

**Work of Widening, Strengthening and Resurfacing of various road as and when required or in emergency under R&B Division, Vav-Tharad, Dist.-Vav-Tharad(Annual Rate Basis)**

**INDEX OF SPECIFICATION**

Tender Item No.	Description of Item	3	4
1	2	3	4
1	Providing Milling with Cold Milling machine of existing Bituminous surface up to any depth including stacking useful materials with Rolling & Watering on Road side and disposing off remaining stuff any lead as per instruction of engineer in charge.	As per separate sheet attached.	
2	Providing and laying 50 mm thick Bituminous Macadam (BM) with B.T. aggregate as per M.O.R.T. & H. specification and using emulsion RS-1 as per IS 8887: for tack coat @ 2.50 KG. / 10 Sq.m. with mechanical sprayer and Bulk asphalt VG-30 for mixing @ 34.00 KG. / M.T. i.e. 3.40 % of total weight of mix including heating and mixing the aggregate and asphalt in continuous of drum mix plant and hot laid process spreading the same by paver finisher and consolidation with roller as per M.O.R.T. & H specification to achieve desired density, including providing all materials equipments, tools and plants, fire wood, oil, kerosene, labour charges etc. complete using contractor's own machinery drum mix plant and paver finisher etc. complete.	As per separate sheet attached.	
3	Providing and laying 50.00 mm thick Dense Bituminous macadam (D.B.M.) in Single Layers with B.T. aggregate as per M.O.R.T. & H. specification and Bulk asphalt VG-30 for mixing @ 45.00 KG. / M.T. i.e. 4.5 % of total weight of mix of asphalt weight including heating and mixing the aggregate and asphalt in continuous of drum mix plant and hot laid process spreading the same by paver finisher and consolidation with roller as per M.O.R.T. & H specification to achieve desired density, including providing all materials equipments, tools and plants, fire wood, oil, kerosene, labour charges etc. complete using contractor's own machinery drum mix plant and paver finisher etc. complete.	As per separate sheet attached.	
4	Providing and laying 25 mm thick Semi Dense Bituminous Concrete with B.T. aggregate as per M.O.R.T. & H. with mechanical sprayer and Bulk, asphalt Grade: VG-30 for mixing @ 50.00 KG. / M.T. i.e. 5.0 % by weight of total mix including heating and mixing the aggregate and asphalt by continuous of drum mix plant and hot laid process laying with paver finisher and consolidation with Vibratory roller as per M.O.R.T. & H specification to achieve desire density, including cost all materials equipments, tools and plants, oil, kerosene, firewood, labour charges etc. complete using contractor's own machineries drum mix plant and paver finisher etc. complete.	As per separate sheet attached.	
5	Providing and laying 30 mm thick Bituminous Concrete with B.T. aggregate as per M.O.R.T. & H. and using emulsion RS-1 as per IS 8887: for tack coat @ 2.50 KG. / 10 Sq.m. with mechanical sprayer and asphalt Grade: VG-30 for mixing @ 55.00 KG. / M.T. i.e. 5.5% by weight of total mix including heating and mixing the aggregate and asphalt by continuous of drum mix plant and hot laid process laying with paver finisher and consolidation with Vibratory roller as per M.O.R.T. & H specification to achieve desire density, including cost all materials equipments, tools and plants, oil, kerosene, firewood, labour charges etc. complete using contractor's own machineries drum mix plant and paver finisher etc. complete.	As per separate sheet attached.	
6	Providing and laying Compacted 100 mm thick of Specified quarry Spall in side shoulder including carriage of material and spreading on prepared base including compacting as per MOST Specification etc... complete.	As per separate sheet attached.	
7	Providing and laying 75 mm thick Bituminous Grout (BUSG) compacted with B.T. aggregate as per M.O.R.T. & H. specification and using emulsion (RS1) as per IS - 8887 for tack coat @ 2.50 KG. / 10 Sq.m. with mechanical sprayer and Bulk asphalt VG-30 for mixing @ 19.90 KG. / M.T. i.e. 1.99 % of total weight of mix, including heating and mixing asphalt and aggregate by continuous of drum mix plant and hot laid process laying with paver finisher and consolidation with roller as per M.O.R.T. & H specification to achive desire density, including cost of labour, materials and plant, fuel, oil, kerosene, labour charges etc. complete using contractor's own machinery drum mix plant and paver finisher etc. complete.	As per separate sheet attached.	
8	Construction of granular sub-base 200mm thick layer by providing machine crushed B.T. material satisfying MORT&H specification (Fifth revision) of grading III including spreading in uniform layer 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 etc. complete.	As per separate sheet attached.	
9	Providing and laying 250 mm thick Wet mix macadam (W.M.M.) using machine crushed black trap aggregate of 40 to 50 mm size in the material as per MORT & H specification including premixing the material with water at OMC in mechanical mix plant, carriage of mixed material by tippers to site, laying in uniform layers with paver in sub base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density. (Work will carried out in two leyer of total thickness)	As per separate sheet attached.	
10	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.	As per separate sheet attached.	



