

Morbi RoB, LC-34B under SJMMSVY : Construction of Proposed Two Lane Railway Over Bridge (RoB) in Lieu of LC No.34 B at Rly. Km. 29/4 to 29/5, Between Morbi – Navlakhi Station on WKT – NLK Section on Morbi – Navlakhi Road Under programme of SJMMSVY.

SCHEDULE - B

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
1	Clearing and grubbing road land including uprooting rank vegetation grass bushes, shrubs, sapling and trees girth up to 300 mm removal of stumps of trees cut earlier and disposal of unserviceable materials (C) By mechanical means in area of light jungle	0.50	Hectare	28455.09	14,227.55
2	Demarkation of road alingment including marking out road line by providing and fixing wooden pegs or steel rod of required size at every 25 M to 50 M & at pier location. including excavating trenches ion both sodes of 0.30 m. x 0.30M. including supplying of labours and all materials for every work etc. complete	1.90	Km	2706.5	5,142.35
3	Dismantling of Flexible Pavements (Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately)	1243.50	Cum	525.2	6,53,086.20
4	Dismantling of Structures (Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres). Prestressed / Reinforced cement concrete grade M-20 & above	340.00	Cum	920.11	3,12,837.40
5	Empty boring through all sorts of strata for providing 1.20 Mt. diameter R.C.C. bored piles to required depth required depth including providing necessary casing pipe with all plants and equipments as required complete	4539.00	Rmt	5557.05	2,52,23,449.95
6	Providing steel Liner for curbs and steining for wells including fabricating and setting out as per detailed drawing as directed.	78.60	M.T.	47323.73	37,19,645.18
7	Providing and laying controlled cement concrete M 35 for R.C.C.bored piles of 1.20 M dia. Including ramming, vibrating and finishing excluding T.M.T Reinforcement complete.	502.00	Cum	5020.71	25,20,396.42
8	Providing and laying controlled cement concrete M 40 for R.C.C. bored piles of 1.20M dia. including ramming , vibrating and finishing excluding cost of T.M.T reinforcement etc. complete	4628.40	Cum	5107.57	2,36,39,876.99
9	Excavation for foundation in sand gravel, clay, soft, soils and murrum etc. including soring strutting and dewatering as necessary and dis posing off the excavated stuff as directed (A) up to 3.00 mt depth and lead upto 100m for 10 Cum	7853.50	Cum	511.11	40,14,002.39
10	Static Load testing of foundation piles including loading with necessary kentledge or any other suitable method as directed.	2000.00	MT	187.38	3,74,760.00
11	Dyanamic Load testingof foundation piles including loading with necessary kentledge or any other suitable method as directed.	6.00	NO.	35767.11	2,14,602.66

