|  |
| --- |
|  |
| **"Annexure - A"** |
|  |
|  |  |  |  |  |  |  |  |  |
| **As the installation ages, there is deterioration to the various parts of the installations and services. Major repairs and replacement of elements become inevitable. It becomes necessary to prevent the installations from deterioration and undue wear and tear as well as to restore it back to its original conditions to the extent possible.** |
|  |  |  |  |  |  |  |  |  |
| **As per present trend, electrification and electrical installations are maintained & repaired by the way of yearly ARMO work. But it has felt that, necessary renovation, up gradation and modification is also required to maintaining such standards with respect to fulfil the requirements and to ensure smooth and satisfactory functioning of installations and depot operations also.** |
|  |  |  |  |  |  |  |  |  |
| **This revision is being brought out by incorporating changes in yardsticks for up gradation / aesthetic improvement, along with useful to maintain installations in unique style by various Field Units.** |
|  |  |  |  |  |  |  |  |  |
| **The items are mentioning below for incorporating the same for special repairs, renovation and restoration of the electrification and installations by way of dismantling/removing non-usable material (Which are to consideration for credit to the estimate/work) and to provide to replace by the items mentioned below:** |
|  |  |  |  |  |  |  |  |  |
| **Further this frame is also be useful for carrying out new electrification and installation work** |
|  |  |  |  |  |  |  |  |  |
| **1** | **Dismantling and re-fixing of following Dia sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.** |
| **1.1** | **20 mm Dia** |  |  |  |  |  |  |
| **1.2** | **25 mm Dia** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | By this item usful conduits, which are available at end portion, where non-useful conduits are to be removed from intermediate portion to be removed. Non-useful conduits may be credited vide estimate for which labour charge for removing will be involved in the item for credit to the estimate. Only dismantling charge for re-installed conduits will be incorporated in this item. |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **2** | **Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.** |
| **2.1** | **20 mm Dia** |  |  |  |  |  |  |
| **2.2** | **25 mm Dia** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | **For Renovation work** |  |  |  |  |  |
|  | This item may be taken in place of non-useful conduits or towards the conduits are not available it's place. |
|  |  |  |  |  |  |  |  |  |
|  | **For original work** |  |  |  |  |  |  |
|  | This item may be taken for Mains wiring, submain wiring and control point wiring as per standard drawing and guidelines with CPWD specification. Size may also be considered as per CPWD specification w.r.t. numbers of wire may accommodate in suitable size of conduit. |
|  |  |  |  |  |  |  |  |  |
| **3** | **Supplying and drawing FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.** |
|  |  |  |  |  |  |  |
|  | This item may be taken For wiring of internal light points of the godown from control switch board to light fitting with minimum 3 x 1.5 sqmm (1 for off wire, 2nd for neutral and 3rd for earthing), 4 x 1.5 sqmm (2 for off wire, 2nd for neutral and 3rd for earthing), 5 x 1.5 sqmm (3 for off wire, 2nd for neutral and 3rd for earthing) ........ with provision of neutral and earthing will be suitably looped. For circuit wiring from submain board of godown block(chamber) to control switch board with 3 x 2.5 sqmm & 6 x 2.5 sqmm . For sub mains wiring from main board of godown to submain board of godown block(chamber) with 3 x 6 sqmm . |
|  |  |  |  |  |  |  |
| **4** | **Supplying and fixing of 300 mm x 300 mm size metallic frame cover fabricated with 25 mm x 25 mm x 3 mm thick angle iron welded construction frame structured and 1.6 mm thick M. S. sheet cover plate panel with double hinges and knob type locking arrangement including painting, making recess in wall of 300 mm Width x 300 mm Height x 150 mm Depth, masonry, plastering & finishing the good (As per drawing)** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for accommodation of control switch board. In standard godown there is provision of 4 CSBs inside and 2 CSBs on platform of both sides. Recess on wall may be of 300 mm Width x 300 mm Height x 150 mm Depth. |
|  |  |  |  |  |  |  |  |  |
| **5** | **Supplying and fixing metal box of sizes 200 mm X 150 mm X 75 mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for control switch board. In standard godown there is provision of 4 CSBs inside and 2 CSBs on platform of both sides for platform operation lighting. |
