

MAHARASHTRA INDUSTRIAL DEVELOPMENT CORPORATION

Item Specification

Work Name: M&R to Street Lights @ Yavatmal, Pusad & mini I/A....Operation & Comprehensive maintenance of street lights for Two Years.

Sub Estimate:Sub Estimate

1 Operation & Maintenance of street light including Providing licensed Electrician & Helper for day to day checking, identifying &

Specification:

Operation & Maintenance of street light including Providing licensed Electrician wireman & Laboures for day to day checking, identifying & rectifying the faults in street light system , replacing of burnt accessories of street light fixture, FRP box, cable wires, pipes etc. as directed by the Engineer-in-Charge including replacing of damaged Timer/Contractor,/MCB/RCCB,/Isolator/and any other accessories in side the feeder pillar and operation of all circuits in feeders provided in the area, checking the same in night hours, carrying out periodical maintenance of feeder piller, cleaning the 1.00 mtr area around the feeder pillar,& its approach from road, cleaning & Closing of open of terminal boxes & etc. Informing the weekly report including no.of lights working & non working to the Engineer-in-Charge & any other work required from time to time in Yavatmal, Pusad & Mini Indl.Area I.A. the Item includes cost of all required materials for maintenance of street lights and taxes transportation etc complete.the item also includes the cost of re-erection of damaged/accidental poles of Ind.Area.The damaged wiring shall also be repaired properly.

Specification: Under this item the agency will have to carry out Compressive Operation & Maintenance of 502 Nos of 48 W, 90 W & 120 W LED street lights fittings provided on 9 mtr & 11 Mtr long pole in Yavatmal, Pusad & Mini Indl.Area industrial area including licensed Electrician / wireman and helpers for day today checking , identifying and rectifying the faults and also including replacing of burnt accessories of street light fixture like bulbs Chokes Igniter FRP box, cable, wires, pipes, as directed by the Engineer-in-charge including replacing of damaged Timer,/ Contactor, /MCB,/ RCCB, /Isolator /and any other accessories in side the feeder pillar and Page 64 Tender ID - 26277 operation of all circuits in feeders provided in the area, checking same in night hours, carrying out periodical maintenance of feeder pillar such as checking of internal connection, cable joints, earthings, fuse replacement, adjusting the timer as & when required cleaning of 1.00 mtr area around the feeder pillar, Closing of the terminal boxes etc. Informing the weekly report including no. of lights working & non working to the Engineer-in-charge in Yavatmal, Pusad & Mini Indl.Area Indl Area. The item includes all the street light material required for its its maintenance . The agency should have or may hire the mobile ladder for maintenance of street light fixture for Yavatmal, Pusad & Mini Indl.Area Indl Area. Under this item, the agency has to provide all services for operation & maintenance of streetlight. Agency has to engage skilled qualified & experienced Technical staff including supervisor, electricians & helpers as per requirement for maintenance of

street lights. The agency shall have to ensure that all street lights are functioning during night period & they shall have to check the operation of all circuits of feeder pillars provided in I/A.

Feeder Pillars:- The agency shall have to erect new feeder pillar with its complete assembly of fuse/MCB/Isolator/Timer/contactors/doors etc. in the direction of engineer in charge wherever required. The agency shall have to carry out Compressive maintenance of feeder pillar including checking of internal connection/cable joints/earthings, replacement of fuse/MCB/Isolator/Timer/contactors/doors, adjusting the timer as & when required, cleaning of feeder pillar, cleaning 1.00 mtr area around the feeder pillar & its approach from road, cleaning etc. The agency shall have to ensure the reliable operation of feeder pillar every day. If the feeder pillar is damaged it should be replaced.

Street Light:- The agency shall have to carry out following day to day operation & maintenance of street light provided in I/A.