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
12	Conducting Pile low strain integrity test as per ASTM D 5882-96 code of American Society for Testing on cast -in situ RCC pile of 1200 mm diameter inclusive of analysis with all contractor's equipment, manpower, site preparation, lead and lifts etc. complete as per standard procedure, and as directed by the Engineer in charge. Note:- Rate is inclusive All equipment, All labour and consumable required & Mobilization of equipment.	172.00	NO.	1200	2,06,400.00
13	Carting of excavated material such as murrum, earth, kapachi, gravel, brickbats, kankar, debris, sand, dismantled material, including loading, unloading, stacking etc. complete at non objectional place as directed by engineer in charge.(Lead up to 5.0 km)	6521.40	Cum	81.15	5,29,211.61
14	Providing & filling in foundation with ordinary cement concrete M 15 mix and providing necessary vertical pin headers including formwork vibrating ramming & curing complete.	774.60	Cum	3715.79	28,78,250.93
15	Providing and casting in-situ controlled cement concrete M 35 For R.C.C. pile cap including necessary formwork vibrating, curing and finishing complete.	2380.00	Cum	5195.44	1,23,65,147.20
16	Providing and casting in situ controlled cement concrete M-35 for R.C.C. return as per drawings including centering shuttering, scaffolding where necessary, laying vibrating, curing and finishing complete. complete as per specification.(1) Piers (2) Abutment (3) RCC return				
	0.0m TO 5.0mheight	1638.70	Cum	5542.27	90,82,117.85
	5.0m TO 10.0m & Above	204.80	Cum	5866.89	12,01,539.07
17	Providing and casting in situ controlled cement concrete M-35 for R.C.C. work in pier cap,abutment cap and dirt wall including controlled cement concrete M-45 bed blocks or pedestals of required size below bearings as per detailed drawings, centering, shuttering, scaffolding, wherever necessary, laying vibating, curing and finishing complete.	986.10	Cum	5992.23	59,08,938.00
18	Providing and casting in situ controlled cement concrete M-40 for R.C.C. work in pier cap,abutment cap and dirt wall including controlled cement concrete M-40 bed blocks or pedestals of required size below bearings as per detailed drawings, centering, shuttering, scaffolding, wherever necessary, laying vibating, curing and finishing complete.	234.00	Cum	5701.45	13,34,139.30
19	Providing and fixing in position of steel grade FE-500D (TMT) for for R.C.C. bored piles & Pile Cap including cutting hooking, tying, welding etc., complete as per detailed drawing and snecification	118.00	M.T.	73656.44	86,91,459.92
20	Providing and fixing in position of steel grade FE-550D (TMT) for for R.C.C. bored piles & Pile Cap including cutting hooking, tying, welding etc., complete as per detailed drawing and snecification	1009.00	M.T.	80776.94	8,15,03,932.46
21	Providing and fixing in position steel bar for pier, Retaining wall ,pier cap ,Dirt wall,pedestal & sesmic arrester reinforcement of steel grade FE-500D (TMT) including cutting , bending, hooking, tying, welding etc., complete as per detailed drawing and Specification	58.70	M.T.	73858.69	43,35,505.10
22	Providing and fixing in position steel bar for pier,Retaining wall ,pier cap,Dirt wall,pedestal & sesmic arrester reinforcement of steel grade FE-550D (TMT) including cutting , bending, hooking, tying, welding etc., complete as per detailed drawing and specification	411.20	M.T.	80979.19	3,32,98,642.93

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
23	Providing and applying Coal Tar Epoxy protective paint for Pile Cap in two coats of DFT 210 microns for foundations /concrete surfaces in contact with soil complete as per Specifications and as directed by the Engineer including all leads and lifts etc. complete.	1547.40	Sq.mt.	125	1,93,425.00
24	Filling available excavated earth (excluding rock) in trenches, sides of foundations etc. in layers not exceeding 20 cm. in depth consolidating each disposed layer by ramming and watering.	879.10	Cum	136.71	1,20,181.76
25	Providing and casting in situ controlled cement concrete M-35 for R.C.C. work in superstructure including centering,shuttering scaffolding, ramming, vibrating curing and finishing complete.(A) T-Beam and Deck slab type of superstructure (II)Main and cross Girder	731.00	Cum	6110.5	44,66,775.50
26	Providing and casting in situ controlled cement M 40 for R.C.C. work in superstructure including centring shuttering scaffolding, ramming, vibrating curing and finishing complete.	182.00	Cum	6190.29	11,26,632.78
27	Supplying, fabrication, assembling of all types of steel girders of specified spans with structural steel conforming to Quality "B0" Grade Designation E350 conforming to IS:2062, erection / slewing / end launching of steel girders with cranes or any other approved launching methods as per site conditions (not requiring traffic block) on substructure including provision of trolley refuges etc., complete as per approved QAP and drawings conforming to IRS-B1-2001 and other relevant codes and specifications. Note: 1. Detailed fabrication and erection drawings & launching methodology will be prepared by the contractor and got approved from Railway. 2. The rate is all inclusive including launching in position, complete in all respect except cost of (i) Painting / Metalising; (ii) Bearings & (iii) HSFG bolts which shall be paid extra under relevant item. 3. The payment shall be made on the theoretical weight of main components and gusset plates only. 4. Payment Schedule: (i) Receipt of material at site: 40% (ii) Fabrication of girders: 20% (iii) Erection/Launching: 20% (iv) Completion in all respects: 20%	406.00	M.T.	171986	6,98,26,316.00
28	Supplying and fixing HSFG bolts of any dia and any length with suitable nuts including DTI washers conforming to IRS-B1-2001 for bridges and steel structures with contractors labour, tools and plants and lead and lift etc., complete	6090.00	Kg	313.97	19,12,077.30
29	Providing and casting in situ or precast controlled Cement Concrete M-50 for prestressed concrete work in Super structure including centering, shuttering, curing, scaffolding,ramming, vibrating, finishing, lauching or shifting complete.(I)Solid Slab.(II) Deck Slab.(III) Main Girders.(IV) Diaphragm or cross girder	2698.00	Cum	8786.14	2,37,05,005.72
30	Providing and placing in position FE 500D TMT bar reinforcement including cutting, bending, hooking, and tying complete as per detailed drawing. For Super Structure & Crash barrier Crash barrier with friction slab	43.00	M.T.	74728.5	32,13,325.50

