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1. 0 CARRIAGE OF MATERIALS (By Mechanical Means)

Code	Materials	Unit	Rate for lead					Rate beyond initial lead			Remarks
			1 Km	2 Km	3 Km	4 Km	5 Km	Beyond 5 Km upto 10 Km. per Km.	Beyond 10 Km. upto 20 Km. per Km.	Beyond 20 Km. per Km.	
1	2	3	4	5	6	7	8	9	10	11	12
1.1	Carriage of Materials by mechanical transport including loading, unloading and stacking ::										The rates will be applicable to net quantities after deduction of prescribed percentage for voids mentioned in the specification under subhead "Carriage of Materials"
1.1.1	Earth	Cum	69.37	79.14	88.81	98.13	107.20	8.16	6.80	5.64	
1.1.2	Sand, bazri, ballast, kankar	Cum	55.50	63.31	71.05	78.50	85.76	6.53	5.44	4.51	
1.1.3	Stone, boulders, gravelly material	Cum	65.29	74.49	83.59	92.36	100.90	7.68	6.40	5.31	
1.1.4	Bricks	1000 Nos	148.00	168.84	189.47	209.35	228.70	17.41	14.51	12.04	
1.1.3	Brick Tiles	1000 Nos	88.80	101.30	113.68	125.61	137.22	10.44	8.71	7.22	

1.0 CARRIAGE OF MATERIALS (By Manual Means)

Code No.	Materials	Unit	Primary Lead	Beyond initial lead	Remarks
			Cost of carriage including loading, unloading & stacking for first 50 m.	Every additional lead of 50 m or part thereof beyond Ist 50 m upto 9 such additional leads	
1	2	3	4		6
1.2.1	Carriage of materials by manual labour including loading, unloading and stacking for lead less than 0.5 Km :				The rate is applicable to net quantities after deduction of prescribed percentage for voids mentioned in the specifications under sub-head "Carriage of Materials"
1.2.1.1	Earth	Cum	45.74	9.96	
1.2.1.2	Sand, bazri, ballast, kankar	Cum	36.59	7.97	
1.2.1.3	Stone, boulders, gravelly material	Cum	53.81	11.72	
1.2.1.4	Bricks	1000 Nos	85.38	18.59	

Code No	Description	Unit	Rate Rs.
1.3	Loading and unloading of stone boulder / stone aggregates / sand / canker / moorum by mechanical means.	cum	58.00
1.4	Loading and Unloading of Boulders by Manual Means	cum	21.00
1.5	Loading and Unloading of Cement or Steel by Manual Means and stacking.	tonne	28.00

2.0 SITE CLEARANCE

Code No	Description		Unit	Rate Rs.
2.1	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 to required compaction as per MoRT&H specification clause 201. (Measurment of girth to be done at height of 1 m above ground level)			
	2.1.1	Girth from 300 mm to 600 mm	each	708.00
	2.1.2	Girth from 600 mm to 900 mm	each	888.00
	2.1.3	Girth from 900 mm to 1800 mm	each	1,416.00
	2.1.4	Girth from 1800 mm to 2700 mm	each	2,529.00
	2.1.5	Girth above 2700 mm	each	4,755.00
2.2	Clearing Grass and Removal of Rubbish (Maximum 150mm) by manual means and disposal at a lead of 50 metres as per MoRT&H specification clause 201.		hectare	11,495.00
2.3	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 a lead of 50 metres from road boundary including removal and disposal of top organic soil not exceeding 150 mm in thickness as directed by Engineer.			
	2.3.1	In area of light jungle	hectare	34,485.00
	2.3.2	In area of thorny jungle	hectare	40,414.00
2.4	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 50 metres as directed by Engineer.			
	2.4.1	Lime Concrete, cement concrete grade M-10 (1:5:10) and below	cum	236.00
	2.4.2	Cement Concrete Grade M-15 & M-20 and PCC blocks	cum	564.00
	2.4.3	Prestressed /Reinforced cement concrete with separating, cleaning, straightening and cutting of bars	cum	1,503.00
	2.4.4	Dismantling Brick / Tile work		
	2.4.4.1	In lime mortar	cum	144.00

Code No	Description		Unit	Rate Rs.
	2.4.4.2	In cement mortar	cum	190.00
	2.4.4.3	In mud mortar	cum	126.00
	2.4.4.4	Dry brick pitching or brick soling	cum	117.00
	2.4.5	Dismantling Stone Masonry		
	2.4.5.1	Rubble stone masonry in lime mortar	cum	163.00
	2.4.5.2	Rubble stone masonry in cement mortar.	cum	190.00
	2.4.5.3	Rubble Stone Masonry in mud mortar.	cum	144.00
	2.4.5.4	Dry rubble masonry	cum	135.00
	2.4.5.5	Stone pitching/ dry stone spells.	cum	126.00
	2.4.5.6	Boulders laid in wire crates including opening of crates and stacking dismantled materials.	cum	433.00
	2.4.6	Wood work wrought framed and fixed in frames of trusses upto a height of 5 m above plinth level	cum	362.00
	2.4.7	Steel work in all type sections up to a height of 5 metre above plinth level (Riveted work where rivet are required to be cut shall be measured and paid separately)		
	2.4.7.1	Including dismembering	tonne	916.00
	2.4.7.2	Excluding dismembering	tonne	692.00
	2.4.7.3	Extra for cutting rivets in built up steel sections.	each rivet	6.60
2.5	Scraping of bricks dismantled from brick masonry including stacking.			
	2.5.1	In lime/Cement mortar	1000 numbers	805.00
	2.5.2	In mud mortar	1000 numbers	287.00
2.6	Scraping of Stone from dismantled stone masonry			
	2.6.1	In cement and lime mortar	cum	323.00
	2.6.2	In Mud mortar	cum	68.00
2.7	Scarping plaster in lime or cement mortar from brick/ stone masonry			
	sqm		sqm	9.95
2.8	Removing all type of hume pipes and stacking within a lead of 1000 metres including earthwork and dismantling of masonry works.			
	2.8.1	Up to 600 mm dia	metre	119.00
	2.8.2	Above 600 mm to 900 mm dia	metre	162.00

Code No	Description		Unit	Rate Rs.
	2.8.3	Above 900 mm	metre	276.00
2.9	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 50 metres, stacking serviceable and unserviceable materials separately as directed by Engineer.			
	2.9.1	Bituminous courses	cum	690.00
	2.9.2	Granular courses	cum	460.00
2.10	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 as per MoRT&H specification clause 202.		cum	880.00
2.11	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 as per MoRT&H specification clause 202.		metre	47.00
2.12	Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metre as per MoRT&H specification clause 202.		metre	8.40
2.13	Dismantling kerb stone channel by manual means and disposal of dismantled material with all lifts and up to a lead of 1000 metre as per MoRT&H specification clause 202.		metre	12.60
2.14	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 as per MoRT&H specification clause 202.			
	2.14.1	5th KM stone	each	239.00
	2.14.2	Ordinary KM Stone	each	139.00
	2.14.3	200m Stone	each	28.00
2.15	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 as per MoRT&H specification clause 202.		metre	31.00
2.16	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 as per MoRT&H specification clause 202.		each	466.00

3.0 EARTH WORK, EROSION CONTROL AND DRAINAGE

Code No	Description		Unit	Rate Rs.
3.1	Dressing of earth work in surface excavation including cutting and filling upto 30cm depth including disposal of excavated earth upto 50m and lift upto 1.5 m.		sqm	29.00
3.2	Earth work in excavation for roadway, including trimming bottom and side slopes in accordance with requirement of line, grades and cross sections, including disposal of surplus material with all lift and lead upto 50 metre as per MoRT&H specification clause 301.			
	3.2.1	In all type of soil	cum	124.00
	3.2.2	In ordinary rock	cum	171.00
	3.2.3	In Hard Rocks		
	3.2.3.1	Using blasting (including blasting material)	cum	551.00
	3.2.3.2	Blasting prohibited	cum	1,255.00
3.3	Earth work in excavation in soil unsuitable for road construction such as marshy soil including pumping out water, removal of the same and disposal with all lift and lead upto 1 km as per MoRT&H specification clause 301.		cum	121.00
3.4	Construction of embankment with approved material obtained from borrow pit with all lifts and leads, transporting to site, spreading, grading to required slope and compacting by vibratory roller 8-10 tonne to meet requirement of table 300-2 including cost of compensation for earth taken from private land complete as per MoRT&H specification clause 305. (Lead taken upto 5 km)		cum	183.00
3.5	Construction of embankment with approved materials deposited at site available from roadway cutting and excavation from drain and foundation of other structures, graded and compacting by vibratory roller 8-10 tonne to meet requirement of table 300-2 as per MoRT&H specification clause 305.		cum	79.00
3.6	Construction of subgrade and earthen shoulders with approved material obtained from borrow area with all lifts & leads, transporting to site, spreading, grading to required slope and compacted in layers not exceeding 200mm thickness at OMC, with vibratory roller of 80-100 KN static weight or more to attain a density 97% maximum dry density to meet requirement of table No. 300-2 as per MoRT&H specification clause 305. (Lead taken upto 5 km)		cum	208.00
3.7	Construction of Embankment with Fly ash/Pond ash available from coal or lignite burning Thermal Plants as waste material conforming to table 1 of IRC: SP: 58 - 2001, 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	156.00

Code No	Description		Unit	Rate Rs.
3.8	Compacting original ground			
	3.8.1	Loosening upto a level of 500 mm below the subgrade level watered, graded and compacted in layers by vibratory roller 8-10 tonne to meet requirement of table 300-2 for subgrade construction as per MoRT&H specification clause 305.3.4.	cum	43.00
	3.8.2	Loosening and recompacting original ground below embankment including Loosening leveling and recompacting original ground supporting embankment to facilitate placement of of first layer of embankment, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling by vibratory roller 8-10 tonne so as to achieve minimum dry density as given in table 300-2 for embankment construction as per MoRT&H specification clause 305.3.4.	cum	26.00
3.9	Earth work in excavation in foundation, trenches manholes, road side chambers etc. including dressing of sides and ramming of bottoms, including getting out the excavated material, refilling after laying pipe/ foundation and disposal of surplus excavated material at a lead upto 50m suitable site as per direction of Engineer for following depths, below natural ground / Road top level.			
	3.9.1	In all types soils such as moorum, sand, sandy silt, clay, black cotton soil, kankar, etc.		
	3.9.1.1	Depth upto 1.5 m	cum	113.00
	3.9.1.2	Add extra for over all depth of excavation above 1.5 m and upto 3.0 m over item no 3.9.1.1	cum	17.00
	3.9.1.3	Add extra for over all depth of excavation above 3.0 m and upto 4.5 m over item no 3.9.1.1	cum	36.00
	3.9.1.4	Add extra for over all depth of excavation above 4.5 m and upto 6.0 m over item no 3.9.1.1	cum	59.00
	3.9.1.5	Add extra for over all depth of excavation above 6.0 m and upto 7.5 m over item no 3.9.1.1	cum	85.00
	3.9.1.6	Add extra for over all depth of excavation above 7.5 m and upto 9.0 m over item no 3.9.1.1	cum	114.00
	3.9.2	In ordinary rock.		
	3.9.2.1	Depth upto 1.5 m	cum	462.00
	3.9.2.2	Add extra for over all depth of excavation above 1.5 m and upto 3.0 m over item no 3.9.2.1	cum	69.00
	3.9.2.3	Add extra for over all depth of excavation above 3.0 m and upto 4.5 m over item no 3.9.2.1	cum	149.00

Code No	Description		Unit	Rate Rs.
	3.9.2.4	Add extra for over all depth of excavation above 4.5 m and upto 6.0 m over item no 3.9.2.1	cum	241.00
	3.9.2.5	Add extra for over all depth of excavation above 6.0 m and upto 7.5 m over item no 3.9.2.1	cum	346.00
	3.9.2.6	Add extra for over all depth of excavation above 7.5 m and upto 9.0 m over item no 3.9.2.1	cum	467.00
	3.9.3	In hard rock (required blasting) including Blasting materials.		
	3.9.3.1	Depth upto 1.5 m	cum	782.00
	3.9.3.2	Add extra for over all depth of excavation above 1.5 m and upto 3.0 m over item no 3.9.3.1	cum	156.00
	3.9.3.3	Add extra for over all depth of excavation above 3.0 m and upto 4.5 m over item no 3.9.3.1	cum	344.00
	3.9.3.4	Add extra for over all depth of excavation above 4.5 m and upto 6.0 m over item no 3.9.3.1	cum	569.00
	3.9.3.5	Add extra for over all depth of excavation above 6.0 m and upto 7.5 m over item no 3.9.3.1	cum	840.00
	3.9.3.6	Add extra for over all depth of excavation above 7.5 m and upto 9.0 m over item no 3.9.3.1	cum	1,164.00
	3.9.4	In hard rock (Blasting prohibited)		
	3.9.4.1	Depth upto 1.5 m	cum	1,466.00
	3.9.4.2	Add extra for over all depth of excavation above 1.5 m and upto 3.0 m over item no 3.9.4.1	cum	293.00
	3.9.4.3	Add extra for over all depth of excavation above 3.0 m and upto 4.5 m over item no 3.9.4.1	cum	645.00
	3.9.4.4	Add extra for over all depth of excavation above 4.5 m and upto 6.0 m over item no 3.9.4.1	cum	1,067.00
	3.9.4.5	Add extra for over all depth of excavation above 6.0 m and upto 7.5 m over item no 3.9.4.1	cum	1,574.00
	3.9.4.6	Add extra for over all depth of excavation above 7.5 m and upto 9.0 m over item no 3.9.4.1	cum	2,181.00

Code No	Description	Unit	Rate Rs.

3.9.5 Add extra over item no 3.9.1.1, 3.9.2.1, 3.9.3.1and 3.9.4.1 in RUIDP SOR for excavation in saturated soil, silt and sludge where pumping or bailing out of water is required including shoring strutting where required and dewatering.

Encountered depth of water table	upto 1.5 m	upto 3.0 m	upto 4.5 m	upto 6.0 m	upto 7.5 m	upto 9.0 m
Excavation depth from ground level						
0.0 to 1.5 m	20%					
1.5 m to 3.0 m	20%	20%				
3.0 m to 4.5 m	20%	20%	40%			
4.5 m to 6.0 m	20%	20%	40%	80%		
6.0 m to 7.5 m	20%	20%	40%	80%	160%	
7.5 m to 9.0 m	20%	20%	40%	80%	160%	320%

cum

3.10 Earth filling with available surplus soil excavated from foundations and taken from only from outside of building plinth in layers not exceeding 20cm in depth, consolidating each deposited layer including ramming and watering and consolidation with lead up to 50 m and lift upto 1.5 m. — cum — 65.00

3.11 Providing and fixing CLOSE timbering in foundation, manholes, wells, trenches etc at all depth including strutting, shoring and packing cavities (wherever required) complete. (Measurements to be taken of the face area timbered). — sqm — 93.00

3.12 Extra for planking, strutting and packing material for cavities IN CLOSE TIMBERING if required to be left permanently in position (face area of timber permanently left to be measured) — sqm — 777.00

3.13 Providing and fixing OPEN timbering in foundation, manholes, wells, trenches etc at all depth including strutting, shoring and packing cavities (wherever required) complete. — sqm — 48.00

3.14 Extra for planking, strutting and packing material for cavities IN OPEN TIMBERING if required to be left permanently in position (face area of timber permanently left to be measured) — sqm — 345.00

3.15 Compensation for earth, taken from private land with all lead and lift (Land to be arranged by private negotiations by the Contractor) [MOST Specification : Clause 301 to 305] — cum — 15.00

3.17 Supplying Chlorpyriphos/ Lindane emulsifiable concentrate of 20% in sealed containers including delivery as specified. — litre — 182.00

Code No	Description	Unit	Rate Rs.
3.18	Diluting and injecting Chlorpyriphos/ Lindane E.C. 20% with 1% concentration for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :		
	3.18.1 Along external wall where the apron is not provided using chemical emulsion @ 7.5 litres / sum of the vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. complete:	metre	7.00
	3.18.2 Along the external wall below concrete or masonry apron using chemical emulsion @ 2.25 litres per linear metre including drilling and plugging holes etc.	sqm	7.00
	3.18.3 Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor :	sqm	65.00
	3.18.4 Treatment of existing masonry using chemical emulsion @ one litre per hole at 300 mm interval including drilling holes at 45 degree and plugging them with cement mortar 1:2 (1 cement : 2 coarse sand) to the full depth of the hole :	metre	8.00
3.19	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) at points of contact of wood work by chemical emulsion Chlorpyriphos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same.	metre	126.00
3.20	3.20.1 Providing barricading for Trenches using 80 - 100 mm dia Wooden Ballies as vertical post, atleast 1.5m above ground level and atleast 30-45 cm below ground level at a spacing of 3 m. Two rows of 80 - 100 mm Wooden Ballies as horizontal members securely tied by coconut strings with the vertical members. Both vertical and horizontal members shall be painted in red and white colour. Rate is inclusive removal and cleaning of site complete in all respect.	metre	34.00
	3.20.2 Providing Barricading for Trenches using 80 - 100 mm dia Wooden Ballies as vertical post, atleast 1.5m above ground level and atleast 30-45 cm below ground level at a spacing of 3 m. Two rows of PVC Tape (preferabley red in colour) strip barricading horizontal strip securely tied by the vertical members. Vertical members shall be painted in red and white colour. Rate is inclusive removal and cleaning of site complete in all respect.	metre	18.00
	3.20.3 Providing and Fixing Minimum 0.63mm thick GI corrugated sheets (minimum width of each sheet shall be 60 cm) for covering the barricading in one/ two rows one above another and painting in red and white stripes as per the specifications and directions of the Engineer Incharge with proper fixing arrangements with GI limpet washers nuts and bolts complete in all respect.	Sqm	19.00

4.0 ROAD WORKS (Sub-base/ Bases)

Code No	Description		Unit	Rate Rs.
4.1	Providing, laying, spreading and compacting 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 MoRT&H specification clause - 401 including all material, labour, machinery, lighting, guarding.			
	4.1.1	Grading - I Material	cum	1,001.00
	4.1.2	Grading - II Material	cum	984.00
	4.1.3	Grading - III Material	cum	928.00
4.2	Providing, laying, spreading and compacting 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 MoRT&H specification clause - 401 including all material, labour, machinery, lighting, guarding.			
	4.2.1	Grading - I Material	cum	799.00
	4.2.2	Grading - II Material	cum	782.00
	4.2.3	Grading - III Material	cum	726.00
4.3	Providing, laying and spreading of granular sub-base by providing coarse graded Material (Table 400-2), 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 MoRT&H specification clause - 401 including all material, labour, machinery, lighting, guarding.			
	4.3.1	Grading - I Material	Cum	821.00
	4.3.2	Grading - II Material	Cum	832.00
	4.3.3	Grading - III Material	Cum	656.00
4.4	Providing laying, spreading and compacting inverted choke by providing, laying, spreading and compacting screening B type/ coarse sand of specified grade in sub base course in uniform layer on a prepared surface with motor grader and compacting with power roller etc complete as per clause 404.3.2 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		cum	827.00

Code No	Description	Unit	Rate Rs.
4.5	Providing laying, spreading and compacting stone aggregates of specific sizes as per Table 400-7 to Water Bound Macadam specification including spreading in uniform thickness; hand packing, rolling with power roller 8-10 tonnes, in stages to proper grade and camber, applying and brooming requisite type of screening (Table 400-8) binding materials to fill up the interstices of coarse aggregates, watering (with water browser) and compacting to required density, making necessary earthen bund to protect edges as per clause 404 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
4.5.1	Hand broken - Grade-I (90-45mm)	cum	789.00
4.5.2	Hand broken - Grade-II (63-45mm)	cum	829.00
4.5.3	Crusher broken - Grade-II (63-45mm)	cum	1,088.00
4.5.4	Crusher broken - Grade-III (53-22.4mm)	cum	1,123.00
4.6	Providing, laying, spreading (with paver finisher only) and compacting wet mix macadam (WMM) base course comprising of graded stone aggregate and granular material conforming to MORT&H specifications (Table 400-II) in layers of equal compacted thickness each consolidated, including pre-mixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed material by tippers to site, laying in uniform layers in base course on a well prepared sub-base/ base course and compacting with power vibratory-roller to achieve the desired density complete as per MoRT&H specification clause - 406 including all material, labour, machinery, lighting, guarding.	cum	1,183.00
4.7	Scarifying existing granular road surface, including picking up scarified material and stacking of old serviceable material within a lead of 1000 meters complete as per clause 305.4.3 of MoRT&H specification including all labour, machinery, lighting, guarding.	sqm	16.00

5.0 ROAD WORKS (Bituminous Bases)

Code No	Description	Unit	Rate Rs.
5.1	Providing and applying primer coat over prepared surface of granular base with bitumen emulsion as per IS : 8887 and approved quality @ 0.6 kg/sqm with the help of spray set fitted on bitumen Container (boiler) after cleaning the 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 compressed air to receive bituminous treatment complete as per clause 502 of MoRT&H specification including all material, labour, machinery, lighting, guarding.	sqm.	20.00
5.2	Extra for additional bitumen emulsion used in above item for every 1 kg per 10 sqm	sqm.	3.10
5.3	Providing and applying tack coat on the prepared surface with bitumen emulsion as per IS: 8887 and approved quality @ 0.2 kg/sqm with the help of spray set fitted on bitumen Container (boiler) after cleaning the surface with brooms or soft brushes and finally dusting with old gunny bags and compressed air to receive bituminous treatment complete as per clause 502 of MoRT&H specification including all material, labour, machinery, lighting, guarding.	sqm	7.25
5.4	Extra for additional bitumen emulsion used in above item for every 1 kg per 10 sqm	sqm.	3.10
5.5	Providing and laying bituminous macadam in 50/75 mm compacted thickness on prepared surface with specified graded crushed stone aggregates as per Table 500-4, Grading-II for base/ binding course, loading of aggregate with F.E. loader, heating and mixing of stone aggregate and bitumen in computerised hot mix plant, transported to site by tippers to paver, laid over a previously prepared surface with paver finisher fitted with electronic sensing device to the required grade, level and alignment and rolling with power roller and vibratory compactor as per clauses 501.6 and 501.7 to achieve the desired compaction complete as per clause 504 of MoRT&H specification and including all material, labour, machinery, lighting, guarding but excluding cost of primer/ tack coat.		
5.5.1	With bitumen 60/70 grade @ 3.3% (percentage by weight of total mix)	cum	4,484.00
5.5.2	With bitumen 60/70 grade @ 3.4% (percentage by weight of total mix)	cum	4,573.00

Code No	Description	Unit	Rate Rs.
	5.5.3 With CRMB 60 grade @ 3.3% (percentage by weight of total mix)	cum	4,705.00
	5.5.4 With CRMB 60 grade @ 3.4% (percentage by weight of total mix)	cum	4,800.00
	5.5.5 With bitumen 60/70 grade @ 3.3% (percentage by weight of total mix)	tonne	2,043.00
	5.5.6 With bitumen 60/70 grade @ 3.4% (percentage by weight of total mix)	tonne	2,083.00
	5.5.7 With CRMB 60 grade @ 3.3% (percentage by weight of total mix)	tonne	2,143.00
	5.5.8 With CRMB 60 grade @ 3.4% (percentage by weight of total mix)	tonne	2,187.00
5.6	Providing and laying penetration macadam over prepared surface by providing a layer of compacted crushed coarse aggregate as per Table 500-6 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 clause 505 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
	5.6.1 50 mm compacted thickness with bitumen grade 60/70 @ 5 kg/ sqm	sqm	253.00
	5.6.2 75 mm compacted thickness with bitumen grade 60/70 @ 6.8 kg/ sqm	sqm	347.00
5.7	Providing, laying and consolidation of crushed stone aggregate as per Table 500-7 on prepared surface as per built-up-spray grout specification, 75mm thick as base coarse in two layer composite construction of crushed stone aggregates using motor grader, chip spreader for key aggregate with application of bituminous binder 60/70 grade with spray set (including cost of anti-stripping compound wherever required) @ 15 Kg/ 10 Sqm after each layer, and laying key aggregates on top of the second layer and rolling with power roller (8-10 tonne), as per clause 506 of MoRT&H Specification including all labour, machinery, lighting, guarding and maintenance of diversion but excluding cost of primer/ tack coat.	cum	2,656.00
5.8	Providing and laying 50-75 mm compacted thick design mix (approved by Engineer) Dense Bituminous Macadam on prepared surface with specified graded crushed aggregates as per Table 500-9, 500-10 with bitumen binder set (including cost of anti-stripping compound wherever required) for base/ binder course including loading of material with F.E. loader, heating and mixing of stone aggregate, filler and bitumen in computerised hot mix plant,		