1. The agency will have to replace faulty Choke/lamp/ignitor/capacitor of the non working 48W/90W/120W. Energy saving T-5 Fittings to keep the fixture in working condition.
2. The agency shall ensure that all the fittings on all poles are provided & are operational during maintenance period.
3. The agency will have to replace the damaged cable end boxes, Acrylic covers, as per instruction of Engineer In charge as & when required.
4. The agency shall have to regularly clean the acrylic cover of the fittings & junction boxes of the pole as & when required.
5. All the cable ends shall be terminated by suitable Aluminum lugs duly crimped using crimping tool.
6. Cable shall be laid as per I.S. standard, it shall be laid 0.7 m below the ground level with 20 cms sand cushioning below & above and to the full width of brick laid length wise over. The items include the provisions of excavation of trench, providing sand cushions, brick lining etc. There should not be any twist to cable while lying. The agency shall have to replace the cable of suitable size if cable is damaged.
7. All the three phases of Cable shall be continued from feeder pillar to end pole independently & in case of failure of the same, agency shall have to replace the damaged cable for quality three phase power supply.
8. The agency shall have to check the earthing of poles once in a year & shall have to repair/replace the earthing including all required material as required as per site condition.
9. The agency shall also have to replace the damaged cable enclosing pipe between ground to terminal box as per requirement.
10. The agency shall have to replace the damaged mains of suitable size i.e. 2X1.5 & 2x2.5 sq. mm from terminal box to fittings as per wattage of the fittings.
11. Materials used for the works shall be as per approved enclosed list and should be shown to the concerned Engineer-in-Charge of the work before use.
12. The agency will have to cut / trim the branches of Page 65 Tender ID - 26277 the tree if required & as per instruction of Engineer In charge.
13. The agency has to replace the damaged Page 66 Tender ID - 25829 FRP box of suitable size. Clamping to FRP box shall be provided.
14. The agency shall have to provide vehicle mounted mobile ladder to carry out the maintenance of street lights as per requirement. The payment of driver /fuel etc is be included in the quoted rate of the tender agreement.
15. .In case of theft the agency will have to report to the MIDC & lodge FIR to Police Department & coordinate with the police department in case of theft.

INSPECTION:- The agency shall have to maintain 90% street light in working condition on average monthly basis otherwise penalty clause shall be made applicable. The supervisory staff of this deptt. shall be entitled to remove bad quality material without paying any extra charges to the contractor. The agency has to keep 90% street light glowing throughout the

year. The contractor shall check non working luminaries & repair the same fittings. The streetlight shall be inspected by the contracting agency in presence of MIDC Engineer-in-charge in every week, fortnightly in presence of Deputy Engineer & once in a month with the Executive Engineer. It will be the responsibility of the contracting agency to prepare the joint inspection report & submit the same to the Sub-division office. All the inspection report shall be enclosed along with each RA Bills without which payment will not be made to the agency. If the contractor does not repair the non working luminaries, the compensation shall be levied as per penalty clause towards non-functioning of fixtures below 90 %. The amount of same will be deducted from the running account bill. The compensation will not be waived off for any reason. Agency shall have to co-ordinate with MSEDCL in case of power failure of street light & replacement of non functioning energy meters. MIDC will pay meter cost to MSEDCL. The agency shall also have to submit all necessary reports as per instructions of Engineer In Charge. The agency shall ensure that no power theft is being taken place from the street light/feeder pillar. In case of the power theft, agency shall have to take necessary actions to stop the same which may include police complaints also. Agency shall be responsible for power theft. The dismantled damaged/scrap material of the street lights shall be kept by the contracting agency @ free of cost only & no amount will be recovered from them against custody of the same. The agency shall have to take this into account while quoting the rates in tender. Penalty Clause for Non Functioning of Street Lights :- There will be penalty of Rs. 250/- per pole per month below 90 % in Nonfunctioning street lights. Mode of Measurement:- The Item will be measured on per pole/month basis. and will be paid accordingly

2 Hiring charges of JCB for shifting of poles, strengthening of tilted poles, excavation of trenches etc

Specification:

Specification: - The item includes providing services of JCB for carrying street light related work whenever required ,or as directed by Engineer-In-Charge including all charges etc.

Mode of measurement :- The payment measured as per Hours basis and paid accordingly

3 Hiring of unskilled labour for cutting of trees, cleaning of area around feeder pillar etc

Specification:

Specification: The item includes providing services of Unskilled labors for carrying out works such as trimming of road side trees ,thorny bushes , grass and other misc. work for shift of 8.00 hours ,or any other street light related work whenever required ,as directed by Engineer-In-Charge including all charges etc. Mode of measurement :- The payment measured as per Man days basis and paid accordingly

4 Steel Poles (OH-PL)

4.1 Supplying and erecting steel tubular swaged pole 165.1 x 139.7 x 114.3 mm dia with 4.5 x4.5 x3.65 mm thickness (5.60+2.7+2.7 m) length total 11 m long with pole cap, base plate in provided foundation (weight 175 kg.) as per specification no. OH-PL/STP

4.2 Supplying and erecting steel tubular swaged pole 165.1 x 139.7 x 114.3 mm dia with 4.5 x 4.5 x 3.65 mm thickness (5+2+2 m) length respectively and total 9 m long with pole cap, base plate in provided foundation (weight 147 kg) as per specification no. OH-PL/STP

Specification:

4.1 Specification

Specification :- This specification covers the general requirements towards design, manufacture, testing at manufacturers works, supply and delivery for tubular steel poles of circular cross section (swaged type) for overhead lines.