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
31	Providing and fixing in position steel bar reinforcement For Super Structure & Crash barrier, Crash barrier with friction slab of steel grade FE-550 D (TMT) including cutting ,bending, hooking, tying, welding etc., complete as per detailed drawing and specification.	785.10	M.T.	81849	6,42,59,649.90
32	Providing and fixing in position to exact profile high tensile steel wires of required ultimate strength including bending, cutting, tying providing necessary standard and anchorages, sheathing, stressing, grouting, ducts as per detailed drawing including necessary plant and machinery complete.	116.03	M.T.	72402.66	84,00,880.64
33	Providing and fixing in position fully moulded restrained elastometric Bearings as per detailed drawings.	737280.00	Cu.cm	0.9	6,63,552.00
34	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved technical specifications.	62400.00	M.T.	58.93	36,77,232.00
35	Carrying out load test of super structure as directed including all necessary materials plant equipment, instruments, labour and arrangements for test directed.	1350.00	M.T.	169.92	2,29,392.00
36	Providing and casting RCC in M-40 controlled concrete Crash Barriers as per detailed drawings including necessary scaffolding, centering, formwork, mixing in machine, transporting, placing, compacting, finishing, curing, etc. complete including providing and fixing of inserts if any with all leads and lifts as per drawing & specification and as directed by Engineer, excluding reinforcement.	638.00	Cum	6190.29	39,49,405.02
37	Providing and laying precast R.C.C footpath slab in controlled cement concrete of M-25 grade (7.0Cm. thickness including necessary reinforcement and providing and setting cement chequer tiles in C.M. 1:5 as per drawing including necessary formwork, curing and finishing complete.	26.00	Sq.mt.	1206.95	31,380.70
38	Providing parapet of controlled cement concrete M-30 as per detailed drawings with necessary reinforcement including, shuttering, laying vibrating and finishing to line and level complete. (ii) Cast in situ.	115.00	Cum	1282.7	1,47,510.50
39	Providing and casting in situ controlled cement concrete concrete M-35 for approach slab including formwork curing and finishing complete.	32.00	Cum	5473.59	1,75,154.88
40	Providing and fixing RCC M:25 architectural pylons at end of approach structures including all materials, labour, reinforcement laying, ramming, curing etc. complete as per detailed working drawing.	10.00	Cum	4796.84	47,968.40
41	Providing and fixing in position steel bar reinforcement For Approach slab & kerb of steel grade FE-550 D (TMT) including cutting ,bending, hooking, tying, welding etc. complete as per detailed drawing and specification.	11.00	M.T.	80363.52	8,83,998.72

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
42	Providing & laying approved make Double walled corrugated pipes (DWC) of polyethylene (conforming to IS14930II) with necessary connecting accessories of same material at required depth in existing trench for laying of cable. below ground/roadsurface for enclosing cable as directed by engineer in charge.(A)50 mm outer dia	1961.00	Rmt	62.09	1,21,758.49
43	Providing, laying and jointing in true line and level 110 diameter U.P.V.C (Type B) conforming to IS 13592-1992 with one end plain and other end socketed with rubber ring, & fittings conforming to ISI 14735-1999 of approved make for drainage system pipe line, pipe shall be jointed with each other with rubber lubricant, pipe shall be fixed on wall using of PVC clamp of the size 110 mm diameter x 149 mm length x 145 mm height at every 2000 mm center to center or shall be concealed in walls as directed including necessary fittings such as bends, shoes etc. including testing of pipes and joints and jointed with adhesive solvent cement including cost of all materials.	1550.00	Rmt	876.9	13,59,195.00
44	Supplying, Fabricating and fixing access ladders, inspection platforms, Trolley refuges etc., on bridges with structural steel conforming to IS:2062 including welding / bolting, priming painting with one coat of ready mixed paint of Zinc Chromate (IS:104) with DFT of 25-30 microns followed by one coat of Zinc Chrome Red Oxide (IS:2074) with DFT of 25 microns with all material, labour, T&P as a complete job. Note: Painting shall be paid separately under relevant item.	170.00	MT	98201.5	1,66,94,255.00
45	Providing G.I. 100mm diameter water spouts including necessary iron gratings as per drawings.	242.00	Each	536.03	1,29,719.26
46	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	119.40	Rmt	1733.16	2,06,939.30
47	Modular Strip / Box Seal Joint (Providing and laying of a modular strip Box steel expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	61.00	Rmt	2057.37	1,25,499.57
48	Providing and fixing marble slab including engraving and painting complete.	2.00	Each	1012.65	2,025.30

