

**Name of work : Maintenances and Repairs to Various Bridge Structure under Bharuch (R&B)  
Division, Bharuch.**

**BILL OF QUANTITIES**

**Memorandum showing item of works to be carried out.**

It. No.	Item of Work	Qty.	Unit	Rate in Figures	Total Amount
1	2	3	4	5	6
1	Job Work for Dismantalling the existing Cross Drainage structure including removing and stacking the dismantelled materials as and where directed (A) R.C.C. work, Brick masonry, UCR masonry, Pipe etc. complete as per instruction of Engineer in charge.	1.00	Job		
2	Excavation for foundation upto 1.50 mt depth including sorting out and stacking of useful materials and disposing the excavated stuff for all lead and lift (B) Dense or Hard soil.	1.00	Cum		
3	Providing and casting in situ ordinary cement concrete M-150 for R.C.C. Raft cut-off walls including necessary shuttering laying, vibrating, ramming and curing complete.	1.00	Cum		
4	Supplying and fixing ISI reinforced concrete heavy duty nonpressure pipes for culverts carrying heavy traffic as per IS 458:1991 specifications including setting and jointing the pipes in C.M. 1:2 watering and laying (to level or slopes) of Class NP3 of following internal diameters. (v) 900mm dia.	1.00	Rmt		
5	Supplying and fixing ISI reinforced concrete heavy duty nonpressure pipes for culverts carrying heavy traffic as per IS 458:1991 specifications including setting and jointing the pipes in C.M. 1:2 watering and laying (to level or slopes) of Class NP3 of following internal diameters. (vii) 1200mm dia.	1.00	Rmt		
6	Providing and casting in situ controlled cement concrete M-200 for R.C.C. return as per drawings including centering, shuttering, scaffolding where necessary, laying, vibrating, curing and finishing complete. (A) Height from 0.0 to 5.0 M. for wall.	1.00	Cum		
7	Providing I.S.I. mark T.M.T. bar Fe-500D reinforcement for R.C.C. work including bending, binding and placing in position complete upto all floors.	1.00	Kg.		
8	Filling around the pipes with murrum including dressing, tampering etc. complete.	1.00	Cum		
9	Construction of granular sub base (Grading -I) by providing close graded material BTMC using metal 53 mm to 26.5 mm @ 27.5%, aggregate 26.5 mm to 9.5 mm @ 22.5% & 9.5 mm to 4.75 mm @ 10% and stone dust 4.75 mm & below @ 40% incl. spreading in uniform layers with motor grader on prepared surface mixing by mix in place method with front end loader at OMC and compacting with vibratory roller to achieve the desired density complete as per MORTH specification.	1.00	Cum		

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1	2	3	4	5	6
10	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).	1.00	Sqm		
11	Providing and laying weep hole in abutment and returns by using A.C. / P.V.C. pipes of 100 mm. dia. including laying in proper grade and jointing etc. complete as per detailed specification.	1.00	No.		
12	Excavation for foundation in sand, gravel, clay soft soils and murrum etc. including shoring, strutting dewatering as necessary and disposing of the excavated stuff as directed. (A) Depth up to 3.0 M. and lead upto 100 m for 10 Cum.	1.00	Cum		
13	Providing and laying controlled cement concrete M-150 for curing complete excluding cost of formwork and reinforcement for reinforced concrete work in foundations, footings, base of columns and mass concrete.	1.00	Cum		
14	Providing and casting in situ controlled cement concrete M-200 for R.C.C. raft and cut-off walls including necessary shuttering, laying, vibrating, ramming and curing complete.	1.00	Cum		
15	Providing and casting in situ controlled cement concrete M-200 for R.C.C. work in superstructure including centering, ramming, vibrating, curing and finishing complete. (A) T-Beam and Deck slab type of superstructure (I) Deck slab.	1.00	Cum		
16	Providing and casting in situ ordinary cement concrete M-200 for approach slab including form work, curing and finishing complete.	1.00	Cum		
17	Providing and laying filter media 600 mm thick as directed at back of abutment returns and wing walls as per detailed specification.	1.00	Sqm		
18	Providing uncoursed rubble stone masonry in cement mortar 1:5 for flooring including curing pointing in cement mortar 1:3 on exposed faces complete.	1.00	Cum		
19	Providing and laying rubble for flexible apron (each stone weighting not less than 40 Kg.) including and packing and filling in the interstices with quarry spalls.	1.00	Cum		
20	Providing and casting in situ controlled cement concrete M-200 for average 75 mm thick wearing coat laid as directed including tempering, vibrating, finishing, curing and filling in joints with bituminous complete.	1.00	Cum		
21	Providing and placing in position I.S.I. mark Fe-500D bar reinforcement for following items including cutting, bending, hooking and tying complete as per detailed drawing. For well :- curb, staining, cap and RCC Raft.	1.00	M.T.		
22	Providing and laying in position I.S.I. mark Fe-500D bar reinforcement including cutting, bending, hooking and tying complete as per detailed drawing for the following. (A) Piers (B) Abutments (C) R.C.C. Returns.	1.00	M.T.		
23	Providing and placing in position I.S.I. mark Fe-500D bar reinforcement including cutting, bending, hooking and tying complete as per detailed drawing. (i) Solid Slab (ii) Deck Slab.	1.00	M.T.		