|  |  |  |  |  |  |  |  |  |
| **6** | **Supplying and fixing 5/6 Amp piano type switch on the existing switch box / cover including connections etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for control switch of light points inside of godown block(chamber). In standard godown there is provision of 6 points control in 2 CSBs & 4 points control in 2 CSBs inside and 2 points control on shutters in each of 2 CSBs on platform of both sides for platform operation lighting. |
|  |  |  |  |  |  |  |  |  |
| **7** | **Supplying and fixing of 600 mm x 600 mm size metallic frame cover fabricated with 35 mm x 35 mm x 5 mm thick angle iron welded construction frame structured and 2 mm thick M. S. sheet cover plate with double hinges and knob type locking arrangement including painting, making recess in wall of 600 mm Width x 600 mm Height x 200 mm Depth, masonry, plastering & finishing the good (As per drawing)** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for accommodation of Sub-Main Boards (preferably out side on platform) for each blocks(chambers) and Main Board (preferably out side on platform) for each godown. In standard godown there is provision of 3 SMBs and 1 MB. Recess on wall may be of 600 mm Width x 600 mm Height x 200 mm Depth. |
|  |  |  |  |  |  |  |  |  |
| **8** | **Supplying and fixing 4 way (4 + 12), Double door prewired TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator) Item for suitable size MS angle iron frame for mounting may be incorporated in estimate** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Main Boards for each godown. In standard godown there is provision of 1 MB. |
|  |  |  |  |  |  |  |  |  |
| **9** | **Supplying and fixing 8 way, double door, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator) Item for suitable size MS angle iron frame for mounting may be incorporated in estimate** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Sub-main Boards for each block(chamber) of godown. In standard godown there is provision of 3 SMBs. |
|  |  |  |  |  |  |  |  |  |
| **10** | **Supplying and fixing metal box of 180 mm X 100 mm X 60 mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 6 pin 5/6 A & 15/16 A socket outlet and 15/16 A piano type switch, connections, painting etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Sub-main Boards for each block(chamber) of godown for raw power utilisation like spray machine, blower etc. etc.. In standard godown there is provision of 1 board per each SMB. |
|  |  |  |  |  |  |  |  |  |
| **11** | **Supplying and fixing 63 Amp. rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for to feed main in-coming connection of Main Boards for each godown . In standard godown there is provision of 1 MB. |
|  |  |  |  |  |  |  |  |  |
| **12** | **Supplying and fixing 25 amps rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milli-amperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for to feed in-coming connection of Sub-main Boards for each block(chamber) of godown . In standard godown there is provision of 3 SMBs. |
|  |  |  |  |  |  |  |  |  |
| **13** | **Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of double pole in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for to feed for street lights on verandah truss for external lighting on each godown. |
|  |  |  |  |  |  |  |  |  |
| **13** | **Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of single pole in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for safety control switch **in MB** to draw sub main wiring distribution from main board to sub-main board and **in SMBs** to draw circuit wiring from sub-main board to control switch board. |
|  |  |  |  |  |  |  |  |  |
| **14** | **Supplying of metallic box type batten luminaire fixture with 18 to 22 watt LED retrofit tube complete with provision for fixing suspended by two number conduits down rod or on surface of wall/truss/purlin with side conduit entry facility for wire connection.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for unit office lighting. |
|  |  |  |  |  |  |  |  |  |
| **15** | **Supplying of 30 - 36 watt LED well glass lighting fixture** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for internal as well as platform lighting. |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **16** | **Supplying of LED Flood Light fixtures fixture complete "Specially at where truss less roof type godown"**  |
| **16.1** | **50 Watt** | For short length alleyways of the block(chamber) of godown at both ends each |