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
49	Providing and Laying only with Knitted and PVC coated Polyester Uniaxial Geogrid-Techgrid indigenously manufactured from selected high tenacity polyester yarn with high molecular weight (> 25000 g/mol), and low carboxyl end group (<30mmol/kg) for Reinforced soil wall with granular fill of PHI-30 degree (design is to be carried out in accordance with IRC SP:102 With its Latest Amadement) with concrete Panel (M35) as facia, casting & erection of panels with Techgrid, providing & laying of levelling pad of M15, providing and laying coping beam (M25), providing and laying 600mm thick filter media etc. completed as per the necessary drawing and instruction of Engineer In Charge. Excluding providing, laying and compacting selected backfill and retained fill behind the wall, excavation and ground improvement, if any.	1340.00	Sq.mt.	5696.4	76,33,176.00
50	Providing Earth fill / Sand & filling in approach portion of RE/Retaining Wall as per MORTH section 3100 and IRC:SP:102 latest Revision including laying as per specification ,compaction in 250 mm thick loose layers and dressing (MORTH specification Cl. by mechanical means using motor grader including 305.3.5), watering upto required OMC including rolling with the use of vibratory roller when fill is at suitable moisture content with desired field density all as per the approved design ,drawing, specification and directed by the	3986.00	Cum	496.92	19,80,723.12
51	Providing and casting RCC in M-40 controlled concrete Crash Barrier with friction slab (For RE Wall portion) as per detailed drawings including necessary scaffolding, centering, formwork, mixing in machine, transporting, placing, compacting, finishing, curing, etc. complete including providing and fixing of inserts if any with all leads and lifts as per drawing & specification and as directed by Engineer, excluding reinforcement.	467.00	Cum	6190.29	28,90,865.43
52	Box cutting the road surface to proper slope and camber for making a base for road work including removing the excavated stuff and depositing on the road side slope as directed with all lead & lift	7321.50	Cum	109.24	7,99,800.66
53	Earth work for embankment with effective CBR 5% including breaking clods dressing With all lead and lift and including watering, rolling, and consolidation of subgrade in layers at O.MC. to required dry density including filling the depressing which occur during the process using vibratory roller 8.T. to 10 T. (from borrow area within 5 km lead)	2977.30	Cum	223.21	6,64,563.13
54	Construction of 200 mm thick compacted coarsed granular subbase (Grade-I crushed B.T materials of 53 mm to 26.5 mm @ 35 %,26.5 mm to 4.75 mm @ 45% ,Below 2.36 mm @ 20 %) by providing close graded material , mixing in a mechanical mix plant at OMC,carriage of a mix material to work site, spreading uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve desire density , complete clause as per 401.	1673.00	Cum	1656.7	27,71,659.10
55	Providing and laying wet mix base course macadam 250 mm in Two layer using machine crushed chips as per required gradation mixing with required optimum quantity of water conveying the mix to site and spreading to grade and camber with mechanical paver consolidation by vibratory roller including material, labour, plant and machinery and equipment etc. complete.	603.00	Cum	1718.01	10,35,960.03

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
56	Providing and applying priming coat with emulsion SS1 grade at the rate of 7.50 kg/ 10 Sq.mt. including cost of asphalt and preparing the surface heating, and applying etc. complete.	7310.00	Sq.mt.	100.71	7,36,190.10
57	Providing and laying 95 mm DBM in single layer using crushed stone aggregate BT chips as per required gradation and using emulsion asphalt as a tack coat @ 2.5 kg / 10 sqmt and the VG-30 grade asphalt at 40 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by hot mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete	432.00	M.T.	5405.48	23,35,167.36
58	Providing and laying 80 mm DBM in single layer using crushed stone aggregate BT chips as per required gradation and using emulsion asphalt as a tack coat @ 2.5 kg / 10 sqmt and the VG-30 grade asphalt at 40 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by hot mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete	80.00	M.T.	5239.2	4,19,136.00
59	Providing and laying 40 mm Bitumen concrete using crushed stone aggregate BT chips as per required gradation and the VG-30 grade asphalt at 52 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by drum mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete.	240.00	M.T.	5867.5	14,08,200.00
60	Providing and laying 50 mm Bitumen concrete using crushed stone aggregate BT chips as per required gradation and the VG-30 grade asphalt at 52 kg/MT)by total weight of mix hot laid process using hot mix plant including heating and mixing asphalt & materials by drum mix process transporting the mix and laying by paver finisher including consolidation with vibratory roller including cost of material, labour, machinery equipment and fuel , oil , lubricant for plant and machinery using contractor's own plant and machineries etc. complete.	591.00	M.T.	5664.08	33,47,471.28
61	Providing and applying tack coat with emulsion RS1 grade at the rate of 3.0 kg/ 10 Sq.mt. including cost of asphalt and preparing the surface heating, and applying etc. complete.	5348.00	Sq.mt.	18.63	99,633.24