It. No.	Item of Work	Qty.	Unit	Rate in Figures	Total Amount
1	2	3	4	5	6
24	Providing and fixing in position I.S.I. mark Fe-500D bar reinforcement including cutting, bending, hooking and tying complete as per detailed drawing. (A) R.C.C. Kerb (B) R.C.C. Footpath (C) R.C.C. Approach slab (D) Wearing Coat.	1.00	M.T.		
25	Providing and fixing premoulded compressible filler board in black colour conforming to MoRT&H specifications (Clause 1015), having minimum density 95kg/cum. non-staining with less than 1% water absorption & compression recovery of 93% minimum as per specification for 20 mm wide expansion joint including cutting to required size and shape at all levels etc.complete as directed.	1.00	Sqm		
26	Providing and applying the elastomeric joint sealant two component, high performance polysulfide formulation conforming to BS:4254 and ASTM C 920 having weathering resistance to ultra-violet rays and shall exhibit shore A hardness of 25 and have movement accommodation factor 25% including using of compatible primer of approved standard etc. complete. For 20 mm thick joint.	1.00	Rmt		
27	Providing and fixing 25 mm diameter backup rod having minimum density 22 kg per cum (ASTMD - 3575) & compression strength of 0.40 kg per sqm (ASTM - 5249) and finishing with polysulphide sealant etc. complete. For 20 mm wide expansion joint.	1.00	Rmt		
28	Providing P.V.C. 100 mm diameter water spouts including necessary iron gratings as per drawings.	1.00	No.		
29	Earthwork for embankment including breaking clods, dressing with all lead and lift and including watering, rolling & consolidation of subgrade in layers at O.M.C. to required dry density including filling the depressions which occur during the process using power roller 8 T to 10 T from borrow area within all lead and lift etc. completed as directed by Engineer in charge.	1.00	Cum		
30	Providing and laying pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications (A) Stone / Boulder.	1.00	Cum		
31	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification.	1.00	Cum		

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1	2	3	4	5	6
32	Hazard Marker sign : Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Alluminium composite panel) size 90 x 30cms. rectangular as per the 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 reflective sheeting of Type-11 as per ASTM D-4956 and latest M.O.R.T.H. specifications, 1.8 mt. long stand post and frame fabricated from suitable size 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 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 60cms. 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. (A) Class-C Type-11 Retro Reflective sheeting.	1.00	No.		
33	Providing Yellow and Black Patta (three coat) including distempeing (Three coats) with oil bound distemper of approved brand and manufacture and of required shade on wall surfaces to give an even shade, over and including a priming coat with distemper primer of approved brand and manufacture after thoroughly brushing the surface free from mortar dropping and other foreign matter and also including preparing the surface even and sand papered smooth as per instruction of Engineer Incharge.	1.00	Sqm		
34	Excavation for foundation upto 1.50 mt depth including sorting out and stacking of useful materials and disposing the excavated stuff for all lead and lift (A) Loose or soft soil.	1.00	Cum		
35	Providing and casting in situ controlled cement concrete M-250 for R.C.C. return as per drawings including centering, shuttering, scaffolding where necessary, laying, vibrating, curing and finishing complete. (A) Height from 0.0 to 5.0 M. for wall.	1.00	Cum		
36	Tabular Steel Railing on Medium Weight steel channel (ISMC series) 100 mm x 50 mm (Providing, fixing and erecting 50 mm dia. steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings).	1.00	Meter		