Tender Item No.	Description of Item		
1	2	3	4
11	Clearing and grubbing road land including uprooting trunk vegetation, grass bushes, shrubs, saplings and tree 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	As per separate sheet attached.	
12	Box cutting the road surface to proper slope and camber for making a base for excavated stuff and depositing on the road side slope as directed upto all .	As per separate sheet attached.	
13	Earth work for embankment including breaking clods, dressing with all lead and lift including watering, rolling and consolidation of sub grade in layers at O.M.C to required dry density including filling the depression which occur during the process using vibratory roller 8 to 10 Tonne (c) From Borrow area with in 3.0 KM Lead	As per separate sheet attached.	
14	Rolling and watering of earth work in layers with power roller including filling in depression which occur during the process	As per separate sheet attached.	
15	Earthwork in cutting including preparing the slope and camber and stacking or utilising the cutting stuff in bank as directed upto 200 meters from the end of cutting with all lead and lift (III) Hard rock	As per separate sheet attached.	
16	Excavation for foundation upto 1.5m depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead. (A) Loose or soft soil	As per separate sheet attached.	
17	Providing and filling in foundation with ordinary cement concrete M.100 mix and providing necessary vertical pin headers including form work vibrating ramming and curing complete.	As per separate sheet attached.	
18	Providing and casting in-situ ordinary cement concrete M150 mix and providing necessary pin headers including shuttering, scaffolding, laying, vibrating and finishing without V-grooves (A) Height from 0.0 to 5 Mt.	As per separate sheet attached.	
19	Providing TMT Bar FE 500D / 550D reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level	As per separate sheet attached.	
20	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 daimeters. (v) 900mm dia.	As per separate sheet attached.	
21	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 daimeters. (vii) 1200mm dia.	As per separate sheet attached.	
22	Providing and filling sand around the pipe including hand packing ramming, watering, filling measure boxes etc. complete as directed.	As per separate sheet attached.	
23	Providing Diversion of road 5.50 mt width (Having 7.50 mt formation width ) For structure by providing & spreading Earth work , 100 mm GSB-III, 100 mm GSB -V, 100 mm WMM ,BUSG Manually Width Side shoulder and loose pipe. The length of Road is depend on site condition etc as directed by Engineer in Charge .	As per separate sheet attached.	
24	Providing Diversion of road 5.50 mt width (Having 7.50 mt formation width ) For structure by providing and laying 37.5 mm BM, 18 Sealcoat. The length of Road is depend on site condition etc as directed by Engineer in Charge .	As per separate sheet attached.	
25	Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 220 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 fixed form paver or conventional method, compacting with 8-10 tonnes vibratory roller, finishing and curing etc. complete as directed.	As per separate sheet attached.	
26	Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with concrete grade M300, 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, or conventional method, 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 & as directed by engineer in charge.	As per separate sheet attached.	
27	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.	As per separate sheet attached.	
28	Demolition including stacking of serviceable materilas and disposal of unserviceable materials with all lead and lift. (i) R.C.C. work	As per separate sheet attached.	