Code No	Description	Unit	Rate Rs.
	transporting the mixed material by tippers to paver and laying with paver finisher fitted with electronic sensor control as per clause 504.3.5 to the required level and grade, compacting by power rollers and vibratory rollers or 150 to 250 KN pneumatic tyred roller with TP = 0.7 Mpa to achieve the desired density (approximately 2.3 tonne/cum) complete as per clause 507 of MoRT&H specification but excluding primer/tack coat, including all material, labour, machinery, lighting, guarding.		
	5.8.1 Grade-II with bitumen of grade 60/70 @ 4.25 %, lime filler @ 2% (percent by weight of total mix)	cum	5,539.00
	5.8.2 Grade-II with bitumen of grade 60/70 @ 4.50 %, lime filler @ 2% (percent by weight of total mix)	cum	5,768.00
	5.8.3 Grade-II with CRMB-60 @ 4.25 %, lime filler @ 2% (percent by weight of total mix)	cum	5,838.00
	5.8.4 Grade-II with CRMB-60 @ 4.50 %, lime filler @ 2% (percent by weight of total mix)	cum	6,084.00
	5.8.5 Grade-II with bitumen of grade 60/70 @ 4.25 %, lime filler @ 2% (percent by weight of total mix)	tonne	2,400.00
	5.8.6 Grade-II with bitumen of grade 60/70 @ 4.50 %, lime filler @ 2% (percent by weight of total mix)	tonne	2,500.00
	5.8.7 Grade-II with CRMB-60 @ 4.25 %, lime filler @ 2% (percent by weight of total mix)	tonne	2,530.00
	5.8.8 Grade-II with CRMB-60 @ 4.50 %, lime filler @ 2% (percent by weight of total mix)	tonne	2,637.00
5.9	Providing laying and consolidation Semi Dense Bituminous Concrete, as per Design Mix (approved by Engineer), on prepared surface with specified graded crushed aggregates as per table 500-15 for wearing coarse including loading of material with F.E. loader, hot mixing of stone aggregate, filler and bitumen (including cost of anti-stripping compound wherever required) heating and mixing in in computerised hot mix plant, transporting the mixed material by tippers to paver and laying with paver finisher fitted with electronic sensor control to the required level and grade, compacting by power rollers and vibratory rollers or 150 to 250 KN pneumatic tyred roller with TP = 0.7 Mpa, to achieve the desired density (approximately 2.3 tonne/cum) complete as per clause 508 of MoRT&H specification including all material, labour, machinery, lighting, guarding but excluding primer/tack coat.		
	5.9.1 35-40 mm compacted thickness (Grade-1) using bitumen of grade 60/70 @ 4.5% (percent by weight of total mix)	cum	5,755.00

Code No	Description		Unit	Rate Rs.
	5.9.2	35-40 mm compacted thickness (Grade-1) using CRMB-60 @ 4.5% (percent by weight of total mix)	cum	6,071.00
	5.9.3	25-30 mm compacted thickness (Grade-2) using bitumen of grade 60/70 @ 5% (percent by weight of total mix)	cum	6,184.00
	5.9.4	25-30 mm compacted thickness (Grade-2) using CRMB-60 @ 5% (percent by weight of total mix)	cum	6,536.00
	5.9.5	35-40 mm compacted thickness (Grade-1) using bitumen of grade 60/70 @ 4.5% (percent by weight of total mix)	tonne	2,494.00
	5.9.6	35-40 mm compacted thickness (Grade-1) using CRMB-60 @ 4.5% (percent by weight of total mix)	tonne	2,631.00
	5.9.7	25-30 mm compacted thickness (Grade-2) using bitumen of grade 60/70 @ 5% (percent by weight of total mix)	tonne	2,680.00
	5.9.8	25-30 mm compacted thickness (Grade-2) using CRMB-60 @ 5% (percent by weight of total mix)	tonne	2,832.00
5.10	Providing and laying 30-45 mm compacted thickness Bituminous Concrete as per design mix (approved by Engineer) on prepared surface with specified grade stone aggregate as per Table - 500-18 with bitumen for wearing course including loading of aggregate with F.E. loader and hot mixing of stone aggregate and bitumen (including cost of anti-stripping compound wherever required) in computerised hot mix plant, transporting the mixed material by tippers to paver and laying with paver finisher fitted with electronic sensing device (as per clause 504-3.5) to the required level and grade and compacting by power rollers and vibratory rollers or 150 to 250 KN pneumatic tyred roller with TP = 0.7 Mpa, to achieve the desired density complete as per clause 509 of MoRT&H specification including all material, labour, machinery, lighting, guarding but excluding primer/tack coat.			
	5.10.1	Grade-II with bitumen of grade 60/70 @ 6% (percent by weight of total mix)	cum	7,291.00
	5.10.2	Grade-II with bitumen of grade CRMB-60 @ 6% (percent by weight of total mix)	cum	7,723.00
	5.10.3	Grade-II with bitumen of grade SBS PMB-40 @ 6% (percent by weight of total mix)	cum	8,224.00
	5.10.4	Grade-II with bitumen of grade 60/70 @ 6% (percent by weight of total mix)	tonne	3,095.00
	5.10.5	Grade-II with bitumen of grade CRMB-60 @ 6% (percent by weight of total mix)	tonne	3,278.00
	5.10.6	Grade-II with bitumen of grade SBS PMB-40 @ 6%	tonne	3,491.00

Code No	Description	Unit	Rate Rs.
	(percent by weight of total mix)		
5.11	Providing and laying surface dressing as wearing course consisting of a layer of bituminous binder as per Table 500-20 (including cost of anti-stripping compound wherever required) laid on the prepared surface, followed by a cover of crushed stone chippings of specified size (may be pre coated also) & rolling with power roller all complete as per clause 510 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
	5.11.1 With 19mm crushed stone chipping 0.15 cum and binder 12 Kg per 10 Sqm - Bitumen grade 60/70	sqm.	62.00
	5.11.2 With 19mm crushed stone chipping 0.15 cum and binder 12 Kg per 10 Sqm - CRMB-60	sqm.	66.00
	5.11.3 With 13mm crushed stone chipping 0.10 cum and binder 10 Kg per 10 Sqm - Bitumen grade 60/70	sqm.	50.00
	5.11.4 With 13mm crushed stone chipping 0.10 cum and binder 10 Kg per 10 Sqm - CRMB-60	sqm.	53.00
5.12	Providing and laying open graded premix carpet 20mm thick (compacted), on prepared surface in a single course as wearing course, composed of specified graded crushed stone aggregate as per Table 500-23, premixed with bituminous binder @ 14.60 kg/ 10sqm (including cost of anti-stripping compound wherever required), including loading of material with F.E. loader, hot mixing of stone aggregate and bitumen in computerised hot mix plant, transporting the mixed material by tippers to paver and laying with paver finisher fitted with electronic sensor control to the required level and grade, compacting smooth wheeled roller 8-10 tonne capacity and finishing to required level to achieve the desired density as per clause 511 of MoRT&H specification including all material, labour, machinery, lighting, guarding but excluding cost of tack coat/ seal coat.		
	5.12.1 With bitumen of grade 60/70	sqm.	89.00
	5.12.2 With bitumen of grade CRMB-60	sqm.	93.00
5.13	Providing and applying liquid seal coat type "A" comprising of a layer of bituminous binder @ 9.8 kg/ 10 Sqm (including cost of anti-stripping compound wherever required) followed by a cover of stone chipping @ 0.09 cum/10 sqm of specified grading and rolling with power roller 8-10 tonne complete as per clause 513 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
	5.13.1 With bitumen of grade 60/70	sqm	46.00

Code No	Description	Unit	Rate Rs.
	5.13.2 With bitumen of grade CRMB-60	sqm.	49.00
5.14	Providing and applying premixed seal coat Type "B" comprising of thin application of fine aggregate 0.06 cum/ 10 sqm premix with bitumen binder @ 6.8 Kg/ 10 Sqm (including cost of anti-stripping compound wherever required) laying with paver finisher with electronic sensor control and rolling with power roller 8-10 tonne complete as per clause 513 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
	5.14.1 With bitumen of grade 60/70	sqm.	35.00
	5.14.2 With bitumen of grade CRMB-60	sqm.	37.00
5.15	Providing and laying premixed seal coat using hot mix plant and paver finisher with aggregate of 6.7mm size defined as 100% passing through 11.20mm sieve and retain on 2.36mm sieve with 0.09 cum per 10 sqm premix with bitumen binder @ 4.5% and rolling with power roller 8-10 tonne complete as per clause 513 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
	5.15.1 With bitumen of grade 60/70	sqm.	48.00
	5.15.2 With bitumen of grade CRMB-60	sqm.	51.00
5.16	Providing and laying 25 mm thick bitumen mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29 (including cost of anti-stripping compound wherever required) @ 14-17% (by weight) as per job mix formula, coarse aggregate as per Table 500-32, fine aggregate as per Table 500-31 and lime stone powder as filler, prepared by using mastic cooker and laid to required level and grade after cleaning the surface, including providing antiskid surface with bitumen precoated fine-grained hard stone chipping of 13.2 mm nominal size @ 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 degree Centigrade, protruding 1 mm to 4 mm over mastic surface, all complete including all material, labour, machinery, lighting, guarding complete as per clause 515 of MoRT&H specification.	sqm	437.00
5.17	Cost of bitumen to be added or subtracted when it varies from the job mix formula adopted in above item		
	5.17.1 Bitumen 60/70	tonne	40,293.00
	5.17.2 CRMB 60	tonne	43,337.00
5.18	Providing and applying low viscosity bitumen emulsion @ 8.25 kg per 10 sqm for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing	sqm	12.00

Code No	Description	Unit	Rate Rs.
	including covering with 3mm stone grit as per clause 518 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
5.19	Scarifying existing bituminous road surface, including picking up scarified material and stacking of old serviceable material within a lead of 1000 meters complete as per clause 305.4.3 of MoRT&H specification including all labour, machinery, lighting, guarding.	sqm	14.00

6.0 CEMENT CONCRETE PAVEMENTS

Code No	Description	Unit	Rate Rs.
6.1	Providing and laying lean cement concrete 1:4:8 in 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 complete as per clause 601, 112 of MoRT&H specification including all material, labour, machinery, lighting, guarding.	cum	2,048.00
6.2	Providing and laying un-reinforced, dowel jointed, plain cement concrete mix of 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 complete as per drawing and as per clause 602, 112 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
6.2.1	PCC M-20	cum	4,796.00
6.2.2	PCC M-25	cum	5,104.00
6.2.3	PCC M-30	cum	5,173.00
6.3	Providing and laying un-reinforced, dowel jointed, plain cement concrete mix With Concrete Mixer & vibrator 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, mixed as per approved mix design, laid, 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, admixtures (if required) as approved, curing compound, finishing to lines and grades complete as per drawing and as per clause 602,	cum	

Code No	Description		Unit	Rate Rs.
	112 of MoRT&H specification including all material, labour, machinery, lighting, guarding.			
	6.3.1	PCC M-20	cum	4,390.00
	6.3.2	PCC M-25	cum	4,698.00
	6.3.3	PCC M-30	cum	4,767.00
6.4	Providing and laying rolled cement concrete mix of M-10 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 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 complete as per clause 603, 112 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		cum	2,376.00
6.5	Providing and laying 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 transported to site, laid with a fixed form or slip form paver, spread, 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 complete including all material, labour, machinery, lighting, guarding.		cum	1,930.00
6.6	Providing and laying un-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 complete including all material, labour, machinery, lighting, guarding and maintenance of diversion. PCC M-30		cum	4,812.00

7.0 TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES

Code No	Description	Unit	Rate Rs.
7.1	Providing and fixing precast cement concrete M-20 grade (Using mechanical Concrete Mixer) kerb stone top and bottom width 115 and 165 mm respectively, 250 mm high on 150 mm thick PCC M-10 grade foundation as per design, including fixing at site as per clause 408 of MoRT&H Specification including all material, labour, machinery, lighting, guarding.	Metre	219.00
7.2	Providing and laying cast-in-situ cement concrete M-20 grade kerb stone channel top and bottom width 115 and 165 mm respectively, 250mm high laid with kerb laying machine, on 150 mm thick PCC M-10 grade foundation (laid manually) as per design, including fixing at site as per clause 408 of MoRT&H Specification including all material, labour, machinery, lighting, guarding.		
7.2.1	Using Concrete Mixer	Metre	282.00
7.2.2	Using Concrete Batching and Mixing Plant	Metre	286.00
7.3	Providing and fixing in position precast Reinforced Cement Concrete M15 grade Kilometre stone of standard IRC design, including painting and printing letters etc. as per clause 804 of MoRT&H Specification including all material, labour, machinery.		
7.3.1	5th Kilometre stone	each	2,223.00
7.3.2	Ordinary Kilometre stone	each	1,335.00
7.3.3	200 metre stone	each	395.00
7.4	Providing and fixing in position Reinforced Cement Concrete Boundary pillars of standard IRC - 25 design, including finishing but excluding printing as per clause 806 of MoRT&H Specification including all material, labour, machinery.	each	328.00
7.5	Painting two coats on specified surface with synthetic enamel paint of approved brand and shade, after thorough cleaning and necessary filling to give even shade as per clause 803 of MoRT&H Specification including all material, labour.		
7.5.1	On new plastered concrete surface	sqm	61.00
7.5.2	On steel surface	sqm	47.00
7.6	Painting new letters and figures of specified size, of any shade with first quality synthetic enamel paint, black or any other approved colour to give an even shade as per clause 801 of MoRT&H Specification including all material, labour.		

Code No	Description		Unit	Rate Rs.
	7.6.1	Hindi (Matras, Commas and the like not to be measured and paid for. Half letters shall be counted as half).	Cm. Height per letter	0.60
	7.6.2	English and Roman (Hyphens, commas and the like not to be measured and paid for)	Cm. Height per letter	0.40
7.7	Providing and laying marking of center line and stop line etc with hot thermoplastic compound 2.5 mm thick on road/ plain surface, including reflectorising glass beads @ 250 gms per sqm area with special applicator machine, as per IRC:35 including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control involved. The finished surface to be level, uniform and free from streaks and holes as per clause 803 of MoRT&H Specification including all material, labour, machinery, lighting, guarding.		sqm	970.00
7.8	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 3 metre long and size 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 including all material, labour.			
	7.8.1	90 cm equilateral triangle	each	3,913.00
	7.8.2	60 cm equilateral triangle	each	2,599.00
	7.8.3	60 cm circular	each	3,459.00
	7.8.4	80 mm x 60 mm rectangular	each	4,794.00
	7.8.5	60 cm x 45 cm rectangular	each	3,371.00
	7.8.6	60 cm x 60 cm square	each	3,981.00
	7.8.7	90 cm high octagon	each	6,095.00
7.9	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick framed to angle iron 40x40x5mm with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing including all material, labour.		sqm	8,705.00

Code No	Description	Unit	Rate Rs.
7.10	Providing and erecting direction and place identification retro-reflectorised sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting 2 mm thick framed to angle iron 40x40x5mm with area exceeding 0.9 sqm supported on two nos mild steel angle iron post 75 mm x 75 mm x 6 mm, firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including all material, labour.	sqm	9,341.00
7.11	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	1,072.00
7.12	Providing and erecting overhead signs with a corrosion resistant 2mm thick aluminium alloy sheet reflectorised with high intensity retro-reflective sheeting of encapsulated lens type 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 galvanised steel trestles and trusses of sections and type as per structural design requirements and approved plans.		
7.12.1	Truss and Vertical Support	tonne	69,164.00
7.12.2	Aluminium alloy plate for over head sign	sqm	1,215.00
7.13	G.I Barbed wire Fencing 1.2 metre high 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	222.00
7.14	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 30cmx30cmx60cm, 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 of MoRT&H specification including all material, labour.	metre	377.00

Code No	Description	Unit	Rate Rs.
7.15	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 including all material, labour.	metre	596.00
7.16	Providing and fixing 50 mm dia G.I. 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 including all material, labour.	metre	2,028.00
7.17	Providing and fixing Tubular Steel Railing on Precast RCC posts, 1.2 m high above ground level Providing, fencing and erecting 50 mm dia G.I pipe railing in 3 rows on precast M20 grade RCC vertical posts1.8 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 including all material, labour.	metre	1,383.00
7.18	Providing and fixing CAT's eye made of aluminium alloy size 75x100x22mm having 21 biconvex lenses embedded in circular disk of AS plastic on each side on road surface complete including all material, labour.	each	159.00
7.19	Providing and fixing "L" type bollard 135cm height made out of 1.25mm thick M.S. sheet welded in conical section having upper dia 15cm and lower dia 20cm with another attachment of 150x150x7mm thick plate and hold fast at bottom, whole body is painted in white stove enamel and red reflective 3 band, each of 7.5cm and one reflective sheet of 15cm dia provided to it complete in all respect including all material, labour.	each	1,109.00
7.20	Providing and fixing "SWISS" type bollard 134cm height made out of 1.25mm thick M.S. sheet welded in conical section having upper dia 15cm and lower dia 20cm with another attachment of mandatory 7mm thick plate and fixed with the help of 7cm long, 30cm dia chrome plated MS tube, this part is fixed on the body with another attachment of a cap 30x7cm, whole body is painted in black stove enamel and mandatory plate in azure blue with one compulsory keep left arrow with 10mm border reflective strip each of 7.5cm on body complete in all respect including all material, labour.	each	1,274.00
7.21	Providing and fixing hazard marker made out of 2mm thick M.S. angle iron 25x25x3mm and fixed on channel posts 75x75x6mm and hold fast at bottom whole body is painted in white stoving enamel and 6 nos 5 cm dia reflective sheet on white reflective background with additional border of 1.25 cm all around it complete in all respect including all material, labour.	each	444.00

Code No	Description	Unit	Rate Rs.
7.22	Providing and fixing SWISS type hazard marker made out of 2mm thick M.S. sheet size of box is 15x15cm with hold fast at bottom whole body is painted in white stoving enamel paint with white/ high intensity grade prismatic type sheeting on all four side complete in all respect including all material, labour.	each	609.00

8.0 PIPE CULVERTS

Code No	Description	Unit	Rate Rs.
8.1	Plain cement concrete 1:3:6 mix with crushed stone aggregate mechanically mixed, placed in foundation and compacted by vibration including curing as per clause 1000 &1700 of MoRT&H specification including all material, labour fometre work, machinery.		
8.1.1	Using stone aggregate 40 mm nominal size	cum	2,972.00
8.1.2	Using stone aggregate 20 mm nominal size	cum	3,061.00
8.2	Providing and Laying Reinforced cement concrete pipe NP4/ prestrssed concrete pipe for culverts including jointing ends and fixing collar with cement mortar 1:2 complete as per clause 1000 & 2900 of MoRT&H specification including all material, labour fometre work, machinery.		
8.2.1	150 mm internal diameter	metre	363.00
8.2.2	200 mm internal diameter	metre	482.00
8.2.3	250 mm internal diameter	metre	595.00
8.2.4	300 mm internal diameter	metre	858.00
8.2.5	350 mm internal diameter	metre	1,294.00
8.2.6	400 mm internal diameter	metre	1,465.00
8.2.7	450 mm internal diameter	metre	1,664.00
8.2.8	500 mm internal diameter	metre	1,925.00
8.2.9	600 mm internal diameter	metre	2,604.00
8.2.10	700 mm internal diameter	metre	3,336.00
8.2.11	800 mm internal diameter	metre	4,469.00
8.2.12	900 mm internal diameter	metre	5,238.00
8.2.13	1000 mm internal diameter	metre	6,347.00
8.2.14	1100 mm internal diameter	metre	8,451.00
8.2.15	1200 mm internal diameter	metre	9,022.00
8.2.16	1400 mm internal diameter	metre	14,189.00
8.2.17	1600 mm internal diameter	metre	16,918.00
8.3	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,		

Code No	Description	Unit	Rate Rs.
	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.		
8.3.1	Single Row for one utility service	metre	1575.00
8.3.2	Double Row for two utility services	metre	2958.00
8.3.3	Triple Row for three utility services	metre	4353.00

9.0 MAINTENANCE OF ROADS

Code No	Description	Unit	Rate Rs.
9.1	Filling of Pot- holes and patch repairs with Built up Spray Grout in two layers with 53-22.4mm size of aggregate upto 75mm depth and 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 506, compacting with 8-10 tonne power roller, trimming and finishing the surface to form a smooth continuous surface complete using bitumen grade 60/70 as per clause 503, 506 & 3004.2 of MoRT&H specification including all material, labour, machinery, lighting, guarding.	sqm	201.00
9.2	Filling of Pot- holes and patch repairs with open graded premix surfacing 20mm thick compacted with bitumen binder 60/70 @ 14.60 kg/10 sqm and aggregate in Hot mix plant, transporting the mixed material with tipper and laying manually to the required level and grade, rolling with power roller, 8-10 tonne, 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 complete as per clause 3004.2 of MoRT&H specification including all material, labour, machinery, lighting, guarding.	sqm	93.00
9.3	Filling of Pot holes and patch repairs with surface dressing consisting of a layer of with bitumen binder as per Table 500-2 laid on prepared surface followed by a cover of crushed stone chipping of specified size and rolling with power roller, 8-10 tonne including 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 and 3004.2 of MoRT&H specification including all material, labour, machinery, lighting, guarding.		
9.3.1	First coat with 0.15 cum crushed stone chipping 19mm nominal size and bitumen 60/70 grade @12 kg per 10 sqm	metre	64.00
9.3.2	Second coat with 0.10 cum crushed stone chipping 13mm nominal size and bitumen 60/70 grade @10 kg per 10 sqm	sqm	67.00
9.4	Providing and laying Precast reinforced cement concrete Box culvert section of M-40 grade designed for 'AA' class loading as per IRC specifications including the effect of impact, EQ etc. complete on firm base of 200mm thick lean concrete of M-10 grade with aggregate of size 40mm nominal of following internal sizes. The work includes required safety measures, construction of drain for diversion of		

Code No	Description			Unit	Rate Rs.
	flowing water, cost of design of RCC Precast Box and its proof checking from IIT/MNIT Jaipur etc. complete in all respect as per specifications				
	9.4.1	Size 2.00 M x 2.00 M		Rmt	36,929.00
	9.4.2	Size 1.75 M x 1.75 M		Rmt	28,278.00
	9.4.3	Size 1.50 M x 1.50 M		Rmt	20,766.00
	9.4.4	Size 1.50 M x 1.25 M		Rmt	19,246.00
	9.4.5	Size 1.50 M x 1.00 M		Rmt	17,122.00
	9.4.6	Size 1.25 M x 1.25 M		Rmt	14,944.00
	9.4.7	Size 1.25 M x 1.00 M		Rmt	14,835.00
	9.4.8	Size 1.00 M x 1.00 M		Rmt	11,604.00
	9.4.9	Size 0.75 M x 0.75 M		Rmt	7,671.00
	9.4.10	Size 0.60 M x 0.60 M		Rmt	5,645.00
9.5	Providing and fixing of reinforced Ferro-Cement drain covers designed for 'A' & 'AA' class loading duly marked on cover with adequate steel reinforcement having thickness 75mm to 150mm anti corrosive bitumen painted M.S. plate , Rim and M.S. lifting hooks, Admixtures like plasticizer, bond improving compound, shrinkage, resistance compound, abrasion resistant complete as per approved design etc.				
	Class A Loading				
		Span	**Standard Size**		
	9.5.1	300 to 450mm	600x800mm	Sqm	880.00
	9.5.2	451 to 700mm	1000x800mm	Sqm	990.00
	9.5.3	701 to 1200mm	1500x600mm	Sqm	1265.00
	9.5.4	1201 to 1500mm	2100x500mm	Sqm	1925.00
	Class AA Loading				
		Span	**Standard Size**		
	9.5.5	300 to 450mm	600x800mm	Sqm	1045.00
	9.5.6	451 to 700mm	1000x800mm	Sqm	1210.00
	9.5.7	701 to 1200mm	1500x600mm	Sqm	1540.00
	9.5.8	1201 to 1500mm	2100x500mm	Sqm	2200.00

