKS</b>			
14.1	<b>Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.</b>		
A	<b>Boulder laid dry without wire crates.</b>	cum	1867.00
14.2	<b>Boulder apron laid in wire crates</b> (Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10% extra for laps and joints laid with stone boulders weighing not less than 40 kg each.)	cum	2562.00
14.3	<b>Cement concrete blocks (size 0.5 x 0.5 x 0.5 m)</b> (Providing and laying of apron with cement concrete blocks of size 0.5x0.5x0.5 m cast in-situ and made with nominal mix of M-15 grade cement concrete with a minimum cement content of 250 kg/cum as per IRC: 21-2000.)	cum	5586.00
14.4	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	1867.00
B	Cement Concrete blocks of size 0.3x0.3 x0.3 m cast in cement concrete of Grade M15	cum	5586.00
14.5	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	cum	1789.00
14.6	<b>Toe protection</b> (A toe wall for toe protection can either be in dry rubble masonry in case of dry rubble pitching or pitching with stones in wire crates or it can be in PCC M15 nominal mix if cement concrete block have been used for pitching . Rates for toe wall can be adopted from respective clauses depending upon approved design. The rate for excavation for foundation, dry rubble masonry and PCC M15 have been analysed and given in respective chapters.)		
14.7	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	5629.00
B	Cement Concrete blocks Grade M15	cum	7356.00

14.8	Dry rubble Flooring	cum	2373.00
14.9	Curtain wall complete as per drawing and Technical specification		
A	Stone masonry in cement mortar (1:3)	cum	3803.00
B	Cement concrete Grade M15	cum	5476.00
14.10	Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.	cum	1959.00
14.11	<b>Gabian Structure for Retaining Earth</b> (Providing and construction of a gabain structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire)	cum	2642.00
14.12	<b>Gabian Structure for Erosion Control, River Training Works and Protection works</b> (Providing and constructing gabain structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.)	cum	4002.00

## CHAPTER-15

<b>REPAIR AND REHABILITATION</b>			
15.1	Removal of existing cement concrete wearing coat including its disposal complete as per Technical specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000m(Thickness 75 mm)	sqm	166.00
15.2	Removal of existing asphaltic wearing coat comprising of 50 mm thick asphaltic concrete laid over 12 mm thick mastic asphalt including disposal with all lift and lead upto 1000m.	sqm	125.00
15.3	Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy ( <u>MC Dur 1250 &amp; Accelerated compound Torkrethilfe BE of MC Bauchemie or Equivalent</u> )complete as per Technical specification	sqm	1116.00
15.4	Providing and inserting nipples with approved fixing compound <u>MC Fix ST of MC Bauchemie or Equivalent</u> after drilling holes for grouting as per Technical specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy	each	148.00
15.5	Sealing of cracks/porous concrete by injection process through nipples/Grouting <u>With Admixture MC Ein preshifl EH of MC Bauchemie or Equivalent</u> )complete as per Technical specification.		
A	Cement Grout	kg	108.00
B	Cement mortar (1:1) Grouting	kg	214.00
15.6	Patching of damaged concrete surface with polymer concrete ( <u>MC Dur 1250 &amp; Accelerated compound Torkrethilfe BE of MC Bauchemie or Equivalent</u> ) and curing compounds <u>Emcoril AC</u> , initiator and promoter, available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer.	sqm	4802.00
15.7	Sealing of crack / porous concrete with Epoxy Grout ( <u>MC Dur 1264 of MC Bauchemie or Equivalent</u> )by injection through nipples complete as per clause 2803.1.	kg	674.00

15.8	Applying epoxy mortar ( <u>MC Dur 1250 of MC Bauchemie or Equivalent</u> ) over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per Technical specification	sqm	395.00
15.9	Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound <u>Centrament Rapid 640 of MC Bauchemie or Equivalent</u> ) in the proportion as per clause 2807.1., sand and coarse aggregates conforming to IS: 383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6.	sqm	401.00
15.10	Applying pre-packed cement based polymer mortar <u>Nafufill BB2 of MC Bauchemie or Equivalent</u> ) of strength 45 Mpa at 28 days for replacement of spalled concrete	sqm	299.00
15.11	Epoxy bonding of new concrete to old concrete	sqm	558.00
15.12	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical specification	tonne	316999.00
15.13	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical specification	tonne	336708.00
15.14	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestressing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical specification	tonne	309780.00
15.15	Replacement of bearings complete as per Technical specification	each	61691.00
15.16	Rectification of bearings as per Technical specifications	each	20364.00
15.17	Replacement of Expansion Joints complete as per drawings	metre	4047.00
15.18	Replacement of damaged concrete railing.	metre	344.00
15.19	Replacement of crash barrier.	metre	629.00

15.20	Replacement of damaged mild steel railing	metre	287.00
15.21	<b>Repair of crash barrier</b> (Repair of concrete crash barrier with cement concrete of M-30 grade by cutting and trimming the damaged portion to a regular shape, cleaning the area to be repaired thoroughly, applying cement concrete after erection of proper form work.)	metre	293.00
15.22	<b>Repair of RCC Railing</b> (Carrying out repair of RCC M30 railing to bring it to the original shape.)	metre	156.00
15.23	<b>Repair of steel Railing</b> (Repair of steel railing to bring it to the original shape)	metre	293.00

## CHAPTER-16

<b>MISCELENIOS ITEMS</b>			
16.01	<b>Cautionary/Mandatory/Facility Information Sign Board with Definition Plate</b>		
	Providing & fixing of cautionary sign board of Cautionary/Mandatory/Facility Information sign board with definition plate of size 200mmx900mm made out of retro reflective sheeting conforming to Type XI standards of ASTM D4956-09 & as per IRC-67: 2012 specifications, fully covered over 4mm thick ACP/2mm thick Al supported with back support frame of 35x35x35mm mild steel angle. Board Shall be fixed to a vertical post of 75x75x6mm mild steel angle of 3.6 mtr height and firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45 cm X 45 cm X 60 cm etc, 60 cm below ground level. 10 years warranty & a certified copy of three years outdoor exposure report from an independent lab as per IRC 67-2012 for Type XI retro reflective sheeting shall be submitted by the contractor.		
a	900mm Triangle - Cautionary Sign	Each	7687
b	600 mm Triangle - Cautionary Sign	Each	6781
c	600 mm Circle - Mandatory Sign	Each	6894
d	900mm Octagon - Mandatory Sign	Each	10287
e	600mm x 800mm Rectangle - Facility Information Sign	Each	8737
16.02	<b>Cautionary/Mandatory/Facility Information Sign Board with SS Structure</b>		

	Providing & fixing of cautionary sign board of Cautionary/Mandatory/Facility Information sign board made out of retro reflective sheeting conforming to Type XI standards of ASTM D4956-09 & as per IRC-67: 2012 specifications, fully covered over 4mm thick ACP/2mm thick Al supported with back support frame of 25x25x3 mm stainless steel angle of 304 grade. Board Shall be fixed to a vertical post of 80mm dia stainless steel pipe of 3.6 mtr height and firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45 cm X 45 cm X 60 cm etc, 60 cm below ground level. 10 years warranty & a certified copy of three years outdoor exposure report from an independent lab as per IRC 67-2012 for Type XI retro reflective sheeting shall be submitted by the contractor.		
a	900mm Triangle - Cautionary Sign	Each	10719
b	600 mm Triangle - Cautionary Sign	Each	9039
c	600 mm Circle - Mandatory Sign	Each	9065
d	900mm Octagon - Mandatory Sign	Each	13362
e	600mm x 800mm Rectangle - Facility Information Sign	Each	11496
f	300mm x 900mm Rectangle - Hazard Marker Sign	Each	7107
g	600mm x 500mm Rectangle - Chevron Sign	Each	9132
16.03	<b>Fluorescent Sign Boards</b>		
	Providing & fixing of facility information sign board of size 1000mmx900mm rectangle made out of retro reflective sheeting conforming to Type XI standards of ASTM D4956-09 & as per IRC-67: 2012 specifications in Fluorescent Yellow green with cautionary/mandatory/facility sign inscribed in it, fully covered over 4mm thick ACP/2mm thick Al supported with back support frame of 35x35x5 mm mild steel angle. Board Shall be fixed to a vertical post of 75x75x6mm mild steel angle of 3.6 mtr height and firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45 cm X 45 cm X 60 cm etc, 60 cm below ground level. 10 years warranty & a certified copy of three years outdoor exposure report from an independent lab as per IRC 67-2012 for Type XI retro reflective sheeting shall be submitted by the contractor.	Each	10339
16.04	<b>Place Identification Sign/Informatory Sign/Adv.Dir Sign/Reassurance Sign with SS Structure</b>		

a	Providing & fixing of Direction & Place Identification sign board ( <b>Less than 0.9 sq.mtr</b> ) made out of retro reflective sheeting conforming to Type XI standards of ASTM D4956-09 & as per IRC-67: 2012 specifications, fully covered over 4mm thick ACP/2mm thick Al supported with back support frame of 35x35x5 mm stainless steel angle, 304 Grade with areas not exceeding 0.9 sq.mtr and surrounded by 35mm dia stainless steel pipe of 304 Grade. Board Shall be fixed to a vertical posts of 80mm dia stainless steel pipe, 304 grade of 3.6 mtr height and firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45 cm X 45 cm X 60 cm etc, 60 cm below ground level. 10 years warranty & a certified copy of three years outdoor exposure report from an independent lab as per IRC 67-2012 for Type XI retro reflective sheeting shall be submitted by the contractor.	Sqm	21550
b	Providing & fixing of Direction & Place Identification sign board ( <b>More than 0.9 sq.mtr</b> ) made out of retro reflective sheeting conforming to Type XI standards of ASTM D4956-09 & as per IRC-67: 2012 specifications, fully covered over 4mm thick ACP/2mm thick Al supported with back support frame of 35x35x5 mm stainless steel angle, 304 grade with areas exceeding 0.9 sq.mtr and surrounded by 35mm dia stainless steel pipe of 304 grade. Board Shall be fixed to 2 nos of vertical posts of 80mm dia stainless steel pipes, 304 grade of 3.6 mtr height and firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45 cm X 45 cm X 60 cm etc, 60 cm below ground level. 10 years warranty & a certified copy of three years outdoor exposure report from an independent lab as per IRC 67-2012 for Type XI retro reflective sheeting shall be submitted by the contractor.	Sqm	23774

16.05	<b>Median Marker</b>		
	Supply and Fixing of <b>Median Marker</b> which shall be made of tough, high impact resistant, injection-molded, thermoplastic body with an isosceles trapezoidal structure of length, width and height not less than 15cm, 10cm and 10cm respectively and thickness not less than 1.8mm, the body structure shall be rounded at its acute angle, all the corners and edges. The plastic used for molding the Median Marker shall have a minimum Notched Izod Impact strength value of 600 J/m at room temperature, when tested in accordance with ASTM D256 and shall retain at least 70% of this value when subjected accelerated weathering for 1000hrs as per ASTM G155 or ISO 180/A. The logo of the manufacturer shall be embossed on either side of the body in the injection molding process. The Median Marker shall have fluorescent yellow color retro-reflective sheeting of size not less than 8.5cm*8.5cm and with fully reflective Micro prismatic cube corners as its retro-reflective elements and meets type XI of ASTM D 4956-09 specifications. The retro-reflective sheeting shall be one or both sides of the Median Marker and shall be edge protected with no exposed edges which will prevent edge lifting, vandalism, sheeting damage, etc. The Median Marker shall be fixed by a combination of epoxy adhesive and Grouting.	Each	446.00
16.06	<b>Aluminium Backed Flexible Prismatic Sheeting</b>		
	Supply and fixing of <b>Aluminum-backed flexible prismatic ('AFP')</b> sheeting for application in bull nose which shall consist of Yellow colored flexible prismatic sheeting with non-metallic prismatic lens as retroreflective elements and conforming to ASTM D 4956-09 Type VI specification for reboundable retroreflective sheeting. The flexible prismatic sheeting shall be of 1 ft width and laminated at the back with a 50 micron Aluminium (Al) foil with pressure sensitive adhesive and liner. The sheeting shall have a screen printed slant line/arrow in black colour. Neither the AFP sheeting nor the flexible prismatic sheeting used it shall when slowly bent in 1 second time around a 1/8th inch mandrel after being conditioned for 24hrs at 0°C and tested as per section S2.2.2. of ASTM D 4956-09.	Each	5780.00

16.07	<b>Solar Raised Pavement Marker</b>		
	Supply and fixing of <b>Solar Raised Pavement Markers</b> made of polycarbonate molded body with circular shape, solar powered, LED self illumination in active mode, 360 degree illumination and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face in passive mode. The marker shall support a load of 20000 kg tested in accordance to ASTM D 4280. The marker should be resistant to dust and water ingress according to IP 65 standards and should withstand temperatures in the range of 0 C to 70 C. Color of lighting could be provided in red or yellow (amber) as per requirement and typical frequency of blinking is 1 Hz. There should be current losses of less than 20 micro-amperes at 2.4 V in sleep-charging mode to enhance the life of the marker and a full charge should provide for a minimum autonomy of 50 hours. The height, width and length of the marker shall not be less than 10 mm x 100 mm x 100 mm. Also, the surface diameter of the marker shall not be less than 100 mm respectively. The weight of the marker shall not exceed 0.5 Kilograms. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer. Pre Qualification warranty for 2 years for the Solar Raised Pavement Marker from manufacturer shall be submitted by the contractor along with the tender for technical qualification in the tender and the contractor shall also submit test reports from government laboratory/independent laboratory for Compressive Strength and Prevention of Dust & Water for technical qualification in the tender.	Each	2901.00
16.08	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67- 2012 made of high intensity ASTM Class C sheetingtype XI microprismatic retro reflective material vide clause 801.3, fixed over aluminium sheeting, 2.5 mm thick , the sign board Fixed directly to concrete/masonry surfaces as per approved drawing		
a	60 cm circular sign Board	Each	3570.00
b	60 cm x 45 cm rectangular	Each	3400.00
c	60 cm x 60 cm square	Each	4505.00
d	80 mm x 60 mm rectangular	Each	5950.00

16.09	Conducting Survey by using Electronic Total Station, taking existing road levels at three locations for every 10 m. interval and preparation of cross sectional drawings in Auto Cad format , Calculation of quantity of Profile corrective layer & submisasion of Cross sectional drawings along with cross sectional Areas.(Rate inclusive of all Taxes applicable)	Per Km	6800.00
16.10	Conducting Road Survey by using Electronic Total Station, plotting of existing road,tree,Electric poles , compound wall taking cross sectional levels at every 20 m. interval in width of 30 m. at every 5.m plotting of longitudinal 7 cross section along with the Alignment plan and submission of two hard copies & one soft copy on C.D.(Rate inclusive of all Taxes applicable)	Per Km	17000.00
16.11	Conducting Detail Engineering & topographical Survey by using Electronic Total Station,plotting of Plot boundries, tree,Electric poles , compound wall ,structures ,roads taking spot levels at 5 x 5 m. interval and preparation of Contour plan at 1.00 m. interval & submission of Auto Cad drawing with two hard copies & one soft copy on C.D. (Rate inclusive of all Taxes applicable)	Per sq.m.	1.00
16.12	Making lawns Using <b>Mexican Ready Lawn</b> , 1 x 2 feet size panels each including finishing the base, breaking of clods, removal of rubbish, dressing , planting lawn at 15 cm apart, including supplying and spreading of farm yard manure at rate of 0.18 cum per 100 sqm	Sq.m.	272.00
16.13	Making tree guard using RCC Tree guards made up of M30 grade concrete using vibro compaction process using jointless FRP moulds & suitably reinforced to promote long use & to prevent damage during handling , transportation and erection complete in all respect		
	Four panel size 1800 height x 620 wide x 35 thickness		
	Natural Grey colour	Each	4973.00

16.14	Protective coating -Paint with Emce Colourflex of MC Bauchemie or Equivalent with a priming coat @100 g/m2 & main polymer coating thickness 200-225 microns @400-450 g/m2 for two coats with approved shades including cost of materials,cleaning ,preparing the surface,chipping,removing loose dirt with wire brush & water ,labour for filling holes,cracks,joints etc.with one component polymer modified fine repair & cosmetic mortar,labour for applying above coating,scaffolding charges etc with all taxes complete as per IRC SP:80 Clause 6.5.1 & clause 2808 of MORT& H specifications latest edition.	Sq.m.	206.00
16.15	Protective coating for steel structures-Providing & applying MC Bauchemie's MC Dur ZKE or Equivalent,a two component solvent containing Zinc enriched epoxy resin based protective coating for steel construction in marine climate & for construction which are heavily strained by atmosperic conditions and industrial atmospere which is resistant against solid & dissolved salts ,diluted acid,alkalis as well as oil & fat.The metal surface shall be treated by short blasting with Quartz-free abrasive,sand blasting etc. complete.the consumption shall be 100-300 gm/ m2 in two coats with approved shades including cost of materials,cleaning ,preparing the surface,chipping,removing loose dirt with wire brush & water ,labour.	Sq.m.	207.00
16.16	Providing laying and spreading soil/Aggregate on a prepared sub-grade, pulverising, adding the designed quantity of RBI Grade-81 to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with the Vibratory roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per Technical Specification Clause 404.Using 2% RBI Grade-81	Cum.	1498.00
16.17	Construction of Sub Base layer using JGRS(Jindal global Road Stabilzer ) an inorganic hydration activated soil stabilizer by mixing & compaction at OMC in specified thickness as per construction methodology provided by Jindal Steel & Power Ltd, Raigarh as per Technical Specification Clause 404.Using 1.5% JGRS	Cum.	1453.00