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1	2	3	4	5	6
37	"THRIE" : Metal Beam Crash Barrier with base plate Providing and erecting a "Thrie" W - 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. The vertical post fixing at site shall be on base plate of size 240 x 320 x 16 mm thick with 6 Nos 20 mm dia 4.6 grade anchor bolt upto minimum depth of 200 mm & ISMC vertical post shall be fixed with base plate with 12 mm thick stiffner plate of 100 x 80 mm & this base shall be casted in M-25 grade cement concrete of size 35 x 35 x 12 cms. for each post including necessary fabrication work etc. complete. All steel parts and fitments to be galvanised by hot dip process, all fittings to confirm 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, 550 mm long complete as per MORTH specification clause 810 including butt welding to all nuts & bolts etc. complete as per instruction of Engineer in charge. Also radium red colour strip of size 100 x 300 mm shall be fixed on vertical front side of each post for better night visibility. The end barrier treatment shall be done as per IS Standard 119 : 2015.	1.00	Rmt		
38	Type - B, "THRIE" : Metal Beam Crash Barrier Providing and erecting a "Thrie" W - 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. The vertical post fixing at site shall be in M-25 grade cement concrete of size 35 x 35 x 120 cms. for each post including excavation curing etc. complete. All steel parts and fitments to be galvanised by hot dip process, all fittings to confirm 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, 550 mm long complete as per MORTH specification clause 810 including butt welding to all nuts & bolts etc. complete as per instruction of Engineer in charge. Also radium red colour strip of size 100 x 300 mm shall be fixed on vertical front side of post for better night visibility. The end barrier treatment shall be done as per IS Standard 119 : 2015.	1.00	Rmt		
39	Gabian Structure for Retaining Earth (Providing and construction of a gabain structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire).	1.00	Cum		

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1	2	3	4	5	6
40	Gabian Structure for Erosion Control, River Training Works and Protection works (Providing and constructing gabain structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire).	1.00	Cum		
41	Grouting with C.M. 1:4 in pitching as per drawing or as per instruction of Engineer in charge.	1.00	Cum		
42	Jacketing :- Providing and casting in situ design mix concrete M-25 mix for 23 cm thick jacketing consisting 16 mm dia 200mm c/c both ways, 16 dia. pin @ 400mm c/c vertically & 800mm c/c horizontally with base supported with 300 x 450 mm beam reinforced with main 6 No. 16 mm dia. bar and stirrups 8 mm dia. 150 mm c/c etc. complete including drilling holes in the pier, providing steel bars for connecting existing pier to jacketing and filling the holes with rich mortar including shuttering, scaffolding wherever necessary, laying, vibrating, curing and finishing etc. complete.	1.00	Sqm		
43	Epoxy bonding of new concrete to old concrete.	1.00	Sqm		
44	Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical specification.	1.00	Sqm		
45	Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per Technical specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement / Epoxy.	1.00	Each		
46	Sealing of crack / porous concrete with Epoxy Grout by injection through nipples complete as per clause 2803.1.	1.00	Kg.		

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1	2	3	4	5	6
47	Chipping & removing the debonded / delaminated / loose / disintegrated concrete at the places and in the manner and upto the depth and in regular shape as advised by the Engineer in charge without damaging the reinforcement/ RCC with the help of chisel and light hammering or equivalent equipments. Cleaning the surface with wire brushes making the surface free from dust, oil and all impurities etc. as directed by Engineer in charge. (Actual consumed bag shall be measured for payment) Patch repair to damaged concrete up to average 50 mm depth (by using ready to use patch repair mortar of best standard approved brand as per data sheet) and as per the work methodology and specifications & cost of all material, labour, machinery, equipment, taking necessary safety measures for all floors as directed and approved by EIC.	1.00	Per 25 Kg. Bag		
48	Repair of RCC Railing (Carrying out repair of RCC M-30 railing to bring it to the original shape).	1.00	Rmt		
49	Repair of steel railing (Repair of steel railing to bring it to the original shape).	1.00	Rmt		
50	Providing and laying Rubble stone in cement mortar 1:3 complete as per drawing and Technical specifications etc. complete as per instruction of Engineer in charge.	1.00	Cum		
51	Construction of precast RCC railing of M-30 grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved drawings and technical specifications.	1.00	Meter		
52	Providing G.I. 100 mm diameter water spouts including necessary iron gratings as per drawings.	1.00	No.		
53	Removal of existing cement concrete wearing coat including its disposal complete as per Technical specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000m (Thickness 75 mm).	1.00	Sqm		
54	Applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per Technical specification.	1.00	Sqm		
55	Replacement of Expansion joints complete as per drawings.	1.00	Meter		
56	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.	1.00	Hect.		