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
62	Mastic Asphalt (Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine-grained hard stone chipping of 6 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	431.00	Sq.mt.	196.95	84,885.45
63	Mastic Asphalt (Providing and laying 6 mm thick mastic asphalt wearing course with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine-grained hard stone chipping of 6 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 1000C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	4917.00	Sq.mt.	196.95	9,68,403.15
64	Construction of dry lean cement concrete Sub- base over a prepared sub-grade or drainage layer 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 finisher with electronic sensor, compacting with 8- 10 tonnes vibratory roller, finishing and curing as per clause 601 of specification complete in all respect.	596.00	Cum	3565.3	21,24,918.80
65	Construction of un-reinforced, dowel jointed, plain cement concrete pavement with M-40 grade concrete over a prepared sub base with cement , 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 electronic sensor 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, admixtures as approved, curing compound, finishing to lines and grades as per drawing as per IRC 15 2011.	1787.00	Cum	6765.99	1,20,90,824.13

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
66	Road marking with hot applied thermoplastic paints with reflectorising glass beads on bitumin surface providing and laying a hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250gms per sqm area, thickness of 2.5mm is excluding of surface applied glass beds as per IRC:35-2015. The finished surface to be level, uniform and free from streaks and holes. zebra patta /bump patta lane/center line/ edge line/cut patta. The white color marking should provide liminance coefficinnet on cemend road shall be min 130 mcd/m2/lux and Asphalt road shall be min 100 mcd/m2/lux during the service life during the day time. The marking should meet the performance criteria for night time reflectivity, wet reflectivity and skid resistance as mentioned in the section-15 of IRC 35-2015. Warranty for the Retro reflectivity should be two years.	652.00	Sq.mt.	367.72	2,39,753.44
67	Cat Eye / Road Stud / RPM: Supplying of Molded Twin Shanks Raised Pavement Markers made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 13635 kgs. tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 20 mm, 130 mm and 130 mm and with minimum reflective area of 13 Sqcm on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 Kgf. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturers recommendation and The color of the marker should be as per the IRC 35-2015 and as directed by Engineer-in-charge.	597.00	NO.	326.23	1,94,759.31
68	Facility Informatory Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 80 x 60 cms. rectangular as per design of IRC-67-2012. Pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr long stand post of Iron Angle 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.	1.00	NO.	3990.64	3,990.64

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
69	Regulatory/ Mandatory Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 60 cms. Dia Circle as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr long stand post of Iron Angle 75 x75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with bestquality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg including be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.	4.00	NO.	3540.12	14,160.48
70	Providing and fixing Cautionary Sign Board made out of 2mm aluminium sheet/ 4 mm ACP (aluminium composite panel), size 90 x 90 x 90 cms equilateral triangle, as per the design of IRC-67-2012. Pre treated with phosphating process and acid etching coated with one coat of epoxy primer and two coats of best quality epoxy paint, reflectorized with high intensity prismatic grade retro reflective sheeting of type-4 as per ASTM D-4956 and as per the latest M.O.S.T. specification, 3.6 Mt. long stand post and frame fabricated from suitable size iron angle of 75 x 75 x 6mm / 65 NB circular MS pipe as required and frame fabricated from suitable size iron angle & 35 x 35 x 3mm; painted with best quality epoxy coating in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 cms for each leg, including excavation curing etc. complete under the supervision of Engineer-In-Charge. A warranty for 7 years for the retro reflective sheeting from original manufacturer and certified copy of three years outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.(B) Class-B type-4 retro reflective sheeting.	10.00	NO.	3906.19	39,061.90