16.18	Construction of sub surface drain 200 mm dia using geotextiles treated with carbon black with physical properties as given in clause 702.2.3 formed in to a stable network and a planar geocomposite structure, joints wrapped with geotextile to prevent ingress of soil, all as per clause 702 and approved drawings including excavation and backfilling	Meter	682.00
16.19	Construction of a narrow filter sub- surface drain consisting of porous or perforated pipe laid in narrow trench surrounded by a geotextile filter fabric, with a minimum of 450 mm overlap of fabric and installed as per clause 702.3 and 309.3.5 including excavation and backfilling	Meter	587.00
16.20	Providing and laying paving fabric with physical requirements as per table 704-2 over a tack coat of paving grade Bitumen 80-100 penetration, laid at the rate of 1 kg per sqm over thoroughly cleaned and repaired surface to provide a water resistant membrane and crack retarding layer. Paving fabric to be free of wrinkling and folding and to be laid before cooling of tack coat, brooming and rolling of surface with pneumatic roller to maximise paving fabric contact with pavement surface	Sq.M.	206.00
16.21	Providing, preparing and laying of geogrid crated apron 1 m x 5 m, 600 mm thick including excavation and backfilling with baffles at 1 metre interval, made with geogrids having characteristics as per clause 704.2, joining sides with connectors/ring staples, top corners to be tie tensioned, placing of suitable cross interval ties in layers of 300 mm connecting opposite side with lateral braces and tied with polymer braids to avoid bulging, constructed as per clause 704.3. filled with stone with minimum size of 200 mm and specific gravity not less than 2.65, packed with stone spalls, keyed to the foundation recess in case of sloping ground and laid over a layer of geotextile to prevent migration of fines, all as per clause 704 and laid as per clause 2503.3 and approved design.	Cum.	2189.00

16.22	Supply and Fixing of tiger eye road studs in Asphalt/concrete roads Using portable diamond core drill of 100mm dia to cut cores of 25mm deep & fixed with Epoxy.The tiger eye road studs shall be Made from fully tempered glass, having a weight of 540grams+ 10 grams, diameter shall be 100mm and fixing depth of 25mm.with a oval glass protrusion of 19mm height and 60mm dia above of surface providing reflection from all anglesas per the drawing. The stud base shall be covered with thermal sprayed aluminium layer for reflection. The glass should be either colourless or have an integral yellow color. Use of coloured reflective coating is not permitted.The road stud shall exhibit a safe compression load carrying capacity of exceeding 50Tonnes when tested in a compression testing machine and should not break when 1kg steel ball is dropped from a height of 1.5m.It shall be ensured that the stud surface is maximum 1mm above the road surface	Each	595.00
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## CHAPTER-17

<b>CEMENT CONCRETE PAVEMENTS</b>			
17.1	Dry Lean Cement Concrete Sub- base (Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing.)	cum	3944.00
17.2	Cement Concrete Pavement (Construction of unreinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing )	cum	6570.00
17.3	Rolled Cement Concrete Base (Construction of rolled cement concrete base course with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum, aggregate cement ratio15:1 and minimum cement content of 200 kg/cum, aggregate gradation to be as per table 600-4 after blending, mixing in batching plant at optimum moisture content, transporting to site, laying with a paver with electronic sensor, compacting with 8-10 tonnes smooth wheeled vibratory roller to achieve, the designed flexural strength, finishing and curing.)	cum	4268.00

17.4	Transition section between rigid and flexible pavement (Due to change in the properties of materials and type of construction, a gradual changeover from rigid pavement to flexible pavement is desirable to avoid any damage at the butting joint. After provision of an expansion joint in the cement concrete slab, the thickness of slab should be tapered to 10 cm over a length of 3 m towards the flexible pavement. The deficiency of thickness caused due to tapering of the slab should be made up by the asphaltic layers.)	cum	2465.00
17.5	Construction of Base/Sub-base of pavement with lean concrete - fly ash. (Construction of Base/sub-base using cement, sand, fly ash and coarse aggregates proportioned as per table 4 of IRC: 74/1979 and with water content ratio, slump and compressive strength as defined in the said table, mix prepared in a batching and mixing plant and compacted with a vibratory roller 8-10 tonnes capacity within the time limit laid down vide clause 7.6.3 of IRC: 74-1979, construction joints properly formed at the end of day's work, cured for 14 days, all as specified in IRC: 74-1979 and as per approved plans.)	cum	3370.00
17.6	Cement - Fly ash concrete pavement. (Construction reinforced-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, replacing cement by fly ash to the extent of 15% and sand by 10%, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing )	cum	9021.00

CHAPTER - 18																		
Requirement of materials and road roller																		
Item Ref .No	Description of items	Unit	Stone	Brick (nos)	Stone aggregate	Murru m	Wat er	Sand	Cement	Lime	Bitumen (60/70)	Bitumen (80/100)	Bitumen Emulsion	Prec astC oncrete tile	RC C pips e20 0m m dia 2.5 m.le ngth	Static Road Roller	Vibr ator y Roa d Roller	Pne um atic tyre d roll er 12- 15 ton nes
			Cu.m	Nos	Cu.m	Cu.m	Kilo Lit	Cu. m	Bag s	MT	MT	MT	MT	Nos.	Nos.	Days	Days	Days
3.16	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)	800 Cu.m																1 day





	Construction of granular sub-base by providing close 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																		
B	By Mix in Place Method																		
	For Grading-I Material	400	Cu. m			511													1 day
	For Grading-II Material	400	Cu. m			512												1 day	
	For Grading-III Material	400	Cu. m			512												1 day	
4.3	Lime Stabilisation for Improving Sub-grade																		
A	By Mechanical Means	400	Cu. m									21						1 day	
B	By Manual	200	Cu.									11						1	

	Means		m														day	
4.4	Lime Treated Soil for Sub-Base	400	Cu. m								21						1 day	
4.5	Cement Treated Soil Sub Base/Base	400	Cu. m								28						1 day	
4.6	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base	300	Cu. m			384					24						1 day	
4.8	Construction of inverted choke by providing, laying, spreading and compacting screening B type/ coarse sand of specified grade in uniform layer on a prepared surface with motor grader and compacting with power roller etc	600	Cu. m														1 day	
4.9	Water Bound Macadam	360	Cu. m														2 static or 1 vibratory roller	
	Grading-I																	

a)	With type A Stone Screening	360	Cu. m		532.8	28.8	144									
b)	With Moorum or Gravel Screening	360	Cu. m		435.6	108	144									
	Grading-II															
a)	With type A Stone Screening	360	Cu. m		493	28.8	144									
b)	With type B Stone Screening	360	Cu. m		521.8	28.8	144									
c)	With Moorum or Gravel Screening	360	Cu. m		435.6	105.6	144									
	Grading-III															
a)	With type A Stone Screening	360	Cu. m		522	28.8	144									
b)	With Moorum or Gravel Screening	360	Cu. m		435.6	105.6	144									
4.10	Crushed Cement Concrete Sub-base / Base															
	By Vibratory roller	360	Cu. m					72							2 static or 1 vibratory roller	

4.11	Penetration Coat Over Top Layer of Crushed Cement Concrete Base	7500	Sq. m			97.5						18.7 5						1 day	
4.12	Wet Mix Macadam	225	Cu. m			297		18									2 static or 1 vibratory roller		
4.16	Footpaths and Separators	3200	Sq. m			741.7		128	41	19.5					3520 0	240		1 day	
4.17	Crusher Run Macadam Base																		
A	By Mix in Place Method	360	Cu. m			475.2		36										1 day	
b)	By Mixing Plant :	225	Cu. m			297		18										1 day	
5.3	Bituminous Macadam	205	Cu. m			290.1						14.8 5					2	1	
5.4	Bituminous Penetration Macadam (Single layer construction)																		
a)	50 mm thick	4500	Sq. m			337.5						22.5					2	1	
b)	70 mm thick	4500	Sq. m			486						30.6					2	1	
5.5	Built-up-Spray Grout(Two layer composit construction)	3000	Sq. m			339						9					2	1	

5.6	Dense Graded Bituminous Macadam	205	Cu. m			281.5					8.6 2	19.1 3						2	1	
5.7	Semi-Dense Bituminous Concrete																			
a)	Grading I: 13 mm (Nominal Size)	195	Cu. m			280.8					8.6 2	20.2 5						2	1	
b)	Grading II: 10 mm (Nominal Size)	195	Cu. m			279.3					8.6 2	22.5						2	1	
5.8	Bituminous Concrete																			
a)	Grading I: 19 mm (Nominal Size)	191	Cu. m			279.3					8.6 2	22.5						2	1	
b)	Grading II: 13 mm (Nominal Size)	191	Cu. m			279.3					8.6 2	22.5						2	1	
5.9	Surface Dressing																			
	19 mm nominal chipping size	9000	Sq. m			135						10.8						1		
	13 mm nominal size chipping	9000	Sq. m			90						9							1	
5.10	Open - Graded Premix Surfacing																			
I	Mechanical method using Penetration grade Bitumen and HMP of appropriate capacity not less than 75	10250	Sq. m			276.8					14.9 7							1		

	tonnes/hour .																	
II	Open-Graded Premix Surfacing using cationic Bitumen Emulsion	900	Sq. m			24.3								1.94			1	
5.11	Close Graded Premix Surfacing/Mixed Seal Surfacing																	
I	Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour.																	
	Ty whole A	10250	Sq. m			276.8							22.5			1		
	Ty whole B	10250	Sq. m			276.8							19.48			1		
5.12	Seal Coat																	
(i)	Case - I : Type A	10250	Sq. m			92.25							10.05			1		
(ii)	Case - II : Type B	7858	Sq. m			47.16							5.34			1		
9.1	PCC 1:3:6 in Foundation																	
	40 mm nominal size	1	Cu. m			0.92		1.2	0.5	4.4								
10.4	Filling Potholes and Patch Repairs with open- Graded Premix	10250	Sq. m			276.8							14.97	2.46		1		

	surfacing, 20mm.																
10.5	Filling Potholes and Patch Repairs with Bituminous concrete, 40mm.	4900	Sq. m			293.2 7						22.5	1.18			2	
10.5	Filling Potholes and Patch Repairs with Bituminous concrete, 40mm.																
	Grading I - 19mm(Nominal size)	4900	Sq. m			293.2 7					9		22.5	1.18		2	
	Grading-II 13mm (Nominal size)	4900	Sq. m			293.2 7					9		22.5	1.18		2	
	Brick Masonry Work in Cement Mortar 1:3 in Foundation complete excluding Pointing and Plastering, as per Drawing and Technical Specifications.	5	Cu. m		2500					1.3	12.2 4						

	Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications.																	
(A)	Square Rubble Coursed Rubble Masonry (first sort)	5	Cu. m	for 5.5 Cu.m,bond stone 35 No.				1.6	15.3									
(B)	Random Rubble Masonry	5	Cu. m	for 5.5 Cu.m,bond stone 35 No.				1.63	15.8 1									
(A)	Cement Mortar 1:2 (1cement :2 sand)	1	Cu. m					0.9	13.4									
(B)	Cement Mortar 1:3 (1cement :3 sand)	1	Cu. m					1.1	10.2									
(C)	Cement Mortar 1:4 (1cement :4 sand)	1	Cu. m					1.1	8									
(D)	Cement Mortar 1:6 (1cement :6 sand)	1	Cu. m					1.3	5.8									

	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.																
A	PCC Grade M15	15	Cu. m			13.5			6.8	82.6							
B	PCC Grade M20	15	Cu. m			13.5			6.8	103.2							
C	RCC Grade M20																
I)	Using Concrete Mixer	15	Cu. m			13.5			6.8	104.2							
II)	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	833.2							
D	PCC Grade M25																
Case I	Using Concrete Mixer	15	Cu. m			13.5			6.8	119.8							
Case II	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	959							
E	RCC Grade M25																
Case I	Using Concrete Mixer	15	Cu. m			13.5			6.8	121							
Case II	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	967.6							

F	PCC Grade M30																	
Case I	Using Concrete Mixer	15	Cu. m			13.5			6.8	121. 6								
Case II	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	972								
G	RCC Grade M30																	
Case I	Using Concrete Mixer	15	Cu. m			13.5			6.8	122								
Case II	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	976								
H	RCC Grade M35																	
Case I	Using Concrete Mixer	15	Cu. m			13.5			6.8	126. 6								
Case II	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	101 3								
(ix)	RCC M40 Grade																	
Case II	With Batching Plant, Transit Mixer and Concrete Pump	120	Cu. m			108			54	103 2								
13.2	Pointing with cement mortar (1:3 ) on brick work in substructure as per Technical	10	Sq. m						0.03	0.31								

	Specifications																		
13.3	Plastering with cement mortar (1:3 ) on brick work in sub-structure as per Technical Specifications	10	Sq. m							0.15	1.47								

**Goa Schedule of Rates**

**Roads & Bridges, 2020**

**(Part-II - State Sector)**

## **INDEX**

### **Goa Schedule of Rates – 2020 for Roads & Bridges (Part - II - State Sector)**

<b>CHAPTER NO</b>	<b>NAME OF CHAPTER</b>	<b>FROM - TO</b>
I (A)	Basic Rate Labour	1701 to 1722
I (B)	Basic Rate Materials	1801 to 1881
II	Hire Charges for plants & Machinery	2101 to 2145
III	Transportation and carriage of Materials	3001 to 3434
IV	Earthworks	4101 to 4138
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VI	Plain and reinforced concrete work	6101 to 6109
XII	Dismantling demolishing & Repair works	12101 to 12119
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<b>CHAPTER - I (A)</b>					
<b>BASIC RATES LABOUR</b>					
<b>Sr. No</b>			<b>Description</b>	<b>Unit</b>	<b>Rate</b>
1701	1	a)	(Semi-skilled) Bandhani, Mazdoor	Per day	Rs.386
		b)	(Unskilled) Chowkidar, Hedge cutter, Mali,	Per day	Rs.325
		c)	Mate Coolie (ord.) ,Bhisti, Sweeper, Helper, Beldar	Per day	Rs.325
		d)	Hardrock rock or stone cutting		Rs.441
		1	Stone cutter 1 <sup>st</sup> class (skilled)	Per day	Rs.441
		2	Stone cutter 2 <sup>nd</sup> class (semi-skilled),Chiseller, Hole Driller, breaker, Excavator	Per day	Rs.386
1702	2		<b>Driver</b>		
		a)	For road rollers and heavy machinery	Per day	Rs.441
		b)	For truck	Per day	Rs.441
		c)	For light vehicles, jeep etc.	Per day	Rs.441
1703	3		Cleaner: For truck, road roller etc.	Per day	Rs.325
1704	4		<b>Operator</b>		
		a)	Pheumatic drill hammer	Per day	Rs.483
		b)	Concrete mixer, Asphalt boiler	Per day	Rs.441
		c)	Pump attendant, Bitumen sprayer	Per day	Rs.386
		d)	Laboratory attendant, specialised machine	Per day	Rs.386
1705	5)		<b>Marines</b>		
		a)	Driver	Per day	Rs.441
		b)	Oarsman, Tandel, Sarang	Per day	Rs.386
1706	6		<b>Mason</b>		
		a)	Stone Ornamental work (highly skilled)	Per day	Rs.483
		b)	1 <sup>st</sup> class (skilled)	Per day	Rs.441
		c)	2 <sup>nd</sup> class brick layer, stone layer for plaster of paris work	Per day	Rs.386
		d)	Assistant	Per day	Rs.325
1707	7)		<b>Carpenter</b>		
		a)	Furniture (highly skilled)	Per day	Rs.483
		b)	1 <sup>st</sup> class (skilled)	Per day	Rs.441

		c)	2 <sup>nd</sup> class (semi-skilled)	Per day	Rs.386
		d)	Assistant	Per day	Rs.325
1708	8		<b>Blacksmith:</b>		
		a)	1 <sup>st</sup> class (skilled)	Per day	Rs.441
		b)	2 <sup>nd</sup> class (semi-skilled)	Per day	Rs.386
		c)	Assistant	Per day	Rs.325
1709	9		<b>Fitter</b>		
		a)	1 <sup>st</sup> class (skilled)	Per day	Rs.441
		b)	2 <sup>nd</sup> class (semi-skilled)	Per day	Rs.386
		c)	Assistant	Per day	Rs.325
1710	10		Welder (Highly skilled)	Per day	Rs.483
1711	11		<b>Mechanic</b>		
		a)	1 <sup>st</sup> class	Per day	Rs.441
		b)	2 <sup>nd</sup> class	Per day	Rs.386
		c)	Assistant	Per day	Rs.325
1712	12		<b>Painter</b>		
		a)	Artist painter (Highly skilled)	Per day	Rs.483
		b)	Painter (skilled)	Per day	Rs.441
		c)	2 <sup>nd</sup> class (semi-skilled)	Per day	Rs.386
		d)	White washer	Per day	Rs.386
1713	13		<b>Plumber, Electrician</b>		
		a)	Highly skilled	Per day	Rs.483
		b)	1 <sup>st</sup> class (skilled)	Per day	Rs.441
		c)	2 <sup>nd</sup> class	Per day	Rs.386
1714	14		Meter reader, gauge reader	Per day	Rs.441
1715	15	a)	<b>Supervisor</b>	Per day	Rs.483
		b)	Mistri	Per day	Rs.483
		c)	Typist	Per day	Rs.441
		d)	works assistant, draughtsman	Per day	Rs.441
		e)	Head Surveyor	Per day	Rs.386
1718	16		Dozer operator / dumper/poclain operator/ motor grader / crane operator	Per day	Rs.441

1719	17		Compressor operator	Per day	Rs.441
1720	18		<b>Tin smith</b>		
		a)	1 <sup>st</sup> class	Per day	Rs.441
		b)	2 <sup>nd</sup> class	Per day	Rs.386
		c)	Assistant	Per day	Rs.325
1721	19		<b>Auto Electrician</b>		
		a)	1 <sup>st</sup> class (skilled)	Per day	Rs.441
		b)	2 <sup>nd</sup> class (semi-skilled)	Per day	Rs.386
		c)	Assistant	Per day	Rs.325
1722	20		<b>Rig Operator</b>		
		a)	1 <sup>st</sup> class (skilled)	Per day	Rs.441
		b)	2 <sup>nd</sup> class (semi-skilled)	Per day	Rs.386
		c)	Assistant	Per day	Rs.325

Note : These rates are exclusive of contractor's profit and overheads and are inclusive of the wages for weekly day of rest.