2.0 STANDARD : 2.1 The tubular steel poles shall conform to the latest edition of Indian Standard specification IS: 2713 (Part – I, III) : 1980 or any other authoritative standards (as amended up-to- date) except where specified otherwise in this specification.

3.0 Topography and Climatic Condition : 3.1 The materials offered, shall be suitable for operation in tropical climate and will be subjected to the sun and inclement weather and shall be able to withstand wide range of temperature variation. For the purpose of design, average atmospheric temperature may be considered to be 50 o C with humidity nearing saturation.

4.0 Materials : 4.1 The materials used in construction of tubular steel poles shall be of the tested quality of steels of minimum tensile strength 540 MPa (: 55 Kgf/mm²). 4.2 The materials, when analysed in accordance with IS : 228 (Part-III : 1972) and IS : 228 (Part-IX) shall not show sulphur and phosphorous contents of more than 0.060 percent each.

5.0 Types, Size and construction : 5.1 Tubular Steel Poles shall be swaged type. 5.2 Swaged poles shall be made of seamless or welded tubes of suitable lengths swaged and jointed together. No circumferential joints shall be permitted in the individual tube lengths of the poles. If welded tubes are used they shall have one longitudinal weld seam only : and the longitudinal welds shall be staggered at each swaged joint. 5.3 Swaging may be done by any mechanical process. The upper edge of each joint shall be chamfered if at an angle of about 45o. The upper edge need not be chamfered if a circumferential weld is to be deposited in accordance with clause No. 5.3 2 of IS: 2713 (Part-I) :1980. 5.4 The length of joints on swaged poles shall be in accordance with clause No. 5.4 of IS: 2713 (Par-I): 1980. 5.5. Poles shall be well-finished, clean and free from harmful surface defects. Ends of the poles shall be cut square. Poles shall be straight, smooth and cylindrical. The weld joints, if any, shall be of good quality, free from scale, surface defects, cracks, etc. 5.6. Tolerances for outside diameter, thickness, length, weight and Page 67 Tender ID - 26277 straightness shall be in accordance with IS: 2713 (Part-I) : 1980. 5.7. The poles shall be coated with black bituminous paint conforming to IS : 158-1968 throughout, internally and externally, upto the level which goes inside the earth. The remaining portion of the exterior shall be painted with one coat of red oxide primer as specified in IS: 2074-1979.

6.0 Earthing Arrangements : 6.1 For earthing arrangement a through hole of 14mm diameter shall be provided in each pole at a height of 300mm above the planting depth.

7.0 Tests and Test Certificates : 7.1 The following tests shall be conducted on finished poles : A. Tensile test and chemical analysis for sulphur and phosphorous , B. Deflocation test, C. Permanent set test, and D. Drop test. 7.2 In addition to above verification of dimensions as per IS : 2713 (Part-III) : 1980 shall be carried out during acceptance lots. 7.3 Number of poles selected for conducting different tests shall be in accordance to clause No. 10.1.1 and No. 10.1.12: of IS: 2713 (Part-I) 1980. 7.4 Tests shall be carried out before supply of each consignment at the manufacturers woks and test certificates should be submitted to the purchaser for approval prior to delivery. 7.5 Retests, if any, shall be made in accordance with IS: 2713 (Part-I)