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
71	STOP Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet I 4mm ACP (Aluminium composite Panel); size 90 ems. Octagonal as per design of IRC-67-2012. Pre-treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint; reflectorised with High Intensity Prismatic Grade retro reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T. Specifications; 3.6mtr long stand post of Iron Angle 75 x 75 x 6mm /GSNB Circu lar MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 Cms. for each leg including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.	1.00	NO.	6704.36	6,704.36
72	Hazard Marker Sign :-Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Aluminum composite Panel); size 90x30 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ;reflectorised with Micro Prismatic Grade retro reflective sheeting of Type-11 as per ASTM D 4956 and latest M.O.S.T.Specifications; 1.8mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35 x 35 x 3mm; painted with best quality epoxy coatings in black and white bends. The details of symbol for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC block of size 45 x 45 x 60 cms. for each leg.including excavation, curing etc. complete under the supervision of engineer in charge. A warranty for 10 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (B) Class-B Type-4 Retro Reflective sheeting.	2.00	NO.	3518.69	7,037.38

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
73	Chevron sign :-Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Aluminum composite Panel); size 60x50cm rectangular as per design of IRC-67-2012. Pre treated with phospheting process & acid etching; coated with one coat of epoxy primer and two coats of best quality epoxy paint ; reflectorised with High Intensity Prismatic Grade retro reflectivesheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of Iron Angle 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35x35x3mm; painted with bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per the instruction of engineer in charge. The fixing at site shall be in 1:2:4 CC blockof size 45 x 45 x 60 Cms. for each leg including excavation, curing etc.complete under the supervision of engineer in charge. A warranty for 7 years for the Retro reflective sheeting from original manufacturer & a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor. (A) Class-B Type-4 Retro Reflective sheeting	34.00	NO.	3711.75	1,26,199.50
74	Providing and applying one coat Epoxy Phenolic primer of DFT 50 micron and two coats of Epoxy Phenolic coating of DFT 100 microns each or any other equivalent epoxy coating system to all concrete surfaces exposed to atmosphere in substructure and superstructure including cost of material, labour, transportation, scaffolding and preparing the surfaces by cleaning, washing, brushing, sand / grit blasting etc. complete and as directed by Engineer and as per specification. (Paint shall be got approved from Engineer and tested from approved laboratory).	14419.00	Sq.mt.	196.95	28,39,822.05
75	Painting Two Coats on New Concrete Surfaces (Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces)	2681.00	Sq.mt.	80.80	2,16,624.80
76	Providing & fixing ordinary Kilometre stone of precast C.C. 1:2:4 including necessary reinforcement as per I.R.C. type design in C.C. 1:4:8 including letter & paints etc. complete (For N.H., S.H. & M.D.R.)	1.00	Each	1293.39	1,293.39
77	Providing and casting in situ controlled cement concrete M-30 for Kerb/ kerb blocks including formwork curing and finishing. complete	78.00	Cum	5107.57	3,98,390.46
78	Providing and laying of Extruded Biaxial Polypropylene Geogride 30 KN as per clause no 3102.8 and approval design and specification with accesories like tie strips,nuts & bolts and loops/lugs for joining reinforcing elements with the facia ,pannels and overlaps and other protective elements as per detailed specification	840.00	Sq.mt.	656.50	5,51,460.00
79	Providing fusion bonded Epoxy coating not less than 175 micron thickness and up to 300 micron to reinforcement bars as per IS-13620-1993/ASTM-775 M including testing of coating at plant and all taxes (A) 10mm to 16mm dia bar	665.00	MT	10162.62	67,58,142.30
80	Providing fusion bonded Epoxy coating not less than 175 micron thickness and up to 300 micron to reinforcement bars as per IS-13620-1993/ASTM-775 M including testing of coating at plant and all taxes (B) 20mm to 32 mm dia bar	1551.00	MT	7296.24	1,13,16,468.24