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1	2	3	4	5	6
57	Box cutting the road surface to proper slope and camber for making a base for road work including removing the excavated stuff and (Refilling same) depositing on road in layer wise, side slope as directed up to all lead etc. complete including disposed the surplus soil as and where directed with all lead and lift without any extra cost etc. complete.	1.00	Cum		
58	Construction of granular sub base (Grading -IV) by providing close graded material BTMC using metal 26.5 mm to 9 mm @ 64%, 9.5 mm to 4.75 mm @ 11 % & 4.75 mm & below @ 25% including spreading in uniform layers with motor grader on prepared surface mixing by mix in place method with Front End Loader at OMC and compacting with vibratory roller to achieve the desired density complete as per MORTH specification.	1.00	Cum		
59	Supplying and fixing reinforced concrete heavy duty non-pressure pipes with collars for culverts carrying heavy traffic as per IS 458-1991 specifications including setting the pipes in C.M. 1:2 watering and laying (to level or slopes) of class NP3 of following internal diameters. (iii) 600mm dia.	1.00	Rmt		
60	Providing and laying priming coat with emulsion SS-1 grade and spraying emulsion with spray set fitted on mechanical bouzer using emulsion at the rate of 7.5 Kg./10 Sqm. on WMM surface including cleaning the surface etc. complete.	1.00	Sqm		
61	Providing and laying 20 mm thick Mix seal surface with B.T. aggregate as per M.O.R.T.& H. gradation and specification with asphalt of grade VG-30 for mixing at the rate of 5.09% i.e. 50.9 Kg/M.T. by weight of total mix of asphalt & for tack coat at 2.5 kg/10 sq.mt. including heating & mixing in continues drum mix plant transporting the mix spreading the same by paver finisher and consolidation by vibratory roller as per MORT&H specification including cost of all materials fuel, labours, tools and plant etc using contractor's own machineries, drum mix plant and paver finisher etc. complete.	1.00	M.T.		
62	Regulatory/Mandatory sign :- Providing and fixing signboard made out of 2mm aluminium sheet / 4mm ACP (Alluminium composite panel) size of 60cm diameter circle 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 reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.R.T.H. specifications, 3.6 m 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 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 60cms. 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.		



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1	2	3	4	5	6
63	Cautionary Warning sign : Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Alluminium composite panel) size 90 x 90 x 90cms. equilateral triangle as per the 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 reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.R.T.H. specifications, 3.6 mt. 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 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 60cms. 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.		
64	Hazard Marker sign : Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Alluminium composite panel) size 90 x 30cms. rectangular as per the 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 reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.R.T.H. specifications, 1.8 mt. long stand post and frame fabricated from suitable size 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 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 60cms. 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.		
65	Diversion Ahead sign : Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Alluminium composite panel) size 180 x 60cms. rectangle as per the 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 reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.R.T.H. specifications, 3.1 mt. long stand post (2 Nos.) of iron angle 50 x 50 x 5mm / 50NB 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 60cms. 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.		

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66	Chevron sign board :- Providing and fixing sign boards made out of 1.50mm aluminium sheet / 3mm ACP (Aluminum composite panel) size 60 x 60cm 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 Intensity Prismic Grade retro reflective sheeting of Type-4 as per ASTM-D4956 and latest M.O.R.T.H. specifications, 3.3 mt. long stand pos of Iron angle 75 x 75 x 6 mm/ 65 NB Pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5 mm, 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 C.C. 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 Retro reflective sheeting from original manufacture & a certified copy of 3 year out door 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.		
67	Around the Island / Road Direction Sign (Big) :- Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite panel) size 180 x 60 cms. 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 reflective sheeting 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 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.		
68	Men at work (Heavy) sign :- Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite panel) size 120cm x 90cm 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 reflective sheeting of Type-4 as per ASTM D-4956 and latest M.O.S.T. specifications, 3.6 mtr long stand post (2 Nos.) of iron angle 75 x 75 x 6mm / 65NB Circular MS pipe as required and frame fabricated from suitable size iron angle of 50 x 50 x 5mm, painted with best quality 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 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.		