1980. 7.6 Purchaser reserves the right to inspect during manufacturing and depute his representative to inspect/test at the works. 7.7 If any extra cost is required for carrying out the above specified tests, the same shall be borne by the tenderer. 8 Marking : 8.1 The poles shall be marked with designation, manufacturer's identification, year of manufacture and name of the purchaser: WBSEB. 8.2 The poles may also be marked with the ISI certification mark if applicable. 9.0 Guaranteed technical particulars : 9.1 The tenderer shall furnish all necessary guaranteed technical particulars in the prescribed proforma enclosed hereinafter. 10.0 Schedule of requirement :- 10.1 The schedule of requirement given in the price schedule of Annexure is tentative and may vary at the time of placement of order. 10.2 The tenderer shall fill the schedule of price given at Annexure and submit the same in quadruplicate. 11.0 Price :- The tenderers are required to quote variable price as per the price variation formula enclosed hereinafter. The tenderer shall also indicate the maximum ceiling limit of such price variation clearly in their offer. 12.0 Performance :- 12.1 The tenderer shall furnish a list of the major supplies effected during the last 3 (three) years indicating the volume of supply and actual delivery dates alongwith the bids. 12.2 Tenders may not be considered if the past manufacturing experience is found to be less than 3 (three) years. 13.0 Deviation :- 13.1 Any deviation in technical specification shall be clearly indicated with sufficient reasons thereof. Page 69 Tender ID - 25829 Purchaser shall however reserve the right to accept and/or reject the same without assigning any reasons what-so-ever. 5.2 Specification SCOPE : 1.1 This specification covers the general requirements towards design, manufacture, testing at manufacturers works, supply and delivery for tubular steel poles of circular cross section (swaged type) for overhead lines. 2.0 STANDARD : 2.1 The tubular steel poles shall conform to the latest edition of Indian Standard specification IS: 2713 (Part – I, III) : 1980 or any other authoritative standards (as amended up-to- date) except where specified otherwise in this specification. 3.0 Topography and Climatic Condition : 3.1 The materials offered, shall be suitable for operation in tropical climate and will be subjected to the sun and inclement weather and shall be able to withstand wide range of temperature variation. For the purpose of design, average atmospheric temperature may be considered to be 50 o C with humidity nearing saturation. 4.0 Materials : 4.1 The materials used in construction of tubular steel poles shall be of the tested quality of steels of minimum tensile strength 540 MPa (: 55 Kgf/mm²). 4.2 The materials, when analysed in accordance with IS : 228 (Part-III : 1972) and IS : 228 (Part-IX) shall not show sulphur and phosphorous contents of more than 0.060 percent each. 5.0 Types, Size and construction : 5.1 Tubular Steel Poles shall be swaged type. 5.2 Swaged poles shall be made of seamless or welded tubes of suitable lengths swaged and jointed together. No circumferential joints shall be permitted in the individual tube lengths of the poles. If welded tubes are used they shall have one longitudinal weld seam only : and the longitudinal welds shall be staggered at each swaged joint. 5.3 Swaging may be done by any mechanical process. The upper edge of each joint shall be chamfered if at an angle of about 45°. The upper edge need not be chamfered if a circumferential weld is to be deposited in accordance with clause No. 5.3 2 of IS: 2713 (Part-I) :1980. 5.4 The length of joints on swaged poles shall be in accordance with clause No. 5.4 of IS: 2713 (Par-I): 1980. 5.5. Poles shall be well-finished, clean and free from harmful surface defects. Ends of the poles shall be cut square. Poles shall be straight, smooth and cylindrical. The weld

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5 C.C. Foundation

5.1 Making Cement concrete foundation including excavation (60 x 60)cm x deep 1/6 of pole length in 1:3:6 cement concrete 20 x 25 mm stone metal, 45cm x 45cm x 45cm/ 45cm dia. x 45cm height plinth duly plastered, with necessary curing and finishing complete. (for above 9m poles)

5.2 Making Cement concrete foundation including excavation (60 x 60 x 150)cm deep in 1:3:6 cement concrete 20 x 25 mm stone metal, (45 x 45 x 45)cm /45cm dia. x 45cm height plinth duly plastered, with necessary curing and finishing complete. (above 6m to 9m poles)

5.3 Making cement concrete foundation in 1:3:6 cement concrete, (20 to 25) mm. stone metal duly plastered with necessary curing for complete. (pole muffing or any other purpose)

Specification:

5.1 Specification

Specification :- General : The item pertains to providing and laying in position Plain Cement Concrete (PCC) of specified proportion. The work includes providing all material, mixing, compacting, curing, shuttering, dewatering etc. complete up to lift of ± 5 m. 1.2 Material: 1. Cement : Ordinary Portland Cement (OPC) as specified at item Gen/C/0.2.1. 2. Fine Aggregate (Sand) : specifications shall conform to item Gen/C/0.2.2. 3. Coarse Aggregate : specifications shall conform to item Gen/C/0.2.3. Grading and maximum size of coarse aggregate shall be as specified in the drawing. Page 71 Tender ID - 25829 Normally the maximum size should not be more than 40 mm or 25 % of the minimum dimension of the member, whichever is less. 4. Water : specifications shall conform to item Gen/C/0.2.4. 1.3 Mix Proportion and Mixing : The mix proportion as specified on the drawing, separately for each component shall be provided. For detailed specifications refer to item No. Gen/C/0.5. For mixing without mechanical mixer, prior permission from the Engineer-in-charge shall be obtained. Specifications for mixing shall conform to item Gen/C/0.7. 1.4 Formwork and Scaffolding : Formwork shall be provided for giving the desired shape and sizes for the PCC as per the drawings. The specifications shall conform to item Gen/C/0.19.7. The stripping time also shall be as specified in the item. The scaffolding shall be normally provided of steel tubes. The specifications for scaffolding also shall conform to item Gen/C/0.19.8. 1.5 Transportation, Placing and Compaction : Specifications shall conform to item Gen/C/0.8. 1.6 Field Tests : The appropriate field tests as directed by the Engineer-in-charge shall be carried out as explained in item Gen/C/0.15. 1.7 Inspection & Testing of Structure : As per the contract conditions inspection & testing of a structure shall be carried out in accordance with item Gen/C/0.16. 1.8 Finishing of Concrete : The finishing of concrete surface shall be as per item Gen/C/0.17. 1.9 Special Features : Special requirements such as Architectural shapes/ finishes, Expansion joints, Construction joints, Water stops, grouting, etc. shall be provided as shown on drawing/s and as directed by Engineer in Charge. For specifications for these the appropriate clauses of item Gen/C/0 shall be referred. 1.10 Curing : As per item Gen/C/0.14. 1.11 Item to Include : This item for providing Plain Cement Concrete (PCC) with specified mix proportion at specified locations with initial lift of + 5 m above or below ground level includes all ingredients of concrete i.e. water, cement, fine and coarse aggregates, all transportation, dewatering, tools and plants, all taxes, royalties, labour, formwork, testing, curing etc. complete. Mode of Measurement and Payment : The measurements of the concrete block laid shall be taken on per number basis.

5.2 Specification

Specification :- General : The item pertains to providing and laying in position Plain Cement Concrete (PCC) of specified proportion. The work includes providing all material, mixing, compacting, curing, shuttering, dewatering etc. complete up to lift of ± 5 m. 1.2 Material: 1. Cement : Ordinary Portland Cement (OPC) as specified at item Gen/C/0.2.1. 2. Fine Aggregate (Sand) : specifications shall conform to item Gen/C/0.2.2. 3. Coarse Aggregate : specifications shall conform to item Gen/C/0.2.3. Grading and maximum size of coarse aggregate shall be as specified in the drawing. Page 71 Tender ID - 25829 Normally the maximum size should not be more than 40 mm or 25 % of the minimum dimension of the member, whichever is less. 4. Water :

specifications shall conform to item Gen/C/0.2.4. 1.3 Mix Proportion and Mixing : The mix proportion as specified on the drawing, separately for each component shall be provided. For detailed specifications refer to item No. Gen/C/0.5. For mixing without mechanical mixer, prior permission from the Engineer-in-charge shall be obtained. Specifications for mixing shall conform to item Gen/C/0.7. 1.4 Formwork and Scaffolding : Formwork shall be provided for giving the desired shape and sizes for the PCC as per the drawings. The specifications shall conform to item Gen/C/0.19.7. The striping time also shall be as specified in the item. The scaffolding shall be normally provided of steel tubes. The specifications for scaffolding also shall conform to item Gen/C/0.19.8. 1.5 Transportation, Placing and Compaction : Specifications shall conform to item Gen/C/0.8. 1.6 Field Tests : The appropriate field tests as directed by the Engineer-in-charge shall be carried out as explained in item Gen/C/0.15. 1.7 Inspection & Testing of Structure : As per the contract conditions inspection & testing of a structure shall be carried out in accordance with item Gen/C/0.16. 1.8 Finishing of Concrete : The finishing of concrete surface shall be as per item Gen/C/0.17. 1.9 Special Features : Special requirements such as Architectural shapes/ finishes, Expansion joints, Construction joints, Water stops, grouting, etc. shall be provided as shown on drawing/s and as directed by Engineer in Charge. For specifications for these the appropriate clauses of item Gen/C/0 shall be referred. 1.10 Curing : As per item Gen/C/0.14. 1.11 Item to Include : This item for providing Plain Cement Concrete (PCC) with specified mix proportion at specified locations with initial lift of + 5 m above or below ground level includes all ingredients of concrete i.e. water, cement, fine and coarse aggregates, all transportation, dewatering, tools and plants, all taxes, royalties, labour, formwork, testing, curing etc. complete. Mode of Measurement and Payment : The measurements of the concrete block laid shall be taken on per number basis.