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
81	Making trench in soft soil of suitable width of 90 cms deep for laying cable or locating the fault all over the run and backfilling the same and making the surface as normal ground.	390.00	Rmt	46.46	18,119.40
82	Supplying following size of Light duty "A" Class G.I . Pipe & erecting as directed by Engineer-in-charge. (B)50 mm dia	10.00	Rmt	298.22	2,982.20
83	Providing & laying approved make Double walled corrugated pipes (DWC) of polyethylene(conforming to IS 14930 II)with necessary connecting accessories of same material at required depth for laying of cable. below ground / road surface for enclosing cable and back filling the same to make ground as per original. (A)50 mm dia	1110.00	Rmt	62.09	68,919.90
84	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables	4.00	Each	102.15	408.60
85	Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner.	14.00	Each	15.03	210.42
86	Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (E) 35/50 Sq mm	4.00	Each	20.03	80.12
87	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (d) 4 core 10 Sq. mm	1110.00	Rmt	137.12	1,52,203.20
88	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (c) 3 1/2 core 70 Sq. mm (35 Sq. mm 1/2 Core)	90.00	Rmt	369.22	33,229.80
89	Providing & erecting approved make street light / wall mounting junction box compression moulded from DMC (thermoset plastic) vertical sliding cover having locking with square head stud loop in / loop out in built terminal suitable for four core cable, waterproof of I.P. 54 protected with clamp or bolt nut & earth bolt of following size.[A] 200mm x 127mm x 82 mm	15.00	Each.	353.26	5,298.90
90	Providing Street Light pole bracket consisting of medium class MS pipe of 4.2 cms. Out side dia complete with suitable sleeve tubing 45 cms. long M S. pipe (Medium Class). Suitable for 76.5 mm /80mm / required size of pole top having sufficient fastners for fixing the brackets and having spread of 1.5.Rmt. length with 110 deg.with vertical plane & suitable welded stays, reducer and with check nuts complete painted with one coat of Red oxide / PU base primer and two coats of Aluminium / PU paint. paint with following nos of arms.				
	[A] Single Arm Bracket 1.5 Mtr	15.00	Each.	620.43	9,306.45
	[B] Double Arm Bracket 1.5 Mtr	24.00	Each.	907.51	21,780.24

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
91	Supplying and erecting LED street light / Flood light fittings with High power White LEDs wattage of 3 Watt and above assembled on single MCPCB, efficiency more than 130 lm/w and corrosion free High pressure die cast aluminum housing with smooth finish powder coated and heat sink extruded aluminium with diffuser and Polycarbonate optics/ lenses, with toughened glass with company mark/name engraved or embossed 160 to 270 V,Power Factor more than 0.95, THD < 10 %, CCT 3000 K to 5700K,Uniformity ratio >0.45, Luminaire efficacy> 100 lumens/watt . LED driver efficiency > 85 %. (A) Steet Light (IP-65), Surge protection -4KV integral and ,Light must have 440VAC line supply with over-voltage protection (iv) above 90 to 120 watts (Cat-3) (CREE / OSRAM / PHILIPS Lumileds / NICHIA / SEOUL/ BridgeLux (U.S.A.) make LED used for luminaire. (Each fittings required LM-79 & LM-80 (g) above 90 to 120 watts	63.00	Each.	6502.7	4,09,670.10
92	Supplying and erecting approved make Octagonal pole made from HR sheet steel. The pole should be made as per IS. and shall be coated with hot dip galvanizing as per IS 2629/2633/4759, suitable suspend local wind speed with integral Junction box consist of terminal plate of min 6mm Hylam sheet, standard profile 35mmX7.5mm Din-Rail for MCB Mounting, stud type terminal and arrangement for cable termination to be erected With Suitable foundation (Included) as per details given by manufacturer considering site requirement. (I) 10 Mtr. Long 70 mm Top X 175 mm bottom dia, 4 mm thickness with 275mmX275mmX16mm base plate, 4-M24 Bolts and 750mm long with necessary G.I. J Bolts .Approx Pole weight 145 kg.	39.00	Each.	19582.6	7,63,721.40
93	Supplying and erecting Flexible PVC insulated multistrand multicore 1.1 kv grade ISI marked copper wires of following size to be erected as directed. e) 1.50 Sq.mm 3 core round PVC sheathed	260.00	Each.	44.02	11,445.20
94	Supplying and erecting Flexible PVC insulated multistrand multicore 1.1 kv grade ISI marked copper wires of following size to be erected as directed. e) 1.50 Sq.mm 3 core round PVC sheathed	10.00	Each.	816.28	8,162.80
95	For using salt and charcoal / coke as required for pipe type earthing.	10.00	Each.	170.17	1,701.70
96	Providing and erecting HOT deep Galvanised iron strip wire 8 to 16 SWG.	46.80	KG	77.17	3,611.56