<b><u>CHAPTER I (B)</u></b>			
<b><u>BASIC RATES FOR MATERIALS</u></b>			
<b>Sr.No</b>	<b>Description</b>	<b>Unit</b>	<b>Rate</b>
1801	Gelatine 80%	kg	73.00
1802	Electric Detonator	Each	12.00
1803	Murrum	Cu.m	150.00
	Crushed stone aggregate		
1804	90-45 mm	Cu.m	1000.00
1805	63-45mm	Cu.m	1100.00
1806	37.50-25mm	Cu.m	1100.00
1807	25-10mm	Cu.m	1200.00
1808	13.20-10mm	Cu.m	1200.00
1809	10-5mm	Cu.m	1200.00
1810	5mm and below	Cu.m	1300.00
1811	Stone crusher dust	Cu.m	800.00
1812	Soiling Stone ( Lat ) 150-200m	Cu.m	370.00
1813	Soiling Stone ( Basaltic or Granitic )150-200mm	Cu.m	600.00
1814	Bitumen 80/100 packed	M.T.	36930.00
1815	Bitumen 60/70 packed	M.T.	36670.00
1816	Bitumen 80/100 ( Bulk )	M.T.	31930.00
1817	Bitumen 60/70 (Bulk)	M.T.	31870.00
1818	Bitumen 85/25 or 30/40 mastic asphalt	M.T.	36930.00
1819	Emulsified Bitumen ( Cationic)	M.T.	35830.00
1820	Furnace Oil	lit	33.09
1821	Lubricant oil	lit	212.28
1822	L.D.O	lit	46.30
1823	Road Marking paint	lit	260.00
1824	Reflective tape	sq.m	120.00
1825	Lime filler	M.T.	9500.00
1826	Broom	Each	59.50
1827	Soft Brushes	Each	35.70
1828	Wire Brush	Each	67.15
1829	Antistripping Agent Excl. 10% C.R.	kg	202.50
1830	Empty Bitumen drum	Each	150.00
1831	Doob grass	kg	25.00
1832	Fine grass	kg	100.00
1833	Pesticide	kg	190.00
1834	Mannure	Cu.m	1500.00
1835	Hedge plant	Each	25.00
1836	Saplings ( upto 200m high )	Each	50.00
1837	Shrubs	Each	50.00

1838	Flower plant	Each	50.00
1839	Thorn plant	Each	60.00
1840	Neem cake	QTL	1800.00
1841	100 mm DIA PVC (RIGID) Pipe 4 kg	mts	286.00
1842	75 mm DIA PVC (RIGID) Pipe 4 kg	mts	143.00
1843	j. Epoxy ready made primer vertical	Kg	142.00
1844	k. Epoxy ready made primer Horizon	Kg	142.00
1845	l. Epoxy ready made mortar	Kg	65.00
1846	m. sealant Bituminous sheet	Kg	70.00
1847	Lime	Tonne	9500.00
1848	Water	KL	85.00
1849	Cement	Tonne	5313.00
1850	Sand	Cu.m	1300.00
	Precast cement concrete tiles		
1851	300* 300* 25mm thick.	No	40.00
1852	R.C.C. pipe 200 mm dia 2.5m	Mts.	140.00
1853	Blasting material	Kg	63.75
1854	Selected earth for refilling	Cu.m	262.50
1855	Slow curing bitumen emulsion	Kg	34.48
1856	Brick II nd class	No	9.5
1857	MS sheet 50* 0.5 m	Kg	44.00
1858	Rivets 6m dia and 10m in length	Each	5.95
	Paint conforming to 803.3 clause		
1859	(Ready mixed )	Litres	104.00
1860	Lettering on Km post	Per cm/per letter	14.45
	Pre-cast cement concrete kerb.		
1861	Stone (factory made) m20		
a	30 cm* 50 cm* 15 cm	RM	525.00
b	30 cm* 40 cm* 15 cm	RM	440.00
c	60 cm* 45 cm* 15 cm	RM	535.50
d	60 cm* 30 cm* 10 cm	RM	283.50
1862	R.C.C. kilometer stone ( Factory made) m20		
	a. 200 mts stone	No	315.00
	b. Kilometer stone on ODR and VR	No	1025.00
	c.kms stone on SH,NH and MDR	No	1800.00
	d. 5 km Stone	No	2700.00
	R.C.C. boundary stone circular 150 mm dia		
	top 200 mm dia at base 90 cm length.	Each	350.00
	Precast mushroom type road divider (m 20)		
1863	30 cm hight with 40 cm thick at base 20 cms.	Each	202.50

1864	RCC drain with M20( Factory made) 30* 30 cm* 50 cm long 10 cm a. thickness base 10 cm.	RM	2580.00
1865	RCC slab M20 ( Factory made)		
a	900* 400* 150 mm - 30T	Each	1029.60
b	900* 400* 100 mm - 12T	Each	635.00
c	750* 400* 100 mm - 4.2 kg	Each	450.00
d	700* 500* 75 mm - 2.8 kg	Each	300.00
e	600* 500* 75 mm - 2.2 kg	Each	300.00
f	1200* 400* 150 with reinforcement not less than 9 kg	Each	1386.00
g	1500* 400* 150 with reinforcement not less than 12 kg	Each	1552.50
1866	Bentonite	KG	5.00
1867	Fire wood.	Qtl	500.00
1868	Diesel	Litres	65.17
1869	G.I. Pipe 40 mm	Mts.	250.00
1870	Oil paint primer	Sq.Mtrs.	161.50
1871	Alumnum paint	Sq.Mtrs.	246.00
1872	White wash	Kg	4.68
1873	MS sheet 16 gauge.	Kg	44.00
1874	Solvent	Litres	130.00
1875	Stone spall	Cu.m	148.75
1876	Thermoplastic compound	Litres	145.60
1877	Reflectorising glass beads	Kg	65.00
1878	Short Blasted - Grey Colour Size: 250mm x 250mm x 28mm	SQM	500.00
1879	Short Blasted - Other Colour Size: 250mm x 250mm x 28mm	SQM	525.00
1880	Short Blasted - Grey ColourSize: 300mm x 300mm x 30mm	SQM	525.00
1881	Short Blasted - Other ColourSize: 300mm x 300mm x 30mm	SQM	575.00
1882	Short Blaster paving Tiles - Grey Colour Size: 250mm x 500mm x 40mm	SQM	750.00
1883	Short Blaster paving Tiles - Other Colour Size: 250mm x 500mm x 40mm	SQM	875.00
1884	Short Blaster - Grey ColourSize: 400mm x 400mm x 40mm	SQM	750.00
1885	Short Blaster - Other ColourSize: 400mm x 400mm x 40mm	SQM	875.00
1886	Shot Blasted Paver Blocks - Grey Colour 1) Size: 225 mm x 112.5mm x 60mm (Type: Wave Shape)	SQM	600.00

	2) Size: 210mm x 105mm x 60mm (Type: Rectangular Shape) 3) Size: 150mm x 150mm x 60 mm (Type: Square Shape)		
1887	Shot Blasted Paver Blocks (60mm) - Other Colour 1) Size: 225 mm x 112.5mm x 60mm (Type: Wave Shape)	SQM	650.00
	2) Size: 210mm x 105mm x 60mm (Type: Rectangular Shape)		
	3) Size: 150mm x 150mm x 60 mm (Type: Square Shape)		
1888	Shot Blaster Paver Blocks (65mm) - Grey Colour Type: Flexi/ Multi Pavers (Set of 5 Pieces)	SQM	700.00
	Size: 200mm x 275mm x 65mm,		
	Size: 200mm x 225mm x 65mm,		
	Size: 200mm x 175mm x 65mm,		
	Size: 200mm x 125mm x 65mm, Size: 200mm x 100mm x 65mm		
1889	Shot Blaster Paver Blocks (65mm) - Other Colour Type: Flexi/ Multi Pavers (Set of 5 Pieces)	SQM	750.00
	Size: 200mm x 275mm x 65mm,		
	Size: 200mm x 225mm x 65mm,		
	Size: 200mm x 175mm x 65mm,		
	Size: 200mm x 125mm x 65mm,		
	Size: 200mm x 100mm x 65mm		
1890	Shot Blasted paver (70mm) - Grey Colour Size: 210mm x 105mm x 70mm thick (Type: Rectangular Type Pavers)	SQM	700.00
1891	Shot Blasted paver (70mm) - Other Colour Size: 210mm x 105mm x 70mm thick (Type: Rectangular Type Pavers)	SQM	735.00
1892	Shot Blasted paver (80mm) - Grey Colour 1) Size: 210mm x 150mm x 80mm thick (Type: Rectangular Type Pavers),	SQM	750.00
	2) Size: 210mm x 150mm x 80mm thick (Type: Square Type Pavers)		
1893	Shot Blasted paver (80mm) - Other Colour 1) Size: 210mm x 150mm x 80mm thick (Type: Rectangular Type Pavers),	SQM	785.00
	2) Size: 210mm x 150mm x 80mm thick (Type: Square Type Pavers)		
1894	Shot Blasted paver (100mm) - Grey Colour Size: 200m x 100mm x 100mm (Type: Rectangular Type)	SQM	850.00
1895	Shot Blasted paver (100mm) - Other Colour Size: 200m x 100mm x 100mm (Type: Rectangular Type)	SQM	900.00
1896	Organic-Silane Antistripping Agent (Zycotherm make or Equivalent)	KG	1400.00

1897	Steel (reinforcement)	Kg	45.00
1898	Steel (angles and channels)	Qty	4600.00
1899	Corrugated sheet,3mm thick	kg	73.67
1900	M.S channel,tees and angles	kg	46.00
1901	Retro reflective sheeting of crystal grade(CRG)	sqm	10710.00
1902	Retro reflective sheeting of ultralite grade (high intensity)	sqm	8160.00
1903	Retro reflective sheeting of Engineering grade	sqm	5100.00
1904	flexible rubber delineators	each	600.00
1905	Filter Media of stone aggregate confirming to clause 2504.2.2	cuim	840.00
1906	road stud 290 series	each	168.00
1907	900 mm dia. Pipe NP3	RM	6393.00
1908	600 mm dia. Pipe NP3	RM	3468.00
1909	250 mm dia. RCC pipe	RM	807.00
1910	100 mm dia. NP2 pip	RM	488.00
1911	Interlocking C.C. paver block (60 mm thick), M 30 gray colour	SQM	500.00
1912	Interlocking C.C. paver block (80mm thick), M 40 gray colour.	SQM	600.00
1913	Interlocking C.C. paver block (100 mm thick), M 50 gray colour.	SQM	750.00
1914	Aluminium sheeting 60 cm equilateral triangle	Each	12576.00

<b>CHAPTER - II</b>						
<b>BASIC RATES OF PLANTS &amp; MACHINERY FOR ROAD AND BRIDGE WORKS</b>						
	<b>Machine</b>	<b>Activity</b>	<b>Output of Machine</b>		<b>Usage and Rates</b>	
			<b>Unit</b>	<b>Output</b>	<b>Unit</b>	<b>Rates excluding GST AND taxes</b>
2101	Motor Grader 3.35 metre blade BEML	Clearing Spreading GSB WMM	cum/hour cum/hour cum/hour cum/hour	200 200 50 50	Per hour	480.00
2102	Hydraulic Excavator of 1 cum bucket	Soil Ordinary Soil Marshy Soil Unsuitable	cum/hour cum/hour cum/hour	60 60 60	Per hour	2000.00
2103	Front end loader 1 cum bucket capacity	Soil loading Aggregate loading	cum/hour cum/hour	5.00 7.00	Per hour	800.00
2104	Tipper -5 cum/7 cum	Transportation of soil, GSB, WMM, hotmix etc.	Capacity in cum	50 70	Per hour/cu m	500.00
2105	Tractor(FARM)	Pulling	Capacity in HP	50	Per hour	410.00
2106	Rotavator	Scarifying	Cum/hour	25	Per hour	500.00
2107	Ripper	Scarifying	Cum/hour	60	Per hour	2000.00
2108	Air Compressor 170 cfm	General Purpose	Capacity in cfm	170/250	Per hour	550.00
2109	Wet Mix Plant 60 TPH	Wet Mix	cum/hour	25	Per hour	1550.00

2110	Mechanical Brooom Hydraulic/Road sweeper	Surface Cleaning	sqm/hour	1250	Per hour	450.00
2111	Bitumen Pressure Distributor	Applying bitumen tack coat	sqm/hour	1750	Per hour	850.00
2112	Emulsion Pressure Distributor	Applying bitumen tack coat	sqm/hour	1750	Per hour	725.00
2113	Drum Mix type Hotmix Plant 30 to 50 TPH Drum Mix Type Hotmix Plant 40-60 TPH	DBM/BM/SDC/Pre mix DBM/BM/SDC/Pre mix	cum/hour cum/hour		Per hour	3300 2150
2114	Paver Finisher Hydrostatic with sensor control 100 TPH	Paving of DBM/BM/SDC/Pre mix	cum/hour cum/hour	40	Per hour Per hour	2000.00
2115	Paver Finisher Mechanical 100 TPH	Paving of wmm Paving of DLC	cum/hour	40 30	Per hour	1500.00
2116	Hydraulic Chip Spreader	Surface Dressing	sqm/hour	1500	Per hour	196.00
2117	Tandem vibratory Road Roller (8-10)	Rolling of Asphalt Surface Earth work etc	cum/hour	30	Per hour	300.00
2118	Pneumatic Road Roller	Rolling of Asphalt Surface	cum/hour	25	Per hour	818.00
2119	Pot-Hole Repair Machine or Jet patcher	Repair of pot-holes	cum/hour	4	Per hour	2355.00

2120	Bitumen Boiler Oil Fired	Bitumen Spraying	Capacity in litre	1500	Per hour	562.00
2121	Mastic Cooker	Mastic Wearing Coat	Capacity in tonne	1	Per hour	108.00
2122	Batching and Mixing Plant a) 30 cum capacity b) 15-20 cum capacity c) 175 cum	Concrete Mixing Concrete Mixing Concrete mixing	cum/hour cum/hour cum/hour	20 13 0	Per hour Perhour Perhour	2100 1670 3550
2123	Transit Mixer	Transportation of Concrete Mix to site	cum/hour cum/hour	4.5 3.0	Per hour Per hour	902 780
2124	Concrete Pump of 45 & 30 cum capacity	Pumping of concrete	cum/hour cum/hour	33	Per hour	290.00
2125	Cranes a) 80 tonnes b) 35 tonnes c)3 tonnes	Lifting Purpose Lifting Purpose Lifting Purpose	cum/hour	25	Per hour per hour per hour	1130 880 672
2126	Concrete Bucket	For Pouring Concrete	capacity in cum	1	Per hour	70.00
2127	Piling Rig with Bantonite Pump	0.75 m dia to 1.2 m dia Boring Attachment	Rm/hour	2 to 3	Per hour	4600.00
2129	Concrete Paver Finisher with 40 HP Motor	Paving of Concrete Surface	cum/hour	20	per hour	2750.00

2130	Integrated Stone Crusher	Crushing of spalls Crushing of spalls	TPH	100 200	Per hour per hour	6700 13300
2131	Prestressing Jack with Pump & Access	Stressing of Steel Wires/Stands			Per hour	155.00
2132	Generator a) 250 KVA b) 100 KVA c) 33 KVA	Generation of Electric Energy	KVA KVA	250 100 30	Per hour per hour	910 755 490
2133	Road roller (ord) 8-10 tonnes			70	hr	500.00
2134	Water tanker				hr	300.00
2135	Needle vibrator				hr	65.00
2136	Shovel				hr	50.00
2137	Dozer-80 D				hr	3000.00
2138	Water Bowser				hr	225.00
2139	Plate compactor				hr	69.00
2140	Concrete mixer					
a	0.40/0.28 cu.m	concrete mixing		cum/hrs	hr	296.00
2141	Concrete Joint cutting machine				hr	57.00
2142	Texturing machine				hr	155.00
2143	Pneumatic sinking plant	Pneumatic sinking of wells		1.50 to 2.00	hr	3310.00

2144	Road marking machine	Road marking		sq.m./hr	hr	100.00
2145	Mobile slurry seal Equipment	mixing and laying slurry seal		sq.m./hr	hr	870.00
Note: The Hire charges for machinery include ownership charges, cost of repair and maintenance including replacement of tyres and running and operating charges which include crew, fuel and lubricants.						