10.0 FOUNDATION

Code No	Description		Unit	Rate Rs.
10.1	Brick masonry work in cement mortar with mechanical mixer with First class FPS bricks (min. 10.5 Mpa) in foundation (at any level) complete as per drawing and technical specification and as per clause 1000 & 1300 of MoRT&H specification including all scaffolding material, labour, machinery but excluding pointing and plastering.			
	10.1.1	In cement mortar 1:3 (1 cement : 3 coarse sand)	cum	3,463.00
	10.1.2	In cement mortar 1:4 (1 cement : 4 coarse sand)	cum	3,313.00
10.2	Random rubble stone masonry work in cement mortar with mechanical mixer in foundation (at any level) complete as per drawing and technical specification and as per clause 1000 and 1400 of MoRT&H specification including all scaffolding material, labour, machinery but excluding pointing and plastering.			
	10.2.1	In cement mortar 1:3 (1 cement : 3 coarse sand)	cum	2,783.00
	10.2.2	In cement mortar 1:4 (1 cement : 4 coarse sand)	cum	2,589.00
10.3	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 vibrator including curing complete as per clause 2100 of MoRT&H specification including all scaffolding, material, labour, machinery.		cum	2,935.00
10.4	Providing, laying and compacting plain/ reinforced cement concrete of specified grade in foundation/ leveling course/ pile cap using concrete mixer and vibrater complete including cost of form work, as per drawing and technical specifications and as per clause 1100, 1500,1700,2100 of MoRT&H specification including all scaffolding material, labour, machinery.			
	10.4.1	PCC Grade M -15	cum	3,358.00
	10.4.2	PCC Grade M -20	cum	3,831.00
	10.4.3	PCC Grade M -25	cum	4,197.00
	10.4.4	PCC Grade M -30	cum	4,228.00
	10.4.5	RCC Grade M -20	cum	3,854.00
	10.4.6	RCC Grade M -25	cum	4,224.00
	10.4.7	RCC Grade M -30	cum	4,237.00
	10.4.8	RCC Grade M -35	cum	4,319.00

10.5	Providing, laying and compacting design mix plain/ reinforced cement concrete of specified grade in foundation/ leveling course/ pile cap using batching plant, transit mixer and concrete pump and vibrater including cost of form work, complete as per drawing and technical specifications as per clause 1100, 1500,1700,2100 of MoRT&H specification including all material, labour, machinery, and maintenance of diversion.			
	10.5.1	PCC Grade M -20	cum	3,860.00
	10.5.2	PCC Grade M -25	cum	4,241.00
	10.5.3	PCC Grade M -30	cum	4,269.00
	10.5.4	RCC Grade M -20	cum	3,882.00
	10.5.5	RCC Grade M -25	cum	4,266.00
	10.5.6	RCC Grade M -30	cum	4,281.00
	10.5.7	RCC Grade M -35	cum	4,367.00
	10.5.8	RCC Grade M -40	cum	4,423.00
10.6	If concreting is done under water, add for dewatering, shoring, under water concreting as per clause 1100, 1500 & 1700 of MoRT&H Specification including all material, labour and machinery.		cum	20.00
10.7	Providing and constructing temporary island 16 m diameter for construction of well foundation for 8m dia. Well including all material, labour, machinery as per clause 1200 of MoRTH specification.			
	10.7.1	Assuming depth of water 1.0 m and height of island to be 1.25m.	each	36,774.00
	10.7.2	Assuming depth of water 4.0 m and height of island 4.5 m.	each	231,972.00
	10.7.3	Providing and constructing one span service road to reach island location from one pier location to another pier location	metre	1,520.00
10.8	Providing and laying cutting edge of mild steel weighing 40 kg per metre for well foundation complete as per drawing and technical specification complete as per clause 1200 and 1900 of MoRT&H specification including all material, labour, machinery.		tonne	73,059.00
10.9	Providing and laying structural plain/ reinforced cement concrete (design mix) of specified grade in well foundation using concrete mixer and vibrator including cost of form work complete as per drawing and technical specifications and as per clause 1200, 1500 and 1700 of MoRT&H specification. including all material, labour, machinery.			
	10.9.1	Well Curb		

10.9.1.1	RCC Grade M -20	cum	4,447.00
10.9.1.2	RCC Grade M -25	cum	4,886.00
10.9.1.3	RCC Grade M -30	cum	4,912.00
10.9.1.4	RCC Grade M -35	cum	5,032.00
10.9.2	Well Steining		
10.9.2.1	RCC Grade M -20	cum	4,076.00
10.9.2.2	RCC Grade M -25	cum	4,479.00
10.9.2.3	RCC Grade M -30	cum	4,503.00
10.9.2.4	RCC Grade M -35	cum	4,613.00
10.9.3	Bottom Plug (including forming sump, protective bund, chiselling etc.)		
10.9.3.1	PCC Grade M -20	cum	4,240.00
10.9.3.2	PCC Grade M -25	cum	4,454.00
10.9.3.3	PCC Grade M -30	cum	4,495.00
10.9.3.4	PCC Grade M -35	cum	4,591.00
10.9.4	Intermediate Plug (including extra protective works and dewatering etc)		
10.9.4.1	PCC Grade M -20	cum	4,055.00
10.9.4.2	PCC Grade M -25	cum	4,259.00
10.9.4.3	PCC Grade M -30	cum	4,298.00
10.9.4.4	PCC Grade M -35	cum	4,390.00
10.9.5	Top Plug (including extra protective works and dewatering etc)		
10.9.5.1	PCC Grade M -20	cum	3,684.00
10.9.5.2	PCC Grade M -25	cum	4,045.00
10.9.5.3	PCC Grade M -30	cum	4,085.00
10.9.5.4	PCC Grade M -35	cum	4,194.00
10.9.6	Well Cap		
10.9.6.1	RCC Grade M -20	cum	3,813.00
10.9.6.2	RCC Grade M -25	cum	4,224.00
10.9.6.3	RCC Grade M -30	cum	4,237.00
10.9.6.4	RCC Grade M -35	cum	4,319.00

10.10	Providing and laying structural plain/ reinforced cement concrete (design mix) of specified grade in well foundation using batching plant, transit mixer and concrete pump, vibrator including cost of form work complete as per drawing and technical specifications and as per clause 1200, 1500 and 1700 of MoRT&H specification. including all material, labour, machinery, lighting, guarding and maintenance of diversion.			
	10.10.1	Well Curb		
	10.10.1.1	RCC Grade M -20	cum	4,479.00
	10.10.1.2	RCC Grade M -25	cum	4,934.00
	10.10.1.3	RCC Grade M -30	cum	4,963.00
	10.10.1.4	RCC Grade M -35	cum	5,088.00
	10.10.1.5	RCC Grade M -40	cum	5,153.00
	10.10.2	Well Steining		
	10.10.2.1	RCC Grade M -20	cum	4,106.00
	10.10.2.2	RCC Grade M -25	cum	4,523.00
	10.10.2.3	RCC Grade M -30	cum	4,549.00
	10.10.2.4	RCC Grade M -35	cum	4,664.00
	10.10.2.5	RCC Grade M -40	cum	4,723.00
	10.10.3	Bottom Plug (including forming sump, protective bund, chiselling etc.)		
	10.10.3.1	PCC Grade M -20	cum	4,042.00
	10.10.3.2	PCC Grade M -25	cum	4,254.00
	10.10.3.3	PCC Grade M -30	cum	4,297.00
	10.10.3.4	PCC Grade M -35	cum	4,427.00
	10.10.4	Intermediate Plug (including extra protective works and dewatering etc)		
	10.10.4.1	PCC Grade M -20	cum	3,873.00
	10.10.4.2	PCC Grade M -25	cum	4,074.00
	10.10.4.3	PCC Grade M -30	cum	4,116.00
	10.10.5	Top Plug		
	10.10.5.1	PCC Grade M -20	cum	3,733.00
	10.10.5.2	PCC Grade M -25	cum	4,088.00
	10.10.5.3	PCC Grade M -30	cum	4,124.00
	10.10.6	Well Cap		
	10.10.6.1	RCC Grade M -20	cum	3,838.00

	10.10.6.2	RCC Grade M -25	cum	4,267.00
	10.10.6.3	RCC Grade M -30	cum	4,280.00
	10.10.6.4	RCC Grade M -35	cum	4,367.00
	10.10.6.5	RCC Grade M -40	cum	4,456.00
10.11	Sinking of 6 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.			
	10.11.1	In sandy soil		
	10.11.1.1	Depth below cutting edge upto 3m	Metre	3,158.00
	10.11.1.2	Depth beyond 3 m and upto 10 m	Metre	4,547.00
	10.11.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.11.2	In Clayey soil		
	10.11.2.1	Depth below cutting edge upto 3m	Metre	4,547.00
	10.11.2.2	Depth beyond 3 m and upto 10 m	Metre	9,759.00
	10.11.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.11.3	In Soft Rock at all depth	Metre	11,909.00
	10.11.4	In Hard Rock at all depth	Metre	13,190.00
10.12	Sinking of 7 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.			
	10.12.1	In sandy soil		
	10.12.1.1	Depth below cutting edge upto 3m	Metre	4,846.00
	10.12.1.2	Depth beyond 3 m and upto 10 m	Metre	6,534.00

	10.12.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.12.2	In Clayey soil		
	10.12.2.1	Depth below cutting edge upto 3m	Metre	6,534.00
	10.12.2.2	Depth beyond 3 m and upto 10 m	Metre	9,799.00
	10.12.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.12.3	In Soft Rock at all depth	Metre	10,365.00
	10.12.4	In Hard Rock at all depth	Metre	15,522.00
10.13		Sinking of 8 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.		
	10.13.1	In sandy soil		
	10.13.1.1	Depth below cutting edge upto 3m	Metre	5,935.00
	10.13.1.2	Depth beyond 3 m and upto 10 m	Metre	7,336.00
	10.13.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.13.2	In Clayey soil		
	10.13.2.1	Depth below cutting edge upto 3m	Metre	7,986.00
	10.13.2.2	Depth beyond 3 m and upto 10 m	Metre	10,143.00
	10.13.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.13.3	In Soft Rock at all depth	Metre	11,533.00
	10.13.4	In Hard Rock at all depth	Metre	15,930.00

10.14	Sinking of 9 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.			
	10.14.1	In sandy soil		
	10.14.1.1	Depth below cutting edge upto 3m	Metre	5,999.00
	10.14.1.2	Depth beyond 3 m and upto 10 m	Metre	8,062.00
	10.14.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.14.2	In Clayey soil		
	10.14.2.1	Depth below cutting edge upto 3m	Metre	8,413.00
	10.14.2.2	Depth beyond 3 m and upto 10 m	Metre	10,952.00
	10.14.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.14.3	In Soft Rock at all depth	Metre	13,965.00
	10.14.4	In Hard Rock at all depth	Metre	18,424.00
10.15	Sinking of 10 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.			
	10.15.1	In sandy soil		
	10.15.1.1	Depth below cutting edge upto 3m	Metre	7,260.00
	10.15.1.2	Depth beyond 3 m and upto 10 m	Metre	8,494.00
	10.15.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.15.2	In Clayey soil		
	10.15.2.1	Depth below cutting edge upto 3m	Metre	9,199.00
	10.15.2.2	Depth beyond 3 m and upto 10 m	Metre	10,696.00

	10.15.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.15.3	In Soft Rock at all depth	Metre	15,205.00
	10.15.4	In Hard Rock at all depth	Metre	21,752.00
10.16		Sinking of 11 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.		
	10.16.1	In sandy soil		
	10.16.1.1	Depth below cutting edge upto 3m	Metre	16,825.00
	10.16.1.2	Depth beyond 3 m and upto 10 m	Metre	21,308.00
	10.16.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.16.2	In Clayey soil		
	10.16.2.1	Depth below cutting edge upto 3m	Metre	15,282.00
	10.16.2.2	Depth beyond 3 m and upto 10 m	Metre	21,940.00
	10.16.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.16.3	In Soft Rock at all depth	Metre	34,158.00
	10.16.4	In Hard Rock at all depth	Metre	48,950.00
10.17		Sinking of 12 m external diameter well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.		
	10.17.1	In sandy soil		
	10.17.1.1	Depth below cutting edge upto 3m	Metre	34,582.00
	10.17.1.2	Depth beyond 3 m and upto 10 m	Metre	38,611.00

	10.17.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.17.2	In Clayey soil		
	10.17.2.1	Depth below cutting edge upto 3m	Metre	37,571.00
	10.17.2.2	Depth beyond 3 m and upto 10 m	Metre	55,922.00
	10.17.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.17.3	In Soft Rock at all depth	Metre	80,761.00
	10.17.4	In Hard Rock at all depth	Metre	111,901.00
10.18	Sinking of Twin D Type (over all lenght 12m, over all width 6m) well true to vertical, through all types of soil and rock, as shown against each case, (other than pneumatic method of sinking) complete as per drawing and technical specifications including all material, labour, machinery, lighting, guarding and maintenance of diversion complete as per clause 1200 of MoRT&H specification.			
	10.18.1	In sandy soil		
	10.18.1.1	Depth below cutting edge upto 3m	Metre	7,859.00
	10.18.1.2	Depth beyond 3 m and upto 10 m	Metre	8,465.00
	10.18.1.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.	Metre	
	10.18.2	In Clayey soil		
	10.18.2.1	Depth below cutting edge upto 3m	Metre	9,139.00
	10.18.2.2	Depth beyond 3 m and upto 10 m	Metre	11,862.00
	10.18.2.3	Depth beyond 10 m and upto 20 m		
		1) Add 5% for every additional metre depth of sinking over the rate of sinking for the previous metre.		
		2) If dewatering is required add 5% of cost	Metre	
	10.18.3	In Soft Rock at all depth	Metre	17,281.00
	10.18.4	In Hard Rock at all depth	Metre	22,444.00

10.19	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 wherever 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 1200, 1207.6 of MoRT&H Specifications including all material, labour and machinery.		cum	32,543.00
10.20	Providing structural steel liner upto 10mm thickness for curbs, steining for wells and piles including fabricating and setting out as per detailed drawing as per clause 1200 & 1900 of MoRT&H specification including all material, labour and machinery.		tonne	67,061.00
10.21	Sand filling with compaction in wells complete as per level on drawing and technical specification as per clause 1209 of MoRT&H specification including all material, labour, machinery.		cum	831.00
10.22	Bored cast-in-situ R.C.C. pile with design mix concrete using batching plant, transit mixer and concrete pump, excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. as per clause 1100, 1600 & 1700 of MoRT&H Specification including all material, labour and machinery.			
	10.22.1	750 mm dia pile		
	10.22.1.1	RCC Grade M -20 (Design mix)	Metre	3,684.00
	10.22.1.2	RCC Grade M -25 (Design mix)	Metre	3,777.00
	10.22.1.3	RCC Grade M -30 (Design mix)	Metre	3,796.00
	10.22.1.4	RCC Grade M -35 (Design mix)	Metre	3,838.00
	10.22.2	1000 mm dia pile		
	10.22.2.1	RCC Grade M -20 (Design mix)	Metre	6,063.00
	10.22.2.2	RCC Grade M -25 (Design mix)	Metre	6,230.00
	10.22.2.3	RCC Grade M -30 (Design mix)	Metre	6,264.00
	10.22.2.4	RCC Grade M -35 (Design mix)	Metre	6,337.00
	10.22.3	1200 mm dia pile		
	10.22.3.1	RCC Grade M -20 (Design mix)	Metre	7,818.00
	10.22.3.2	RCC Grade M -25 (Design mix)	Metre	8,057.00
	10.22.3.3	RCC Grade M -30 (Design mix)	Metre	8,106.00

	10.22.3.4	RCC Grade M -35 (Design mix)	Metre	8,212.00
10.23	Driven cast-in-place true vertical R.C.C. piles excluding reinforcement complete as per drawing and technical specification as per clause 1100, 1600 & 1700 of MoRT&H Specification including all material, labour and machinery.			
	10.23.1	450 mm dia pile		
	10.23.1.1	RCC Grade M -20 (Design mix)	metre	1,697.00
	10.23.1.2	RCC Grade M -25 (Design mix)	Metre	1,730.00
	10.23.1.3	RCC Grade M -30 (Design mix)	Metre	1,737.00
	10.23.1.4	RCC Grade M -35 (Design mix)	Metre	1,752.00
	10.23.2	500 mm dia pile		
	10.23.2.1	RCC Grade M -20 (Design mix)	Metre	2,059.00
	10.23.2.2	RCC Grade M -25 (Design mix)	Metre	2,100.00
	10.23.2.3	RCC Grade M -30 (Design mix)	Metre	2,109.00
	10.23.2.4	RCC Grade M -35 (Design mix)	Metre	2,127.00
	10.23.3	750 mm dia pile		
	10.23.3.1	RCC Grade M -20 (Design mix)	Metre	3,367.00
	10.23.3.2	RCC Grade M -25 (Design mix)	Metre	3,460.00
	10.23.3.3	RCC Grade M -30 (Design mix)	Metre	3,479.00
	10.23.3.4	RCC Grade M -35 (Design mix)	Metre	3,521.00
	10.23.4	1000 mm dia pile		
	10.23.4.1	RCC Grade M -20 (Design mix)	Metre	5,296.00
	10.23.4.2	RCC Grade M -25 (Design mix)	Metre	5,462.00
	10.23.4.3	RCC Grade M -30 (Design mix)	Metre	5,496.00
	10.23.4.4	RCC Grade M -35 (Design mix)	Metre	5,569.00
	10.23.5	1200 mm dia pile		
	10.23.5.1	RCC Grade M -20 (Design mix)	Metre	7,751.00
	10.23.5.2	RCC Grade M -25 (Design mix)	Metre	7,991.00
	10.23.5.3	RCC Grade M -30 (Design mix)	Metre	8,039.00
	10.23.5.4	RCC Grade M -35 (Design mix)	Metre	8,146.00
10.24	Providing and laying TMT bar reinforcement at any level in foundation/ pile/ pile cap complete as per drawing and clause 1600 of MoRT&H Specification including all material, labour and machinery.		tonne	55,612.00

10.25	Plie load testing on single vertical piles in accordance with IS 2911 (Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per direction of Engineer and as per clause 1100 of MoRT&H specification including all labour, material, machinery.			
	10.25.1	Initial and routine vertical load test	tonne	302.00
	10.25.2	Lateral load test	tonne	5,082.00
10.26	Non destructive Integrated testing of cast-in-situ pile using pile deriving analyzer or equivalent as detailed in specification and as approved by Engineer.		each	1,500.00
10.27	Providing and arranging dynamic load test for checking the load bearing capacity of pile as detailed in specification and as approved by Engineer as per ASTM D4945 including of analysis and report submission including all labour, material, machinary. This include preparation of hammer, crane, build up of pile head, plywood, steel plates etc.		each	85,000.00
10.28	Providing, arranging and conducting sonic logging test on RC bored piles using cross holes sonic logging analyzer and submission of report.		each	8,000.00
10.29	Providing and conducting testing of finished PSC girder with simulation system as directed by Engineer excluding cost of girder, including reaction frame all testing equipment and their accessories complete.		per test	100,000.00
10.30	Bored cast-in-situ R.C.C. pile with cutting / Drilling for anchoring of pile into rocks wherever firm rocky strata is available, shall be done upto desired depth (minimum 1.50 m) as per drawings, specifications and as directed by Engineer. Bore hole shall be cleaned properly before concreting. No, distinction shall be made for penetration through hard rock or rock socketing with design mix concrete (M-35) using batching plant, transit mixer and concrete pump excluding reinforcement complete as per drawing and technical specifications and removal of excavated earth with all lifts and lead upto 1000 m. as per clause 1100, 1600 & 1700 of MoRT&H Specification including all material, labour and machinery.			
10.30.1	(i) 450mm dia pile		Metre	4,540.00
10.30.2	(ii) 600mm dia pile		Metre	5,075.00
10.30.3	(iii) 750mm dia pile		Metre	5,766.00
10.30.4	(iv) 1000mm dia pile		Metre	9,255.00
10.30.5	(v) 1200mm dia pile		Metre	11,359.00

10.31	Making holes in all types of rock for anchorage etc.for any depth below foundation level 30/40 mm dia. including fixing charges for providing of inserts like anchor bars along the grouting, anchoring etc. true in line & plumb as per approved detailed working drawing including cost of cement grout etc. complete in all respect.(Cement grout 1:1 as per clause no. 2800 & 2806 of MoRTH Specification)(excluding cost of steel) and as per the directed of the Engineer.	Metre	116.00

11.0 SUB-STRUCTURE & SUPER-STRUCTURE

Code No	Description		Unit	Rate Rs.
11.1	Brick masonry work with First class FPS bricks (min. 10.5 Mpa) in cement mortar with mechanical mixer in substructure/ super structure at all levels complete as per clause 1300 and 2200 of MoRT&H specification including all material, labour, scaffolding etc but excluding pointing and plastering.			
	11.1.1	In cement mortar 1:3 (1 cement : 3 coarse sand)	cum	3,442.00
	11.1.2	In cement mortar 1:4 (1 cement : 4 coarse sand)	cum	3,284.00
11.2	Random rubble masonry work in cement mortar with mechanical mixer in substructure/ super structure at all levels complete as per clause 1400 and 2200 of MoRT&H specification including all material, labour, scaffolding etc but excluding pointing and plastering.			
	11.2.1	In cement mortar 1:3 (1 cement : 3 coarse sand)	cum	2,810.00
	11.2.2	In cement mortar 1:4 (1 cement : 4 coarse sand)	cum	2,593.00
11.3	Coursed rubble masonry (First sort) work in cement mortar 1:3 (1 cement : 3 coarse sand) with mechanical mixer in substructure/ super structure at all levels complete as per clause 1400 and 2200 of MoRT&H specification including all material, labour, scaffolding etc but excluding pointing and plastering.		cum	2,924.00
11.4	Plastering with cement mortar (1:3) on Brick/stone work in substructure/ super structure at any height complete as per clause 1312 of MoRT&H specification including all material, labour, scaffolding etc.			
	11.4.1	12 mm plaster on brick work	sqm	89.00
	11.4.2	20 mm plaster on stone work	sqm	139.00
11.5	Providing and laying structural plain/ reinforced cement concrete (design mix) of specified grade in substructure at all levels using concrete mixer and vibrater, including cost of form work, as per drawing and technical specifications complete as per clause 1500, 1700 and 2200 of MoRT&H specification including all material, labour, scaffolding etc.			
	11.5.1	PCC Grade M -20	cum	4,200.00
	11.5.2	PCC Grade M -25	cum	4,612.00
	11.5.3	PCC Grade M -30	cum	4,657.00