5.3 Specification

Specification : The item pertains to providing and laying in position Plain Cement Concrete (PCC) of specified proportion. The work includes providing all material, mixing, compacting, curing, shuttering, dewatering etc. complete up to lift of ± 5 m. 1.2 Material: 1. Cement : Ordinary Portland Cement (OPC) as specified at item Gen/C/0.2.1. 2. Fine Aggregate (Sand) : specifications shall conform to item Gen/C/0.2.2. 3. Coarse Aggregate : specifications shall conform to item Gen/C/0.2.3. Grading and maximum size of coarse aggregate shall be as specified in the drawing. Normally the maximum size should not be more than 40 mm or 25 % of the minimum dimension of the member, whichever is less. 4. Water : specifications shall conform to item Gen/C/0.2.4. 1.3 Mix Proportion and Mixing : The mix proportion as specified on the drawing, separately for each component shall be provided. For detailed specifications refer to item No. Gen/C/0.5. For mixing without mechanical mixer, prior permission from the Engineer-in-charge shall be obtained. Specifications for mixing shall conform to item Gen/C/0.7. 1.4 Formwork and Scaffolding : Formwork shall be provided for giving the desired shape and sizes for the PCC as per the drawings. The specifications shall conform to item Gen/C/0.19.7. The striping time also shall be as specified in the item. The scaffolding shall be normally provided of steel tubes. The specifications for scaffolding also shall conform to item Gen/C/0.19.8. 1.5 Transportation, Placing and Compaction : Specifications shall conform to item Gen/C/0.8. 1.6 Field Tests : The appropriate

field tests as directed by the Engineer-in-charge shall be carried out as explained in item Gen/C/0.15. 1.7 Inspection & Testing of Structure : As per the contract conditions inspection & testing of a structure shall be carried out in accordance with item Gen/C/0.16 1.8 Finishing of Concrete : The finishing of concrete surface shall be as per item Gen/C/0.17. 1.9 Special Features : Special requirements such as Architectural shapes/ finishes, Expansion joints, Construction joints, Water stops, grouting, etc. shall be provided as shown on drawing/s and as directed by Engineer in Charge. For specifications for these the appropriate clauses of item Gen/C/0 shall be referred. 1.10 Curing : As per item Gen/C/0.14. 1.11 Item to Include : This item for providing Plain Cement Concrete (PCC) with specified mix proportion at specified locations with initial lift of + 5 m above or below ground level includes all ingredients of concrete i.e. water, cement, fine and coarse aggregates, all transportation, dewatering, tools and plants, all taxes, royalties, labour, formwork, testing, curing etc. complete. Page Mode of Measurement and Payment : The measurements of the concrete laid shall be taken on volumetric basis in cum. The openings shall be deducted. The unit rate of concrete per cum of specified proportion includes all the items as explained in Gen/C/0.25

6 LT Cables (Aluminum) (CB-LT/AL)

6.1 Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable, 1100 V 4 core 10 sq. mm. aluminium conductor complete erected with glands & lugs on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL

Specification:

6.1 Specification

Specification:- Armoured Cables (HT & LT) 1. General All material shall conform to relevant standard as per BIS and shall carry ISI mark. If any particular category of material for which ISI mark is not available in market, it shall be as included in approved list. Work shall be carried out as per the method of construction specified by BIS. If there is no reference for particular method of construction in IS, such work shall be carried out as per the approved method of construction specified in chapter 16 of P.W. Dept. Handbook. Material and Work not qualifying to any provision mentioned above shall be to the satisfaction of the Engineer in Charge. 2. Cables: (Armoured) The following list records those Indian Standards in force, which are acceptable as good practice, and accepted standard SP 30: 1984 : National Electrical Code SP 7 (Group 4): 2005 : National Building Code IS 1255: 1983 Code of practice of Installation & Maintenance of armoured cables up to 33 kV. IS 3961: Part 2: 1967 : Recommended current ratings of PVC cables. IS 1554: Part 1; 1988 : PVC Insulated (Heavy duty) Electric Cables; Part 1 for working voltages up to and including 1100 Volts. IS 1554: Part 2; 1988 : PVC Insulated (Heavy duty) Electric Cables; Part 1 for working voltages up to and including 3.3 kV to 11 kV. IS 10810: Part 63; 1993 : Method for Test of cables, Part 63 Smoke density of electric cables under fire condition. 3. Scope: (Armoured cables) Specification No. (CBLT/AL, CB-LT/CU, CB-HT) Providing armoured cable of specified voltage level, size & specified conducting material (Aluminum / Copper) as per Table no. 7/3 including

required material, hardware's for erection and erecting on wall, ceiling, RCC slab or drawing the same through pole, pipe, laying in provided conduit, trench, ducts, trays as per approved method of construction including glands, lugs, etc. 4. Material: Cables: Cables shall be PVC for LT/MP and XLPE for HT as per Table no. 7/3 and of required construction, colour, shall carry ISI mark, IS No, manufacturer's name, size, duly embossed / screen printed at every metre and having the total count of progressive length in meter at each mark. Earth wire: Galvanized Iron (G I) wire of Page 74 Tender ID - 25829 appropriate gauge as per Table No 7/1. Glands: As per specification (CBGL) Lugs: As per specification (CB-CL/AL, CB-CL/CU) Saddles: Saddles fabricated from GI sheet of required gauge and size depending on dia of cable either galvanized or painted with superior quality enamel black paint with necessary shearing mechanical strength, semi circular shaped with extended piece having suitable holes for fixing. G I Strip: 22 g x 25 mm width G I Strip. Clamps: MS Clamps fabricated of required length and shape, having the size of 3/6 mm thick mild steel having 25/50 mm width (as per size of cable), rounded ends with wooden / resin cast grip for holding the cable. Identification tags: For identifying root, connection position GI strip with identification mark / name embossed / painted with arrangement to tie should be fix on cable or Page 76 Tender ID - 26277 arrangement of ferrules to be done. Hardware: Sheet Metal (SM) screws of required sizes, plugs / wooden gutties, etc 4. Method of Construction: General: a) Irrespective of method of construction the cable ends shall be terminated with appropriate size & type of glands with lugs duly crimped, as directed by Site engineer. b) Wherever the cable has to be bent, the turning radius shall be as mentioned in Table No 7/2. Grouping of cables shall be done with adequate distance between cables as mentioned in IS so as to minimize derating. Cables shall be tagged/ferruled with identification name / mark at the point from where distribution starts and at ends. Bare earth wire of appropriate size as per Table no. 7/1 shall run along with the cable. Earth wire running with the cable shall be terminated at the earth terminal nearest to cable termination. 5.1 Erection of Cable on Surface: Erection shall be done as per the routes and layout finalized, in perfect level and in plumb. Before fixing the cable shall be straightened as far as possible for good aesthetics look, continuous bare GI earth wire of required gauge as per Table No 7/1 shall be run. Cable with G I wire shall be fixed by saddles firmly clipped on cable and shall be fixed to wall with minimum 50 x 8 mm SM screws with plugs/wooden gutties, etc. (Distance between two supports / saddles shall be maximum 450 mm). Wooden gutties shall be used wherever required (Especially for stone wall). The entries made in wall, floor slab, etc for laying the cable shall be made good by filling and finishing with plastering the same. 5.2 Erection of Cable on Trusses: Cable along with bare GI earth wire, while erecting on trusses, shall be firmly clamped by wrapping GI strip of 22 g, 25 mm width of required length fixed to truss with nuts and bolts. 5.3 Erection of Cable on Pole: Cable along with bare GI earth wire, while erecting on pole, shall be firmly clipped by suitable wooden / epoxy resin cast grips, clamped with 25 x 3 mm or 50x6 mm MS strip of required length and fixed to pole with nuts and bolts. 5.4 Laying of Cable in provided Trench/Pole: While laying Cable along with bare GI earth wire, utmost care shall be taken to prevent damage to the insulation of the cable and to the open end. Cable shall be brought out from trench vertically straight (minimum 1.0 meter above G L). Care shall be taken to inspect the trench so that depth of cable shall not be less than as shown in Table No 7/4. Suitable size of cable loops