## Chapter III

### TRANSPORTATION AND CARRIAGE OF MATERIALS

		(A) By tipper truck including loading, unloading and stacking									
Item nos	Materials	Unit	1 km	2km	3km	4 km	5 km	Beyond 5 upto 10 km per km	Beyond 10 upto 20 km per km	Beyond 20 upto 30 km per km	
	(A) Lime,building rubbish, manure										
	sludge, moorum excavated rock										
3001- 8	( I ) Lime,moorum, building rubbish	Cum	91.61	111.63	131.64	151.66	171.68	20.02	20.02	20.02	
3009- 16	( ii ) Earth	Cum	114.51	139.53	164.55	189.58	214.60	25.02	25.02	25.02	
3017 -24	( iii ) Manure or sludge	Cum	99.57	121.33	143.09	164.85	186.61	21.76	21.76	21.76	
3025 -32	( Iv ) Excavated rock	Cum	183.21	223.25	263.29	303.32	343.36	40.04	40.04	40.04	
3033 -40	( B ) Sand, stone metal and soling										
3041 - 48	( I ) Sand stone metal below 40 mm	Cum	109.93	133.95	157.97	181.99	206.01	24.02	24.02	24.02	
30-49 - 56	( ii ) Stone metal 40 mm & above	Cum	118.97	144.97	170.96	196.96	222.96	26.00	26.00	26.00	
3057 - 64	( iii ) Soling stone	Cum	129.33	157.59	185.85	214.11	242.37	28.26	28.26	28.26	

CARRIAGE OF MATEIALS										
	( B ) By mechanical transport including loading , unloading and stacking									
Item nos	Materials	Unit	1 km	2km	3km	4 km	5 km	Beyond 5 upto 10 km per km	Beyond 10 upto 20 km per km	Beyond 20 upto 30 km per km
	(A) Lime,building rubbish, manure									
	sludge, moorum excavated rock									
3065 - 72	( I ) Lime,moorum, building rubbish	Cum	168.48	190.13	211.40	231.80	251.40	17.62	14.18	11.44
3073 - 80	( ii ) Earth	Cum	210.59	237.67	264.25	289.75	314.25	19.15	15.41	14.31
3081 - 88	( iii ) Manure or sludge	Cum	183.13	206.67	229.78	251.95	273.26	35.24	28.36	12.44
3089 - 96	( Iv ) Excavated rock	Cum	336.95	380.27	422.80	463.59	502.80	21.14	17.02	22.89
	( B ) Sand, stone metal and soling									
3097 - 04	( I ) Sand stone metal below 40 mm	Cum	202.17	228.16	253.68	278.16	301.68	21.14	17.02	13.73
3105 - 12	( ii ) Stone metal 40 mm & above	Cum	218.80	246.93	274.54	301.03	326.49	22.88	18.42	14.86
3113 - 20	( iii ) Soling stone	Cum	237.85	268.42	298.44	327.24	354.92	24.87	20.02	16.16
3121 - 28	2 Bricks	1000 nos	505.43	865.41	918.13	969.10	1018.47	52.85	42.54	34.33
3129- 36	3) Tiles	1000 nos	315.89	356.50	396.37	434.62	471.38	33.03	26.59	21.46
3137- 44	4.) Cement,stone blocks,C.I,A.C &									
	C.C pipes below 100 mm dia									

	<b>and</b>									
	<b>other heavy materials</b>	Tonne	<b>144.41</b>	<b>162.97</b>	<b>181.20</b>	<b>198.68</b>	<b>215.49</b>	<b>15.10</b>	<b>12.15</b>	<b>9.81</b>
3145 - 52	<b>5 ) Steel</b>	Tonne	<b>144.41</b>	<b>162.97</b>	<b>181.20</b>	<b>198.68</b>	<b>215.49</b>	<b>15.10</b>	<b>12.15</b>	<b>9.81</b>
3153 - 60	<b>6) Timber</b>	cum	<b>202.17</b>	<b>228.16</b>	<b>253.68</b>	<b>278.16</b>	<b>301.68</b>	<b>21.14</b>	<b>17.02</b>	<b>13.73</b>
3161 - 68	<b>7) Tar, bitumen</b>	Tonne	<b>224.63</b>	<b>253.51</b>	<b>281.86</b>	<b>309.06</b>	<b>335.20</b>	<b>23.49</b>	<b>18.91</b>	<b>15.26</b>
3169 - 76	<b>8) Steam coal</b>	cum	<b>183.79</b>	<b>207.42</b>	<b>230.62</b>	<b>252.87</b>	<b>274.26</b>	<b>19.22</b>	<b>15.47</b>	<b>12.48</b>
3177 - 84	<b>9 ) Stoneware pipes</b>									
	a ) 100 mm dia	100m	<b>210.59</b>	<b>237.67</b>	<b>264.25</b>	<b>289.75</b>	<b>314.25</b>	<b>22.02</b>	<b>17.73</b>	<b>14.31</b>
3185 - 92	b ) 150 mm dia	100m	<b>421.19</b>	<b>475.34</b>	<b>528.49</b>	<b>579.49</b>	<b>628.50</b>	<b>44.04</b>	<b>35.45</b>	<b>28.61</b>
3193 - 00	c ) 200 mm dia	100m	<b>748.78</b>	<b>845.04</b>	<b>939.55</b>	<b>1030.21</b>	<b>1117.34</b>	<b>78.30</b>	<b>63.02</b>	<b>50.86</b>
3221 - 28	d ) 230 mm dia	100m	<b>962.72</b>	<b>1086.48</b>	<b>1207.99</b>	<b>1324.55</b>	<b>1436.57</b>	<b>100.67</b>	<b>81.03</b>	<b>65.40</b>
3229 - 36	e ) 250 mm dia	100m	<b>1203.40</b>	<b>1358.10</b>	<b>1509.98</b>	<b>1655.69</b>	<b>1795.72</b>	<b>125.84</b>	<b>101.29</b>	<b>81.75</b>
3237 - 44	f ) 300 mm dia	100m	<b>1531.60</b>	<b>1728.49</b>	<b>1921.80</b>	<b>2107.24</b>	<b>2285.46</b>	<b>160.16</b>	<b>128.91</b>	<b>104.04</b>
	<b>10 ) R.CC, P.C Hume steel C.I pipes</b>									
3245 - 52	a ) 100 mm dia	100m	<b>345.24</b>	<b>389.62</b>	<b>433.19</b>	<b>474.99</b>	<b>515.16</b>	<b>36.10</b>	<b>29.06</b>	<b>23.45</b>
3253 - 60	b ) 150 mm dia	100m	<b>552.38</b>	<b>623.39</b>	<b>693.11</b>	<b>759.99</b>	<b>824.26</b>	<b>57.76</b>	<b>46.49</b>	<b>37.52</b>
3261 - 68	c ) 200 mm dia	100m	<b>920.63</b>	<b>1038.99</b>	<b>1155.18</b>	<b>1266.65</b>	<b>1373.77</b>	<b>96.27</b>	<b>77.49</b>	<b>62.54</b>
3269 - 76	d ) 250 mm dia	100m	<b>1255.41</b>	<b>1416.80</b>	<b>1575.24</b>	<b>1727.25</b>	<b>1873.33</b>	<b>131.28</b>	<b>105.66</b>	<b>85.28</b>
3277 - 84	e ) 300 mm dia	100m	<b>1624.65</b>	<b>1833.50</b>	<b>2038.55</b>	<b>2235.26</b>	<b>2424.31</b>	<b>169.89</b>	<b>136.74</b>	<b>110.36</b>
3285 - 92	f ) 350 mm dia	100m	<b>2301.58</b>	<b>2597.46</b>	<b>2887.95</b>	<b>3166.62</b>	<b>3434.43</b>	<b>240.68</b>	<b>193.72</b>	<b>156.35</b>
3293 - 00	g ) 400 mm dia	100m	<b>3068.78</b>	<b>3463.28</b>	<b>3850.59</b>	<b>4222.16</b>	<b>4579.24</b>	<b>320.91</b>	<b>258.29</b>	<b>208.46</b>
3301 - 08	h)450 ,500 mm dia	100m	<b>3945.57</b>	<b>4452.79</b>	<b>4950.76</b>	<b>5428.49</b>	<b>5887.60</b>	<b>412.60</b>	<b>332.09</b>	<b>225.66</b>
3309 - 16	I)600,700,750,800 mm dia	100m	<b>5523.80</b>	<b>6233.91</b>	<b>6931.07</b>	<b>7599.88</b>	<b>8242.64</b>	<b>577.63</b>	<b>464.92</b>	<b>375.23</b>
	<b>k) 900,1000,1100 &amp;1 1200mm dia</b>	100m	<b>6904.75</b>	<b>7792.39</b>	<b>8663.84</b>	<b>9499.85</b>	<b>10303.30</b>	<b>722.04</b>	<b>581.15</b>	<b>469.04</b>
3317 - 24	<b>l)1400,1600,1800 mm dia</b>	100m	<b>13809.50</b>	<b>15584.78</b>	<b>17327.68</b>	<b>18999.70</b>	<b>20606.60</b>	<b>1444.09</b>	<b>1162.30</b>	<b>938.08</b>

<b>3333 - 40</b>	<b>11)Empty cement bags</b>	<b>1000 nos</b>	<b>5.05</b>	<b>5.70</b>	<b>6.34</b>	<b>6.95</b>	<b>7.54</b>	<b>0.53</b>	<b>0.43</b>	<b>0.34</b>
<b>3341 - 48</b>	<b>12)Hollow glass block</b>	<b>100 nos</b>	<b>4.81</b>	<b>5.43</b>	<b>6.04</b>	<b>6.62</b>	<b>7.18</b>	<b>0.50</b>	<b>0.41</b>	<b>0.33</b>

**C) BY MANUAL LABOUR INCLUDING LOADING, UNLOADING STACKING FOR A LEAD LESS THAN 0.5Kms.**

<b>Item No.</b>			<b>Materials</b>	<b>Unit of rates</b>	<b>Cost of carriage including loading unloading and stacking for first 50 metres</b>	<b>Cost for additional 50m or part thereof beyond 1st 50m upto 0.5m (Y)</b>
			<b>Light Material</b>			
	a)		Lime, Murrum, building rubbish, earth, manure or sludge and excavated rocks			
3349-50		i.	lime, moorum, earth , building materials, rubbish	1 cu.m	82.00	18.00
3351-52		ii.	Earth	1 cu.m	102.00	22.00
3353-54		iii.	Manure or sludge	1cu.m	89.03	19.00
3355-56		iv.	Excavated rock	cu.m	164.00	36.00
	b)		Sand, stone aggregate and soiling.			
3357-58		i.	sand, stone agg below 40mm nominal	1cu.m	102.00	22.00
3359-60		ii.	stone aggregate 40mm & above	1cu.m	111.00	24.00
3361-62		iii.	soling stone	1cu.m	120.00	26.00
3363-64		iv.	bricks	1000nos	191.00	42.00
3365-64		v.	Brick tiles, Allahabad mangalore tiles	1000nos	119.00	26.00
3367-68		vi.	Steam coal	1 tonne	96.00	21.00
Remarks:	This rate is applicable to net quantities after deduction of prescribed percentage for voids mentioned in the specification under sub-head "Carriage of materials".					

**C) CARRIAGE OF MATERIALS BY MANUAL LABOUR INCLUDING LOADING, UNLOADING STACKING FOR A LEAD LESS THAN 0.5Kms.**

Sr.no		Materials	Unit of rates	Cost of carriage including loading unloading and stacking for first 50 metres	Cost for additional 50m or part thereof beyond 1st 50m upto 0.5m (Y)
		<b>Heavy Materials</b>			
3369-72	a)	Stone blocks .G.I.,C.I, pipes below 100mm dia and other heavy materials	1t	75.00	11.00
3371-72	b)	cement	1t	59.00	9.00
3372-74	c)	Steel	1t	127.00	19.00
3375-76		Timber	cu.m	82.00	12.00
3377-78		Tar, bitumen, etc.	1 tonne	75.00	11.00
3379-80		S.W. pipes			
3381-82	a)	100mm	100m	150.00	22.00
3383-84	b)	150mm	100m	246.00	36.00
3385-86	c)	200mm	100m	344.00	51.00
3387-88	d)	230mm	100m	441.00	65.00
3389-90	e)	250mm	100m	573.00	84.00
3391-92	f)	300mm	100m	819.00	120.00
3393-94	g)	350mm	100m	1146.00	168.00
3395-96	h)	400mm	100m	1433.00	210.00
3397-98	i)	450mm	100m	1737.00	255.00
3399-00	j)	500mm	100m	2123.00	311.00
3401-02	k)	600mm	100m	2605.00	382.00
		R.C.C. pipes, steel cylinders, R.C. pipes, C.I. pipes, Unreinforced pipes			
3403-05	a)	100mm	100m	202.00	30.00
3405-06	b)	150mm	100m	247.00	36.00
3407-08	c)	200mm	100m	285.00	42.00
3409-10	d)	230mm	100m	427.00	63.00
3411-12	e)	250mm	100m	751.00	110.00
3413-14	f)	300mm	100m	939.00	138.00
3415-16	g)	350mm	100m	1343.00	197.00
3417-18	h)	400mm	100m	1563.00	229.00
3419-20	i)	450mm & 500mm dia	100m	2084.00	306.00
3421-22	j)	600, 700, 750 & 800 mm	100m	2292.00	336.00

**C) CARRIAGE OF MATERIALS BY MANUAL LABOUR INCLUDING LOADING, UNLOADING  
STACKING FOR A LEAD LESS THAN 0.5Kms.**

Sr.No		Materials	Unit of rates	Cost of carriage including loading unloading and stacking for first 50 metres	Cost for additional 50m or part thereof beyond 1st 50m upto 0.5m (Y)
		<b>Asbestos Cement sheets</b>			
3423-24	a)	50mm dia	100m	34.00	5.00
3424-25	b)	80mm dia	100m	94.00	14.00
3426-27	c)	100 mm dia	100m	134.00	20.00
3428-29	d)	150,dia	100m	188.00	28.00
Remark:	The length of SW pipes will be measured excluding of the internal depth of sockets.				

<b>MISCELLANEOUS</b>				
<b>Sr. No</b>		<b>Description</b>	<b>Unit</b>	<b>Rate</b>
3430		Loading in or unloading cement from the railway wagons at siding and caring the same from or into godown adjacent to the siding including stacking the same properly into the rows upto any height as per direction of Engineer - in - charge and sweeping the floors.	Tonne	24.00
3431	a)	Steel	Per M.T.	33.00
3432	b)	C.I., G.I. or C.C. pipes upto 500 mm dia and similar heavy materials (except cement and steel).	Per M.T.	22.00
3433	c)	Heavy materials where each piece or bundle crate, or case weights more than one tonne and R.C.C. C.I., and concrete pipe above 500 mm dia.	Per M.T.	46.00
3434		Extra for sorting the steel size wise inside the store yard and stacking the same for measurements within the lead of 100 metres as directed by the Engineer in charge.	Per M.T.	56.00

Remarks: The rates will be applicable in all whether materials are unloaded on or loaded from railway siding or directly unloaded on or loaded from transport. No deduction shall be made from carriage rates for such direct unloading or loading.