Code No	Description		Unit	Rate Rs.
	11.5.4	RCC Grade M -20	cum	4,225.00
	11.5.5	RCC Grade M -25	cum	4,625.00
	11.5.6	RCC Grade M -30	cum	4,630.00
	11.5.7	RCC Grade M -35	cum	4,714.00
11.6	Providing and laying structural plain/ reinforced cement concrete (design mix) of specified grade in substructure at all levels using batching plant, transit mixer, concrete pump and vibrater including cost of form work complete as per drawing and clause 1500, 1700 and 2200 of MoRT&H specification including all scaffolding, material, labour, machinery etc.			
	11.6.1	RCC Grade M -20	cum	4,255.00
	11.6.2	RCC Grade M -25	cum	4,671.00
	11.6.3	RCC Grade M -30	cum	4,678.00
	11.6.4	RCC Grade M -35	cum	4,765.00
	11.6.5	RCC Grade M -40	cum	4,826.00
11.7	Providing weep holes in brick/ stone masonry/ Plain/ Reinforced concrete abutment, wing wall/ return wall with 150 mm dia AC pipe, extending through the full width of the structure with slope of 1V : 20H towards drawing face complete as per drawing, technical specifications and clause 2205 of MoRT&H Specification including all scaffolding, material, labour, machinery etc.		metre	74.00
11.8	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 MoRT&H specification complete including all accessories as per drawing and technical specification and as per clause 2000 & 2200 of MoRT&H Specification including all scaffolding, material, labour, machinery etc.		Cubic centimetre	0.65
11.9	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRT&H Specifications complete as per drawing and approved technical specifications and as per clause 2000 & 2200 of MoRT&H Specification including all scaffolding, material, labour, machinery etc.		tonne	307.00

Code No	Description	Unit	Rate Rs.
11.10	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRT&H specifications 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 including all material, labour, machinery as per clause 710.1.4 of IRC:78 and clause 2200 of MoRT&H specification.	cum	915.00
11.11	Back filing in foundation, trench behind abutment, wing wall and return wall etc and below pipe bed in layers not exceeding 20cm in depth, consolidating each deposited layer compacted by mechanical means with all lead and lift as per drawing and technical specification including all material, labour, machinery as per clause 2100 and 2200 of MoRT&H specification including all material, labour, machinery.		
11.11.1	Using selected granular material (as per clause 2200 of MoRT&H).	cum	556.00
11.12	Providing and laying precast cement concrete M-30 Grade interlocking paving blocks of 100mm thick over 50mm coarse sand bedding (duly compacted) including filling of joints with sand suitable for heavy pedestrian traffic/ light vehicle traffic of pattern as approved by Engineer.	sqm	613.00
11.13	Providing and laying precast cement concrete M-30 Grade 100mm thick paving blocks of approved shape and size (not less than 0.20 sqm), , over 100mm thick PCC M-10 Grade bedding (duly compacted) including filling of joints with cement sand mortar (1:3) complete as per drawing and specification and as approved by Engineer.	sqm	792.00
11.14	Providing and laying structural reinforced/ prestressed cement concrete (design mix) of specified grade in superstructure using concrete mixer and vibrater at all levels including cost of steel form work complete as per drawing and clause 1500, 1600 and 1700 of MoRT&H specification including all scaffolding, material, labour, machinery etc.		
11.14.1	RCC Grade M -25		
11.14.1.1	For solid slab superstructure	cum	5,057.00
11.14.1.2	For T-beam & slab	cum	5,259.00
11.14.1.3	For box girder/ voided slab and balanced cantilever	cum	6,068.00
11.14.2	RCC Grade M -30		

Code No	Description		Unit	Rate Rs.
	11.14.2.1	For solid slab superstructure	cum	5,136.00
	11.14.2.2	For T-beam & slab	cum	5,341.00
	11.14.2.3	For box girder/ voided slab and balanced cantilever	cum	6,163.00
	11.14.3	RCC/PSC Grade M -35		
	11.14.3.1	For solid slab superstructure	cum	5,177.00
	11.14.3.2	For T-beam & slab	cum	5,387.00
	11.14.3.3	For box girder/ voided slab and balanced cantilever	cum	6,229.00
	11.14.4	RCC/PSC Grade M -40		
	11.14.4.1	For solid slab superstructure	cum	5,403.00
	11.14.4.2	For T-beam & slab	cum	5,623.00
	11.14.4.3	For box girder/ voided slab and balanced cantilever	cum	6,502.00
11.15	Providing and laying structural reinforced/ prestressed cement concrete (design mix) of specified grade using batching plant, transit mixer, concrete pump and vibrater in superstructure at all levels including cost of steel form work complete as per clause 1500, 1600 and 1700 of MoRT&H specification including all scaffolding, material, labour, machinery etc.			
	11.15.1	RCC Grade M -25		
	11.15.1.1	For solid slab superstructure	cum	5,111.00
	11.15.1.2	For T-beam & slab	cum	5,315.00
	11.15.1.3	For box girder/ voided slab and balanced cantilever	cum	6,133.00
	11.15.2	RCC Grade M -30		
	11.15.2.1	For solid slab superstructure	cum	5,175.00
	11.15.2.2	For T-beam & slab	cum	5,382.00
	11.15.2.3	For box girder/ voided slab and balanced cantilever	cum	6,210.00
	11.15.3	RCC/PSC Grade M -35		
	11.15.3.1	For solid slab superstructure	cum	5,217.00
	11.15.3.2	For T-beam & slab	cum	5,429.00
	11.15.3.3	For box girder/ voided slab and balanced cantilever	cum	6,278.00
	11.15.4	RCC/PSC Grade M -40		
	11.15.4.1	For solid slab superstructure	cum	5,288.00
	11.15.4.2	For T-beam & slab	cum	5,503.00
	11.15.4.3	For box girder/ voided slab and balanced cantilever	cum	6,363.00

Code No	Description		Unit	Rate Rs.
	11.15.5	RCC/PSC Grade M -45		
	11.15.5.1	For solid slab superstructure	cum	5,489.00
	11.15.5.2	For T-beam & slab	cum	5,716.00
	11.15.5.3	For box girder/ voided slab and balanced cantilever	cum	6,623.00
	11.15.6	RCC/PSC Grade M -50		
	11.15.6.1	For solid slab superstructure	cum	5,647.00
	11.15.6.2	For T-beam & slab	cum	5,882.00
	11.15.6.3	For box girder/ voided slab and balanced cantilever	cum	6,823.00
11.16	Providing, precasting, transportation and placing in position at all level precast pre-tensioned specified grade girders complete as per drawing and clause 1800 & 2300 of MoRT&H specifications including all material, labour, machinery including suitable crane etc.			
	11.16.1	RCC M-40	cum	18,277.00
	11.16.2	RCC M-45	cum	18,416.00
11.17	Providing, precasting, transportation and placing in position at all level precast pre-tensioned specified grade girders as per drawing and clause 1800 & 2300 of MoRT&H specifications (excluding cost of reinforcement, HTS strands and pre-stressing) including all material, labour, machinery (suitable crane).			
	11.17.1	RCC M-40	cum	8,010.00
	11.17.2	RCC M-45	cum	8,147.00
11.18	Providing and fixing helical pipes in voided concrete slabs complete as per clause 1700 & 1800 of MoRT&H specifications including all material, labour, machinary etc.			
	11.18.1	600mm dia (Hot dip galvnised GI Sheet 0.7mm thick)	metre	7,688.00
	11.18.2	800mm dia (Hot dip galvnised GI Sheet 0.8mm thick)	metre	10,471.00
11.19	Providing and laying structural Reinforced cement concrete (design mix) of specified grade using mechanical concrete mixer and vibrater in approach slab, friction slab, edge beam, footpath and kerb as per approved drawing and specification as directed by the Engineer as per clause 1500 &1700 of MoRT&H specification including all scaffolding, material, labour, machinery etc.			
	11.19.1	RCC M-30	cum	5,341.00
	11.19.2	RCC M-35	cum	5,387.00
11.20	Providing and laying structural Reinforced cement concrete (design mix) of specified grade using batching plant, transit mixer, concrete			

Code No	Description		Unit	Rate Rs.
	pump and vibrater in approach slab, friction slab, edge beam, footpath and kerb as per approved drawing and specification as directed by the Engineer as per clause 1500 &1700 of MoRT&H specification including all scaffolding, material, labour, machinery etc.			
	11.20.1	RCC M-30	cum	5,382.00
	11.20.2	RCC M-35	cum	5,429.00
	11.20.3	RCC M-40	cum	5,503.00
11.21	Designing, providing and erection of specified grade Precast RCC facia panels of thickness 180mm made with M-35 Grade concrete batching plant, transit mixer, concrete pump and vibrater for retaining earth with all elements and accessories including reinforcing element complete as per approved drawing and clause 3100 of MoRT&H specifications including all material, labour, machinery etc. (Scope of work includes designing, getting approval, casting in yard, curing, storing, transporting, lifting, placing in position, erection with all necessary fasteners etc complete)		sqm	4,550.00
11.22	Providing, placing and compacting to desired density approved backfill material in layers as per approved methodology including testing for reinforced fill portion and random fill portion in the approaches between the Reinforced Soil (RS) Wall panels as per approved drawings as per clause 3103 of MoRT&H specification The soil should be predominately coarse grained not more than 10% of particle should pass 75 micron sieve The item shall be measured and paid for the finished volume of backfill and sub-grade placed in position excluding the volume of filter media at base and behind the RS walls.		cum	304.00
11.23	Supplying, fitting and placing TMT bar reinforcement in sub structure/ superstructure at all level complete as per drawing and clause 1600 & 2200 of MoRT&H Specification including all material, labour, machinary etc.		tonne	56,422.00
11.24	Providing and laying High tensile steel wires/ strands at any level including all accessories for stressing, stressing operations and grouting complete as per drawing, technical specification and as per clause 1800 of MoRT&H Specification.		tonne	129,074.00
11.25	Providing and laying reinforced cement concrete wearing coat M-30 grade at any level including formwork and reinforcement @ 75kg/cum complete as per drawing and technical specification and as per clause 2702 of MoRT&H Specification including all material, labour, machinary etc.		cum	8,373.00

Code No	Description		Unit	Rate Rs.
11.26	Providing and laying Precast Reinforced cement concrete slab for footpath and median with approved finish, constructed with specified grade concrete as per dimensions in the approved drawing and at locations directed by the Engineer including form work and excluding reinforcement and complete as per clause 1500 & 1700 of MoRT&H specification including all material, labour, machinery.			
	11.26.1	RCC M-20	cum	4,240.00
	11.26.2	RCC M-25	cum	4,643.00
	11.26.3	RCC M-30	cum	4,667.00
11.27	Construction of precast/ cast-in-situ RCC railing M-30 grade, true to line and grade, center to center spacing between vertical post not to exceed 2000mm leaving adequate space between vertical post for expansion, complete as per drawing and technical specification and as per clause 1500, 1600, 1700 & 2703 of MoRT&H Specification including all material, labour, machinary etc.		Metre	1,581.00
11.28	Providing and fixing Mild steel railing including painted, complete as per drawing and technical specification and as per clause 1900 & 2703.2 of MoRT&H Specification including all material, labour, machinary etc.		Metre	2,670.00
11.29	Providing and laying expansion joint complete as per drawing and technical specification and as per clause 2605 of MoRT&H Specification including all material, labour, machinary etc			
	11.29.1	Fillar joint with 20m thick compressible fibre board.	sqm	742.00
	11.29.2	Fillar joint with Joint sealing compound with coarse sand and 6 % bitumen by weight..	Metre per cm. Depth	16.00
11.30	Providing, laying and fixing of strip seal expansion joint catering to maximum horizontal movement upto 70 mm complete as per approved drawings and as per clause 2600 of MoRT&H specifications to be installed by manufacturer's authorized representative ensuring to compliance to manufacturer's instruction for installation including preparing the edges of bridge, welding to exposed reinforcement, concreting with design mix of grade of bridge or M-35 whichever is richer including all material, labour, machinery etc complete.		Metre	8,918.00
11.31	Providing and erecting Drainage Spouts with 0.15m long GI pipe 150mm dia and GI bolt 10mm dia with Galvanised MS flat clamp complete as per drawing and Technical specification as per clause 2705 of MoRT&H specifications including all material, labour, machinery etc.		each	730.00

Code No	Description	Unit	Rate Rs.
11.32	Providing and applying 2 coats of water based cement paint to unplastered concrete surface at all level after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm including all material, labour, scaffolding complete as per clause 800 of MoRT&H specifications including all material, labour scaffolding etc.	sqm	36.00
11.33	Providing and constructing of Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with specified grade concrete using mechanical mixer and vibrator with 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 and dimensions in the approved drawing and at locations directed by the Engineer, all as specified as per clause 809 of MoRT&H specification including all material, labour scaffolding etc.		
	11.33.1 RCC M-25	cum	5,071.00
	11.33.2 RCC M-30	cum	5,150.00
	11.33.3 RCC M-35	cum	5,191.00
11.34	Providing and constructing of Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with specified grade concrete using batching plant, transit mixer, concrete pump and vibrator with 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 and dimensions in the approved drawing and at locations directed by the Engineer, all as specified as per clause 809 of MoRT&H specification including all material, labour scaffolding etc.		
	11.34.1 RCC M-25	cum	5,125.00
	11.34.2 RCC M-30	cum	5,190.00
	11.34.3 RCC M-35	cum	5,231.00
	11.34.4 RCC M-40	cum	5,298.00
11.35	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810 of MoRT&H specification including all material, labour machinery etc.	Metre	2,612.00

Code No	Description	Unit	Rate Rs.
11.36	Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 810 of MoRT&H specification including all material, labour machinery etc.	Metre	3,507.00
11.37	Providing and fixing G.I.Pipes railing of 80 mm dia. (Class B) over brackets of 16 mm thick MS plate with 200 mm at bottom & 120 mm at top with 200 mm height welded to 16 mm thick MS Plates of size 200 X 175 anchored with 400 mm long 4-12 mm dia.steel bars at the top of RCC crash barrier @1.0m c/c including fixing arrangement as per the drawing, clause 800 of MoRTH specification and as per the direction of the Engineer.	Metre	967.00

12.0 RIVER TRAINING & PROTECTION WORKS

Code No	Description	Unit	Rate Rs.
12.1	Providing and laying specified apron for protection against scour complete as per drawing and technical specification as per clause 2503 of MoRT&H Specification.		
	12.1.1 Boulder/Quarry stone, not less than 40 kg each and specific gravity not less than 2.65, without wire crates.	cum	871.00
	12.1.2 Boulder/Quarry stone, not less than 40 kg each in wire creates made with 4mm dia GI wire confirming to IS : 280 & IS : 4826 in 100mmX100mm mesh (weaved diagonally).	cum	1,468.00
12.2	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 and as per clause 2504 of MoRT&H Specification.		
	12.2.1 With R.R. Stone/ bolder, weighing not less than 40 kg, thickness not less than 150mm, Specific gravity not less than 2.65.	cum	871.00
12.3	Providing and laying graded stone aggregate Filter Material underneath pitching in slopes complete as per drawing and Technical specifications and as per clause 2504 of MoRT&H Specification.	cum	556.00
12.4	Providing and laying flooring complete as per drawing and Technical specifications and as per clause 2505 of MoRT&H Specification.		
	12.4.1 Rubble stone laid in cement mortar 1:3	cum	2,492.00
12.5	Construction of dry rubble flooring at cross drainage works complete as per drawing and Technical specifications and as per clause 2506 of MoRT&H Specification.	cum	1,113.00
12.6	Constructing curtain wall complete as per drawing and Technical specification per clause 2507.2 of MoRT&H Specification.		
	12.6.1 Cement concrete Grade M-15	cum	3,229.00

13.0 REPAIR & REHABILITATION

Code No	Description	Unit	Rate Rs.
13.1	Removal of existing cement concrete wearing coat manually or with the help of jack hammers including its disposal within a lead of 1000 metres, complete as per technical specification without causing any detrimental effect to any part of the bridge structure as per clause 2809, 100 of MoRT&H Specification.	sqm.	72.00
13.2	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 1000 m as per clause 2809, 100 of MoRT&H Specification.	sqm	54.00
13.3	Guniting (Minimum density 2T/Cum.) on concrete/masonry surface with wire mesh size 50x50mm of wire thickness 3mm and cement mortar 1:3, applied with compressor after cleaning surface and applying with epoxy complete as per technical specification as per clause 2807 of MoRT&H Specification.	sqm.	900.00
13.4	Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per technical specification including subsequent cutting/ removal and sealing of the holes as necessary of nipples after completion of grouting with cement/ Epoxy as per clause 2807 of MoRT&H Specification.		
	13.4.1 Cement grout as per clause 2800 & 2806 of MoRT&H specification.	Each	72.00
	13.4.2 Epoxy grout as per clause 2800 & 2803 of MoRT&H specification.	Each	72.00
13.5	Sealing of cracks/ porous concrete with following by injection process through nipples including cost of material and labour complete as per drawing and technical specification complete.		
	13.5.1 Cement grout as per clause 2800 & 2806 of MoRT&H specification.	Kg	97.00
	13.5.2 Epoxy grout as per clause 2800 & 2803 of MoRT&H specification.	Kg.	905.00
	13.5.3 Cement mortar (1:1) grout as per clause 2800 & 2806 of MoRT&H specification.	Kg.	93.00
13.6	Patching of damaged concrete surface with polymer concrete and curing compounds, initiator and promoter, available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer complete as per clause 2800 of MoRT&H specification.	sqm	454.00

Code No	Description	Unit	Rate Rs.
13.7	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 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. complete as per clause 2807 of MoRT&H specification.	sqm	229.00

14.0 HORTICULTURE

Code No	Description	Unit	Rate Rs.
14.1	Trenching in specified soil upto a depth of 60 cm. including removal and stacking of serviceable materials and then disposal by spreading and neatly leveling within a lead of 50 metres and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/and farm-yard manure before and after flooding with water (excluding cost of imported earth and sludge or farm-yard manure).	cum	113.00
14.2	Supplying and stacking good earth at site of work.		
	Note: 1) Loading, unloading and carriage to be paid extra as per actual lead.		
	2) Earth measured in stacks will be reduced by 20% foe payment	cum	93.00
14.3	Supply at site of work well decayed farm yard manure, from any available source, approved by the engineer in charge including screening and stacking.	cum	605.00
14.4	Supply at site of work/ store- deoiled neem cake duly packed in used gunny bags.	quintal	340.00
14.5	Supplying sludge duly stacked at site/ store.	cum	100.00
14.6	Rough dressing the trenched ground including breaking of clods.	100 sqm	44.00
14.7	Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted vegetation.	100 sqm	144.00
14.8	Fine dressing the ground.	100 sqm	109.00
14.9	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	15.35
14.10	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.		
	14.10.1 In rows 15 cm apart in either direction	sqm	12.00
	14.10.2 In rows 7.5 cm apart in either direction	sqm	21.00
14.11	Uprooting rank vegetation and weeds by digging the area to a depth of 60 cm removing all weeds and other growth with roots by forking repeatedly, breaking, clods, rough dressing, flooding with water, uprooting fresh growth after 10 to 15 days and then fine dressing for planting new grass, including disposal of all rubbish with all leads and lifts.	100 sqm	1,808.00

Code No	Description	Unit	Rate Rs.
14.12	Filling mixture of earth and sludge farm-yard manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or farm yard manure and labour for mixing not included in this rate).	cum	5.45
14.13	Flooding the ground with water including making kiaries and dismantling the same.	100 sqm	122.00
14.14	Turfing slopes of new banks with rough grassing including preparation of ground by loosening soil with kassi, flooding with water, rough dressing, fine dressing, supplying and spreading farm yard manure at the rate of 0.18 cum per 100 sqm and supplying and planting doob grass roots at 15 cm apart, complete.		
	14.14.1 Of Old banks	sqm	21.00
	14.14.2 Of New banks	sqm	19.00
14.15	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	31.00
14.16	Maintenance of lawns or Turfing of slopes (rough grassing) for a period of one year including watering etc.	sqm	160.00
14.17	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 of0.6 cum per 100 sqm.	sqm	36.00
14.18	Maintenance of Lawns with Fine Grassing for the First Year	sqm	156.00
14.19	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	193.00
14.20	Maintenance of Hedge for one year	metre	148.00
14.21	Planting Flowering Plants and Shrubs in Central Verge.	km	64,312.00
14.22	Maintenance of Flowering Plants and Shrubs in Central Verge for one Year.	km	152,400.00
14.23	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	11.55
14.24	Digging holes in all kinds of soil and refilling the same with the excavated earth mixed with well decayed farm yard manure (cost		

Code No	Description	Unit	Rate Rs.
	of well decayed farm yard manure to be paid separately).		
	14.24.1 Hole 1.2 m dia and 1.2 m deep	one hole	279.00
	14.24.2 Hole 0.9 m dia and 0.9 m deep	one hole	117.00
	14.24.3 Hole 0.6 m dia and 0.6 m deep	one hole	36.00
14.25	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	846.00
14.26	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	1,067.00
14.27	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.	metre	21.00
14.28	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	621.00
14.29	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	1,032.00
14.30	Wrought iron and mild steel welded work) (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	7,107.00
14.31	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	1,876.00

Code No	Description	Unit	Rate Rs.
14.32	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	2,465.00
14.33	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	138,497.00

15.0 SEWER WORKS

Code No	Description		Unit	Rate Rs.
15.1	Providing at site, lowering & laying in trenches, aligning & jointing of RCC pipes NP4 class (with s/s ends) as per IS: 458 - 2003 (amended up to date) at all depths with Rubber gaskets (EPDM/SBR) for sewer lines as per IS: 5382 (including cost of Rubber gaskets, lubricants) as per drawing, sectional testing of the sewer pipe line (including cost and conveyance of water to site) etc., complete as per specification and / or as directed by Engineer.			
	15.1.1	150 mm internal diameter	metre	386.00
	15.1.2	200 mm internal diameter	metre	506.00
	15.1.3	250 mm internal diameter	metre	621.00
	15.1.4	300 mm internal diameter	metre	887.00
	15.1.5	350 mm internal diameter	metre	1,325.00
	15.1.6	400 mm internal diameter	metre	1,499.00
	15.1.7	450 mm internal diameter	metre	1,701.00
	15.1.8	500 mm internal diameter	metre	1,966.00
	15.1.9	600 mm internal diameter	metre	2,653.00
	15.1.10	700 mm internal diameter	metre	3,395.00
	15.1.11	800 mm internal diameter	metre	4,540.00
	15.1.12	900 mm internal diameter	metre	5,322.00
	15.1.13	1000 mm internal diameter	metre	6,446.00
	15.1.14	1100 mm internal diameter	metre	8,588.00
	15.1.15	1200 mm internal diameter	metre	9,176.00
	15.1.16	1400 mm internal diameter	metre	14,384.00
	15.1.17	1600 mm internal diameter	metre	17,159.00
15.2	Providing at site, lowering & laying in trenches, aligning & jointing of RCC pipes NP3 class (with s/s ends) as per IS: 458 - 1988 (amended up to date) at all levels with Rubber gaskets (EPDM/SBR) for sewer lines as per IS: 5382 (including cost of Rubber gaskets lubricants) as per drawing, sectional testing of the sewer pipe line (including cost and conveyance of water to site) etc., complete as directed by Engineer.			
	15.2.1	150 mm internal diameter	metre	361.00
	15.2.2	200 mm internal diameter	metre	455.00
	15.2.3	250 mm internal diameter	metre	558.00
	15.2.4	300 mm internal diameter	metre	801.00
	15.2.5	350 mm internal diameter	metre	1,289.00
	15.2.6	400 mm internal diameter	metre	1,444.00
	15.2.7	450 mm internal diameter	metre	1,653.00
	15.2.8	500 mm internal diameter	metre	1,846.00
	15.2.9	600 mm internal diameter	metre	2,348.00
	15.2.10	700 mm internal diameter	metre	2,931.00
	15.2.11	800 mm internal diameter	metre	3,889.00
	15.2.12	900 mm internal diameter	metre	4,677.00