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69	Cat eye / Road stud / RPM : Supplying Raised Pavement Markers made of polycarbonate and ABS moulded body and reflective panels with Micro prismatic lens (No Glass bead 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 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 body of the marker should having finger grip for easy and accurate placement and application with epoxy/bituminous Adhesive as recommended by the manufacturer of the marker. The color of the marker should be as per the IRC 35-2015 and as directed by Engineer-in-charge.	1.00	No.		
70	Road marking with hot applied thermo plastic 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 coefficinet 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 crterla for night time reflectivity, wet reflectivity and skld resistance as mentioned in the section-15 of IRC 35-2015. Warranty for retro reflectivity shall be for two year.	1.00	Sqm		
71	Demolition and disposal of unserviceable materials with all lead & lift. (ii) Unreinforced cement concrete.	1.00	Cum		
72	Excavation in large boulders and soft rock by welding including shoring, strutting and dewatering as necessary and disposing of the excavated stuff as directed.	1.00	Cum		
73	Providing and filling in foundation with ordinary cement concrete M-100 mix and providing necessary vertical pin headers including formwork, vibrating, ramming and curing complete.	1.00	Cum		
74	Providing and fixing mild steel dowel bars of minimum 32mm dia. for anchoring by drilling holes in foundation strata including necessary bending, hooking of dowel bars and grouting the holes complete as per detailed drawing and as directed.	1.00	Rmt		
75	Providing and casting in situ ordinary cement concrete M-200 mix and providing necessary pin headers including shuttering, scaffolding laying, vibrating, curing and finishing complete without V-grooves.	1.00	Cum		

It. No.	Item of Work	Qty.	Unit	Rate in Figures	Total Amount
1	2	3	4	5	6
76	Providing and placing in position I.S.I. mark T.M.T. bar Fe-500D reinforcement for following items including cutting, bending, hooking and tying complete as per detailed drawing.	1.00	M.T.		
77	Providing and casting in situ controlled cement concrete M-250 for RCC work in pier caps / abutment caps & dirt wall including ordinary cement concrete M-250 bed block or pedestal of required size below bearings as per detailed drawings centering, shuttering, scaffolding wherever necessary laying, vibrating, curing and finishing complete.	1.00	Cum		
78	Providing and casting in situ controlled cement concrete M-300 for R.C.C. solid slab including centering, scaffolding, curing and finishing complete.	1.00	Cum		
79	Providing and casting in situ controlled cement concrete M-300 for R.C.C. crash barrier including curing and finishing complete.	1.00	Cum		
80	Providing and filling in foundation with ordinary cement concrete M-150 mix and providing necessary vertical pin headers including formwork, vibrating, ramming and curing complete.	1.00	Cum		
81	Providing and casting in situ controlled cement concrete M-300 for average 75mm. thick wearing coat laid as directed including tamping, vibrating, finishing, curing and filling in joints with bitumen complete.	1.00	Cum		
82	Providing and casting in situ controlled cement concrete M-300 for approach slab.	1.00	Cum		
83	Providing and fixing in position mild steel 32 mm dowel bars in pier caps for anchorage in fixed end as per detailed drawing including cutting, bending & welding complete.	1.00	No.		
84	Providing and fixing in position mild steel 32 mm dowel bars in pier caps for anchorage in free end as per detailed drawing including cutting, bending & welding complete.	1.00	No.		
85	Providing 12 mm thick pre-moulded asphalt filler joints as per drawing.	1.00	Sqm		
86	Providing and fixing tar paper bearing shall be provided between abutment / pier cap and RCC slab.	1.00	Sqm		
87	Providing flood gauge marks on sub structure as per design including painting complete.	1.00	Rmt		
88	Wall painting (three coats) with plastic emulsion paint of approved brands like Apex or equivalent and manufacture on undecorated wall surfaces to give an even shade including thoroughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth. (Black & White Strip).	1.00	Sqm		
89	Providing and laying cement concrete 1:2:4 (1- Cement : 2- Coarse sand : 4- graded stone aggregates 20 mm nominal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth.	1.00	Cum		