<b>CHAPTER IV</b>				
<b>EARTHWORKS</b>				
<b>SR.No.</b>		<b>DESCRIPTION</b>	<b>UNIT</b>	<b>RATE</b>
		Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and upto a lead of 1000 m and earth filling in the depression/pit as per MORTH specification 201		
4101		Girth from 300 mm to 600 mm	Each	341.00
4102		Girth from 600 mm to 900 mm	Each	591.00
4103		Girth from 900 mm to 1800 mm	Each	1176.00
4104		Girth above 1800 mm	Each	2251.00
		Clearing grass and removal of rubbish upto a distance of 50 metres outside the periphery of the area as per MORTH Specification 201		
4105		By Manual means	Hectare	24381.00
		Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth upto 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, upto a lead of 1000 m including removal and disposal of top organic soil not exceeding 150 mm in thickness as per MORTH SPecification 201		
		By Manual Means		
4106		In area of light jungle	Hectare	73644.00
4107		In area of thorny jungle	Hectare	98526.00
		By Mechanical Means		
4108		In area of light jungle	Hectare	17117.00
4109		In area of thorny jungle	Hectare	21276.00
4110		Excavation for roadway in soil using manual means including loading in truck for carrying of cut earth to embankement site with all lifts and lead upto 1000 metres as per MORTH Specification 301( for cut and fill sectors necessary deduction for carriage shall be made)	m3	234.00

4111		Excavation for roadway in soil by mechanical means including cutting and pushing the earth to site of embankement upto a distance of 100 metres (average lead 50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.as per MORTH Specification 301	m3	54.00
4112		Excavation for roadway in ordinary rock by deploying a dozer, 80 HP including cutting and pushing the cut earth to site of embankement upto a distance of 100 metres( average lead 50 metres), trimming bottom and side slopes in accordance with the requirements of lines grades and cross sections as per MORTH Specification 301	m3	95.00
4113		Excavation for roadway in hardrock (requiring blasting) by drilling, blasting and breaking trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres as per MORTH Specification 301	m3	208.00
4114		Excavation for roadway in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes in accordance with requirements on lines, grades and cross sections, and transporting to the embankement location within all lifts and lead upto 1000 m as per MORTH Specification 301	m3	71.00
4115		Excavation for roadway in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankement site within all lifts and leads upto 1000 m trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections as per MORTH Specification 301	m3	93.00

		Excavation for roadway in hardrock (blasting prohibited) with rock breakers including breaking rock, loading in tippers and disposal within all lifts and lead upto 1000 metres trimming bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per MORTH Specification 301		
4116		Mechanised	m3	653.00
4117		Manual Method	m3	1364.00
		Excavation for roadway in hard rock with controlled blasting by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres as per MORTH Specification 301		
4118		Mechanised	m3	260.00
4119		Excavation for roadway in marshy soil with hydraulic excavator 0.9 cum bucket capacity including cutting and loading in tippers and disposal with in all lifts and lead upto 1000 metres, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross-sections as per MORTH Specification 301	m3	80.00
4120		Removal of unserviceable soil including excavation, loading and disposal upto 1000 metres lead but excluding replacement by suitable soil which shall be paid separately as per Clause 305 of MORTH Specification	m3	71.00

		Earthwork in excavation of foundation of structures of culverts, abutments, piers, retaining walls etc. 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, back filling the excavation earth to the extent required and utilising the remaining earth locally for road work upto 3.00 m depth as per MORTH Specification 304		
		EXCLUDING DEWATERING		
		Ordinary soil		
4121		Manual Means	m3	390.00
4122		Mechanical Means	m3	62.00
		Ordinary Rock (not requiring blasting)		
4123		Manual Means	m3	488.00
4124		Mechanical Means	m3	81.00
4125		Hard Rock (requiring blasting)	m3	738.00
		Hard Rock (blasting prohibited)		
4126		Mechanical Means	m3	916.00
		Marshy soil		
4127		Manual Means	m3	782.00
4128		Mechanical Means	m3	342.00
		Earthwork in excavation of foundation of structures of culvert abutments, piers, retaining walls etc. 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, back filling the excavation earth to the extent required and utilising the remaining earth locally for road work upto 3 m depth as per MORTH Specification 304		
		INCLUDING DEWATERING		
		Ordinary soil		
4129		Mechanical Means	m3	65.00
		Ordinary Rock (not requiring blasting)		
4130		Mechanical Means	m3	86.00

	Hard Rock (blasting prohibited)		
4131	Mechanical Means	m3	962.00
	Marshy soil ( without shoring and strutting)		
4132	Manual Means	m3	903.00
4133	Mechanical Means	m3	369.00
	Marshy soil ( with shoring and strutting)		
4134	Manual Means	m3	862.00
4135	Mechanical Means	m3	352.00
	Removal of earth from the choked hill side drain and disposing it on the valley side manually as per MORTH Specification 3000	m3	50.00
4137	Clearance of landslides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valey side as per MORTH Specification 3000	m3	29.00
4138	Clearing of landslide in hard rock requiring blasting for 50 per cent of the boulders and disposal of the same on the valley side as per MORTH Specification 3000	m3	78.00

<b><u>Laterite Masonary Work</u></b>				
<b>Sr. No</b>	<b>Description</b>	<b>Unit</b>	<b>Rate</b>	
5101	Dry stone pitching 22.5 cms thick using laterite stone of approved quality including supplying of stone and preparing surface etc. complete.	m2	491.00	
5102	Dry stone pitching 22.5 cms thick using stone available from excavation incl. Preparing the surface etc. complete.	m2	253.00	
5103	Stone pitching of 22.5 cms thick using laterite stone of approved quality in cement mortar 1:5( 1 cement : 5 coarse sand) including supplying of stone and preparing surface etc. complete.	m2	569.00	
5104	Stone pitching of 22.5 cms thick cement mortar 1:5 ( 1 cement : 5 coarse sand) using stones available from excavation including preparing surface etc. complete.	m2	333.00	
5105	Laterite boulder masonry in mud mortar in foundation	m3	2443.00	
5106	Laterite boulder masonry in cement mortar 1:3 in foundation	m3	3334.00	
5107	Laterite boulder masonry in cement concrete1:3:6( 1cement, 3 coarse sand:6 graded stone aggregate of 40mm nominal size) in foundation	m3	3262.00	
5108	Extra for laterite boulder masonry in superstructure	m3	351.00	

<b>CHAPTER - VI</b>				
<b>PRECAST CEMENT CONCRETE WORKS</b>				
<b>Sr. No</b>		<b>Description</b>	<b>Unit</b>	<b>Rate</b>
6101		Supplying and fixing Pre-cast cement concrete kerb-stones(factory made,the factory should be ISO certified and registered under Dirctorate of Industries, Govt. of India) of M-20 with 20 mm nominal size granitic/basaltic aggregate properly consolidated by mechanical plat-form and vibrators with smooth finish including fixing at site complete as per specification.		
a		Size 30 cm L x 50 cm H x 15 cm T	R.M.	663.00
b		Size 30 cm L x 40 cm H x 15 cm T	R.M.	556.00
c		Size 60 cm L x45 cm H x 15 cm T	R.M.	676.00
d		Size 60 cm L x30 cm H x 10cm T	R.M.	358.00
6102		Supplying and fixing of pre-cast RCC kilometer stones (factory made) confirming to IRC 26-1967 in M-20 grade with 20mm nominal size of granitic/basaltic aggregate compacted by means of mechanical vibrator curing etc. Cost including Reinforcement etc. with a smooth finish (the cost of bed concrete and excavation to be paid separately.)		
	a	200 mt. stones as per drawing	Each	402.00
	b	Kilometer stones or ODR and V.R.	Each	1310.00
	c	Kilometer stone on N.H, SH and MD Roads	Each	2300.00
	d	5th km stones on NH SH and MD Roads	Each	3450.00
		Supplying and fixing in position factory made Pre-cast RCC boundary stones confirming to IRC-25-1967 in concrete grade of M-20 with 20 mm nominal size granitic/basaltic aggregate compacted by means of mechanical vibrator in a smooth form of finish and 6mm dia bars in five no.s. stirrups and two number inverted 'U' size bars etc. complete (Excavation, bed concrete to be paid seperately)		
6103		Circular 150 mm dia at top 200 mm dia at base and 900 m length.	Each	447.00

6104		Supplying and fixing in position factory made pre-cast concrete mushroom type road dividers in a grade of M-20 mm nom. Size granitic/basaltic aggregate compacted by mechanical vibrator in a form of smooth finish etc. Overall height 36 cm, over all width 40 cm and thickness standing base 20 cm	R.M.	259.00
		Supplying and fixing in position factory made RCC drain - sections in a grade of concrete M-20 with 20 mm nominal size course aggregate of basaltic/granitic and compacted by means of mechanical vibrator etc. complete including providing reinforcement with 6mm dia bars@ 15 cm c/c.		
6105	a	Size-Internal clear channel 30 x30 cm length 50 cm, wall thickness 10 cm and base 10 cms	R.M.	3296.00
6106		Supplying and fixing of Precast RCC slabs(factory made,the factory should be ISO certified and registered under Directorate of Industries, Govt. of India) at site in concrete Grade of M-25 with 20 mm nominal size Granitic or basaltic aggregate, consolidated by means of mechanical platform, vibration etc. with lifting hooks of M.s. 10mm bars and PVC cups including cost of reinforcement, Certificate from manufacturer shall be produced indicating grade of concrete and minimum content of steel in the product along with 5 year free replacement warranty in case of breakage complete and as directed by Engineer -in -charge.		
	a	Size 900 x 400 x 150 mm with steel reinforcement not less than 7 kg per unit -30 T capacity.	Each	1300.00
	b	Size 900 x 400 x 100 mm with steel reinforcement not less than 5.0 kgs per unit -12 T capacity	Each	802.00
	c	size 750 x 400 x 100 mm cm with reinforcement not less than 4.2 kg per unit	Each	563.00
	d	Size 700 x 500 x 75 mm with steel reinforcement not less than 3.0 kgs per unit	Each	492.00
	e	Size 600 x 500 x 75 mm with steel reinforcement not less than 2.25 kg per unit	Each	379.00
	f	Size 1200 x 400 x 150 mm with reinforcement not less than 9 kg	Each	1680.00
	g	Size 1500 x 400 x 150 mm with reinforcement not less than 12 kg	Each	1882.00

6107		Reinforced cement concrete M 15 grade kilometre stone factory made of standard design as per IRC:8-1980 fixing in position including painting and printing etc as per MORTH Specification 804		
	a	5th kilometre stone(precast)	Each	8003.00
	b	Ordinary kilometre stone(precast)	Each	3952.00
6108		Reinforced cement concrete M 15 grade boundary pillars of (factory made)standard design as per IRC:25-1967 fixed in position including finishing and lettering but excluding painting as per MORTH Specification 806	Each	833.00
6109		Construction of rolled cement concrete base course with coarse and fine aggregate conforming to IS:383 the size of coarse aggregate not exceeding 25 mm with minimum aggregate cement ratio 15:1 and minimum cement of 200 kg/cum, aggtr. Gradation to be as per Table 600-4 after blending, mixing in batching plant at optimum moisture content, transporting to site laying with a paver with electronic sensor, compacting with 8-10 tonnes smooth wheeled vibratory roller to achieve the designed flexural strength finishing and curing as per MORTH Specification 602	m3	4630.00

<b>CHAPTER XII</b>				
<b>DISMANTLING DEMOLISHING &amp; REPAIRS WORK</b>				
<b>Sr. No.</b>		<b>Description</b>	<b>Unit</b>	<b>Rate</b>
12101		Cutting water bound macadam road and making good the same including supply of extra quantities of aggregate murum and 6 mm stone chips basaltic.	m2	286.00
12102		Breaking of excavated laterite rock to the required size 9150 mm to 300 mm)	m3	57.00
12103		Breaking of excavated granitic or basaltic rock to the required size 150 mm to 300 mm)	m3	153.00
12104		Breaking of excavated laterite rock of 80 mm size	m3	114.00
12105		Breaking of excavated granitic or basltic rock of 80 mm size	m3	305.00
12106		Breaking of excavated laterite rock of 60 mm size	m3	191.00
12107		Breaking of excavated granitic or basaltic rock of 60 mm size	m3	534.00
12108		Breaking of excavated laterite rock to 40 mm to 50mm size	m3	286.00
12109		Breaking of excavated granitic or basaltic rock to 40 mm to 50 mm size	m3	763.00
12110		Breaking of excavated laterite rock to less than 40 mm size.	m3	324.00
12111		Breaking of excavated granitic or basaltic rock to less than 40 mm size	m3	877.00

12112		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 per MORTH 202		
	I	By Manual means		
	a	Lime concrete, cement concrete grade M-10 and below	m3	498.00
	b	Cement concrete grade M-15 & M-20	m3	596.00
	c	Prestressed/reinforced cement concrete grade M-20 and above	m3	1571.00
	II	By Mechanical Means		
	a	Cement concrete grade M-15 & M-20	m3	664.00
	b	Prestressed/reinforced cement concrete grade M-20 & above	m3	1100.00
	III	Dismantling Brick/Tile Work		
	a	In lime mortar	m3	303.00
	b	In cement mortar	m3	401.00
	c	In mud mortar	m3	264.00
	d	Dry brick pitching or brick soling	m3	245.00
	IV	Dismantling Stone Masonry		
	a	Rubble stone masonry in lime mortar	m3	342.00
	b	Rubble stone masonry in cement mortar	m3	401.00
	c	Rubble stone masonry in mud mortar	m3	303.00
	V	Dry rubble masonry	m3	284.00
	VI	Dismantling stone pitching/dry stone spalls	m3	264.00
	VII	Dismantling boulders laid in wire crates including opening of crates and stacking dismantled materials	m3	303.00
	VIII	Wood Work Wrought Framed and Fixed in Frames of Trusses upto a Height of 5 m above Plinth Level	m3	720.00
	IX	Steel Work in all types of Sections upto a Height of 5 m above Plinth Level excluding Cutting of Rivet		
	a	Including dismembering	Tonne	1835.00
	b	Excluding dismembering	Tonne	1384.00

	c	Extra over item No (v) A and (v) B for cutting rivets	Each	13.00
	X	Scraping of Bricks Dismantled from Brick Work including Stacking		
	a	In lime/cement mortar	1000 nos	1707.00
	b	In mud mortar	1000 nos	613.00
	XI	Scraping of Stone from Dismantled Stone Masonry		
	a	In cement and lime mortar	m3	684.00
	b	In mud mortar	m3	145.00
	XII	Scraping Plaster in Lime or Cement mortar from Brick/Stone Masonry	m2	21.00
	XIII	Removing all types of Hume Pipes and Stacking within a lead of 1000 metres including Earthwork and Dismantling of Masonry Works as per MORTH specification202		
	a	Upto 600 mmm dia	m	253.00
	b	Above 600 mm to 900 mm dia	m	342.00
	c	Above 900 mm	m	586.00
12113		Dismantling of flexible pavements and disposal of dismantled materials upto a lead of 1000 metres, stacking serviceable and unserviceable materials separately as per MORTH specification 202		
	I	By Manual means		
	a	Bituminous Courses	m3	922.00
	b	Granular courses	m3	653.00
	II	By Mechanical Means		
	a	Bituminous courses	m3	377.00
12114		Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials upto a lead of 1000 metres, stacking serviceable and unserviceable materials separately as per MORTH Specification 202	m3	1491.00

12115	Dismantling guard rails by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 metres, stacking serviceable materials and unserviceable materials separately as per MORTH Specification 202	metre	98.00
12116	Dismantling kerb stone by manual means and disposal of dismantled material with all lifts upto a lead of 1000 metre per MORTH Specification 202	metre	17.00
12117	Dismantling kerb stone channel by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 metre as per MORTH Specification 202	metre	26.00
12118	Dismantling of kilometre stone including cutting of earth, foundation and disposal of dismantled material with all lifts and lead up to 1000 m and back filling of pit as per MORTH Specification 202		
	5th km stone	Each	581.00
	Ordinary km stone	Each	319.00
12119	Removal of telephone/electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and upto a lead of 1000 metres and stacking the serviceable and unserviceable material separately as per MORTH Specification 202	Each Pole	180.00

<b>CHAPTER XIII</b>				
<b>LANDSCAPING &amp; HORTICULTURE WORK</b>				
<b>Sr.No.</b>		<b>Description</b>	<b>Unit</b>	<b>Rate</b>
13101		Spreading of sludge farm yard manure or/and good earth in required thickness (cost of sludge, farm-yard manure or/and good earth to be paid separately) as per MORTH Specification 307	m3	98.00
13102		Grassing with Doob grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed as per MORTH Specification 307		
	a	In rows 15 cm apart in either direction	m2	41.00
	b	In rows 7.5 cm apart in either direction	m2	75.00
13103		Making lawns including ploughing and breaking of clod, removal of rubbish, dressing and supplying doobs grass roots and planting at 15 cm apart, including supplying and spreading of farm yard manure at rate of 0.18 cum per 100 sqm. as per MORTH Specification 307	m2	135.00
13104		Maintenance of lawns or Surfing of slopes(rough grassing) for a period of one year including watering etc. as per MORTH Specification 307	m2	188.00
		Turfing lawns with fine grassing including ploughning, dressing including breaking of clods, removal of rubbish, dressing and supplying doob grass roots at 10 cm apart including supplying and spreading of farmyard manure at rate of 0.6 cum per 100 sqm as per MORTH Specification 307	m2	147.00
13106		Maintenance of lawns with fine grassing for the first year including watering, etc. as per MORTH Specification 307	m2	175.00

13107		Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth mixed with farmyard manure, supplied at the rate of 4.65 cum per 100 metre and supplying and planting hedge plants at 30 cm apart as per MORTH Specification 307		
	a	Planting Permanent hedges including digging of Trenches	R.M.	370.00
	b	Maintenance of hedge for one year	R.M.	262.00
13108		Planting and Maintaing of Flowering Plants and shrubs as per MORTH Specification 307		
	a	Planting flowering plants and shrubs in central verge	K.M.	189960.00
	b	Maintenance of flowering plants and shrubs in central verge for one year	K.M.	262965.00
13109		Planting of trees by the roadside (Avenue trees) in 0.60 m dia holes, 1 m deep dug in the ground mixing the soil with decayed farmyard/sludge manure, planting the saplings, backfilling the trench, watering, fixing the tree guard and maintaining the plants for one year as per MORTH Specification 307	Each	1312.00
13110		Supply at site of work well decayed farmyard manure, from any available source approved by the engineer-in charge including screening and stacking as per MORTH Specification 308.2	m3	1833.00
13111		Supply at site of work/store-deoiled neem cake duly packed in used gunny bags as per MORTH Specification 308.2	Qtls	2200.00
13112		Supplying of sludge duly stacked at site/store as per MORTH Specification 308.2	m3	1833.00