Code No	Description		Unit	Rate Rs.
	15.2.13	1000 mm internal diameter	metre	5,328.00
	15.2.14	1100 mm internal diameter	metre	6,936.00
	15.2.15	1200 mm internal diameter	metre	7,654.00
	15.2.16	1400 mm internal diameter	metre	11,144.00
	15.2.17	1600 mm internal diameter	metre	13,996.00
15.3	Providing at site, lowering & laying in trenches, aligning & jointing of RCC pipes NP2 class (with s/s ends) as per IS: 458 - 1988 (amended up to date) at all levels with Rubber gaskets (EPDM/SBR) for sewer lines as per IS: 5382 (including cost of Rubber gaskets lubricants) as per drawing, sectional testing of the sewer pipe line (including cost and conveyance of water to site) etc., complete as directed by Engineer.			
	15.3.1	150 mm internal diameter	metre	349.00
	15.3.2	200 mm internal diameter	metre	408.00
	15.3.3	250 mm internal diameter	metre	482.00
	15.3.4	300 mm internal diameter	metre	652.00
	15.3.5	350 mm internal diameter	metre	783.00
	15.3.6	400 mm internal diameter	metre	926.00
	15.3.7	450 mm internal diameter	metre	1,189.00
	15.3.8	500 mm internal diameter	metre	1,300.00
	15.3.9	600 mm internal diameter	metre	1,590.00
	15.3.10	700 mm internal diameter	metre	2,114.00
	15.3.11	800 mm internal diameter	metre	2,659.00
	15.3.12	900 mm internal diameter	metre	3,367.00
	15.3.13	1000 mm internal diameter	metre	3,950.00
	15.3.14	1100 mm internal diameter	metre	4,357.00
	15.3.15	1200 mm internal diameter	metre	5,405.00
	15.3.16	1400 mm internal diameter	metre	6,507.00
	15.3.17	1600 mm internal diameter	metre	8,062.00
15.4	Providing granular bedding having width = outer dia of pipe (Bc) + 500mm, thickness below pipe = 0.25Bc or 100mm (whichever is higher) and haunching = 0.5Bc, with graded hard crusher broken stone of 100% passing through 20mm sheive, 20 to 50 % passing through 10mm sheive and 100 % retain on 6.3mm sheive, laying in layers of thickness 10/15cm including ramming, consolidation etc complete for RCC pipes of following sizes as per drawing and or as directed by Engineer.			
	15.4.1	150 mm internal diameter RCC pipe	metre	88.00
	15.4.2	200 mm internal diameter RCC pipe	metre	103.00
	15.4.3	250 mm internal diameter RCC pipe	metre	116.00
	15.4.4	300 mm internal diameter RCC pipe	metre	134.00
	15.4.5	350 mm internal diameter RCC pipe	metre	181.00
	15.4.6	400 mm internal diameter RCC pipe	metre	205.00
	15.4.7	450 mm internal diameter RCC pipe	metre	231.00
	15.4.8	500 mm internal diameter RCC pipe	metre	256.00

Code No	Description		Unit	Rate Rs.
	15.4.9	600 mm internal diameter RCC pipe	metre	324.00
	15.4.10	700 mm internal diameter RCC pipe	metre	383.00
	15.4.11	800 mm internal diameter RCC pipe	metre	460.00
	15.4.12	900 mm internal diameter RCC pipe	metre	537.00
	15.4.13	1000 mm internal diameter RCC pipe	metre	632.00
	15.4.14	1100 mm internal diameter RCC pipe	metre	711.00
	15.4.15	1200 mm internal diameter RCC pipe	metre	802.00
	15.4.16	1400 mm internal diameter RCC pipe	metre	1,008.00
	15.4.17	1600 mm internal diameter RCC pipe	metre	1,217.00
15.5	Providing and laying plain cement concrete M15 grade (using mechanical concrete mixer) using 20mm graded hard crusher broken stone aggregate, laying in layers of not more than 15cm thick, for bedding having width = outer dia of pipe (Bc) + 200mm or 1.25Bc (whichever is higher), thickness below pipe = 0.25Bc or 100mm (whichever is higher) and haunching = 0.25Bc, for RCC pipes of following sizes, including compaction, curing, formwork, etc complete as per drawing and/ or as directed by Engineer.			
	15.5.1	150 mm internal diameter RCC pipe	metre	161.00
	15.5.2	200 mm internal diameter RCC pipe	metre	192.00
	15.5.3	250 mm internal diameter RCC pipe	metre	219.00
	15.5.4	300 mm internal diameter RCC pipe	metre	258.00
	15.5.5	350 mm internal diameter RCC pipe	metre	385.00
	15.5.6	400 mm internal diameter RCC pipe	metre	449.00
	15.5.7	450 mm internal diameter RCC pipe	metre	519.00
	15.5.8	500 mm internal diameter RCC pipe	metre	593.00
	15.5.9	600 mm internal diameter RCC pipe	metre	791.00
	15.5.10	700 mm internal diameter RCC pipe	metre	999.00
	15.5.11	800 mm internal diameter RCC pipe	metre	1,294.00
	15.5.12	900 mm internal diameter RCC pipe	metre	1,598.00
	15.5.13	1000 mm internal diameter RCC pipe	metre	1,998.00
	15.5.14	1100 mm internal diameter RCC pipe	metre	2,336.00
	15.5.15	1200 mm internal diameter RCC pipe	metre	2,738.00
	15.5.16	1400 mm internal diameter RCC pipe	metre	3,682.00
	15.5.17	1600 mm internal diameter RCC pipe	metre	4,667.00
15.6	Providing and laying reinforced cement concrete M15 grade (using mechanical concrete mixer) with 0.4% steel reinforcement) using 20mm graded hard crusher broken stone aggregate, laying in layers of not more than 15cm thick, for bedding having width = outer dia of pipe (Bc) + 200mm or 1.25Bc (whichever is higher), thickness below pipe = 0.25Bc or 100mm (whichever is higher) and haunching = 0.25Bc, for RCC pipes of following sizes, including reinforcement, compaction, curing, formwork, etc complete as per drawing and/ or as directed by Engineer.			
	15.6.1	150 mm internal diameter RCC pipe	metre	248.00
	15.6.2	200 mm internal diameter RCC pipe	metre	296.00

Code No	Description		Unit	Rate Rs.
	15.6.3	250 mm internal diameter RCC pipe	metre	338.00
	15.6.4	300 mm internal diameter RCC pipe	metre	398.00
	15.6.5	350 mm internal diameter RCC pipe	metre	593.00
	15.6.6	400 mm internal diameter RCC pipe	metre	692.00
	15.6.7	450 mm internal diameter RCC pipe	metre	800.00
	15.6.8	500 mm internal diameter RCC pipe	metre	914.00
	15.6.9	600 mm internal diameter RCC pipe	metre	1,219.00
	15.6.10	700 mm internal diameter RCC pipe	metre	1,540.00
	15.6.11	800 mm internal diameter RCC pipe	metre	1,995.00
	15.6.12	900 mm internal diameter RCC pipe	metre	2,462.00
	15.6.13	1000 mm internal diameter RCC pipe	metre	3,079.00
	15.6.14	1100 mm internal diameter RCC pipe	metre	3,600.00
	15.6.15	1200 mm internal diameter RCC pipe	metre	4,220.00
	15.6.16	1400 mm internal diameter RCC pipe	metre	5,675.00
	15.6.17	1600 mm internal diameter RCC pipe	metre	7,193.00
15.7	Providing and laying granular bedding in layers of not more than 15cm thick, for bedding having width = outer dia of pipe (Bc) + 500mm, thickness below pipe = 0.25Bc or 100mm (whichever is higher), haunching = 0.5Bc and reinforced cement concrete M15 grade (using mechanical concrete mixer) with 1% steel reinforcement) using 20mm graded hard crusher broken stone aggregate to cover pipe having width = outer dia of pipe (Bc) + 200mm or 1.25Bc (whichever is higher), thickness over pipe = 0.25Bc or 100mm (whichever is higher) for RCC pipes of following sizes, including reinforcement, compaction, curing, form work, etc complete as per drawing and/ or as directed by Engineer.			
	15.7.1	150 mm internal diameter RCC pipe	metre	576.00
	15.7.2	200 mm internal diameter RCC pipe	metre	705.00
	15.7.3	250 mm internal diameter RCC pipe	metre	817.00
	15.7.4	300 mm internal diameter RCC pipe	metre	981.00
	15.7.5	350 mm internal diameter RCC pipe	metre	1,429.00
	15.7.6	400 mm internal diameter RCC pipe	metre	1,653.00
	15.7.7	450 mm internal diameter RCC pipe	metre	1,891.00
	15.7.8	500 mm internal diameter RCC pipe	metre	2,144.00
	15.7.9	600 mm internal diameter RCC pipe	metre	2,811.00
	15.7.10	700 mm internal diameter RCC pipe	metre	3,516.00
	15.7.11	800 mm internal diameter RCC pipe	metre	4,515.00
	15.7.12	900 mm internal diameter RCC pipe	metre	5,544.00
	15.7.13	1000 mm internal diameter RCC pipe	metre	6,892.00
	15.7.14	1100 mm internal diameter RCC pipe	metre	8,030.00
	15.7.15	1200 mm internal diameter RCC pipe	metre	9,382.00
	15.7.16	1400 mm internal diameter RCC pipe	metre	12,549.00
	15.7.17	1600 mm internal diameter RCC pipe	metre	15,842.00
15.8	Providing and constructing of brick masonry circular manholes of "Type-A" with internal dia 0.90m and depth upto 1.65m having			

Code No	Description	Unit	Rate Rs.
	230mm thick brick masonry wall in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.8.1 Manhole "Type-A" of depth 0.90 m	each manhole	9,961.00
	15.8.2 Providing and constructing extra depth of manhole "Type-A" for depth beyond 0.90 m and upto 1.65 m as per drawing and direction of Engineer.	metre	4,171.00
15.9	Providing and constructing of brick masonry circular manholes of "Type-B" with internal dia 1.20m and depth upto 2.50m having brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.9.1 Manhole "Type-B" of depth 1.70 m	each manhole	19,185.00
	15.9.2 Providing and constructing extra depth of manhole "Type-B" for depth beyond 1.70 m and upto 2.50 m as per drawing and direction of Engineer.	metre	7,459.00
15.10	Providing and constructing of brick masonry circular manholes of "Type-C" with internal dia 1.50m and depth upto 5.0m having brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m and 460mm from 2.50 to 5.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick		

Code No	Description	Unit	Rate Rs.
	foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.10.1 Manhole "Type-C" of depth 2.60 m	each manhole	32,908.00
	15.10.2 Providing and constructing extra depth of manhole "Type-C" for depth beyond 2.60 m and upto 5.0 m as per drawing and direction of Engineer.	metre	11,831.00
15.11	Providing and constructing of brick masonry circular manholes of "Type-D" with internal dia 1.50m and depth upto 9.0m having brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m, 460mm from 2.50 to 5.0m and 575mm from 5.0 to 9.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.11.1 Manhole "Type-D" of depth 5.10 m	each manhole	63,216.00
	15.11.2 Providing and constructing extra depth of manhole "Type-D" for depth beyond 5.10 m and upto 9.0 m as per drawing and direction of Engineer.	metre	14,843.00
15.12	Providing and constructing of brick masonry circular manholes of "Type-E" with internal dia 1.80m and depth upto 14.0m having brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m, 460mm from 2.50 to 5.0m, 575mm from 5.0 to 9.0m and 690mm from 9.0 to 14.0m in cement sand mortar 1:4, including		

Code No	Description	Unit	Rate Rs.
	concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.12.1 Manhole "Type-E" of depth 9.10m	each manhole	145,284.00
	15.12.2 Providing and constructing extra depth of manhole "Type-E" for depth beyond 9.10 m and upto 14.0 m as per drawing and direction of Engineer.	metre	20,754.00
15.13	Providing and constructing of sewer brick masonry circular manholes of "Type-A" with internal dia 0.90m and depth upto 1.65m having 230mm thick sewer brick masonry wall in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.13.1 Manhole "Type-A" of depth 0.90 m	each manhole	10,085.00
	15.13.2 Providing and constructing extra depth of manhole "Type-A" for depth beyond 0.90 m and upto 1.65 m with sewer brick masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	4,445.00
15.14	Providing and constructing of sewer brick masonry circular manholes of "Type-B" with internal dia 1.20m and depth upto 2.50m having sewer brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing		

Code No	Description	Unit	Rate Rs.
	compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.14.1 Manhole "Type-B" of depth 1.70 m	each manhole	19,657.00
	15.14.2 Providing and constructing extra depth of manhole "Type-B" for depth beyond 1.70 m and upto 2.50 m with sewer brick masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	8,021.00
15.15	Providing and constructing of sewer brick masonry circular manholes of "Type-C" with internal dia 1.50m and depth upto 5.0m having sewer brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m and 460mm from 2.50 to 5.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.15.1 Manhole "Type-C" of depth 2.60 m	each manhole	34,080.00
	15.15.2 Providing and constructing extra depth of manhole "Type-C" for depth beyond 2.60 m and upto 5.0 m as per drawing and direction of Engineer.	metre	12,783.00
15.16	Providing and constructing of sewer brick masonry circular manholes of "Type-D" with internal dia 1.50m and depth upto 9.0m having sewer brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m, 460mm from 2.50 to 5.0m and 575mm from 5.0 to 9.0m in cement sand mortar 1:4, including concreting PCC M-10		

Code No	Description	Unit	Rate Rs.
	grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.16.1 Manhole "Type-D" of depth 5.10m	each manhole	66,755.00
	15.16.2 Providing and constructing extra depth of manhole "Type-D" for depth beyond 5.10 m and upto 9.0 m with sewer brick masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	16,087.00
15.17	Providing and constructing of sewer brick masonry circular manholes of "Type-E" with internal dia 1.80m and depth upto 14.0m having sewer brick masonry wall 230mm thick upto 1.5m, 345mm thick from 1.50m to 2.50m, 460mm from 2.50 to 5.0m, 575mm from 5.0 to 9.0m and 690mm from 9.0 to 14.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately		
	15.17.1 Manhole "Type-E" of depth 9.10m	each manhole	154,997.00
	15.17.2 Providing and constructing extra depth of manhole "Type-E" for depth beyond 9.10 m and upto 14.0 m with sewer brick masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	22,545.00
15.18	Providing and constructing of RR stone masonry circular manholes of "Type-A" with internal dia 0.90m and depth upto 1.65m having 300mm thick RR stone masonry wall in cement sand mortar 1:4,		

Code No	Description	Unit	Rate Rs.
	including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately		
	15.18.1 Manhole "Type-A" of depth 0.90 m	each manhole	10,646.00
	15.18.2 Providing and constructing extra depth of manhole "Type-A" for depth beyond 0.90 m and upto 1.65 m with RR stone masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	4,459.00
15.19	Providing and constructing of RR stone masonry circular manholes of "Type-B" with internal dia 1.20m and depth upto 2.50m having RR stone masonry wall 300mm thick upto 1.5m, 350mm thick from 1.50m to 2.50m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately		
	15.19.1 Manhole "Type-B" of depth 1.70 m	each manhole	19,386.00
	15.19.2 Providing and constructing extra depth of manhole "Type-B" for depth beyond 1.70 m and upto 2.50 m with RR stone masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	6,315.00
15.20	Providing and constructing of RR stone masonry circular manholes of "Type-C" with internal dia 1.50m and depth upto 5.0m having RR stone masonry wall 300mm thick upto 1.5m, 350mm thick from 1.50m		

Code No	Description	Unit	Rate Rs.
	to 2.50m and 450mm from 2.50 to 5.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately		
	15.20.1 Manhole "Type-C" of depth 2.60 m	each manhole	32,047.00
	15.20.2 Providing and constructing extra depth of manhole "Type-C" for depth beyond 2.60 m and upto 5.0 m as per drawing and direction of Engineer.	metre	9,551.00
15.21	Providing and constructing of RR stone masonry circular manholes of "Type-D" with internal dia 1.50m and depth upto 9.0m having RR stone masonry wall 300mm thick upto 1.5m, 350mm thick from 1.50m to 2.50m, 450mm from 2.50 to 5.0m and 600mm from 5.0 to 9.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately		
	15.21.1 Manhole "Type-D" of depth 5.10m	each manhole	56,749.00
	15.21.2 Providing and constructing extra depth of manhole "Type-D" for depth beyond 5.10 m and upto 9.0 m with RR stone masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	12,696.00
15.22	Providing and constructing of RR stone masonry circular manholes of "Type-E" with internal dia 1.80m and depth upto 14.0m having RR		

Code No	Description	Unit	Rate Rs.
	stone masonry wall 030mm thick upto 1.5m, 350mm thick from 1.50m to 2.50m, 450mm from 2.50 to 5.0m, 600mm from 5.0 to 9.0m and 700mm from 9.0 to 14.0m in cement sand mortar 1:4, including concreting PCC M-10 grade (1:4:8) for 225mm thick foundation including curing compaction and form work etc complete, PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab including reinforcement, PCC M20 for fixing the manhole frame and cover using stone aggregate 20mm nominal size, 20mm thick inside and outside plaster in C. M. 1:3, inside plaster finished with floating coat of neat cement, vata in CM1:1 around pipe entering and leaving the manhole and also at the junction of masonry and concrete slab, providing and fixing of SFRC foot steps of approved make at every 0.30m height fixed in CM 1:3, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including refilling of Jhiri, including curing, watering, ramming, hydro testing of manhole, conveyance & cost of water, and dewatering complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separatel		
	15.22.1 Manhole "Type-E" of depth 9.10m	each manhole	127,821.00
	15.22.2 Providing and constructing extra depth of manhole "Type-D" for depth beyond 9.10 m and upto 14.0 m with RR stone masonary including 20mm plaster inside and outside as per drawing and direction of Engineer.	metre	17,116.00
15.23	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-E" with internal dia 1.40m and depth upto 3.50m having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.23.1 Manhole of depth 1.8m as per drawing and direction of Engineer.	each manhole	31,435.00
	15.23.2 Providing and constructing extra depth of manhole for depth beyond 1.8 m and upto 3.5 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	8,050.00
15.24	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-E" with internal dia 1.50m and depth upto 3.50m having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC		

Code No	Description	Unit	Rate Rs.
	foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.24.1 Manhole of depth 1.8m as per drawing and direction of Engineer.	each manhole	33,578.00
	15.24.2 Providing and constructing extra depth of manhole for depth beyond 1.8 m and upto 3.5 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	8,500.00
15.25	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-E" with internal dia 1.55m and depth upto 3.50m having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.25.1 Manhole of depth 1.8m as per drawing and direction of Engineer.	each manhole	34,411.00
	15.25.2 Providing and constructing extra depth of manhole for depth beyond 1.8 m and upto 3.5 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	8,733.00
15.26	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-E" with internal dia 1.75m and depth upto 3.50m having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
	15.26.1 Manhole of depth 1.8m as per drawing and direction of Engineer.	each manhole	39,936.00
	15.26.2 Providing and constructing extra depth of manhole for depth beyond 1.8 m and upto 3.5 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	9,716.00

Code No	Description	Unit	Rate Rs.
15.27	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-E" with internal dia 2.00m and depth upto 3.50m having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
15.27.1	Manhole of depth 1.8m as per drawing and direction of Engineer.	each manhole	42,982.00
15.27.2	Providing and constructing extra depth of manhole for depth beyond 1.8 m and upto 3.5 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	10,903.00
15.28	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-E" with internal dia 2.20m and depth upto 3.50m having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, RCC M20 for 200mm thick cover slab, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-Only Excavation work will be measured and paid separately.		
15.28.1	Manhole of depth 1.8m as per drawing and direction of Engineer.	each manhole	50,330.00
15.28.2	Providing and constructing extra depth of manhole for depth beyond 1.8 m and upto 3.5 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	11,863.00
15.29	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-F" with internal dia 1.4m and depth upto 8.0m (2.0 in conical shape) having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note-		

Code No	Description	Unit	Rate Rs.
	Only Excavation work will be measured and paid separately.		
	15.29.1 Manhole of depth 3.6m as per drawing and direction of Engineer.	each manhole	36,771.00
	15.29.2 Providing and constructing extra depth of manhole for depth beyond 3.6 m and upto 8.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	8,763.00
15.30	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-F" with internal dia 1.5m and depth upto 8.0m (2.0 in conical shape) having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note- Only Excavation work will be measured and paid separately.		
	15.30.1 Manhole of depth 3.6m as per drawing and direction of Engineer.	each manhole	39,307.00
	15.30.2 Providing and constructing extra depth of manhole for depth beyond 3.6 m and upto 8.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	9,237.00
15.31	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-F" with internal dia 1.55m and depth upto 8.0m (2.0 in conical shape) having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note- Only Excavation work will be measured and paid separately.		
	15.31.1 Manhole of depth 3.6m as per drawing and direction of Engineer.	each manhole	39,926.00
	15.31.2 Providing and constructing extra depth of manhole for depth beyond 3.6 m and upto 8.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	9,629.00
15.32	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-F" with internal dia 1.75m and depth upto 8.0m (2.0 in conical shape) having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy		

Code No	Description	Unit	Rate Rs.
	duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note- Only Excavation work will be measured and paid separately.		
	15.32.1 Manhole of depth 3.6m as per drawing and direction of Engineer.	each manhole	44,426.00
	15.32.2 Providing and constructing extra depth of manhole for depth beyond 3.6 m and upto 8.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	10,600.00
15.33	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-F" with internal dia 2.0m and depth upto 12.0m (2.0 in conical shape) having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note- Only Excavation work will be measured and paid separately.		
	15.33.1 Manhole of depth 3.6m as per drawing and direction of Engineer.	each manhole	49,633.00
	15.33.2 Providing and constructing extra depth of manhole for depth beyond 3.6 m and upto 8.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	12,223.00
	15.33.3 Providing and constructing extra depth of manhole for depth beyond 8.0 m and upto 12.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	13,951.00
15.34	Providing and constructing of RCC M-20 grade cast-in-situ circular manholes of "Type-F" with internal dia 2.2m and depth upto 12.0m (2.0 in conical shape) having 150 mm thick RCC M-20 wall, including 350 mm thick RCC M-20 grade base slab (foundation), PCC M15 for benching and channel portion, PCC M20 250mm thick for fixing the manhole frame and cover, vata in CM1:1 around pipe entering and leaving the manhole, providing and fixing of SFRC foot steps of approved make at every 0.30m height, supplying and fixing heavy duty SFRC manhole frame and cover as per IS 12592 (Part I and II) having clear opening of 560mm, including form work, reinforcement, curing, watering, hydro testing of manhole, conveyance & cost of water, dewatering etc. complete as directed by the Engineer. Note- Only Excavation work will be measured and paid separately.		
	15.34.1 Manhole of depth 3.6m as per drawing and direction of Engineer.	each manhole	52,459.00
	15.34.2 Providing and constructing extra depth of manhole for depth beyond 3.6 m and upto 8.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.	metre	13,243.00
	15.34.3 Providing and constructing extra depth of manhole for	metre	15,243.00