Tender Item No.	Description of Item	3	4
1	2		
29	Providing laying and spreading granular materials available from existing crust and adding fresh machine crushed material in required proportion so as to have mix material gradation of GSB grade I/II/III, mixing in place with rotavator and grading with mortar grader at OMC and compacted with vibratory roller to achieve desired density etc. complete	As per separate sheet attached.	
30	Providing and laying 20mm thick Mix Seal Surface with tack coat @ 2.0 kg/10 sqm using B.T. chips as per M.O.R.T. & H. gradation type A and specification with VG-30 for mixing @ 51.00 Kg / M.T. i.e. 5.1 % of total weight of mix using including heating and mixing the aggregate and asphalt in continuous of drum mix plant and hot laid process spreading the same by paver finisher and consolidation with roller as per M.O.R.T. & H. specification to achieve desire density, including providing all materials equipments, tools and plants, fire wood, oil, kerosene, labour charges etc. complete using contractor's own machinery, drum mix plant and paver finisher etc. complete	As per separate sheet attached.	
31	Providing & laying seal coat with B.T. agg. as specified using agg. at the rate of 0.18 cu.mt/10Sq.Mt. and bitumen for mixing agg. at the rate of 4.50% i.e. 45.00 kg/M.T. of total mix for binder and including heating & mixing in hot / drum mix plant & transporting & sreading the same by paver finisher & consolidation with vibratory roller incl. necessary firewood, oil, lubricants, labour charges etc. using contractor's own drum mix plant, machineries & equipment, tools etc. complete in accordance with the requirement of specification.	As per separate sheet attached.	
32	Road Marking with Hot Applied thermoplastic Paints with Reflectorising glass beads on bitumen surface providing and laying a hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per Sqm area, thickness of 2.5 mm 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 colour marking should provide luminance coefficient on cement 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 and as directed by engineer in charge. Warranty for retroreflectivity shall be upto D.I.P. Period	As per separate sheet attached.	
33	Cats eye/Road stud/RPM : supplying Raised pavement marker made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens (No glass ebnd 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 body of the marker should having finger grip for easy and accurate placement and application with epoxy/bituminous adhesive as recomonation 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	As per separate sheet attached.	
34	Cautionary Warning Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 90 x 90 x 90 cms. equilateral triangle 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 Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.	
35	Direction (Junction) Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 244x122 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 Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.	



Tender Item No.	Description of Item		
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36	Village Name Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 90x60 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 reflectivesheeting of Type-11 as per ASTM D- 4956 and latest M.O.S.T.Specifications; 3.3mtr 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 bestquality epoxy coatings in black and white bends. The details of symbol or inscription/letters / 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 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	As per separate sheet attached.	
37	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 reflectivesheeting 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.	
38	Chevron sign :-Providing and fixing sign boards made out of 1.5mm aluminium sheet / 3mm ACP (Aluminum composite Panel); size 60x50 cm 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 reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.3 mtr long stand post of 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 bestquality epoxy coatings in black and white bends. the details of symbol or inscription / numerals for each board shall be as per theinstruction 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 10 years for the Retro reflective sheeting from originaa 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	As per separate sheet attached.	
39	Providing and fixing 5th Km. stone of precast C.C. 1:2:4 including necessary reinforcement as per I.R.C. type design fixing in C.C. 1:4:8 including painting and lettering etc. complete	As per separate sheet attached.	
40	Providing and fixing ordinary kilometer stone of precast C.C. 1:2:4 including necessary reinforcement as per I.R.C. type design fixing in C.C. 1:4:8 including painting and lettering etc. complete	As per separate sheet attached.	
41	Providing and fixing hectometer as per I.R.C. type design including painting lettering etc. complete fixing in C.C. 1:5:10.	As per separate sheet attached.	
42	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 Micro Prismatic Grade retro reflectivesheeting of Type-11 as per ASTM D- 4956 and latest M.O.S.T.Specifications; 3.6mtr 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.	
43	STOP Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 90 cms Octagone 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 reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.	



Tender Item No.	Description of Item	
1	2	3 4
44	Providing and laying of raised profile edge line marking (audible warning) with hot applied thermoplastic road marking compound 2mm thick base coat layer above that ribs profile of 6 mm thick (Total 8 mm thick) at the distance of 500 mm between two ribs including reflectorizing glass beads @ 250 gm/ sq.mt area. The minimum and maximum width of raised profile should be 150 mm. The thickness of 8 mm profile should be exclusive of surface applied glass beads. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on edge lines.	As per separate sheet attached.
45	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 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 reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.
46	Tree Guard sign :-Providing & fixing sign board made out of 2mm aluminium sheet / 3mm ACP (Aluminum composite Panel) , size 30cms diameter circle, pretreated with phosphating process and acid etching, painted with one coat of epoxy primer and two coats of best quality epoxy paint reflectorised with retro reflective sheeting as per latest M.O.S.T. specifications. 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	As per separate sheet attached.
47	Give Way Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 90 x 90 x 90 cms. equilateral triangle 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 reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6mtr 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.
48	Route Marker sign :-Providing and fixing sign boards made out of 2.0 mm aluminium sheet / 4 mm ACP (Aluminum composite Panel); size 60x45 cm rectangular plus 30x25cm additional plate 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 reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 3.6 mtr long stand post of 75 x 75 x 6mm / 65NB Circular MS Pipe as required and frame fabricated from suitable size iron angle of 35x 35 x 3mm; 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 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	As per separate sheet attached.
49	Distance Informatory / Destination Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 180x120 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 reflectivesheeting of Type-11 as per ASTM D-4956 and latest M.O.S.T.Specifications; 4.0mtr long (2 Nos.) stand post of 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 bestquality epoxy coatings in black and white bends. The details of symbol foreach board shall be as per theinstruction 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 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	As per separate sheet attached.