shall be provided near termination point at adequate depth. 5.5 Erecting cable in constructed Trench / duct: Erection of cable/s in constructed trench / duct, shall be as per guide lines of IS 1255. 5.6 Erection of cable/s on trays: Cable/s shall be tied with PVC tags on GI trays. At bending point care shall be taken so that sharp edges of sheet will not damage insulation of cable. 5.7 Mode of Measurement: Executed quantity shall be measured on the basis of running meter per run of cable. 6. Dismantling Cable laid underground, or fixed on any surface shall be dismantled carefully without damaging complete with all its accessories, making coil and stored as directed. The surface of the dismantled cable shall be made clear by removing of unwanted material, cement mortar, etc. When cable is dismantled from trench refill back the trench and making the surface proper. 7. Mode of Measurement: Executed quantity shall be measured on the basis of running meter per run of cable

7 Outdoor Fittings (FG-ODF)

7.1 Supplying and erecting integrated LED street light fitting 40 to 50W IP65 & IK08 class having single piece pressure die-cast aluminium housing, having system lumens output of Min. 4400 Lumens, min. efficacy of 110 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.95, operating range of 140-270V, inbuilt surge protection of 10 kV, Life class of 50,000 Hrs at L70B50 including driver complete with minimum 2 Years warranty as per specification No. FG-ODF/SL.

Specification:

7.1 Specification

Specification:- The item shall be executed as per wording of item & specifications as per specification No FG-ODF/SL . The item is self explanatory. The work shall be carried out as per best engineering practice and as per directions of engineer-incharge. Mode Of Measurement- The measurement shall be taken on per number basis of fitting provided & fixed satisfactorily.

8 Street Light Boxes & Cable Indicators (CB-SB/CB-CIP)

8.1 Supplying & erecting FRP box of size 250mm x 200mm x 100 mm, 2.7 mm thick complete on pole/wall as per specification No. CB-SB

Specification:

8.1 Specification

Specification:- The item shall be executed as per wording of item & specifications as per specification No CB-SB. The item is self explanatory. The work shall be carried out as per best engineering practice and as per directions of engineer-in-charge.

Mode Of Measurement- The measurement shall be taken on per number basis of FRP box fitting provided & fixed satisfactorily.

9 Accessories for Outdoor Fittings (FG-BKT)

9.1 Supplying and erecting Street light bracket made from 40 mm. dia 'B' class G.I. Pipe, 0.6m. in length along with pole cap of 300 mm length and 80 mm dia duly welded with provided leads as per specification no. FG-BKT/BPC.

Specification:

9.1 Specification

Specification:- The item shall be executed as per wording of item & specifications as per specification No FG-BKT/BPC. The item is self explanatory. The work shall be carried out as per best engineering practice and as per directions of engineer-incharge. Mode Of Measurement- The measurement shall be taken on per number basis of Street light bracket fitting along with accessories provided & fixed satisfactorily

10 Excavation (CW-EXN)

10.1 Making trench in Hard murum/Tar road having 0.75m depth and minimum 0.3m width for laying provided cables up to voltage level 1.1kV cable complete as per specification no. CW-EXN-CTR

Specification:

10.1 Specification

Specification:- The item shall be executed as per wording of item & specifications as per specification No CW-EXN CT. The item is self explanatory. The work shall be carried out as per best engineering practice and as per directions of engineer-in-charge. Mode Of Measurement- The measurement shall be taken on per running meter basis of Making trench of suitable width and depth done satisfactorily.

11 Rebate for scrap items recovered.

Specification:

Specification:- Under this item, the agency shall dismantle the existing old fittings on pole as per the directives of the Engineer-in-charge and take them into their custody. MIDC office shall not be responsible for the storage of the fittings thus dismantled. The rebate recoverable is for scrap material obtained from the site of work & will be at contractor's disposal. The rebate for scrap will be deducted from I st RA bill. Mode Of Measurement- The payment shall be recovered in I st RA Bill at the rate as per schedule 'B'.

Signed By	: RAJESH SITARAMJI ZANZAD
Organisation Unit	: MIDC
Signed Date	: 19/05/2026