Code No	Description	Unit	Rate Rs.
	depth beyond 8.0 m and upto 12.0 with 150mm thick RCC M-20 wall as per drawing and direction of Engineer.		
15.35	Construction of road side inspection chamber of "Type-A" with internal dia 450mm and depth of 900mm with 200 mm thick PCC M10 in foundation, 75mm thick PCC M15 flooring in slop, 230mm thick brick masonry/ RR stone masonry in CM (1:4), 20mm thick inside and outside plastering with CM (1:3), inside plaster finished with neat coat of cement, with 560mm dia SFRC MD manhole frame and cover embedded in 200mm thick PCC M20 grade concrete, refilling of Jhiri with watering and ramming including fixing 2 Nos. 110 OD uPVC pipe pieces and plugging the same etc complete as per approved drawing and/or directed by Engineer.		
	Note : Only Excavation work will be measured and paid separately		
	15.35.1 With brick masonry wall 230mm thick	each	5,218.00
	15.35.2 With RR stone masonry wall 300mm thick	each	5,725.00
15.36	Providing at site, lowering & laying in trenches, aligning & jointing of uPVC pipes of class III (6 kg/ cm2) as per IS: 4985 and as per specification with rubber ring with socket and spigot joint, (EPDM/SBR) for all depths including well graded granular bedding (Type-E) for pipe length as per drawing and specification including hydraulic field testing and commissioning etc complete as directed by Engineer.		
	15.36.1 110mm dia	metre	289.00
	15.36.2 160mm dia	metre	502.00
15.37	Providing and making connection to the manhole/ road side chamber/ property chamber by cutting hole in wall, making good the same with brick work/ stone masonry work in cement mortar 1:4, plaster in cement mortar 1:3, encasement of pipe at manhole with 75mm thick M15 grade concrete etc complete as directed by Engineer.	each	498.00
15.38	Providing uPVC (class-III) drop connection externally upto 1m drop from branch sewer line to main sewer manhole including inspection and cleaning eye, uPVC drop pipe and bend encased alround with cement concrete M15 (1:2:4) with all form work required, cutting holes in walls and making good with brick/ stone masonry work in cement sand mortar 1:4 plastered with cement sand mortar 1:3, with stiff cement mortar 1:1 around uPVC pipe in masonary wall, making required channels complete as per standard design and specifications and/ or as directed by Engineer :		
	15.38.1 110mm dia	each	4,430.00
	15.38.2 160mm dia	each	7,138.00
15.39	Add extra for additional drop depth of uPVC (class-III) over item No 10.26 Complete as per standard design and specifications and/ or as directed by Engineer :		
	15.39.1 110mm dia	metre	1,144.00
	15.39.2 110mm dia	metre	1,521.00
15.40	Providing, fixing and erecting precast RCC (M20) Vent shaft with cowl, 125mm and 225mm internal and external dia respectively at top, 300mm and 450mm internal and external dia at bottom and 9.0m over all length, bottom 1.175m below ground level fixed in the pit	each	27,830.00

Code No	Description	Unit	Rate Rs.
	900mmx900mmx1500mm with PCC M15, 250mm in bed and minimum 200mm all around with top 150mm in PCC M15 with 20mm nominal size graded stone aggregate , junction of vent shaft and concrete grouted with cement mortar 1: including making connection with sewer manhole with 150mm dia NP4 RCC pipe (IS 458-ammended upto date) as required including Type-A bedding complete as per standard design and finished with water proofing cement of approved brand as per drawings and/or as directed by Engineer. Note : Only Excavation work will be measured and paid separately		
15.41	Raising circular manhole with circular cover 560mm dia and frame slab to required level including dismantling existing slab, taking out the existing CI frame & cover of manhole and raising it upto ground/ road level, refixing of frame and cover in M15 (1:2:4) concrete all around the frame, including making good the damage, form work, curing, complete as directed by Engineer. (Brick work of raising depth of manhole to be paid separately)	each	340.00
15.42	Lowering of circular manhole with circular cover 600mm dia and frame slab to required level including dismantling existing slab and manhole wall, taking out the existing CI frame & cover of manhole and lowering it upto ground/ road level, refixing of frame and cover in M15 (1:2:4) concrete all around the frame, including making good the damage, form work, curing, complete as directed by Engineer. (Dismantling of brick work depth of manhole to be paid separately)	each	340.00
15.43	Supplying & fixing 560mm dia SFRC manhole frame & cover in existing manholes including grouting the frame in PCC M-15 complete in all respect as directed by the Engineer.		
	15.43.1 HD-20	each	2,231.00
	15.43.2 EHD-35	each	2,798.00
15.44	Supplying & fixing 560mm dia SFRC manhole cover in existing manholes frame complete in all respect as directed by the Engineer.		
	15.44.1 HD-20	each	1,437.00
	15.44.2 EHD-35	each	1,861.00
15.45	Empting of septic tank/ soakage well etc, disposing of sludge within a lead of 5km and taking out sewage including refilling with local earth, ramming and compaction in layers, cleaning of site.	each	2,709.00
15.46	Providing uPVC (class-III) drop connection externally for depth from 0.60 m and upto 1.0 m drop from branch sewer line to main sewer manhole or vise versa including inspection and cleaning eye, uPVC drop pipe and bend encased around with cement concrete M15 with all form work, cutting holes in walls and making good with brick/ stone masonary work in cement sand mortar 1:4 plastered with cement sand mortar 1:3 with stiff cement mortar 1:1 around uPVC pipe in masonary wall, making required channels complete as per standard design and specifications and/ or as the directed of the Engineer:		
	15.46.1 (i) 200 mm dia	Each	10,404.00
	15.46.2 (ii) 250 mm dia	Each	18,094.00
	15.46.3 (iii) 315 mm dia	Each	32,490.00
15.47	Add extra for additional drop depth of uPVC (class-III) drop connection beyond 1.0 m complete as per standard specification and		

Code No	Description	Unit	Rate Rs.
	the direction of the Engineer. (To be paid for actual depth beyond 1.0 m)		
	15.47.1 (i) 200 mm dia	metre	3,487.00
	15.47.2 (ii) 250 mm dia	metre	4,143.00
	15.47.3 (iii) 315 mm dia	metre	5,170.00
15.48	Providing, lowering & laying in trenches, aligning & jointing of SW pipes at all depths with rubber gaskets (EPDM/ SBR) for sewer lines as per IS including cost of Rubber gaskets, lubricants and sectional testing of the sewer pipe line (including the cost and conveyance of water to site for testing) complete in all respect as per specification and the directed of the Engineer.		
	15.48.1 (i) 100 mm dia	metre	205.00
	15.48.2 (ii) 150 mm dia	metre	296.00
	15.48.3 (iii) 200 mm dia	metre	449.00
	15.48.4 (iv) 250 mm dia	metre	653.00
	15.48.5 (v) 300 mm dia	metre	1,020.00
15.49	Providing, fixing and constructing of pre-cast RCC M-40 grade Manhole including shuttering, reinforcement steel, testing for water tightness and fixing ferro-cement foot steps complete in all respect (excluding the cost of manhole cover and frame) as per specification and the direction of the Engineer.(Note:- Excavation of earth work and road cutting for manhole will be measured and paid separately)		
	15.49.1 > 2.7Mtr. and up to 3.0 mtr deep to invert	Each	17,932.00
	15.49.2 > 3.0 Mtr. and up to 3.3mtr deep to invert	Each	19,354.00
	15.49.3 > 3.3 Mtr. and up to 3.6 mtr deep to invert	Each	20,776.00
	15.49.4 > 3.6 Mtr. and up to 3.9 mtr deep to invert	Each	22,198.00
	15.49.5 > 3.9Mtr. and up to 4.2 mtr deep to invert	Each	23,620.00
	15.49.6 > 4.2 Mtr. and up to 4.5 mtr deep to invert	Each	25,444.00
	15.49.7 > 4.5 Mtr. and up to 4.8 mtr deep to invert	Each	26,843.00
	15.49.8 > 4.8 Mtr. and up to 5.1 mtr deep to invert	Each	28,274.00
	15.49.9 > 5.1 Mtr. and up to 5.4 mtr deep to invert	Each	29,713.00
	15.49.10 > 5.4 Mtr. and up to 5.7 mtr deep to invert	Each	31,152.00
	15.49.11 > 5.7Mtr. and up to 6.0 mtr deep to invert	Each	32,641.00
	15.49.12 > 6.0 Mtr. and up to 6.3 mtr deep to invert	Each	34,130.00
	15.49.13 > 6.3 Mtr. and up to 6.6 mtr deep to invert	Each	37,180.00
	15.49.14 > 6.6 Mtr. and up to 6.9 mtr deep to invert	Each	43,349.00
	15.49.15 > 6.9 Mtr. and up to 7.2 mtr deep to invert	Each	44,969.00
	15.49.16 > 7.2 Mtr. and up to 7.5 mtr deep to invert	Each	46,589.00
	15.49.17 > 7.5 Mtr. and up to 7.8 mtr deep to invert	Each	48,209.00
	15.49.18 > 7.8 Mtr. and up to 8.1 mtr deep to invert	Each	49,949.00
	15.49.19 > 8.1 Mtr. and up to 8.3 mtr deep to invert	Each	51,689.00
	15.49.20 > 8.3 Mtr. and up to 8.6 mtr deep to invert	Each	53,489.00
	15.49.21 > 8.6 Mtr. and up to 8.9 mtr deep to invert	Each	55,349.00
15.50	Supply of laboratory equipments like Analytical Balance, Autoclave, Dissolved Oxygen Sampler, Drying Oven, Hot Plates, Incubator,	Set	346,338.00

Code No	Description	Unit	Rate Rs.
	Microscope, Binocular, Membrane Filter Assembly, Muffle Furnace, PH Meter portable, Refrigerator (165 ltr.), Sludge Sampler, Soxhlet extraction unit, Turbidity meter, Vacuum pump, Water bath (thermostat controlled) and Glass wares of approved make including analytical chemicals and commissioning as per technical specification and the direction of the Engineer.		
15.51	Supply and fixing of CI Sluice Gate of following size as per AWWA C501 or IS:13349 including all taxes freight, loading and unloading, fitting in position including cost of labour, jointing material with nut bolts and giving satisfactory testing etc. complete in all respect as per specification and the direction of the Engineer.		
	15.51.1 (i) Size : 300mm X 300mm	Each	205,084.00
	15.51.2 (ii) Size : 400mm X 400mm	Each	237,870.00
	15.51.3 (iii) Size : 500mm X 750mm	Each	265,075.00
	15.51.4 (iv) SIze : 600mm X 600mm	Each	304,138.00
	15.51.5 (v) Size : 700mm X 700mm	Each	383,661.00
	15.51.6 (vi) Size : 800mm X 800mm	Each	433,885.00
	15.51.7 (vii) Size : 900mm X 900mm	Each	463,881.00
	15.51.8 (viii) Size :1000mm X 1000mm	Each	526,662.00
	15.51.9 (ix) Size : 1100mm X 1100mm	Each	604,091.00
	15.51.10 (x) Size : 1200mm X 1200mm	Each	691,984.00
	15.51.11 (xi) Size : 1300mm X 1300mm	Each	841,263.00
	15.51.12 (xi) Size : 1400mm X 1400mm	Each	911,020.00
	15.51.13 (xi) Size : 1500mm X 1500mm	Each	1,017,050.00
15.52	Supply, fabrication and fixing of stainless steel (SS-316) Bar screen (manually raked) with flat bar 50mm X 10mm suitable for mounting in channel of specified size with inclination not more than 60^0 and a movable covered containers of 1 cum capacity complete in all respect as per technical specification and the direction of the Engineer.		
	15.52.1.1 (i) Coarse Bar screen (manually raked) with 50mm clear opening	Each	358,973.00
	15.52.1.2 (ii) Fine Bar screen (manually raked) with 20 mm clear opening	Each	513,021.00
15.53	Supply, fabrication and fixing of stainless steel (SS-316) Bar screen (mechanically raked) with flat bar 50mm X 10mm suitable for mounting in channel of specified size with inclination not more than 75^0 complete in all respect as per technical specification and the direction of the Engineer.		
	15.53.2.1 (i) Coarse Bar screen (mechanically raked) with 50mm clear opening.	Each	2,738,937.00
	15.53.2.2 (ii) Fine Bar screen (mechanically raked) with 20 mm clear opening	Each	1,784,973.00
15.54	15.54.1 Supply and installation of Grit removal arrangement for removing grit from manual grit chamber including control valves and piping etc. complete in all respect as per the direction of the Engineer.	Each	50,472.00
	15.54.2 Supply and installation of Grit Removal System by detritor mechanism including reciprocating classifier on	Each	1,606,050.00

Code No	Description	Unit	Rate Rs.
	one side in an inclined position and organic return mixer, organic washing pumps, interconnection pipes, valves and accessories complete in all respect as per specification and the direction of the Engineer.		
15.55	15.55.1 Providing, arranging, managing and maintaining 500 sq.ft. well furnished office and well equipped Laboratory with 3 tables, 10 chairs, 2 steel almirah, one computer with printer & operator, sufficient number of display etc. to the satisfaction of the Project Manager including Electrical, Water expenses etc. For execution of this item the date of start shall be considered only when the Contractor has actually rented/constructed the required premises established the office & Laboratory as per requirement. This item shall remain valid only for original contact period; no additional payment shall be made for whatsoever reason even if time extension if provided or date of completion is extended. This office and laboratory including furniture and all other equipment shall be property of contractor after completion of Project.	Month	17,900.00
	15.55.2 Providing, arranging, managing and maintaining minimum 350 sq.ft. office with two tables, 6 chairs, one steel almirah, one computer with printer & operator, sufficient number of display etc. fully furnished office to the satisfaction of the Project Manager including Electrical, Water expenses etc. For execution of this item the date of start shall be considered only when the Contractor has actually rented/constructed the required premises established the office & Laboratory as per requirement. This item shall remain valid only for original contact period; no additional payment shall be made for whatsoever reason even if time extension if provided or date of completion is extended. This office and laboratory including furniture and all other equipment shall be property of contractor after completion of Project.	Month	11,440.00
	15.55.3 Providing, arranging, managing, and maintaining minimum 250 sq.ft. well equipped Laboratory as per specifications with two tables, 4 chairs, one steel almirah, sufficient number of display etc. to the satisfaction of the Project Manager including Electrical, Water expenses etc. For execution of this item the date of start shall be considered only when the Contractor has actually rented/constructed the required premises established the Laboratory as per requirement. This item shall remain valid only for original contact period; no additional payment shall be made for whatsoever reason even if time extension if provided or date of completion is extended. This laboratory including furniture and all other equipment shall be property of contractor after completion of Project.	Month	8,355.00

Code No	Description		Unit	Rate Rs.
15.56.	Providing at site, lowering & laying in trenches, aligning & jointing of PVC-U pipes as per IS 15328 and as per specifications with rubber rings with socket and spigot joint , (EPDM/SBR) for all depths including well graded granular bedding (Type-E) for pipe length as per drawing and specification including hydraulic field testing and commissioning etc complete as directed by Engineer.			
	15.56.1	110 mm dia	Each	210.00
	15.56.2	160 mm dia	Each	379.00
	15.56.3	200 mm dia	Each	555.00
	15.56.4	250 mm dia	Each	968.00
	15.56.5	315 mm dia	Each	1124.00
15.57	Providing PVC-U pipes as per IS 15328 drop connection externally for depth from 0.60 m and upto 1.0 m drop from branch sewer line to main sewer manhole or vise versa including inspection and cleaning eye, PVC-U drop pipe and bend encased around with cement concrete M15 with all form work, cutting holes in walls and making good with brick/ stone masonary work in cement sand mortar 1:4 plastered with cement sand mortar 1:3 with stiff cement mortar 1:1 around PVC-U pipe in masonary wall, making required channels complete as per standard design and specifications and/ or as the directed of the Engineer:			
	15.57.1	110 mm dia	metre	4505.00
	15.57.2	160 mm dia	metre	7018.00
	15.57.3	200 mm dia	metre	9201.00
	15.57.4	250 mm dia	metre	14822.00
	15.57.5	315 mm dia	metre	25155.00
15.58	Add extra for additional drop depth of PVC-U pipes as per IS 15328 drop connection beyond 1.0 m complete as per standard specification and the direction of the Engineer. (To be paid for actual depth beyond 1.0 m)			
	15.58.1	110 mm dia	metre	2858.00
	15.58.2	160 mm dia	metre	3026.00
	15.58.3	200 mm dia	metre	3201.00
	15.58.4	250 mm dia	metre	3750.00
	15.58.5	315 mm dia	metre	4215.00
15.59	Providing, laying, jointing, testing and commissioning of GLASS FIBRE REINFORCED PLASTIC (GRP) PIPES with integral socket and spigot gasket joints rated at PN-3 working pressure & pipe stiffness class SN-C (248 kPa) as per IS-14402:1996 for Use for Sewerage Industrial Waste and Water (Other than potable) suitable for underground application in standard length of 3 to12 m including jointing materials (rubber rings of EPDM as required), transportation, loading, unloading, stacking as per manufacturer's recommendation including all taxes and Duties etc. complete in all respect for following sizes : Note : E/w to be measured and paid separately.			
	15.59.1	200 mm dia	metre	666.00

Code No	Description		Unit	Rate Rs.
	15.59.2	250 mm dia	metre	933.00
	15.59.3	300 mm dia	metre	1144.00
	15.59.4	350 mm dia	metre	1420.00
	15.59.5	400 mm dia	metre	1665.00
	15.59.6	450 mm dia	metre	2000.00
	15.59.7	500 mm dia	metre	2494.00
	15.59.8	600 mm dia	metre	3100.00
	15.59.9	700 mm dia	metre	4071.00
	15.59.10	800 mm dia	metre	4859.00
	15.59.11	900 mm dia	metre	6290.00
	15.59.12	1000 mm dia	metre	7525.00
	15.59.13	1100 mm dia	metre	8869.00
	15.59.14	1200 mm dia	metre	10631.00
	15.59.15	1400 mm dia	metre	13532.00
	15.59.16	1600 mm dia	metre	17528.00
15.60	Providing, lowering, laying, aligning, fixing in position in pipe line, manually operated Knife Gate Valves of approved make for sewage applications of PN 10 class with valve Body of Cast Iron IS 210 FG 260 / Ductile Iron,Seal Retainer ring with Stainless Steel ASTM A743 type CF8, Inlet Seal / Rubber Seals of EPDM Rubber, Knife gate of Stainless Steel ASTM A 743 type 304, Bracket / Adaptor plate of Carbon Steel IS : 2062 grade A and packing of PTFE impregnated synthetic yarn of following dia complete in all respect (excluding jointing and jointing material) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer for following sizes.			
	15.60.1	80 mm dia.	Each	9954.00
	15.60.2	100 mm dia.	Each	11656.00
	15.60.3	125 mm dia.	Each	13668.00
	15.60.4	150 mm dia.	Each	15986.00
	15.60.5	200 mm dia.	Each	23938.00
	15.60.6	250 mm dia.	Each	35879.00
	15.60.7	300 mm dia.	Each	49846.00
	15.60.8	350 mm dia.	Each	72863.00
	15.60.9	400 mm dia.	Each	95776.00
	15.60.10	450 mm dia.	Each	116248.00
	15.60.11	500 mm dia.	Each	160138.00
	15.60.12	600 mm dia.	Each	213367.00
	15.60.13	700 mm dia.	Each	336277.00
	15.60.14	750 mm dia.	Each	347249.00
	15.60.15	800 mm dia.	Each	505380.00
	15.60.16	900 mm dia.	Each	621095.00
	15.60.17	1000 mm dia.	Each	767365.00
	15.60.18	1200 mm dia.	Each	1089044.00

16.0 WATER SUPPLY

Code No	Description		Unit	Rate Rs.
16.1	Providing, lowering, laying in trenches, aligning, fixing in position and jointing socketed rubber gasket type ISI marked uPVC pipes of Class III (6 Kg/sqcm) suitable for potable water with rubber ring joints (as per IS 4985-2000) of following outer dia with all accessories (excluding specials) complete including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.1.1	90 mm dia	metre	171.00
	16.1.2	110 mm dia	metre	233.00
	16.1.3	125mm dia	metre	290.00
	16.1.4	140 mm dia	metre	348.00
	16.1.5	160 mm dia	metre	447.00
	16.1.6	180mm dia	metre	560.00
	16.1.7	200mm dia	metre	694.00
	16.1.8	225 mm dia	metre	844.00
	16.1.9	250 mm dia	metre	1,059.00
	16.1.10	280 mm dia	metre	1,406.00
	16.1.11	315 mm dia	metre	1,719.00
16.2	Providing, lowering, laying in trenches, aligning, fixing in position and jointing ISI marked uPVC pipe fittings/ accessories of class III (6 Kg/sqcm) suitable for potable water with rubber rings joints in uPVC pipe pipe line at all levels/ depth including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.2.1	Equal Tee		
	16.2.1.1	90 mm dia	each	640.00
	16.2.1.2	110 mm dia	each	923.00
	16.2.1.3	125mm dia	each	1,086.00
	16.2.1.4	140 mm dia	each	1,609.00
	16.2.1.5	160 mm dia	each	2,132.00
	16.2.1.6	180mm dia	each	3,410.00
	16.2.1.7	200mm dia	each	3,792.00
	16.2.1.8	225 mm dia	each	4,270.00
	16.2.1.9	250 mm dia	each	6,672.00
	16.2.1.10	280 mm dia	each	7,652.00
	16.2.1.11	315 mm dia	each	11,790.00
	16.2.2	Double socketed 90 degree bend		
	16.2.2.1	90 mm dia	each	420.00
	16.2.2.2	110 mm dia	each	655.00
	16.2.2.3	125mm dia	each	792.00
	16.2.2.4	140 mm dia	each	977.00
	16.2.2.5	160 mm dia	each	1,329.00
	16.2.2.6	180mm dia	each	1,869.00
	16.2.2.7	200mm dia	each	2,131.00
	16.2.2.8	225 mm dia	each	3,384.00
	16.2.2.9	250 mm dia	each	5,244.00

Code No	Description		Unit	Rate Rs.
	16.2.2.10	280 mm dia	each	10,017.00
	16.2.2.11	315 mm dia	each	10,786.00
	16.2.3	Double socketed 45/22.5/11.25 degree bend		
	16.2.3.1	90 mm dia	each	463.00
	16.2.3.2	110 mm dia	each	638.00
	16.2.3.3	125mm dia	each	1,174.00
	16.2.3.4	140 mm dia	each	1,348.00
	16.2.3.5	160 mm dia	each	1,509.00
	16.2.3.6	180mm dia	each	2,454.00
	16.2.3.7	200mm dia	each	3,944.00
	16.2.3.8	225 mm dia	each	5,956.00
	16.2.3.9	250 mm dia	each	7,177.00
	16.2.3.10	280 mm dia	each	11,230.00
	16.2.3.11	315 mm dia	each	17,007.00
	16.2.4	uPVC End Plug		
	16.2.4.1	90 mm dia	each	98.00
	16.2.4.2	110 mm dia	each	152.00
	16.2.4.3	125mm dia	each	223.00
	16.2.4.4	140 mm dia	each	285.00
	16.2.4.5	160 mm dia	each	344.00
	16.2.4.6	180mm dia	each	482.00
	16.2.4.7	200mm dia	each	654.00
	16.2.4.8	225 mm dia	each	999.00
	16.2.4.9	250 mm dia	each	1,326.00
	16.2.4.10	280 mm dia	each	2,510.00
	16.2.4.11	315 mm dia	each	3,683.00
16.3	Providing, lowering, laying in trenches, aligning, fixing in position and jointing Ductile Iron (DI) ISI marked K-7 grade S&S pipes as per IS: 8329-2000 (amended upto date), with internal cement mortar lining for potable water with rubber ring (EPDM/SBR) joints as per IS: 5382-1985 (excluding special accessories) complete including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.3.1	100mm	metre	976.00
	16.3.2	150mm	metre	1,318.00
	16.3.3	200mm	metre	1,907.00
	16.3.4	250mm	metre	2,236.00
	16.3.5	300mm	metre	2,816.00
	16.3.6	350 mm	metre	3,465.00
	16.3.7	400 mm	metre	4,128.00
	16.3.8	450 mm	metre	4,795.00
	16.3.9	500 mm	metre	5,725.00
	16.3.10	600mm	metre	7,544.00
	16.3.11	700mm	metre	10,389.00
	16.3.12	800mm	metre	13,541.00
	16.3.13	900mm	metre	16,392.00