13113		Half brick circular tree guard, in 2nd class brick, internal diametre 1.25 metre, and height 1.2 metre, above ground and 0.20 metre below ground bottom two courses laid dry, and top three courses in cement mortar 1:6 (1 cement 6 sand) and the intermediate courses being in dry honey comb masonry as per design complete.	Each	3043.00
13114		Edging with 2nd class bricks, laid dry lengthwise, including excavation, refilling consolidation, with a hand packing and spreading nearly surplus earth within a lead of 50 metre	R.M.	11.00
13115		Making tree guard 53 cm dia and 1.3 m high as per design from empty bitumen drum, slit suitably to permit sun and air, (supplied by the department at stock issue rate) including providing and fixing 2 nos. MS sheet rings 50 x 0.5 mm with rivets, complete in all respect	Each	500.00
13116		Planting trees as compensatory afforestation at the rate of 290 trees per hectare at a spacing of 6 m by grubbing and levelling the ground upto a depth of 150 mm, digging holes 0.9 m dia, 1m deep, mixing farm yard/sludge manure with soil, planting of sapling 2 m high with 25 cm dia stem, backfilling the hole and watering including maintenance for one year	Hectre	204088.00
13117		Preparation of seed bed on previously laid top soil, furnishing and palacing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per Sq.m. and laying and fixing jute neting, including watering for 3 months all as directed by Enginner -in-charge	m2	155.00

<b>CHAPTER XIV</b>				
<b>ROAD WORKS</b>				
		<b>Sub-base Sub-grade and Bituminous courses</b>		
<b>Item No.</b>		<b>Description</b>	<b>Unit</b>	<b>Rate</b>
		Construction of granular sub-base by providing coarse graded granitic or basaltic 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 MORTH Specification 401		
14001		For Grading I Material	m3	2785.00
14002		For Grading II Material	m3	2847.00
14003		For Grading III Material	m3	2861.00
14004		Construction of inverted choke by providing, laying, spreading and compacting screening B type/coarse sand of specified grade in uniform layer on a prepared surface with motor grader and compacting with power roller etc. as per MORTH Specification 404	m3	2795.00
14005		Construction of embankment with approved material obtained from borrowpits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting with vibratory roller to meet requirement of Table 300-2 as per MORTH specification 305	m3	517.00
14006		Construction of embankment with approved material obtained from borrowpits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting with Static roller to meet requirement of Table 300-2 as per MORTH specification 305	m3	522.00

14007		Construction of embankment with approved materials deposited at site from roadway cutting and excavation rom drain and foundation of other structures graded and compacted to meet requirement of Table 300-2 as per MORTH specification 305	m3	59.00
14008		Construction of embankment with approved materials deposited at site from roadway cutting and excavation rom drain and foundation of other structures graded and compactedwith static road roller to meet requirement of Table 300-2 as per MORTH specification 305	M3	64.00
14009		Construction of subgrade and earthen shoulders with approved material obtained from borrowpits with all lifts and leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of Table 300-2 as per MORTH Specification 305	m3	524.00
14010		Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of Table 300-2 for subgrade construction as per MORTH Specification 305	m3	56.00
14011		Loosening levelling and Compacting original ground supporting embankement to facilitate placement of first layer of embankement, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Table 300-2 for embankement construction as per MORTH Specification 305	m2	37.00
14012		Preparation of Sub-grade by excavating earthwork in formed embankement/side shoulders to the following average depth of 22.5 cms, dressing to camber and consolidating with power road roller including making good the undulations etc and disposal of surplus earth with leadd upto 50 mts and lift upto 1.5 mts in ordinary or hard soil	m2	55.00

		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 embankement within a lead of 50 metres (average lead 25 metres) as per MORTH specification 309		
14013		Mechanical Means	RM	93.00
14014		Manual Means	RM	98.00
		Construction of unlined surface drain of average cross-sectional area 0.4 sqm in ordinary rock to specified lines, grades levels and dimensions as per approved design and to the requirement of Clauses 301 to 309 Excavated material to be used in embankement at site as per Morth specification 309		
14015		Mechanical Means	RM	188.00
14016		Manual Means	RM	146.00
14017		Scarifying the existing granular road by manual means surface to a depth of 50 mm and disposal of scarified material within all lifts and leads upto 1000 metres as per MORTH Specification 305	m2	33.00
14018		Scarifying the existing bituminous road by mechanical means surface to a depth of 50 mm and disposal of scarified material within all lifts and lead upto 1000 metres as per MORTH Specification 305	m2	7.00
14019		Providing and laying well graded granular material (gravel or murrum) passing 4.75 mm sieve for first class granular bedding for R.C.C. pipes culverts as per drawings including watering, ramming and tamping as directed by Engineer-in-charge etc. all complete	m3	449.00
		Raising side shoulders with hard murrum including spreading watering and consolidation		
14020		Murrum from borow puit	m3	391.00
14021		using murrum from cut spoils	m3	215.00

14022		Spreading the earth/hard soil in layers not exceeding 250 mm in depth breaking clods, watering rolling each layer with half ton roller or wooden or steel hammers and rolling every third and topmost layer with power toller of minimum 8 tonne and dressing up in embankment for roads, flood banks, marginal and guide banks and filling up of ground dressing etc. complete.	m3	156.00
14023		Supplying and stacking laterite stones of size 150-200 mm(contractor's stone) for soling at site	m3	1103.00
14024		Stacking of material like soling of material like soling stone, aggregates, sand boulders, laterite stone etc. for measurements.	m3	69.00
14025		Supplying and stacking of (contractor's material) Murrum at site,having P.I. Value not more than 6	m3	452.00
14026		Laying stone soiling including packing with smaller stones and consolidation with road roller including spreading, watering and consolidating of binding material Murrum or earth etc.(payment to be made for quantity of only soling stone used excluding binding material).	m3	402.00
14027		Laying and spreading 6 mm thick layer of granular material(gravel or murrum) including watering and rolling with hand roller etc. complete.	m2	7.00
14028		Supplying of laterite stone soling of size 150-200 mm size and murrum having P.I. Value not more than 6 and laying including packing with smaller stones and consolidation with power road roller including spreading, watering and consolidation of binding material etc.(Measurements shall be considered on finished item) .	m3	1495.00
14029		Supplying and stacking of grantic or basaltic stones of size 150-200 mm size for soling work(contractor's material) at site.	m3	1565.00

14030		Supplying of granitic or basaltic stone soling of size 15-20 cm and Murrum having P.I. Value not more than 6 and laying including packing with smaller stones and consolidation with power roller including spreading waters and consolidation of binding material etc. complete.(Measurements shall be considered on finished item.and and layer of WBM of 50/75mm thick shall be taken seperately over this sub-base to obtain smooth surface, as per the directives of Engineerin-charge).	Cu.m.	1963.00
		Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with 3-wheeled steel/vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/binding materials to fill-up the interstices of coarse aggregate, watering and compacting to the required density.as per MORTH Specification 404		
		By Manual Means		
14031		Grade - I	m3	3432.00
14032		Grade - II	m3	3570.00
14033		Grade - III	m3	3513.00
b		By Mechanical Means		
14034		Grade - I	m3	3126.00
14035		Grade - II	m3	3264.00
14036		Grade - III	m3	3206.00
14037		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 as per MORTH Specification 406	m3	3099.00

14038		Making up loss of material/irregularities on shoulder to the design level by adding fresh approved soil and compacting it with appropriate Equipment to an average thickness of 150 mm as per MORTH Specification 3003	m2	58.00
14039		Filling potholes and patch repairs with open graded premix material and removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat with bitumen emulsion @ 0.24 kg/sq.m on the sides and base of excavation as per Clause 503, back filling the pot-holes with hot bituminous content @ 1.46 kg/m <sup>2</sup> as per clause 511, compacting trimming and finishing the surface average thickness of 50mm to form a smooth continuous surface all as per MORTH Specification 3004.2	m2	118.00
		Filling of potholes with bituminous concrete and removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat with 0.24 kg/sqm on the sides and base of excavation as per Clause 503, back filling the pot-holes with hot bituminous material @ 4.59 kg/sqm to an average thickness of 40 mm as per clause 504, compacting trimming and finishing the surface to form a smooth continuous surface all as per MORTH Specification 3004.2		
14040		Grade - I ( 19 mm nominal size)	m2	355.00
14041		Grade - II ( 13 mm nominal size)	m2	355.00
14042		Filling of crack using slow curing bitumen emulsion and applying crusher dust in case cracks are wider than 3 mm as per MORTH Specification 3004.3.3	RM	4.00
14043		Repair of Joint Grooves With Epoxy Mortar Repair of spalled joint of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete.	RM	175.00

14044		Cleaning existing WBM road surface including removing of binding material and other foreign matter with wire brushes and small picks, sweeping with brooms or soft brushes and finally dusting with old gunny bags and/or compressed air to receive bituminous treatment etc. complete	m2	19.00
14045		Cleaning of the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and/or compressed air to receive bituminous treatment. etc. complete	m2	5.00
14046		Making 50 mm x 50mm furrows, 25 mm deep,@ 45 degrees to the centre line of the road and at one metre interval in the existing bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead as per MoRT&H Specification clause 404.3.1.	m2	5.00
		Providing and applying primer coat with bitumen or bitumen emulsion on prepared surface of granular base including clearing of road surface and spraying primer using mechanical means as per MoRT&H specifications clause 502.		
14047		Bitumen 80/100 @ 0.60 kg/sq.m.	m2	29.00
14048		Bitumen 80/100 @ 1.00 kg/sq.m.	m2	46.00
14049		Bitumen emulsion@ 0.60 kg/sq.m.	m2	27.00
14050		Bitumen emulsion @ 1.00 kg/sq.m.	m2	44.00
		Providing and applying tack coat with bitumen grade of 80/100 or bitumen emulsion using pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom as per MoRT&H specifications clause 503.		
14051		Bitumen 80/100 @ 0.20 kg/sq.m	m2	11.00
14052		Bitumen 80/100@ 0.375 kg/sq.m	m2	17.00
14053		Bitumen emulsion @ 0.20 kg/sq.m.	m2	9.00
14054		Bitumen emulsion @ 0.375 kg/sq.m.	m2	17.00

		Providing and laying bituminous macadam with 40-60 TPH hot mix plant producing an average output of 50 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder to the specified percentage of total mix , transported to site, with all leads laid over a previously prepared surface with sensor paver finisher to the required grade, level and alignment and rolled with smooth wheeled roller and vibratory roller to achieve the desired compaction,using antistripping agent complete as per MoRT&H Specifications Clause 504		
14055		Grade-I (40mm nominal size)@ 4% of Bitumen-Mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	7346.00
	b	Organo-Silane antistripping agent (Zycotherm make or equivalent)	m3	7389.00
14056		Grade-II (19mm nominal size)@ 4% of Bitumen-mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	6892.00
	b	Organo-Silane antistripping agent (Zycotherm make or equivalent)	m3	6935.00
14057		Grade-I (40mm nominal size)@ 3.3% of Bitumen-Mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	6823.00
	b	Organo-Silane antistripping agent (Zycotherm make or equivalent)	m3	6833.00
14058		Grade-II (19mm nominal size)@3.3% of Bitumen-mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	6645.00
	b	Organo-Silane antistripping agent (Zycotherm make or equivalent)	m3	6655.00
		Providing and laying bituminous macadam with 40-60 TPH hot mix plant producing an average output of 50 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder to the specified percentage of total mix , transported to site, with all leads laid over a previously prepared surface with Mechanical paved finisher to the required grade, level and alignment and rolled with smooth wheeled roller and vibratory roller to achieve the desired compaction,using antistripping agent complete as per MoRT&H Specifications Clause 504		

14059		Grade-I (40mm nominal size)@ 4% of Bitumen-Mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	7328.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	7371.00
14060		Grade-II (19mm nominal size)@ 4% of Bitumen-mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	6874.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	6917.00
14061		Providing, laying and rolling of built-up spray grout layer over prepared base consisting of a two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates. Key stone chips spreader be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a base conforming to the line, grades and cross-section specified, the compacted layer thickness being 75mm as per MoRT&H specifications clause 506..		
		Bitumen 3 kg per / sq.m @ 1.5 kg/sqm for each layer	m2	369.00
		Providing and laying dense graded bituminous macadam with 40-60 TPH Drum Mix type HMP producing an average output of 50 tonne per hour using crushed aggregates of specified grading, premixed with bituminous binder by specified percentage of weight of total mix and filler, transporting the hotmix to work site, with all leads laying with a hydrostatic /hydraulic paver finisher with sensor to control the required grade, level and alignment, rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction using antistripping agent complete as per MoRT&H Specifications Clause 507		
14062		Grade-I (40mm nominal size)Bitumen @ 5% of weight of mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	8979.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	9038.00
14063		Grade-II (19mm nominal size) Bitumen @ 5% of weight of mix		

	a	Antistripping agent @ 0.5% of bitumen content	m3	9011.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)		9070.00
		Providing and laying semi-dense bituminous concrete with 40-60 TPH Drum Mix Type HMP producing an average output of 50 tonne per hour using crushed aggregates of specified grading, premixed with bituminous binder by specified percentage of weight of total mix and filler, transporting the hotmix to work site, with all leads laying with hydrostatic/ hydraulic 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 using antistripping agent complete as per MoRT&H Specifications Clause 508.		
14064		Grade-I (13mm nominal size) Bitumen @ 4.5% of mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	8609.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	8649.00
14065		Grade-II (10mm nominal size) Bitumen @ 5% of mix		
	a	Antistripping agent @ 0.5% of bitumen content	m3	9435.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)		9493.00
		Providing and laying surface dressing as wearing course in single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller as per MoRT&H specifications clause 510 .		
14066		Grade-I (19mm nominal size) & Bitumen of grade 80/100 @ 1.20 kg/m <sup>2</sup>	m2	89.00
14067		Grade-II (13mm nominal size) & Bitumen of grade 80/100 @ 1.00 kg/m <sup>2</sup>	m2	69.00

		Providing, laying and rolling of open graded premix with 40-60 TPH Drum Mix type HMP with an average output of 50 tonnes per hour , surfacing of 20 mm thickness composed of 13.2mm to 5.6 mm aggregates either using penetration grade bitumen emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including transportation of material to the site with all leads and using antistripping agent laying with hydraostatic/hydraulic sensor paver finisher and rolling with a smooth wheeled roller 8-10 tonne and vibratory roller finished to required level and grades complete as per MoRT&H the specifications clause 511.		
14068		Case-I Mechanical method using penetration grade bitumen and HMP of appropriate capacity not less than 50 tonne/hr Bitumen of grade 80/100 @ 14.6 kg/10 sq.m		
	a	Antistripping agent @ 0.5% of bitumen content	m2	133.00
	b	Organo-Silane antistripping agent (Zycotherm make or equivalent)		134.00
14069		Case-II Open graded premix surfacing using cationic bitumen emulsion( M.S. or R.S.) @ 21.50 kg/10 sq.m		
	a	Antistripping agent @ 0.5% of bitumen content	m2	176.00
	b	Organo-Silane antistripping agent (Zycotherm make or equivalent)	m3	177.00
		Providing, laying and rolling close- graded premix/ Mixed Seal Surfacing material of 20 mm thichness composed of 11.2mm to 0.09 mm(Type-A) or 13.2mm to 0.09 mm(Type -B) aggregates using 40-60 TPH hotmix plant producing on an average output of 50 tonnes per/hour with specified grade of bitumen to the required line, grade and level to serve as wearing course on a previously prepared base, including transportation of the material to the site with all leads using antistripping agent and laying with hydraostatic/hydraulic sensor paver finisher and rolling with a smooth wheeled roller 8-10 tonne and vibratory roller finished to required level and grades complete as per MoRT&H the specifications clause 512.		
14070		Type -A Bitumen of grade 60/70 @ 22 kg/10 sq.m		

	a	Antistripping agent @ 0.5% of bitumen content	m2	162.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m2	163.00
14071	a	Type -B Bitumen of grade 60/70 @ 19 kg/10 sq.m.	m2	142.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)		141.00
		Providing and laying bituminous concrete with 40-60 TPH Drum Mix type Hot mix plant producing an average output of 50 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder to mix with filler, transporting the hotmix to work site, with all leads laying with a hydrostatic/hydraulic paver finisher with sensor control to the required grade, level and alignment, using antistripping agent rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction complete as per MoRT&H Specifications Clause 509		
14072		Grade-I (19mm nominal size)@ 6.5% Bitumen of grade 60/70		
	a	Antistripping agent @ 0.5% of bitumen content	m3	10841.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	10901.00
14073		Grade-II (13mm nominal size) @ 6.5% Bitumen of grade 60/70		
	a	Antistripping agent @ 0.5% of bitumen content	m3	10424.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)		10484.00
		Providing and laying bituminous concrete with 40-60 TPH Drum Mix type Hot mix plant producing an average output of 50 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder to mix with filler, transporting the hotmix to work site, with all leads laying with a hydrostatic/hydraulic paver finisher with sensor control to the required grade, level and alignment, using antistripping agent rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction complete as per MoRT&H Specifications Clause 509		
14074		Grade-I (19mm nominal size)@ 6.0% Bitumen of grade 60/70		

	a	Antistripping agent @ 0.5% of bitumen content	m3	10018.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	10062.00
14075		Grade-II (13mm nominal size) @ 6.0% Bitumen of grade 60/70		
	a	Antistripping agent @ 0.5% of bitumen content	m3	10023.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	10067.00
		Providing and laying bituminous concrete with 40-60 TPH Drum Mix type Hot mix plant producing an average output of 50 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder to mix with filler, transporting the hotmix to work site, with all leads laying with a Mechanical paver finisher to the required grade, level and alignment, using antistripping agent rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction complete as per MoRT&H Specifications Clause 509		
14076		Grade-I (19mm nominal size)@ 6.5% Bitumen of grade 60/70		
	a	Antistripping agent @ 0.5% of bitumen content	m3	10400.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	10460.00
14077		Grade-II (13mm nominal size) @ 6.5% Bitumen of grade 60/70		
	a	Antistripping agent @ 0.5% of bitumen content	m3	10405.00
	b	Organic-Silane antistripping agent (Zycotherm make or equivalent)	m3	10465.00
		Providing and laying seal coat sealing the voids in a bituminous surface laid with F.E loader with 1 Cu.m. bucket capacity to the specified levels, grade and cross fall using Type A or B seal coats as per MoRT&H specifications clause 513.		
14078		Type-A (bitumen of grade 80/100 at 9.8 kg/10sqm)	m2	62.00
14079		Type-B( bitumen of grade 80/100 at 6.8 kgs/10 sqm)	m2	41.00