It. No.	Item of Work	Qty.	Unit	Rate in Figures	Total Amount
1	2	3	4	5	6
90	Providing & casting in situ ordinary cement concrete M-200 mix and providing necessary pin headers including shuttering, scaffolding, laying, vibrating, curing and finishing complete with VGrooves.(A) Height from 0.0 M. to 5.0 M.	1.00	Cum		
91	Providing and casting in situ ordinary cement concrete M-250 for average 75 mm thick wearing coat laid as directed including tamping, vibrating, finishing, curing and filling in joints with bitumen complete.	1.00	Cum		
92	Providing, unloading, placing Box shape "Factory made - precast "box culvert including bed preparation including jointing work of box culvert with cement mortar 1:3 (1- cement : 3-sand) precast RCC self compacting high performance concrete grade M-40 box shape drain having internal size W 2000mm x H 2000mm x 2000mm with lifting MS insert plate of 100mm x 300mm x 8 mm thick on one side of box as per drawing and details. The box shall have wall thickness of 130 mm that can take a heavy vehicle load with 5T point load, steam cured, Fe 500 TMT steel as reinforcement as per details and with a smooth surface as per instruction of Engineer in charge including transportation.	1.00	Rmt		
93	Providing, unloading, placing Box shape "Factory made - precast "box culvert including bed preparation including jointing work of box culvert with cement mortar 1:3 (1- cement : 3-sand) precast RCC self compacting high performance concrete grade M-40 box shape drain having internal size W 1000mm x H 1000mm x 2000mm with lifting MS insert plate of 100mm x 300mm x 8 mm thick on one side of box as per drawing and details. The box shall have wall thickness of 130 mm that can take a heavy vehicle load with 5T point load, steam cured, Fe 500 TMT steel as reinforcement as per details and with a smooth surface as per instruction of Engineer in charge including transportation.	1.00	Rmt		
94	Providing and laying cement concrete 1:3:6 (1- Cement :3- Coarse sand : 6 graded brick bat aggregate 40mm normal size) and curing complete excluding cost of formwork in (A) Foundation and Plinth.	1.00	Cum		
95	Supply of precast drains for longitudinal surface storm water drainage. Size U Shape Drain 450 x 450 (T-25) INCLUDING U Shape Drain Lid 450. The product shall be duly steam cured in the plant to have requisite compressive strength and having load carrying capacity of total 25 Tonnes vehicle load or 5 Tonnes wheel load for heavy vehicle movement. The product shall be made by using advanced precast technology using high performance self-compacting concrete of C40 / M-50 grade and Fe-500 D grade TMT steel reinforcement bar. The product shall have tie shape groove of 10-20 mm width and 25 mm depth on both sides of each precast unit product for jointing two precast units. The Precast U Shape drain shall have in built insert at optimized locations for fixing De-Shackle for mechanical installation activities including supply and transportation at site. The precast product shall be manufactured in controlled environment adhering to stringent pre-defined, atmospheric standards.	1.00	Rmt		

It. No.	Item of Work	Qty.	Unit	Rate in Figures	Total Amount
1	2	3	4	5	6
96	Supply of precast drains for longitudinal surface storm water drainage. Size U Shape Drain 600 x 600 (T-25) INCLUDING U Shape Drain Lid 600. The product shall be duly steam cured in the plant to have requisite compressive strength and having load carrying capacity of total 25 Tonnes vehicle load or 5 Tonnes wheel load for heavy vehicle movement. The product shall be made by using advanced precast technology using high performance self-compacting concrete of C40 / M50 grade and Fe 500 D grade TMT steel reinforcement bar. The product shall have tie shape groove of 10-20 mm width and 25 mm depth on both sides of each precast unit product for jointing two precast units. The Precast U Shape drain shall have in built insert at optimized locations for fixing De-Shackle for mechanical installation activities including supply and transportation at site. The precast product shall be manufactured in controlled environment adhering to stringent pre-defined, atmospheric standards.	1.00	Rmt		
			<b>TOTAL Rs.</b>		

i.e. Rs.

I/We am/are willing to carry out the work @ \_\_\_\_\_ % above/below percent  
(Should be written in figures and words) of the estimated rate mentioned above. Amount of  
my /our tender works out as under.

Estimated amount put to tender	Estimated amount put to tender
Deduct.....% below	Add.....% Above
Net Rs. _____	Total Rs. _____
In words _____	In words _____

**Note :-**

1. The Contractor shall exhibit a board with detailed specification and details of work as directed by the Engineer-In-Charge for which no extra payment shall be made.
2. The labour cess will be deducted as per prevailing rules i.e. 1% of the work done.
3. GST and Income tax TDS will be deducted at a source while making payments of bills.
4. In all R.C.C. Items in Rate Analysis Standard Cement Consumption has been taken as per Govt. G.R.: PRC-10/2017 Cement Consumption/16/C, Date:11/05/2017 as stated in S.O.R. therefore in R.C.C. items where there is a change as per actual mix design the cost of difference of cement consumption have been deducted from the rate of original item at the rate of input rate mentioned in all the tender.

**Above all items of "Schedule-B" with Item Description, Unit, Rate & Amount have verified by me and found order.**

**Signature of the Contractor**

Deputy Executive Engineer  
Ank (R & B) Sub Division  
Ankleshwar

Executive Engineer  
Bharuch (R & B) Division  
Bharuch