Code No	Description		Unit	Rate Rs.
	16.3.14	1000mm	metre	19,580.00
	16.3.15	1100mm	metre	27,005.00
16.4	Providing, lowering, laying in trenches, aligning, fixing in position and jointing Ductile Iron (DI) ISI marked K-9 grade S&S pipes as per IS: 8329-2000 (amended upto date), with internal cement mortar lining for potable water with rubber ring (EPDM/SBR) joints as per IS: 5382-1985 (excluding special accessories) complete including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.4.1	100mm	metre	1,118.00
	16.4.2	150mm	metre	1,513.00
	16.4.3	200mm	metre	2,068.00
	16.4.4	250mm	metre	2,715.00
	16.4.5	300mm	metre	3,427.00
	16.4.6	350 mm	metre	4,226.00
	16.4.7	400 mm	metre	5,038.00
	16.4.8	450 mm	metre	5,918.00
	16.4.9	500 mm	metre	6,987.00
	16.4.10	600mm	metre	9,203.00
	16.4.11	700mm	metre	11,753.00
	16.4.12	800mm	metre	14,565.00
	16.4.13	900mm	metre	17,626.00
	16.4.14	1000mm	metre	21,048.00
	16.4.15	1100mm	metre	27,535.00
16.5	Providing, lowering, laying in trenches, aligning, fixing in position and double flanged (screwed/ welded) centrifugally (spun) Ductile iron ISI marked K-9 grade pipes as per IS:8329-2000 (amended upto date), (excluding jointing and special accessories) complete including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.5.1	100mm	metre	2,212.00
	16.5.2	150mm	metre	3,089.00
	16.5.3	200mm	metre	4,317.00
	16.5.4	250mm	metre	5,565.00
	16.5.5	300mm	metre	7,068.00
	16.5.6	350 mm	metre	9,239.00
	16.5.7	400 mm	metre	11,236.00
	16.5.8	450 mm	metre	16,263.00
	16.5.9	500 mm	metre	15,689.00
	16.5.10	600mm	metre	20,876.00
	16.5.11	700mm	metre	26,164.00
	16.5.12	800mm	metre	31,456.00
	16.5.13	900mm	metre	38,407.00
	16.5.14	1000mm	metre	46,695.00
	16.5.15	1100mm	metre	48438.00

Code No	Description	Unit	Rate Rs.
16.6	Providing, lowering, laying, aligning, fixing in position at and jointing at all level/ depths S&S standard specials with rubber ring (EPDM/SBR) joints as per IS: 5382-1985 such as tees, bends, tapers, caps etc. within trenches in DI pipe line complete including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.		
16.6.1	Specials S&S DI K-7		
16.6.1.1	Upto 300mm dia	kg	80.00
16.6.1.2	Above 300mm dia	kg	92.00
16.6.2	Specials S&S DI K-9		
16.6.2.1	Upto 300mm dia	kg	83.00
16.6.2.2	Above 300mm dia	kg	95.00
16.6.3	Specials S&S DI K-12		
16.6.3.1	Upto 300mm dia	kg	130.00
16.6.3.2	Above 300mm dia	kg	155.00
16.7	Providing, lowering, laying, aligning, fixing in position at all level/ depths flanged standard specials such as tees, bends, tapers, caps etc. within trenches in DI pipe line complete as per Technical Specifications and as per direction of Engineer.		
16.7.1	Specials flanged DI K-7		
16.7.1.1	Upto 300mm dia	kg	63.00
16.7.1.2	Above 300mm dia	kg	67.00
16.7.2	Specials flanged DI K-9		
16.7.2.1	Upto 300mm dia	kg	112.00
16.7.2.2	Above 300mm dia	kg	118.00
16.7.3	Specials flanged DI K-12		
16.7.3.1	Upto 300mm dia	kg	157.00
16.7.3.2	Above 300mm dia	kg	160.00
16.8	Providing, lowering, laying, aligning, fixing in position at all level/ depths CI Class - B double flanged pipes of standard length of 2.75m as per IS : 7181 in trenches complete (excluding jointing and jointing material) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.		
16.8.1	100mm	metre	1,433.00
16.8.2	150mm	metre	2,285.00
16.8.3	200mm	metre	3,316.00
16.8.4	250mm	metre	4,416.00
16.8.5	300mm	metre	5,675.00
16.8.6	350 mm	metre	6,964.00
16.8.7	400 mm	metre	8,508.00
16.8.8	450 mm	metre	10,252.00
16.8.9	500 mm	metre	12,050.00
16.8.10	600mm	metre	16,127.00
16.8.11	700mm	metre	20,829.00
16.8.12	750mm	metre	23,606.00
16.8.13	800mm	metre	26,350.00
16.8.14	900mm	metre	31,900.00

Code No	Description		Unit	Rate Rs.
	16.8.15	1000mm	metre	38,115.00
16.9	Providing, lowering, laying, aligning, fixing in position at all level/ depths CI Class - B double flanged specials as per IS : 7181 in trenches complete (excluding jointing) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.			
	16.9.1	Standard specials	kg	59.00
	16.9.2	Non-standard specials	kg	64.00
16.10	Fabrication, supply of flanged/ plain ended MS pipe made from MS sheet strips of relevant IS specification of approved thickness by welding, lowering, laying, aligning, fixing in position at all level/ depths in trenches complete (excluding flanged jointing wherever required) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.			
	16.10.1	MS pipe upto 600mm dia (with minimum 5mm thickness sheet)	kg	100.00
	16.10.2	MS pipe above 600mm dia (with minimum 6.3mm thickness sheet)	kg	103.00
16.11	Fabrication, supply of flanged/ plain ended MS specials made from MS sheet strips of relevant IS specification of approved thickness by welding, lowering, laying, aligning, fixing in position at all level/ depths in trenches complete (excluding flanged jointing wherever required) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.			
	16.11.1	MS pipe specials upto 600mm dia (with minimum 5mm thickness sheet)	kg	103.00
	16.11.2	MS pipe specials above 600mm dia (with minimum 6.3mm thickness sheet)	kg	106.00
16.12	Providing and making flanged joints to double flanged C.I./ D.I. pipes and specials such as tees, bends, tapers, caps etc. at all level/ depths within trenches complete including all material i.e. rubber insertions, bolts & nuts etc, labour, testing of joint, commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.			
	16.12.1	100mm	each	183.00
	16.12.2	150mm	each	257.00
	16.12.3	200mm	each	296.00
	16.12.4	250mm	each	436.00
	16.12.5	300mm	each	447.00
	16.12.6	350 mm	each	640.00
	16.12.7	400 mm	each	1,063.00
	16.12.8	450 mm	each	1,323.00
	16.12.9	500 mm	each	1,487.00
	16.12.10	600mm	each	1,968.00
	16.12.11	700mm	each	2,527.00
	16.12.12	800mm	each	2,554.00
	16.12.13	900mm	each	2,949.00
	16.12.14	1000mm	each	2,956.00
	16.12.15	1100mm	each	3,431.00

Code No	Description	Unit	Rate Rs.
16.13	Providing, lowering, laying, aligning, fixing in position at and jointing at all level/ depths ISI marked HDPE pipes of PE-100 grade for potable water as per IS 4984 (amended upto date) in trenches in complete including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.		
16.13.1	90 mm dia	metre	238.00
16.13.2	110 mm dia	metre	346.00
16.13.3	125mm dia	metre	448.00
16.13.4	140 mm dia	metre	561.00
16.13.5	160 mm dia	metre	728.00
16.13.6	180mm dia	metre	917.00
16.13.7	200mm dia	metre	1,128.00
16.13.8	225 mm dia	metre	1,430.00
16.13.9	250 mm dia	metre	1,758.00
16.13.10	280 mm dia	metre	2,204.00
16.13.11	315 mm dia	metre	2,781.00
16.14	Providing, lowering, laying, aligning, fixing in position at and jointing at all level/ depths HDPE pipe accessories/ fittings of PE-100 grade for potable water as per IS 8360 for fabricated (amended upto date) within pipe line in trenches complete including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.		
16.14.1	Equal Tee		
16.14.1.1	90 mm dia	Each	461.00
16.14.1.2	110 mm dia	Each	786.00
16.14.1.3	125mm dia	Each	1,127.00
16.14.1.4	140 mm dia	Each	1,552.00
16.14.1.5	160 mm dia	Each	2,287.00
16.14.1.6	180mm dia	Each	3,251.00
16.14.1.7	200mm dia	Each	3,736.00
16.14.1.8	225 mm dia	Each	4,429.00
16.14.1.9	250 mm dia	Each	6,286.00
16.14.1.10	280 mm dia	Each	8,558.00
16.14.1.11	315 mm dia	Each	11,972.00
16.14.2	90 degree bend		
16.14.2.1	90 mm dia	Each	407.00
16.14.2.2	110 mm dia	Each	689.00
16.14.2.3	125mm dia	Each	982.00
16.14.2.4	140 mm dia	Each	1,353.00
16.14.2.5	160 mm dia	Each	1,990.00
16.14.2.6	180mm dia	Each	2,827.00
16.14.2.7	200mm dia	Each	3,135.00
16.14.2.8	225 mm dia	Each	3,848.00
16.14.2.9	250 mm dia	Each	5,452.00
16.14.2.10	280 mm dia	Each	7,429.00
16.14.2.11	315 mm dia	Each	10,387.00

Code No	Description		Unit	Rate Rs.
	16.14.3	End Cap		
	16.14.3.1	90 mm dia	Each	150.00
	16.14.3.2	110 mm dia	Each	222.00
	16.14.3.3	125mm dia	Each	292.00
	16.14.3.4	140 mm dia	Each	379.00
	16.14.3.5	160 mm dia	Each	523.00
	16.14.3.6	180mm dia	Each	715.00
	16.14.3.7	200mm dia	Each	857.00
	16.14.3.8	225 mm dia	Each	951.00
	16.14.3.9	250 mm dia	Each	1,310.00
	16.14.3.10	280 mm dia	Each	1,751.00
	16.14.3.11	315 mm dia	Each	2,396.00
16.15	Providing and making house service connections from water supply distribution pipe line upto 150mm dia and upto water meter chamber inside the property using MDPE (Class-PE 80) composite pipes upto 2 metre length including supply and fixing of ferrules, clamps, rubber sheets, tapping, compression fittings etc, complete including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.15.1	20 mm dia service pipe	per service connection	244.00
	16.15.2	25 mm dia service pipe	per service connection	440.00
	16.15.3	32 mm dia service pipe	per service connection	543.00
16.16	Providing, lowering, laying & jointing MDPE pipes (Class-PE 80) composite pipes for extra length for house service connections as per drawing and specifications complete including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.16.1	20 mm dia service pipe	metre	34.00
	16.16.2	25 mm dia service pipe	metre	113.00
	16.16.3	32 mm dia service pipe	metre	127.00
16.17	Providing, lowering, laying, aligning, fixing in position in pipe line, manually operated CI D/F Sluice valves of approved make (IS: 14846 amended upto date) PN 1.0 class of following dia complete (excluding jointing and jointing material) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer. Category "A" Make: (Kirloskar Bros. Ltd., Indian Valve Co. (IVC), Fouress Engineers Pvt. Ltd.). Other vendors will be considered in category “B”.			
	16.17.1	80 mm dia		
	16.17.1.1	Category "A"	each	8,560.00
	16.17.1.2	Category "B"	each	4,105.00
	16.17.2	100 mm dia		
	16.17.2.1	Category "A"	each	11,403.00
	16.17.2.2	Category "B"	each	5,834.00
	16.17.3	125 mm dia		

Code No	Description		Unit	Rate Rs.
	16.17.3.1	Category "A"	each	14,428.00
	16.17.3.2	Category "B"	each	7,143.00
	16.17.4	150 mm dia		
	16.17.4.1	Category "A"	each	17,211.00
	16.17.4.2	Category "B"	each	8,467.00
	16.17.5	200 mm dia		
	16.17.5.1	Category "A"	each	28,615.00
	16.17.5.2	Category "B"	each	13,067.00
	16.17.6	250 mm dia		
	16.17.6.1	Category "A"	each	40,473.00
	16.17.6.2	Category "B"	each	24,047.00
	16.17.7	300 mm dia		
	16.17.7.1	Category "A"	each	53,299.00
	16.17.7.2	Category "B"	each	36,065.00
	16.17.8	350 mm dia		
	16.17.8.1	Category "A"	each	124,507.00
	16.17.8.2	Category "B"	each	58,159.00
	16.17.9	400 mm dia		
	16.17.9.1	Category "A"	each	138,966.00
	16.17.9.2	Category "B"	each	72,446.00
	16.17.10	450 mm dia		
	16.17.10.1	Category "A"	each	175,932.00
	16.17.10.2	Category "B"	each	100,271.00
	16.17.11	500 mm dia		
	16.17.11.1	Category "A"	each	220,640.00
	16.17.11.2	Category "B"	each	127,404.00
	16.17.12	600 mm dia		
	16.17.12.1	Category "A"	each	332,807.00
	16.17.12.2	Category "B"	each	158,223.00
	16.17.13	700 mm dia		
	16.17.13.1	Category "A"	each	523,926.00
	16.17.13.2	Category "B"	each	239,309.00
	16.17.14	750 mm dia		
	16.17.14.1	Category "A"	each	635,609.00
	16.17.14.2	Category "B"	each	284,801.00
	16.17.15	800 mm dia		
	16.17.15.1	Category "A"	each	663,620.00
	16.17.15.2	Category "B"	each	355,069.00
	16.17.16	900 mm dia		
	16.17.16.1	Category "A"	each	890,253.00
	16.17.16.2	Category "B"	each	457,824.00
	16.17.17	1000 mm dia		
	16.17.17.1	Category "A"	each	1,128,924.00
	16.17.17.2	Category "B"	each	676,510.00

Code No	Description		Unit	Rate Rs.
16.18	Providing, lowering, laying, aligning, fixing in position C.I. D/F manually operated butterfly valves (IS: 13095) PN-1.0 class of following dia complete including all material, labour, testing along with pipe line and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.18.1	80 mm dia	each	3,622.00
	16.18.2	100 mm dia	each	4,648.00
	16.18.3	125 mm dia	each	5,858.00
	16.18.4	150 mm dia	each	6,342.00
	16.18.5	200 mm dia	each	12,281.00
	16.18.6	250 mm dia	each	24,865.00
	16.18.7	300 mm dia	each	31,217.00
	16.18.8	350 mm dia	each	54,348.00
	16.18.9	400 mm dia	each	67,235.00
	16.18.10	450 mm dia	each	78,367.00
	16.18.11	500 mm dia	each	88,339.00
	16.18.12	600 mm dia	each	147,696.00
	16.18.13	700 mm dia	each	209,813.00
	16.18.14	750 mm dia	each	273,822.00
	16.18.15	800 mm dia	each	302,216.00
	16.18.16	900 mm dia	each	357,957.00
	16.18.17	1000 mm dia	each	468,228.00
16.19	Providing, lowering, laying, aligning, fixing in position and jointing in pipe line Kinetic Double Air Valves as per IS:14845 of following dia (excluding jointing and jointing material), including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer. Category "A" Make: (Kirloskar Bros. Ltd., Indian Valve Co. (IVC), Fouress Engineers Pvt. Ltd.). Other vendors will be considered in category “B”.			
	16.19.1	50 mm dia		
	16.19.1.1	Category "A"	each	20,602.00
	16.19.1.2	Category "B"	each	10,246.00
	16.19.2	80 mm dia		
	16.19.2.1	Category "A"	each	20,741.00
	16.19.2.2	Category "B"	each	12,592.00
	16.19.3	100 mm dia		
	16.19.3.1	Category "A"	each	27,638.00
	16.19.3.2	Category "B"	each	17,375.00
	16.19.4	150 mm dia		
	16.19.4.1	Category "A"	each	50,265.00
	16.19.4.2	Category "B"	each	34,401.00
	16.19.5	200 mm dia		
	16.19.5.1	Category "A"	each	71,934.00
	16.19.5.2	Category "B"	each	48,202.00

Code No	Description	Unit	Rate Rs.
16.20	Providing, lowering, laying, aligning, fixing in position and jointing in pipe line, CI flanged Air valves class PN-1.0 single ball of approved make, including screw down isolation valve of following dia including cost of all labour, jointing material i.e. bolts, nuts, rubber insertions etc. complete including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.		
16.20.1	25mm dia.	each	649.00
16.20.2	50 mm dia.	each	7,104.00
16.21	Providing, lowering, laying, aligning, fixing in position and jointing in pipe line, dual plate check valves as per API:594 and API:598 of PN 1.0 rating of following dia (excluding jointing and jointing material), including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer. Category "A" Make: (Kirloskar Bros. Ltd., Indian Valve Co. (IVC), Fouress Engineers Pvt. Ltd.). Other vendors will be considered in category “B”.		
16.21.1	80 mm dia		
16.21.1.1	Category "A"	each	7,410.00
16.21.1.2	Category "B"	each	3,939.00
16.21.2	100 mm dia		
16.21.2.1	Category "A"	each	9,854.00
16.21.2.2	Category "B"	each	4,872.00
16.21.3	125 mm dia		
16.21.3.1	Category "A"	each	14,295.00
16.21.3.2	Category "B"	each	6,195.00
16.21.4	150 mm dia		
16.21.4.1	Category "A"	each	18,542.00
16.21.4.2	Category "B"	each	8,467.00
16.21.5	200 mm dia		
16.21.5.1	Category "A"	each	26,004.00
16.21.5.2	Category "B"	each	12,721.00
16.21.6	250 mm dia		
16.21.6.1	Category "A"	each	40,150.00
16.21.6.2	Category "B"	each	20,919.00
16.21.7	300 mm dia		
16.21.7.1	Category "A"	each	63,523.00
16.21.7.2	Category "B"	each	26,844.00
16.21.8	350 mm dia		
16.21.8.1	Category "A"	each	74,087.00
16.21.8.2	Category "B"	each	36,177.00
16.21.9	400 mm dia		
16.21.9.1	Category "A"	each	98,754.00
16.21.9.2	Category "B"	each	52,149.00
16.21.10	450 mm dia		
16.21.10.1	Category "A"	each	109,138.00
16.21.10.2	Category "B"	each	64,285.00

Code No	Description		Unit	Rate Rs.
	16.21.11	500 mm dia		
	16.21.11.1	Category "A"	each	134,767.00
	16.21.11.2	Category "B"	each	72,331.00
	16.21.12	600 mm dia		
	16.21.12.1	Category "A"	each	195,981.00
	16.21.12.2	Category "B"	each	88,303.00
	16.21.13	700 mm dia		
	16.21.13.1	Category "A"	each	261,993.00
	16.21.13.2	Category "B"	each	120,307.00
	16.21.14	750 mm dia		
	16.21.14.1	Category "A"	each	320,274.00
	16.21.14.2	Category "B"	each	160,237.00
	16.21.15	800 mm dia		
	16.21.15.1	Category "A"	each	342,141.00
	16.21.15.2	Category "B"	each	226,847.00
	16.21.16	900 mm dia		
	16.21.16.1	Category "A"	each	486,920.00
	16.21.16.2	Category "B"	each	253,526.00
	16.21.17	1000 mm dia		
	16.21.17.1	Category "A"	each	667,794.00
	16.21.17.2	Category "B"	each	266,956.00
16.22	Providing, laying and fixing float valve system of following dia of C.I. with internal partsof auxiliary valve of copper float ball, gunmetal ball cap, brass lever, brass split pin, gunmetal piston & piston cap, washer of nitrile rubber with gunmetal body including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.22.1	200mm dia.	each	51,300.00
	16.22.2	250mm dia.	each	66,700.00
	16.22.3	300mm dia.	each	82,672.00
	16.22.4	350mm dia	each	101,190.00
	16.22.5	400mm dia	each	119,990.00
16.23	Providing, lowering, laying, aligning, fixing in position and jointing CI Transition Coupling Joints for making connection between AC pipes and CI/DI pipes to match the outside diameter of following proposed pipe sizes for potable water including all jointing material as per manufacturer's specification, cost of all labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.23.1	80 mm dia	each	849.00
	16.23.2	100 mm dia	each	932.00
	16.23.3	125 mm dia	each	1,156.00
	16.23.4	150 mm dia	each	1,267.00
	16.23.5	200 mm dia	each	1,536.00
	16.23.6	250 mm dia	each	1,941.00
	16.23.7	300 mm dia	each	2,443.00
	16.23.8	350 mm dia	each	4,378.00

Code No	Description		Unit	Rate Rs.
	16.23.9	400 mm dia	each	5,341.00
	16.23.10	450 mm dia	each	6,164.00
	16.23.11	500 mm dia	each	9,285.00
16.24	Providing, lowering, laying, aligning, fixing in position and jointing CI dismantling joint (suitable for sluice valves etc.) as per IS specifications complete of the following sizes including all jointing material, cost of all labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.24.1	80 mm dia PN-1.0	each	2,495.00
	16.24.2	100 mm dia PN-1.0	each	3,262.00
	16.24.3	125 mm dia PN-1.0	each	3,939.00
	16.24.4	150 mm dia PN-1.0	each	5,112.00
	16.24.5	200 mm dia PN-1.0	each	7,126.00
	16.24.6	250 mm dia PN-1.0	each	9,292.00
	16.24.7	300 mm dia PN-1.0	each	10,646.00
	16.24.8	350 mm dia PN-1.0	each	14,812.00
	16.24.9	400 mm dia PN-1.0	each	19,279.00
	16.24.10	450 mm dia PN-1.0	each	23,309.00
	16.24.11	500 mm dia PN-1.0	each	27,009.00
	16.24.12	600 mm dia PN-1.0	each	36,033.00
	16.24.13	750 mm dia PN-1.0	each	42,000.00
16.25	Providing, lowering, laying, aligning, fixing in position and jointing CI D- joint class-10 as per IS specifications complete of the following sizes including all jointing material, cost of all labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.25.1	80 mm dia	each	393.00
	16.25.2	100 mm dia	each	446.00
	16.25.3	125 mm dia	each	536.00
	16.25.4	150 mm dia	each	631.00
	16.25.5	200 mm dia	each	879.00
	16.25.6	250 mm dia	each	1,111.00
	16.25.7	300 mm dia	each	1,326.00
	16.25.8	350 mm dia	each	2,167.00
	16.25.9	400 mm dia	each	2,507.00
	16.25.10	450 mm dia	each	2,897.00
	16.25.11	500 mm dia	each	4,050.00
	16.25.12	600 mm dia	each	6,074.00
16.26	Providing, lowering, laying, aligning, fixing in position and jointing CI D- joint class-15 as per IS specifications complete of the following sizes including all jointing material, cost of all labour, testing and commissioning as per Technical Specifications and as per direction of Engineer.			
	16.26.1	80 mm dia	each	393.00
	16.26.2	100 mm dia	each	446.00
	16.26.3	125 mm dia	each	540.00
	16.26.4	150 mm dia	each	645.00

Code No	Description		Unit	Rate Rs.
	16.26.5	200 mm dia	each	884.00
	16.26.6	250 mm dia	each	1,132.00
	16.26.7	300 mm dia	each	1,358.00
	16.26.8	350 mm dia	each	2,306.00
	16.26.9	400 mm dia	each	2,641.00
	16.26.10	450 mm dia	each	3,134.00
	16.26.11	500 mm dia	each	4,319.00
	16.26.12	600 mm dia	each	6,585.00
16.27	Providing and fixing Stain less steel AISI 304 Strainer Cylindrical type for out let, drain pipes of following sizes including all material labour as per Technical Specifications and as per direction of Engineer.			
	16.27.1	150 mm dia	each	6,114.00
	16.27.2	200 mm dia	each	8,975.00
	16.27.3	250 mm dia	each	21,154.00
	16.27.4	350 mm dia	each	28,741.00
	16.27.5	400 mm dia	each	40,387.00
	16.27.6	450 mm dia	each	52,112.00
	16.27.7	500 mm dia	each	63,825.00
	16.27.8	600 mm dia	each	71,544.00
16.28	Providing and fixing in position CI Puddle collar (approx. 1m length) inside the wall including all material labour as per Technical Specifications and as per direction of Engineer.			
	16.28.1	80mm dia	each	8,555.00
	16.28.2	100mm dia	each	10,618.00
	16.28.3	150mm dia	each	16,166.00
	16.28.4	200mm dia	each	22,131.00
	16.28.5	250mm dia	each	28,514.00
	16.28.6	300mm dia	each	35,436.00
	16.28.7	350mm dia	each	42,654.00
	16.28.8	400mm dia	each	50,216.00
	16.28.9	450mm dia	each	58,770.00
	16.28.10	500mm dia	each	66,822.00
16.29	Providing and fixing electronic water level indicator with specified nos of level indications including p/f prons in overhead tank, necessary cabling from level indicating panel to prones in over head tank (upto 5 metre length) in proper manner as per specification and direction of Engineer.			
	16.29.1	5 level indications and cabling upto length of 5 metre	set	10,000.00
	16.29.2	Providing and fixing extra length of cable in above item	metre	120.00
16.30	Providing and fixing angle iron frame 25 x 25 x 3mm for ventilators fixed with 24 gauge square mesh of 14 gauge stainless steel wire including 10 mm square bars at interval of 100 mm welded to frame with metal beading of 20 x 3mm complete in all respect as per technical specifications and drawings as per technical specification and as per direction of Engineer.		kg	60.00