		Construction of penetration macadam over prepared base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with a smooth wheeled steel roller 8-10 tonne capacity to achieve the desired degree of compaction including Providing and laying seal coat sealing the voids in a bituminous surface laid with F.E loader with 1 Cu.m. bucket capacity to the specified levels, grade and cross fall using Type A seal coat as per MoRT&H specifications clause 513 & 505.		
		With Type -A Seal coat		
14080		50mm thick and Bitumen of grade 80/100at 5.98 kg/m2 including seal coat	m2	418.00
14081		75mm thick and Bitumen of grade 80/100 at 7.78 kg/m2 including Seal coat	m2	555.00
		With Type -B Seal coat		
14082		50mm thick and Bitumen of grade 80/100at 5.68 kg/m2 including Seal Coat	m2	397.00
14083		75mm thick and Bitumen of grade 80/100 at 7.48 kg/m2 including Seal coat	m2	535.00
14084	a	Supplying and mixing of Antistripping Agent at appropriate rate to Hot-Mix items at the plant as per the directives of Engineer Incharge	Kg	236.00
	b	Supplying and mixing of Organo-Silane Antistripping Agent at appropriate rate to Hot-Mix items at the plant as per the directives of Engineer Incharge	Kg	1626.00
		Extra for labour for spreading pre coated crushed stone chippings with bitumen including heating and mixing the material and handling the mixed material with all leads to the required grade and level on already prepared surface.		
14085		By Manual Means	m3	1360.00

14086		Providing and laying 50mm(consolidated thickness)full grout using granitic or basaltic stone of specified grading at 6.00 cu.m. per 100 sq.m. grouting with hot bitumen straight run bitumen(or with such bituminous material of grade and type as specified by the Engineer-in-Charge)at 5.0kg. per sq. m. binding with key aggregate of granitic or basaltic stone of specified grading at 1.5 cu.m. per 100 sq.m. including Providing and laying seal coat sealing the voids in a bituminous surface laid with F.E loader with 1 Cu.m. bucket capacity to the specified levels, grade and cross fall using Type A seal coat with 0.98 kg/sqm of bitumen of grade as per MORT&H specifications clause 513.	m2	422.00
		Filling of potholes and depressions using 20mm nominal size granitic or basaltic stone metal precoated with 53.4 kg. of bitumen 80/100 or bitumen emulsion per cu.m. of aggregate including a tack coat of bitumen emulsion at 2.5 kg/10 sq.m. on existing B.T. road surface complete.		
14087		Including supply of bitumen	m3	7841.00
		Filling of potholes and depressions using 20mm nominal size granitic or basaltic stone metal precoated with 53.4 kg.of hot bitumen straight run(or with such bituminous material grade and type as specified by the Engineer-in-Charge) per cu.m. of aggregate including a tack coat of hot bitumen emulsion at 2.50 kg/10 sq.m. on existing B.T. road surface complete.		
14088		Including supply of bitumen emulsion	m3	8362.00
14089		Removal of pot holes and depressions by laying granitic or basaltic stone of 20mm/10mm/6mm nominal size in layers as per requirements including grouting each layer with bitumen 80/100 or bitumen emulsion at 68 kg/cu.m. average on existing B.T. road surface including rolling etc complete as specified by the Engineer-in-Charge.	m3	5629.00

14090		Removal of pot holes and depression by laying granitic or basaltic stone of 40mm/20mm/10mm/6mm nominal size in layer as per requirement including 80/100(or such bitumen material of grade and type as specified by the Engineer-in-Charge) at 68 kg/cu.m.(Average) on existing road surface including rolling etc. complete as per specification including cost of bitumen.	m3	5575.00
14091		Removal of pot holes by Bituminous Macadam/Bituminous concrete with 40-60 TPH hot mix plant producing an average output of 50 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder to the specified percentage of total mix , transported to site, with all leads laid over a previously prepared surface to the required grade, level and alignment and rolled with smooth wheeled roller to achieve the desired compaction, using antistripping agent complete, as per MoRT&H Specifications Clause 504		
	a)	Antistripping agent @ 0.5% of bitumen content	m3	7231.00
	b)	Organo-Silane antistripping agent (Zycotherm make or equivalent)	m3	7274.00
14092		Cutting bituminous road and making good the same including supply of extra quantities of aggregate, murrum grit and bitumen required (bitumen shall be straight run bitumen 80/100 or with such bituminous material of grade and type as specified by the Engineer-in-charge)including supplying of bitumen.	m2	662.00
14093		Providing and laying 30 mm thick Bituminous/Asphaltic concrete with 40-60 batch type HMP producing an average output of 50 tonnes per hour using crushed aggregates of specified gradings Premixed with bituminous binder at 6.5 % by weight of total mix and filler using Antistripping agent transporting the hotmix to work site with all leads and applying a tack coat @f 2.00 kg/10sq.m. with hot bitumen of 80/100 and laying with hydrostatic/hydraulic power finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction complete as per MORT&H specifications clause 509 and 503		

	a) Antistripping agent @ 0.5% of bitumen content	m2	340.00
	b) Organo-Silane antistripping agent (Zycotherm make or equivalent)	m2	343.00
14094	Providing and laying 30 mm thick Bituminous/Asphaltic concrete with 40-60 batch type HMP producing an average output of 50 tonnes per hour using crushed aggregates of specified gradings Premixed with bituminous binder at 6.5 % by weight of total mix and filler using Antistripping agent transpoting the hotmix to work site with all leads and applying a tack coat @f 2.00 kg/10sq.m. with hot bitumen of 80/100 and laying with Mechanical Paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction as per MORT&H specifications clause 509 and 503		
	a) Antistripping agent @ 0.5% of bitumen content	m2	326.00
	b) Organo-Silane antistripping agent (Zycotherm make or equivalent)	m2	329.00
14095	Providing and laying 30 mm thick Bituminous/Asphaltic concrete with 40-60 batch type HMP producing an average output of 50 tonnes per hour using crushed aggregates of specified gradings Premixed with bituminous binder at 6.0 % by weight of total mix and filler incl. Providing Antistripping agent. @ 0.50% of bitumen content of, transpoting the hotmix to work site with all leads and applying a tack coat @f 2.00 kg/10sq.m. with hot bitumen of 80/100 and laying with hydrostatic/hydraulic power finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory or tandem rollers to achieve the desired compaction as per MORT&H specifications clause 509 and 503		
	a) Antistripping agent @ 0.5% of bitumen content	m2	318.00
	b) Organo-Silane antistripping agent (Zycotherm make or equivalent)	m2	321.00

14096		Single coat surface dressing with paving bitumen (straight run or with such bituminous materials grade and type as specified by the Engineer-in-charge) using 11 kg./10 sq.m of bitumen with 1.00 cu.m. of stone aggregate 10 mm nominal size(100 percent passing through 12.30 mm sieve) per 100 sq.m. road surface complete including cost of bitumen on existing.	m2	105.00
		Providing and laying 20mm thick premix bituminous carpet surface by using mini hot mix plant at site with 2.7 cu.m. of stone aggregate comprising 65% of 12 mm size (passing 20 mm sieve and retained on 10 mm sieve) 35% of 10 mm size(passing 12.5 mm sieve and retained 6.8 mm) per 100 sq.mt. 53.4 kg (average) of cationic type emulsion(or such bituminous material of grade and type as specified by the Engineer-in-charge) per cu.m. of stone aggregate including all carriages.		
14097		On new road surface including tack coat of bitumen emulsion of approved quality at 2.50kg/10 sq.m. complete.	m2	190.00
14098		Including tack coat of bitumen emulsion of approved quality @ 3.75 kg/10 sq.m. on new road surface complete.	m2	196.00
.		Providing 20mm thick premix bituminous carpet surface using mini hotmix plant at site with 2.7 cu.m. of stone aggregate comprising(stone chipping 13.2 mm size, passing 22.4 mm sieve and retained on 11.2 mm sieve@0.18 cu.m./ 10 sq.m.are and stone chipping-11.2 mm size, passing 13.2mm sieve and retained On 5.6 mm sieve@ 0.09 cu.m./10 sq.m.)of hot bitumen straight run 80/100 at 14.6kg/10 sq.m. area(or such bituminous material of grade and type as specified by the Engineer-in-charge) per cu.m. of stone aggregate including all carriages.		
14099		On existing black top surface including tack coat of hot bitumen of approved quality at 2.5 kg/10 sq.m. complete.	m2	176.00

14100		Including tack coat of hot bitumen of approved quality @ 3.75 kg/10 sq.m. on new road surface complete.	m2	181.00
		Cutting of road surface for trenches and disposing the excavated stuff including barricading and lighting guarding and stacking serviceable and unservicable material in		
14101		WBM road	m2	89.00
14102		Asphalt road	m2	187.00
		Provision of Hump type speed breakers for general traffic at preferred crossing speed of 25 km/h and above as per standard having and specification in IRC 99-1998. The speed breakers shall be formed by placing premixed bituminous macadam and a layer of asphaltic concrete carpet (hot mix) after the surface is indented and tack coat applied to the location where required.		
14103		For General traffic of 25 Kmph	R.M	1692.00
14104		For Heavy traffic of above 25 Kmph.	R.M	2088.00
14105		Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as per MORTH Specification 408	m3	4332.00
		Laying reinforced cement concrete pipe NP3/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 as per MORTH Specification 2900. (Pipes will be supplied by the department free of cost)		
14106		1000 mm dia	R.M.	1039.00
14107		1200 mm dia	R.M.	1245.00
14108		1400 mm dia	R.M.	1453.00
14109		1600 mm dia	R.M.	1660.00

14110	1800 mm dia	R.M.	1715.00
	Laying reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets (Pipe will be supplied by the department free of cost)		
14111	1000 mm dia	R.M.	2717.00
14112	1200 mm dia	R.M.	3196.00
14113	1400 mm dia	R.M.	3610.00
14114	1600 mm dia	R.M.	4046.00
14115	1800 mm dia	R.M.	4482.00
	Laying and fixing with collars light duty non-pressure NP 2 class R.C.C. pipes with cement mortar in proportion 1:2 (1 cement : 2 fine sand) in joints including cost of jointing material etc. complete.		
14116	300 mm dia pipe	Metre	118.00
14117	400 mm dia pipe	Metre	152.00
14118	600 mm dia pipe	Metre	200.00
14119	900 mm dia pipe	Metre	302.00
	Laying and fixing with flush heavy duty non pressure NP3 class R.C.C. pipe with cement mortar in proportion 1:2 (1 cement : 2 fine sand) in joints including cost of jointing materials etc. complete.		
14120	600 mm dia pipe	Metre	295.00
14121	900 mm dia pipe	Metre	519.00
14122	1200 mm dia pipe	Metre	701.00
14123	1400 mm dia pipe	Metre	908.00
14124	1600 mm dia pipe	Metre	1117.00

	<b>Retro- reflectorised Traffic signs</b> (Providing and fixing of retro- reflectorised cautionary, mandatory and informative sign as per IRC :67 2012 made of high intensity Grade sheeting using ASTM sheeting "C' type XI micro prismatic retro reflective material vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm 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)etc complete as per MORT &H Specifications Fifth Edition. A 10 years warranty for Retro Reflective Sheetings from the original sheeting manufacturer & a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be submitted by the contractor.		
14125	60 cm equilateral triangle	each	4364.00
14126	60 cm circular	each	6497.00
	Providing and fixing Informatory/Direction Sign Boards with any shape and size made out of 14 gauge (2.0 mm) thick Aluminium sheet 3mm thick Aluminium Composite panel bonded with white/green/blue (as required) fully covered Retro Reflective sheeting of (CRG)/Ultralite Grade(high intensity) Engineering Grade(EG), having pressure sensitive adhesive and aRetro Reflective cut out border and messages in white pressure sensitive adhesive,fixed on M.S. ANGLE 65x65x6mm 3.65(iron post) painted with one coat of primer and two coats of finish paint having black and white bands.Firmly fixed to ground by means ofproperly designed foundation with M15 grade cement concrete 45cmx45cmx60cm,60 cm below ground level as per approved drawing.		
14127	Retro reflective sheeting of crystal grade(CRG)	m2	14963.00
14128	Ultralite grade (Highe intensity)	m2	11846.00
14129	Engineering Grade ( EG)	m2	8107.00

14130		Providing & fixing of facility information sign board of size 600mmx800mm rectangle made out of retro reflective sheeting conforming to Type XI standards of ASTM D4956-09 & as per IRC-67: 2012 specifications, fully covered over 4mm thick ACP/2mm thick Al supported with back support frame of 35x35x5 mm mild steel angle. Board Shall be fixed to a vertical post of 75x75x6mm mild steel angle of 3.6 mtr height and firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45 cm X 45 cm X 60 cm etc, 60 cm below ground level. 10 years warranty & a certified copy of three years outdoor exposure report from an independent lab as per IRC 67-2012 for Type XI retro reflective sheeting shall be submitted by the contractor.	Each	8968.00
14131		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 MORTH Specification 407	m3	211.00
14132		Construction of median and Island above road level with approved material brought from borrowpits, spread, sloped and compacted as per MORTH specification 407	m3	542.00
14133		Construction of footpath/separator by providing a 150 mm compacted granular sub-base as per clause 401 and 25 mm thick cement concrete grade M15, overlaid with precast concrete tiles in cement motar 1:3 including provision of all drainage arrangements but excluding kerb channel as per MORTH Specification 409	m2	1199.00
14134		Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces as per MORTH Specification 803	m2	65.00
14135		Providing and applying two coats of ready mix paint of approved brand on steel surface after thorough cleaning of surface to give an even shade as per MORTH Specification 803	m2	50.00

		Painting lines, dashes arrows etc. on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter demarcation at site and traffic control as per MORTH Specification 803		
14136		Over 10 cm in width	m2	150.00
14137		Upto 10 cm in width	m2	130.00
		Painting lines dashes arrows etc on roads in two coats on old work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter demarcation at site and traffic control as per MORTH Specification 803		
14138		Over 10 cm in width	m2	112.00
14139		Upto 10 cm in width	m2	104.00
14140		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 as per MORTH Specification 803	m2	468.00
14141		Providing and fixing 40 mm dia G.I. Pipe railing in 3 rows complete with G.I. Fittings incl. Painting of pipes and fittings with white paint of approved quality incl. A priming coat with a ready mixed primer for new works incl. Providing R.C.C. 1:2:4 rail posts of size 0.15 x 0.15 x 1.00 M with base of 0.25 x 0.25 x 0.3 m at every 2 mts intervals and double rail post with a bar drawings inclusive of cost of reinforcement etc. all complete including white wash washing of rail posts etc. all complete.	R.M.	1406.00
		Providing and fixing weepholes with rigid PVC make laid in position with a required slope and level while layingpipes of approved the concrete of retaining wall,wing wall and earth retainig structure complete as directed by the Engineer in charge		

14142	A) 110 mm dia	RM	362.00
14143	B) 75 mm dia	RM	184.00
14144	Providing and erecting thrie beam crash barriers comprising of the following three factory made units viz 1)thrie beam 2)spacer block 3) vertical Post. The thrie beam 3mm thick cold rolled formed guard rail raw material conforming to IS-5986-2011 with minimum grade 255 and with minimum yield stress of 255 Mpa which is fixed by bolted connection to spacer block C- channel of size 150mm x75mm and 5mm thick, 54.6cm height spaced 2mt.C/C fixed to a vertical post C Channel of size 150mm x75mm and 5mm thick cold rolled formed section made from HR Coils raw material confirming to IS-5986-2011 with minimum grade 255 and with minimum yield stress of 255Mpa, with 85 cms free height above road or ground level, and embedded to 115 cms deep in cement concrete block of size 35 cm x35 cm x 115 cm or as directed by Engineer in charge, assembled and fixed as per drawings of MORT&H Circular No. RW/NH/33022/1/94-DO/III, dated 24/6/1994 & construction operation as per 811 or relevant MORT&H SPECIFICATIONS FOR Roads &Bridge WORKS (Latest edition) .All fittings (bolts,nuts,fasteners,washers etc) shall be conforming to IS:1367 &IS:1364 & galvanised by hot dip zinc coated process @0.55 kg/m2 conforming to relevant IS specifications all etc. complete.	RM	4420.00
14145	Providing and laying 12 mm thick mastic asphalt wearing course 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 finegrained 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 is not less than 100C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.	m2	352.00