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1	2	3	4
50	<p>Diversion Ahead Sign :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 180x60 cms. rectangular as per design of IRC-67-2012. Pre treated with phosphating process &amp; 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; 3.1 mtr 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 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 &amp; a certified copy of 3 year outdoor exposure test report from third party test lab for the product offered shall be submitted by contractor.</p> <p>(B) Class-B Type-4 Retro Reflective sheeting</p>	As per separate sheet attached.	
51	<p>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 phosphating process &amp; 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; 3.6 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 50x50x5mm; 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 &amp; 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</p>	As per separate sheet attached.	
52	<p>Portable Barricade in Construction Zone (Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 450, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55- 2001 )</p>	As per separate sheet attached.	
53	<p>Traffic cones with 150 mm reflective sleeve (Provision of red / other colour fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873)</p>	As per separate sheet attached.	
54	<p>Standard Delineator: Providing and fixing Standard Metal Delineator consisting of minimum retro reflective unit exposed area of 330 cm<sup>2</sup> white color, full cube corner micro prismatic non- metallic retro reflective sheeting on each side conforming with IRC 67-2012 and meeting the coefficient of retro reflection values as per ASTM D 4956 Type XI table specification. The delineator shall be painted with powder coat of minimum 401 microns thickness, on top of which retro reflective sheeting shall be pasted on both sides. The structure shall be manufactured in roll forming process and shall have height not less than 800 mm above the ground, width not less than 100 mm and shall extend not more than 300 mm below the ground while being intalled, height of sheeting should be minimum 150 mm whereas width of sheeting should not be less than 75 mm (should be placed every alternative 15cm), The front and the back faces opf the delineator should be curved with a radius of not more than 200 mm and with delta angle (or central angle of curve) lying between 20 and 30, to increase the visibility of delineator for vehicles moving in continuous curves. The delineator shall have grooves across the length to make the reflective sheets vandal- proof. The delineator is meant for application on gaps in median, traffic islands, dangerous bends, roundabouts,. narrow bridge etc. or as desired by site engineer.</p>	As per separate sheet attached.	
55	<p>Supplying and erecting LED Solar street lights with High power white LEDs wattage of 1 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 company mark/name engraved or embossed with 36 hours battery backup &amp; MPPT 24V,7.5 A charge controller with 12 hours automatic switch on/off with wind speed resistance 44 m/s as per IEC 61215. (E) 36W,3000 lumens, IP-65, PV Module - 2x100W and 6 mtr poles comolete erected.</p>	As per separate sheet attached.	
56	<p>Providing and fixing 'W' type safety barrier using M.S. iron channel 150mm x 75m x 5mm size erected at 2.0 Mt. center to center and providing 'W' shaped galvanised steel sheet guard rail 3mm thick for crash barrier in single row as per detailed drawing with fabrication and installation charges including providing foundation block of size 0.60 x 0.60 x 0.75 Mt. in C.C. 1:2:4 and oil painting two coats with one coat of red oxide etc complete.</p>	As per separate sheet attached.	



Tender Item No.	Description of Item		
1	2	3	4
57	Sign board per Square Meter :-Providing and fixing sign boards made out of 2mm aluminium sheet / 4mm ACP (Aluminum composite Panel); size 1 meter x 1meter 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; 4 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 50x50x5mm; 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. (B) Class-B Type-4 Retro Reflective sheeting	As per separate sheet attached.	
58	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 upto 3.0 M. and lead upto 100m for 10 Cum	As per separate sheet attached.	
59	Providing and laying rubble pitching 22.5 cm thick including preparing the surface and providing pannel wall of cement concrete 1:2:4 at 3m c/c horizontally and vertically size 0.35mx0.35mincluding pitching pointing in cm 1:3 including curing incl cost of all material labour etc. complete.	As per separate sheet attached.	
60	Providing and laying in position C.C 1:2:4 water chute as directed including with all necessary excavation curing incl all material labour etc complete	As per separate sheet attached.	
61	Providing and laying weep hole in abutment and return by using A.C./ P.V.C pipes of 100 mm diameter including laying in proper grade and jointing complete etc. as per detailed specification	As per separate sheet attached.	
62	Providing and laying-filter media 600 mm thick directed at the back of abuyments,returns and wing walla as per detailed specifications	As per separate sheet attached.	
63	Wall painting two coats with plastic emulsion paint of approved brand and manufacturer on wall surfaces to give an even shade including throughly brushing the surface to remove all dirt, dust, mortar drops and other foreign matter.	As per separate sheet attached.	

Deputy Executive Engineer  
R & B Sub Division  
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Executive Engineer  
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