Code No	Description		Unit	Rate Rs.
16.31	Providing, installation, testing and commissioning of following Stain less steel AISI 304 Expansion bellows of 10 bar rating with tie rods as per technical specifications and layout drawings including jointing material like nuts, bolts, rubber gaskets etc. complete in all respect as per technical specification and as per direction of Engineer.			
	16.31.1	125 mm	each	5,449.00
	16.31.2	150 mm	each	8,377.00
	16.31.3	200 mm	each	14,791.00
	16.31.4	250 mm	each	23,309.00
	16.31.5	400 mm	each	58,764.00
	16.31.6	500 mm	each	92,089.00
	16.31.7	600 mm	each	133,350.00
16.32	Providing, installation, testing and commissioning of glycerin filled Pressure gauge of following ranges with isolation valve and tap off pipe complete in all respect as per technical specification and as per direction of Engineer.			
	16.32.1	- 1.0 to +1.0 kg/cm²	each	516.00
	16.32.2	0 to 4.0 kg/cm²	each	582.00
	16.32.3	0 to 6.0 kg/cm²	each	716.00
	16.32.4	0 to 10.0 kg/cm²	each	849.00
16.33	Providing, installation, testing and commissioning of Electromagnetic Flow Meter etc. including all materials (excluding CI/DI fittings) and making connection with existing pipeline required for Electromagnetic Flow Meter including cutting the existing pipe line etc. complete in all respect as per technical specification and as per direction of Engineer.			
	16.33.1	EMF80 for DN 80 mm	each	118,137.00
	16.33.2	EMF100 for DN 100 mm	each	216,710.00
	16.33.3	EMF150 for DN 150 mm	each	230,322.00
	16.33.4	EMF200 for DN 200 mm	each	314,780.00
	16.33.5	EMF300 for DN 300 mm	each	400,750.00
	16.33.6	EMF400 for DN 400 mm	each	673,000.00
	16.33.7	EMF500 for DN 500 mm	each	963,459.00
	16.33.8	EMF600 for DN 600 mm	each	1,425,679.00
16.34	Providing, installation, testing and commissioning of Bulk Flow Meter with removable mechanism class "B" confirming to IS: 4064/1 including all materials (excluding CI/DI fittings) and making connection with existing pipeline required for Bulk Flow Meter including cutting the existing pipe line etc complete in all respect as per technical specification and as per direction of Engineer.			
	16.34.1	BFM80 for DN 80 mm	each	7,877.00
	16.34.2	BFM100 for DN 100 mm	each	10,905.00
	16.34.3	BFM150 for DN 150 mm	each	19,056.00
	16.34.4	BFM200 for DN 200 mm	each	29,972.00
	16.34.5	BFM300 for DN 300 mm	each	62,120.00
	16.34.6	BFM400 for DN 400 mm	each	106,668.00
	16.34.7	BFM500 for DN 500 mm	each	159,839.00
	16.34.8	BFM600 for DN 600 mm	each	172,228.00

Code No	Description		Unit	Rate Rs.
16.35	Disinfecting water mains by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the PHED laboratory :			
	16.35.1	80 mm dia	metre	8.00
	16.35.2	100 mm dia	metre	10.00
	16.35.3	125 mm dia	metre	12.00
	16.35.4	150 mm dia	metre	20.00
	16.35.5	200 mm dia	metre	26.00
	16.35.6	250 mm dia	metre	36.00
	16.35.7	300 mm dia	metre	52.00
	16.35.8	350 mm dia	metre	70.00
	16.35.9	400 mm dia	metre	88.00
	16.35.10	450 mm dia	metre	108.00
	16.35.11	500 mm dia	metre	128.00
	16.35.12	600 mm dia	metre	173.00
	16.35.13	700 mm dia	metre	231.00
	16.35.14	750 mm dia	metre	302.00
	16.35.15	800 mm dia	metre	377.00
	16.35.16	900 mm dia	metre	466.00
	16.35.17	1000 mm dia	metre	568.00
16.36	Extra for every operation of disinfecting the water main by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with fresh water, including getting the samples of water tested in the PHED laboratory :			
	16.36.1	80 mm dia	metre	4.00
	16.36.2	100 mm dia	metre	5.00
	16.36.3	125 mm dia	metre	6.00
	16.36.4	150 mm dia	metre	9.00
	16.36.5	200 mm dia	metre	11.00
	16.36.6	250 mm dia	metre	16.00
	16.36.7	300 mm dia	metre	18.00
	16.36.8	350 mm dia	metre	23.00
	16.36.9	400 mm dia	metre	27.00
	16.36.10	450 mm dia	metre	39.00
	16.36.11	500 mm dia	metre	43.00
	16.36.12	600 mm dia	metre	61.00
	16.36.13	700 mm dia	metre	80.00
	16.36.14	750 mm dia	metre	101.00
	16.36.15	800 mm dia	metre	123.00
	16.36.16	900 mm dia	metre	155.00
	16.36.17	1000 mm dia	metre	181.00
16.37	Supply, installation and commissioning of Mono Rail Single Girder Crane suitable for lift upto 9m with chain pulley block and traveling trolley excluding cost of girder complete in all respect as per the			

Code No	Description	Unit	Rate Rs.
	direction of the Engineer.		
	16.37.1 (i) 1 tonne capacity	Each	28741.00
	16.37.2 (ii) 2 tonne capacity	Each	37791.00
	16.37.3 (iii) 3 tonne capacity	Each	42977.00
16.38	Supply, installation and commissioning of Capacitance type Level Indicator-Transmitter suitable for measure liquid level in the sump upto specified depth with microcontroller based system. The 6 digit LCD display Indicator shall be installed on the top of the tank with 24 VDC power supply, rigid/flexible type electrode of SS 316, PTFE sheathed as per technical specification and direction of the Engineer.		
	16.38.1 (i) Depth 0-3 m	Each	18909.00
	16.38.2 (ii) Depth 0-6 m	Each	22037.00
	16.38.3 (iii) Depth 0-10 m	Each	25947.00
16.39	Supply of Chlorine Safety Equipment set comprising of the items Chlorine leak detector with two sensors, self contained compressed air breathing apparatus, safety shower with eye wash, emergency tonner repair kit, protective clothing such as PVC overall, gloves and rubber boots; complete as per detailed specifications & the directed of the Engineer.	Set	232153.00
16.40	Providing, lowering, laying, aligning and fixing of float valve system for the following diameter of C.I.with internal parts of auxiliary valve of copper float ball, gunmetal ball cap, brass lever, brass split pin, gunmetal piston & piston cap, washer of nitrile rubber with gunmetal body including all material, labour, hydraulic testing and commissioning as per technical specification and as per the direction of the Engineer.		
	150 mm dia	Each	29530.00
16.41	Supplying, erecting, testing & commissioning of electrically operated Overhead Hoist (EOH) (single bridge girder carrying two wheels , complete with chain pulley block, load chain of welded construction of alloy steel as per IS:2429, hand chains for hoisting & traverse mechanism, totally encased Gears, trolley, trolley track wheels. Axle & shaft, swivel type lifting hook as per IS:3815, lock to prevent hook from swiveling, brakes for lifting gear, suitable for the above parameters and as per the direction of the Engineer.		
	16.41.1. (i) 2 MT Capacity	Each	400000.00
	16.41.2 (ii) 3 MT Capacity	Each	485000.00
16.42	Supply and Pushing of MS casing pipe of specified thickness by trenchless technology by hydraulic jacking and smooth controlled pushing method under running traffic condition as per railway standard including carrying out survey work at the job site for determining under ground cable trenches like telephone, cable, water & sanitary lines and resistivity test for finding the soil strata using necessary equipments for completion of works, mobilizing of machineries and specialized crew at the job site complete in all respect, including excavation of driven pit and exit pit with proper protection at three sites with shoring sheets and ISMB's.Providing MS cutting edges for front shield and Constructing thrust bed at designated level. Necessary de-watering and providing concrete foundation at the base of the driven pit, PVC/Rubber suddle as per the requirement of Railway Authority, crane for handing of pipe and any other machinery, tools, and tackles required, construction		

Code No	Description	Unit	Rate Rs.
	of temporary works as per requirement and as per approved by railway authorities, specification and the direction of the Engineer.		
	16.42.1 (a) In all type of soils		
	16.42.1.1 (i) 600 mm dia 12 mm thick casing pipe	metre	48,704.00
	16.42.1.2 (ii) 700 mm dia 12 mm thick casing pipe	metre	55,732.00
	16.42.1.3 (iii) 800 mm dia 12 mm thick casing pipe	metre	62,760.00
	16.42.1.4 (iv) 900 mm dia 12 mm thick casing pipe	metre	69,787.00
	16.42.1.5 (v) 1000 mm dia 12 mm thick casing pipe	metre	76,815.00
	16.42.1.6 (vi) 1100 mm dia 16mm thick casing pipe	metre	93,954.00
	16.42.1.7 (vii) 1200 mm dia 16mm thick casing pipe	metre	102,524.00
	16.42.1.8 (viii) 1400 mm dia 16mm thick casing pipe	metre	115,565.00
	16.42.1.9 (ix) 1600 mm dia 20 mm thick casing pipe	metre	150,565.00
	16.42.1.10 (x) 1800 mm dia 20 mm thick casing pipe	metre	174,543.00
	16.42.1.11 (xi) 2000 mm dia 20 mm thick casing pipe	metre	192,746.00
	16.42.2 (b) In Rock		
	16.42.2.1 (i) 600 mm dia 12 mm thick casing pipe	metre	70,504.00
	16.42.2.2 (ii) 700 mm dia 12 mm thick casing pipe	metre	81,531.00
	16.42.2.3 (iii) 800 mm dia 12 mm thick casing pipe	metre	92,560.00
	16.42.2.4 (iv) 900 mm dia 12 mm thick casing pipe	metre	103,587.00
	16.42.2.5 (v) 1000 mm dia 12 mm thick casing pipe	metre	114,615.00
	16.42.2.6 (vi) 1100 mm dia 16mm thick casing pipe	metre	135,607.00
	16.42.2.7 (vii) 1200 mm dia 16mm thick casing pipe	metre	147,883.00
	16.42.2.8 (viii) 1400 mm dia 16mm thick casing pipe	metre	165,651.00
	16.42.2.9 (ix) 1600 mm dia 20 mm thick casing pipe	metre	211,990.00
	16.42.2.10 (x) 1800 mm dia 20 mm thick casing pipe	metre	248,253.00
	16.42.2.11 (xi) 2000 mm dia 20 mm thick casing pipe	metre	274,017.00
(II)	**Thrust boring for pipe laying under NH road Crossing.**		
16.43	Providing, laying and jointing RCC NP4 pipe with cement mortar joints by hydraulic jacking and smooth controlled pushing method under running traffic condition as per the direction of NHAI including carrying out survey work at the job site for determining underground cable trenches like telephone, power cable, water & sanitary lines and resistivity tests for finding the soil strata using necessary equipments for completion of work, mobilizing of machineries and specialized crew at the job site, etc. complete in all respects, including excavation of drive pit and exit pit with proper protection at the three sides, providing and casting of MS cutting edges for front shield and constructing thrust bed at designed level as directed by the Engineer, necessary de-watering and providing concrete foundations at the base of the Drive pit, crane for handling of pipes, and any other machinery, tool & tackels required, construction of temporary works as per requirement and as approved by NH authorities complete in all respect for the road crossing at necessary depth (all depths) with all lead and lifts, as per specification and the direction of the Engineer.		
	16.43.1 (a) In all type of soils		
	16.43.1.1 (i) 600 mm dia RCC pipe	metre	32282.00

Code No	Description		Unit	Rate Rs.
	16.43.1.2	(ii) 700 mm dia RCC pipe	metre	36801.00
	16.43.1.3	(iii) 800 mm dia RCC pipe	metre	41709.00
	16.43.1.4	(iv) 900 mm dia RCC pipe	metre	46616.00
	16.43.1.5	(v) 1000 mm dia RCC pipe	metre	51766.00
	16.43.1.6	(vi) 1100 mm dia RCC pipe	metre	57401.00
	16.43.1.7	(vii) 1200 mm dia RCC pipe	metre	62700.00
	16.43.1.8	(viii) 1400 mm dia RCC pipe	metre	70895.00
	16.43.1.9	(ix) 1600 mm dia RCC pipe	metre	88263.00
	16.43.1.10	(x) 1800 mm dia RCC pipe	metre	108241.00
	16.43.2	**(b) In Rock**		
	16.43.2.1	(i) 600 mm dia RCC pipe	metre	54081.00
	16.43.2.2	(ii) 700 mm dia RCC pipe	metre	62602.00
	16.43.2.3	(iii) 800 mm dia RCC pipe	metre	71509.00
	16.43.2.4	(iv) 900 mm dia RCC pipe	metre	80417.00
	16.43.2.5	(v) 1000 mm dia RCC pipe	metre	89565.00
	16.43.2.6	(vi) 1100 mm dia RCC pipe	metre	99055.00
	16.43.2.7	(vii) 1200 mm dia RCC pipe	metre	108060.00
	16.43.2.8	(viii) 1400 mm dia RCC pipe	metre	120979.00
	16.43.2.9	(ix) 1600 mm dia RCC pipe	metre	149689.00
	16.43.2.10	(x) 1800 mm dia RCC pipe	metre	181950.00
(III)		**HDPE pipes by trench less technology**		
16.44	Providing, laying, jointing, testing and commissioning of HDPE PE-100/PN-6 (Suitable for pulling method for jointing) pipes for sewer line as per IS-14333:1996 by trenchless technology for suitable length to suit the available space for thrust pit and to maintain direction and grade at required depth including carriage etc. complete in all respect. Construction of thrust pit and receiving pit of required size up to required depth of sewer and soil investigation, making suitable arrangement for barricading of pits, traffic diversion, lights, traffic permission from relevant authority (though department will assist in getting the permission), refilling of pits in compected layers of 150 mm including disposal of surplus material with all lift and lead upto 50 metre as per specification and the direction of the Engineer.			
	16.44.1	In all types of soil		
	16.44.1.1	200 mm dia HDPE pipe	metre	9375.00
	16.44.1.2	250 mm dia HDPE pipe	metre	10250.00
	16.44.1.3	315 mm dia HDPE pipe	metre	18500.00
	16.44.1.4	400 mm dia HDPE pipe	metre	25250.00
	16.44.1.5	500 mm dia HDPE pipe	metre	34125.00
	16.44.1.6	630 mm dia HDPE pipe	metre	49375.00
	16.44.1.7	710 mm dia HDPE pipe	metre	60750.00
	16.44.1.8	800 mm dia HDPE pipe	metre	71875.00
	16.44.1.9	900 mm dia HDPE pipe	metre	83500.00
	16.44.1.10	1000 mm dia HDPE pipe	metre	110875.00
16.45	Supply, fabricating & fixing of anodised (20 to 25 micron) Aluminum ladder of 450mm wide with 2 nos rectangular section of		metre	1240.00

Code No	Description	Unit	Rate Rs.
	65 x 35 mm (3 mm thick) as vertical post and 25 mm bars steps at 300 mm c/c complete in all respect as per the specification and the direction of the Engineer.		
16.46	Providing and fixing in position lightening arrester of copper bar of 25mm dia. and 2m long connected by a aluminum strip of 25mm wide and 3mm thick and strip shall be connected to a 600mm x 600mm x 3mm thick Copper plate embedded below ground in earthling pit with 40mm dia. GI pipe, the earthling shall comply of IS:3043 complete in all respect as per specification and the direction of the Engineer.	Each	10002.00
16.47	Providing, installing, testing and commissioning of vacuum Feed Gas Chlorinator with all accessories and making connection with existing pipeline required including supply & installation of trunnion roller support, auxiliary container valve, flexible copper connector, manifold valve, tonner manifold pipes, chlorine Pressure gauge, Isolation valve, gas filter, pressure reducing valve, chlorine gas pipe with fittings, diffuser, lifting beam, load indicator, 25 NB PP diaphragm Valve on injector inlet & outlet, 32 OD uPVC pipe for chlorine solution, 25 NB GI pipe for pump suction & delivery, 25 NB GM gate valve on pump suction & delivery, 25 NB GM 'Y' type strainer on pump suction, 25 NB GM Check valve on pump delivery, pressure gauge with Isolated valve on pump delivery and chlorine booster pump with motor of required capacity complete in all respect as per specification and the direction of the Engineer.		
	16.47.1 (i) 1 kg/hr capacity	Each	229224.00
	16.47.2 (ii) 2 kg/hr capacity	Each	241898.00
	16.47.3 (iii) 3 kg/hr capacity	Each	254573.00
16.48	Supply of Chlorine Tonner with rollers complete in all respect as per specifications the direction of the Engineer.	Each	102000.00
16.49	Making house service connection from water supply distribution pipe line upto water meter chamber, with MDPE (Class-PE 80) composite pipes of 15 mm Diameter including supply and fixing of ferrules, clamps, rubber sheet, tapping, union, stop cock,non return valve, compression fittings including all material, labour, testing and commissioning as per technical specifications and the direction of the Engineer.		
	16.49.1 (i) For connection upto 5 mt.	Each	468.00
	16.49.2 (ii) For connection more than 5 m up to 10 mt.	Each	603.00
	16.49.3 (iii) For connection more than 10 m up to 20 mt.	Each	885.00
16.50	Supply, fixing, testing and commissioning of Multi jet magnetic type class-B domestic water meter of 15mm size with end coupling as per relevant technical specification and the direction of the Engineer.		
	16.50.1 ISI Marked as per IS: 779-1996	Each	792.00
	16.50.2 EEC approved	Each	1092.00
16.51	Providing, fabricating and erecting hand railing for walkway, top dome slab, balcony, staircase and landing consisting of two rows (one at top and other at middle level) of 20 mm GI pipe class-B and 900 mm high vertical angle 65X65X6 mm at spacing 1.50 m c/c including welding, threading, applying a priming coat of approved steel primer and embedding in cement concrete floor complete in all respect as per specification and the direction of the Engineer.	metre	450.00

Code No	Description		Unit	Rate Rs.
16.52	16.52.1	Providing, fabricating and erecting MS ladder of 450mm wide made of 65 x 65 x 6mm angle iron and 20mm MS bars welded at 300 mm c/c for walkway to top of the OHSR including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer complete in all respect as per specifications and the direction of the Engineer.	metre	843.00
	16.52.2	Providing, fabricating and erecting MS ladder (with MS cage) of 450mm wide made of 65 x 65 x 6mm angle iron, 20mm MS bars welded at 300 mm c/c for walk way to top of the OHSR and for cage flat 3 Nos-75 x 8 as vertical member and flat 40 x 5 as horizontal member 300 c/c including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete as per specification and the direction of the Engineer.	metre	2115.00
16.53	Construction of Tube-well upto 100 Meter depth and above in all type of rocks by DTH system and over burden to accommodate casing pipe of following sizes in all types of soils and over burden including lowering of casing pipes but excluding cost of casing pipes as per IS : 2800 (Part I & II) 1979 specifications. The work would be completed after obtaining sand free water. The tube well should have a throughout bore as per nominal dia of casing pipe:			
	16.53.1	(i) 100 mm dia Nominal bore.	metre	285.00
	16.53.2	(ii) 125mm-do-.	metre	330.00
	16.53.3	(iii) 150mm-do-	metre	500.00
	16.53.4	(iv) 200 mm –do-	metre	750.00
16.54	Construction of tube-well from ground levels and upto 100 Meter depth and above to accommodate housing and assembly pipe of following sizes in all types of alluvium strata by percussion/ rotary drilling method and with gravel as per IS:4097-1967 and packing as per IS:2800 (Part I -& II) 1979 as amended upto date (the work includes the cost of gravel & its primary packing and packing during development, lowering of housing & strainer assembly pipes, with supply and wrapping of coir-rope, wherever necessary for arresting fine sand particles. The work will not include cost of housing pipe and strainer pipe assembly and development work, but work would be completed after obtaining sand free water).			
	16.54.1	(i) 150 mm Nominal bore.	metre	800.00
	16.54.2	(ii) 200mm –do-.	metre	1100.00
	16.54.3	(iii) 250mm –do-.	metre	1400.00
16.55	Development of tube well as per IS specification using suitable compressor to give sand free water for required yield of the gravel packed tube well.		Hour.	450.00
16.56	Supply of ERW M.S. black casing pipe ISI marked (IS: 4270/1992) of grade Fe410 of following sizes at site of work. Nominal bore of pipe (mm)			
	16.56.1	(i) 100	metre	597.00
	16.56.2	(ii) 125	metre	743.00
	16.56.3	(iii) 150	metre	889.00
	16.56.4	(iv) 200	metre	1256.00
	16.56.5	(v) 250	metre	2053.00

Code No	Description	Unit	Rate Rs.
16.57	Supply of strainer pipes made of ERW M.S. black pipe ISI mark of following sizes at the site of work including required size of slotting as per IS:8110-1985.		
16.57.1	(i) 150 mm Nominal Bore.	metre	1089.00
16.57.2	(ii) 200mm-do-.	metre	1456.00
16.57.3	(iii) 250mm-do-.	metre	2253.00
16.58	Testing verticality of tube-well by plumbing system and yield test and draw down test by pumping system as per IS: 2800 (Part II) 1979.	Each	6300.00
16.59	Supply and fixing of tube well cover of M.S. sheet (6mm thick) with nuts and bolts complete for casing size:		
16.59.1	(i) 100mm dia	Each	140.00
16.59.2	(ii) 125mm dia	Each	170.00
16.59.3	(iii) 150mm dia	Each	210.00
16.59.4	(iv) 200mm dia	Each	280.00
16.59.5	(v) 250mm dia	Each	300.00
16.60	Supply and fixing of M.S. clamp set of 50 ×6mm flat iron with nuts and bolts etc. for holding the riser pipe assembly of submersible pump set.	Each	200.00
16.61	Installation of submersible motor pump set in tube-well/open well complete (labour charges only) including transportation of tripod, chain pulley block & any other material required for lowering purpose.	Each	2800.00
16.62	Providing & lowering of G.I. flange pipe including rubber washer and nuts of 8 mm dia complete in all respect.		
	(i) B Class 50 mm dia	metre	366.00
	(ii) B Class 75 mm dia	metre	471.00
	(iii) B Class 100 mm dia	metre	667.00
16.63	Providing bedding/ haunching for pipe with clean sand passing through IS sieve 2.36 mm and retained on 180 micron sieve in layers including ramming ,consolidation complete in all respect as per specification and the direction of the Engineer with all lead and lift.	cum	610.00
16.64	Providing, installing, testing and commissioning of Electromagnetic Flow Meter as per IS including all materials (excluding CI/DI fittings) and making connection with existing pipeline required inclusive of cutting the existing pipe line complete in all respect as per technical specification and the direction of the Engineer.		
	(i) EMF250 for DN 250 mm	Each	165589.00
	(ii) EMF450 for DN 450 mm	Each	349440.00
16.65	Providing, lowering, laying, alingning, fixing in position in pipe line Zero Velocity Valves as per IS:14845 of following dia (excluding jointing and jointing material), including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer etc,complete in all respect.	Each	223850.00
16.66	Providing, lowering, laying, alingning, fixing in position in pipe line Air Cussion Valves as per IS:14845 of following dia (excluding jointing and jointing material), including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer etc,complete in all respect.	Each	104060.00