14146		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	823.00
		Providing and laying non-pressure NP2 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand ) including testing of joints, etc. complete.		
14147		A) 100 mm dia RCC pipe	RM	775.00
14148		B) 250 mm dia RCC pipe	RM	1262.00
14149		Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M30 grade made by heavy duty block making machine with strong vibratory compaction using 3 ton roller and of approved size and design / shape laid in 50 mm thick compacted bed of coarse sand, filling the joints with coarse sand, etc. all complete as per the direction of Engineer.	m2	894.00
		Additional cost for coloured paver blocks		
	a	Red / Black	m2	25.00
	b	Brown	m2	50.00
	c	Yellow	m2	50.00
	d	Orange	m2	50.00
14150		Providing and laying 80 mm thick factory made cement concrete interlocking paver block of M40 grade made by heavy duty block making machine with strong vibratory compaction using 3 tonne roller and of approved size and design / shape laid in 50 mm thick compacted bed of coarse sand, filling the joints with coarse sand, etc. all complete as per the direction of Engineer.	m2	1000.00
		Additional cost for coloured paver blocks		
	a	Red / Black	m2	25.00
	b	Brown	m2	50.00
	c	Yellow	m2	50.00

	d	Orange	m2	50.00
14151		Providing and laying 100 mm thick factory made cement concrete interlocking paver block of M 50 grade made by heavy duty block making machine with strong vibratory compaction and of approved size and design / shape laid in 50 mm thick compacted bed of coarse sand. filling the joints with coarse sand, etc. all complete as per the direction of Engineer.	m2	1112.00
14152		Bored cast-in-situ M35 grade R.C.C. pile excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m.	RM	13294.00
14153		Conducting low strain pile integrity test on R.C.C. bored piles foundations using pile integrity tester equipment manufactured by Pile Dynamics Inc. of USA or TOM of Netherlands conforming to ASTHD 5882.	Nos.	15427.00
14154		Providing and applying an elastic elastomeric membrane forming system with anticarbonation and berathing properties. The system (EMCECOLORFLEX + PRIMEX 250) or equivalent should be based on solvent free acrylic polymers with solid contents of 70 ± 3% and should be ultra violet resistant, crack bridging type, water-proofing coating. For anti-carbonation, equivalent Air layer thickness denoted as R or SD CO <sub>2</sub> > 50 m and for breathability equivalent Air layer thickness denoted as SD H <sub>2</sub> O shall be < 4 for vapour transmitting barrier. The system consists of one coat primer at 75-100 g/m <sup>2</sup> . The consuption of polymer coating to give film thickness of 200-225 microns should be approximately 400-450 gms/m <sup>2</sup> per two coats. Polymer coating should be in suitable approved shades, including suitable surface preparation, cost of materials and labour for applying the above coating, and scaffolding charges, all inclusive of taxes	m2	723.00

14155		Providing and laying filter media with Granular materials crushed stone Aggregates satisfying the requirement As Per Clause 2504.2.2 of MOSRT & H Specification to a thickness of 500 mm laid horizontally in layers of 250mm thick and compacted to firm condition etc. complete as direction by Engineer-in-charge.	m3	2095.00
14156		Steel work welded in built up section and framed work including cutting, hoisting, fixing in position for steel grating of size 2.00 m x 0.90 m with R.S. joists, Tees, angles, flats and channels of TATA/ SAIL/ VIZAG make only with structural steel not less than 163.6 kg. per unit including applying priming coat of red lead paint and two or more coats with superior quality ready mixed paint for steel work of approved brand and Manufacture in all shades on new work to give an even shade as per the approved drawing and direction of the Engineer in-charge.	Each	13941.00
14157		Steel work welded in built up section and framed work including cutting, hoisting, fixing in position for steel grating of size 2.00 m x 1.10 m with R.S. joists, Tees, angles, flats and channels of TATA/ SAIL/ VIZAG make only with structural steel not less than 191.4 kg. per unit including applying priming coat of red lead paint and two or more coats with superior quality ready mixed paint for steel work of approved brand and manufacture in all shades on new work to give an even shade as per the approved drawing and direction of the Engineer in-charge.	Each	16365.00
14158		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)	Each	236.00

14159		Supplying and laying drainage composite for use behind walls having three dimensional composite with thermobonding a draining core having "W" configuration in extruded monofilaments of minimum thickness 6mm as per EN 9863-1, with one filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75mm as per EN ISO 9863-1 and tensile strength of 8.0 kN/m as per EN ISO 10319 that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.50 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure as per EN ISO 12958 and tensile strength of 12 kN/m as per EN ISO 10319, with mass per unit area of 540 gsm supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge. (Reference MoRT&H 700)	SQM	586.00
14160		Supplying drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canals etc. having three dimensional composite with thermobonding a draining core having "W" configuration in extruded monofilaments of minimum thickness 6mm as per EN 9863-1, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75mm as per EN ISO 9863-1 and tensile strength of 8.0 kN/m as per EN ISO 10319 that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure as per EN ISO 12958 and tensile strength of 15 kN/m as per EN ISO 10319, with mass per unit area of 660 gsm supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge	SQM	673.00

14161		Supply and installation (in dry condition) of Mechanically Woven Double Twisted Hexagonal Shaped Wire Mesh 1m High Gabion Boxes as per IS 16014:2012, MoRTH Clause 2500, of required sizes, Mesh Type 10x12 (D=100mm with tolerance of +/- 2%), Zn + PVC coated, Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged, with partitions at every 1m interval and shall have minimum 10 numbers of mesh openings per meter of mesh perpendicular to twist, tying with lacing wire of dia 2.2/3.2 mm (ID/OD), supplied @ 5% by weight of gabion boxes(only 5%by weight of gabion boxes will be supplied) ,as per detailed specification conforming to codes in vogue all complete as per directions of engineer-in-charge	CUM	4169.00
14162		Supply and installation of Mechanically Woven Double Twisted Hexagonal Shaped Wire Mesh 0.5m High Gabion Boxes as per IS 16014:2012, MoRTH Clause 2500, of required sizes, Mesh Type 10x12 (D=100mm with tolerance of +/- 2%), Zn + PVC coated, Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged , with partitions at every 1m interval and shall have minimum 10 numbers of mesh openings per meter of mesh perpendicular to twist, tying with lacing wire of dia 2.2/3.2 mm (ID/OD), supplied @ 5% by weight of gabion boxes ,as per detailed specification conforming to codes in vogue all complete as per directions of engineer-in-charge. (For under water installation, the machinery and extra labour cost shall be taken extra as per site condition)	CUM	4761.00

14163		Supply and installation of Mechanically Woven Double Twisted Hexagonal Shaped Wire Mesh 0.3m thick Gabion Boxes ,width 2m, of required sizes, Mesh Type 10x12 (D=100mm with tolerance of +/-2%), Zn + PVC coated, Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged , with partitions at every 1m interval and shall have minimum 10 numbers of mesh openings per meter of mesh perpendicular to twist, tying with lacing wire of dia 2.2/3.2 mm (ID/OD), supplied @ 5% by weight of gabion boxes ,as per detailed specification conforming to codes in vogue all complete as per directions of engineer-incharge. (For under water installation, the machinery and extra labour cost shall be taken extra as per site condition)	SQM	1999.00
14164		Supply and laying of gabion facia with 2m integrated tail as secondary reinforcement for Reinforced soil system as per MoRTH Clause 3100, made of Mechanically Woven Double Twisted Hexagonal Shaped Wire Mesh , Mesh Type 10x12, Zn +PVC coated Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged, with partitions at 1m interval and shall have minimum 10 numbers of mesh openings per meter of mesh perpendicular to twist, tying with lacing wire of dia 2.2/3.2 mm (ID/OD), supplied @ 5% by weight of facia unit , as per detailed specification conforming to codes in vogue all complete as per directions of engineer-in-charge. . Size of Unit 3m x 2m x 1m (Backfilling is excluding)	UNIT	9839.00

		Supplying and laying of high strength flexible geogrids (HSFG) as soil reinforcement / basal reinforcement made of high tenacity polyester core with polyethylene coating with Minimum Long Term Design Strength (LTDS) indicated below for 120 years design life at 20 degreeC. The LTDS should be strictly based on reliable test data and performance data available with the manufacturer from accredited independent agency certifying the Reduction Factor (RF) value for their geogrid for design temperature. The geogrid manufacturer should have creep test data from independent accredited laboratory for period over 5 years and should have minimum roll width of 4.5m with core of MS steel tube convenient for handling and lifting work as per detailed specification all complete as per directions of Engineer in charge. (Reference MoRT&H 3100 & IRC 113).		
	a	High strength geogrid of Long Term Design Strength 59.5 kN/m	SQM	314.00
	b	High strength geogrid of Long Term Design Strength 89 kN/m	SQM	355.00
	c	High strength geogrid of Long Term Design Strength 119 kN/m	SQM	379.00
	d	High strength geogrid of Long Term Design Strength 148.5 kN/m	SQM	450.00
	e	High strength geogrid of Long Term Design Strength 192 kN/m	SQM	477.00
14166		Providing and laying a bi-axial extruded geogrid of Maccaferri make or equivalent Type-15S manufactured from high density polyethylene polymer as base/sub-base reinforcement (Reference MoRT&H 701).	SQM	144.00
14167		Providing and laying a bi-axial extruded geogrid of Maccaferri make or equivalent Type-20S manufactured from high density polyethylene polymer as base/sub-base reinforcement (Reference MoRT&H 701).	SQM	187.00

14168		Providing and laying a bi-axial extruded geogrid of Maccaferri make or equivalent Type-30S manufactured from high density polyethylene polymer as base/sub-base reinforcement (Reference MoRT&H 701).	SQM	235.00
14169		Providing and laying a bi-axial extruded geogrid of Maccaferri make or equivalent Type-40S manufactured from high density polyethylene polymer as base/sub-base reinforcement (Reference MoRT&H 701).	SQM	320.00
14170		Milling the road surface in Bituminous pavement upto a depth of 55mm including disposing off the excavated stuff within 2km lead and spreading the same or stacking as directed including line & level, compacting with power roller etc, as directed by Engineer in -charge.	SQM	50.00
14171		Providing & laying of shot Blasted Paving Tiles Basant or Equivalent make manufactured by tile making machine complying with IS:1237: ref: 2005 and manufactured by ISO certified plant.		
		Size: 250mm x 250mm x 28mm (Types: Plain tiles, Transverse pattern tiles)		
	a	Grey Colour	SQM	1167.00
	b	Other colours	SQM	1200.00
14172		Size: 300mm x 300mm x 30mm (Type: Plain Tiles)		
	a	Grey Colour	SQM	1200.00
	b	Other colours	SQM	1266.00
14173	1	Size: 250mm x 500mm x 40mm (Type: Bush Hammered tiles,Double Groove tiles, Multi Groove tiles and plain tiles)		
	2	Size: 400mm x 400mm x 40mm (Type: Ring Pattern tiles, Tuscan tiles, Bush Hammered tiles and Holland pattern tiles)		
	a	Grey Colour	SQM	1496.00
	b	Other colours	SQM	1660.00

14174		Providing & laying of minimum 60mm thick factory made Shot blasted cement concrete Interlocking paver blocks of minimum M40 grade made by heavy duty block making machine with strong vibratory compaction and of approved size and design/ shape laid in 50mm thick compacted bed of coarse sand, filling the joints with coarse sand etc. all complete as per the direction of Engineer-incharge. The product should comply with IS 15658: 2006 and manufactured by ISO 9001: 2008 certified plant.		
	1	Size: 225 mm x 112.5mm x 60mm (Type: Wave Shape)		
	2	Size: 210mm x 105mm x 60mm (Type: Rectangular Shape)		
	3	Size: 150mm x 150mm x 60 mm (Type: Square Shape)		
	a	Grey Colour	SQM	1010.00
	b	Other Colours	SQM	1108.00
14175		Providing & laying of minimum 65mm thick factory made Shot blasted cement concrete Interlocking paver blocks of minimum M40 grade made by heavy duty block making machine with strong vibratory compaction and of approved size and design/ shape laid in 50mm thick compacted bed of coarse sand, filling the joints with coarse sand etc. all completed as per the direction of Engineer-incharge. The product should comply with IS 15658: 2006 and manufactured by ISO 9001: 2008 certified plant.		
		Type: Flexi/ Multi Pavers (Set of 5 Pieces)		
		Size: 200mm x 275mm x 65mm		
		Size: 200mm x 225mm x 65mm		
		Size: 200mm x 175mm x 65mm		
		Size: 200mm x 125mm x 65mm		
		Size: 200mm x 100mm x 65mm		
	a	Grey Colour	SQM	1158.00
	b	Other Colours	SQM	1232.00

		Providing & laying of minimum 70mm thick factory made Shot blasted cement concrete Interlocking paver blocks of minimum M40 and above grade made by heavy duty duty making machine with strong vibratory compaction and approved size and design/ shape laid in 50mm thick compacted bed of coarse sand, filling the joints with coarse sand etc. all completed as per the direction of Engineer-incharge. The product should comply with IS 15658: 2006 and manufactured by ISO 9001: 2008 certified plant.		
		Size: 210mm x 105mm x 70mm thick (Type: Rectangular Type Pavers)		
	a	Grey Colour	SQM	1158.00
	b	Other Colours	SQM	1210.00
14176		Providing & laying of minimum 80mm thick factory made Shot blasted cement concrete Interlocking paver blocks of minimum M40 and above grade made by heavy duty block making machine with strong vibratory compaction and of approved size and design/ shape laid in 50mm thick compacted bed of coarse sand, filling the joints with coarse sand etc. all completed as per the direction of Engineer-incharge. The product should comply with IS 15658: 2006 and manufactured by ISO 9001: 2008 certified plant.		
	1	Size: 210mm x 150mm x 80mm thick (Type: Rectangular Type Pavers)		
	2	Size: 210mm x 150mm x 80mm thick (Type: Square Type Pavers)		
	a	Grey Colour	SQM	1232.00
	b	Other Colours	SQM	1284.00
14177		Providing & laying of minimum 100mm thick factory made Shot blasted cement concrete Interlocking paver blocks of minimum M50 grade made by heavy duty block making machine with strong vibratory compaction and of approved size and design/ shape laid in 50mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all completed as per the direction of Engineer-incharge. The product should comply with IS 15658: 2006 and manufactured by ISO 9001: 2008 certified plant.		
14178		Providing & laying of minimum 100mm thick factory made Shot blasted cement concrete Interlocking paver blocks of minimum M50 grade made by heavy duty block making machine with strong vibratory compaction and of approved size and design/ shape laid in 50mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all completed as per the direction of Engineer-incharge. The product should comply with IS 15658: 2006 and manufactured by ISO 9001: 2008 certified plant.		

		Size: 200m x 100mm x 100mm (Type: Rectangular Type)		
	a	Grey Colour	SQM	1381.00
	b	Other Colours	SQM	1455.00
14179		Provision of hump type speed breakers in cement concrete for general traffic at preferred crossing speed of 25km/h and above as per standard specification in IRC 99-1998. The speed breaker shall be formed by placing cement concrete 1:1½:3 (1cement:1.5coarse sand :3 graded granite or basaltic stone aggregate of 20mm nominal size)including admixture for rapid setting /early strength gain, finishing to the required shape and curing etc. complete.	m3	8263.00
		Provision of Hump type speed breakers for general traffic at preferred crossing speed of 25 km/h and above as per standard having and specification in IRC 99-1998. The speed breakers shall be formed by placing hotmixed dense bituminous macadam and a layer of asphaltic concrete carpet (hot mix) after the surface is indented and tack coat applied to the location where required.		
14180		For General traffic upto 25 Kmph (3.70m wide per Meter)	RM	3306.00
14181		For Heavy traffic of above 25 Kmph. (5.00m wide per Meter)	RM	4347.00
14182		Providing and Fixing 360 degrees tempered glass studs having compressive strength of atleast 40 ton and having passed drop test using 1.04Kg. Steel ball and 1.5m height with no chipping or breaking of glass, having diameter 100mm, fixing depth 25mm, retro reflective 360 degree glass protrusion dia 60mm and height 19mm. stud base coated with thermal sprayed aluminium layer, use of coloured reflective coating is not permitted .Conforming to DIN EN 1463- 1, DIN EN 1463-2(R1,S1), CE0086 and CNS 13762 (Reflectance: first grade, impact resistance: A grade). Installed by removing a core of 100mm, 23-25mm depyh from road surface using diamond core drill and fixed with epoxy/bituminous adhesive.	Each	1369.00