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
97	Supplying & erecting in earthpit of minimum bore dia. 225mm size approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free hot dipped G.I.Pipes having Outer pipe dia of 80mm having 80-200 Micron galvanising, inner pipe dia of 40 mm having 200 250 Micron galvanising, connection terminal dia Of 14mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications with chamber and heavy duty cover (A)(approved make OEM has to submit test certificate including value of earth resistance of installation duly stamped and signed by agency and officer Incharge has to ensure the value of earthing resistane mentioned in test Certificate) & having back filling compound of (B) Inner chemical (CCM Compound)-Resistivity:- 0.2 ohm / meter testing as per IEC 62561-2017, Voltage drop:- < 1 volt at no load & dry form, Sulphar content.-<2%(C) Back fill Compound - Earthing compound should be capable to retain moisture for long time Necessary test report must be submitted by Agency. [A] For electrical installation up to 440 V Length of Pipe - 1 Mtr Backfilling compound-1Nos. of Bag of 15 Kgs.	4.00	Each	5788.31	23,153.24
98	Supplying & erecting IP 55 grade following size section pillar fabricated from joint less M.S. Sheet with angle iron legs made from jointless M.S. Angle with cable clamps to be buried in ground to have appropriate erection to work uniform until erected with cement concrete foundation and 45 cm high bricks work finishing with plaster etc. hinged double door internally supported on both side, with internal and outside looking arrangement with look and keys in duplicate 35 x 35 x 5 mm M.S. Angle of Two Nos. one is welded and other with nut and bolt for erecting Bakelite sheet. Painting the Section Pillar inside and out side with three tank powder coated paint. section pillar roof should be without joint with water leakage proof & tested as per IP 55 test & followed by IS 2147 of 1962. (B) 75 X 60 X 45 cm section pillar fabricated from 16 Gauge MS Sheet with angle iron legs 45 cm long made from 35 X 35 X 5 mm thick MS angle.	2.00	Each.	3561.7	7,123.40
99	Providing and erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240V A.C. system and having breaking capacity 10 KA to be erected in existing box. Confirming to IS 8828/1996 with ISI Mark	30.00	Each.	111.13	3,333.90
100	Providing & erecting 415V MCB Four Pole Switch for Lighting Load (B curve) having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (a) 6 to 32 Amn	4.00	Each.	573.26	2,293.04
101	Supplying and erecting bakelite sheet 12mm thick HYLAM make on existing angle iron frame.	12.60	Sq.m.	2289.43	28,846.82
102	Supplying & erecting approved make Digital time switch having lithium cell 6 years operative and operate battery backup 1 channel day clock with 14 memory programme, suitable to operate on 240V + 5%, 16A with, floating contacts Minimum switching setup time 1 minimum & LCD display. Also comprised permanent ON/OFF switching. Programming switches & housed in fire proof thermoplastic enclosure & transparent cover erected as required with necessary connection erected as directed.	4.00	Each.	3137.43	12,549.72

Item No.	Item Discription	Quantity	Unit	Rate (in Rs.)	Total Amount (in Rs.)
103	Supplying & erecting power contactor for time switch complete erected and connected as per direction Cat III [C] 4 pole 440V 16 Amp. [A] 2 Pole 250V 12 Amp.	4.00	Each.	789.26	3,157.04
104	Providing and fixing pre-cast Rubber Dye / steel Dye inter locking concrete block 60mm thick with grade of concrete M300 pneumatic compressed / vibrated mechanically and as per approved design Confirming to IS 15658 : 2006 including 35 mm Sand layer for levelling and filling the joint with sand in proper line and level as per guidlines of IRC : SP 63-2018 etc. Complete.	2473.40	Sqm	706.93	17,48,520.66
105	Planting Flowering Plants and Shrubs in Central Verge in 5m width , as instructed by Engg in charge.	0.60	Km	56840.78	34,104.47
106	Providing and fixing 1.20 Metre high fencing with 2.0 Metre long M.S. Angle posts 40mm x 40 mm x 6 mm and oil painting 3 coats fixed at 2.5 Mt./c. with five Horizontal lines and two diagonals of galvanised steel barbed wire weighting 9.38 Kg. per 100 Metre, strained and fixed to posts with G.I. staples including fixing the posts in ground with 0.5 M x 0.5 M x 0.5 M. block in C.C 1:5:10 etc complete.	1192.00	Meter	391.93	4,67,180.56
Total of Schedule B:					49,56,43,127.77
SAY					49,56,43,128.00