| **16.2** | **100 Watt** | For long length alleyways of the block(chamber) of godown at both ends each |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for internal lighting for alleyways between stacks **where truss less roof type godowns**. |
|  |  |  |  |  |  |  |  |  |
| **17** | **Supplying of XLPE insulated & PVC tape inner-sheathed aluminium conductor armoured cable of 1.1 KV grade of 2 x 10 sqmm size confirming to IS:7098 (Part- I) 1988 with up to date amendment as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures are to be provided on the verandah truss for external lighting. **Cable size is taken 2 x 10 sqmm, for the purpose in any case in emergency it can be converted in power connection also. Laying of cable should be taken by executing vide other item on surface of wall as well as truss, as the case may be.** |
|  |  |  |  |  |  |  |  |  |
| **18** | **Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of size Upto 35 sq. mm on wall or steel structure surface as required.** |
|  |  |  |  |  |  |  |  |  |
| **19** | **Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of size up to 35sqmm in the existing masonry open duct as required.** |
|  |  |  |  |  |  |  |  |  |
| **20** | **Supplying and fixing of out door type loop in loop out cable junction box fabricated from 1.6 mm MS sheet enclosed weather proof, dust proof, water proof and locking arrangement internally embedded gasket with bottom cable entry plat through cable glands fixed with clamps on steel structure and wall. Separate for incoming and out going cables and wires duly fitted with following in it.HD Connector for 10 to 16 sqmm - 4 Nos. 6 amp SP 'C' curve 10 KA MCB - 1 No.fixing Clamps - 2 Nos.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures loop connections are to be provided on the verandah truss part or on wall for external lighting. |
|  |  |  |  |  |  |  |  |  |
| **21** | **Supplying and making end termination with brass compression gland and aluminium lugs for 2 x 10 sq mm (19 mm) size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for cable connection to loop box and MCB DB for street lighting on godown |
|  |  |  |  |  |  |  |  |  |
| **22** | **Supplying and fixing of 32 mm dia X 2.00 metres long G.I. pipe (medium class) bracket for mounting of all type of street light fitting on pole / wall / structure including bending the pipe to the required shape, 2 nos 40 mm X 3 mm flat iron clamps with nuts, bolts and washer, painting the flat iron with primer and finish paint etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures mounting are to be provided on the verandah truss part for external lighting. |
|  |  |  |  |  |  |  |  |  |
| **23** | **Supplying and fixing of 32 mm dia X 1.00 metres long G.I. pipe (medium class) bracket for mounting of all type of street light fitting on pole / wall / structure including bending the pipe to the required shape, 2 nos 40 mm X 3 mm flat iron clamps with nuts, bolts and washer, painting the flat iron with primer and finish paint etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures mounting are to be provided on the gabble wall for external lighting. |
|  |  |  |  |  |  |  |  |  |
| **24** | **Supplying of Outdoor aesthetically designed 30 watt LED Street Light Luminaire with single piece die cast aluminium housing, for top open for easy maintenance, complete with IP66 protection Class suitable for pole/ bracket mounting . Provided with high quality driver for protection against mis wiring, over voltage, surge protection and high and low Voltage** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures to be provided on the verandah truss part, gabble wall, pole etc. for external lighting. |
|  |  |  |  |  |  |  |  |  |
| **25** | **Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for fixing of LED tube fixtures, flood light fittings & street lighting fixtures. |
|  |  |  |  |  |  |  |  |  |
| **EARTHING** |
|  |  |  |  |  |  |  |  |  |
|  | **Provision is made for earthing the metallic body of equipments and non-current carrying metallic components in the substation, as well as in the internal/external electrical installations. 2 earthing stations & connections required for two or more phase power supply and 1 earthing stations & connections required for single phase power. Normally an earth electrode shall not be located closer than 1.5 m from any building. Care shall be taken to see that the excavation for earth electrode does not affect the foundation of the building; in such cases, electrodes may be located further away from the building, with the prior approval of the Engineer-in-Charge** |
|  |  |  |  |  |  |  |  |  |
| **26** | **Earthing with G.I. earth pipe 4.5 meter long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/coke and salt as required.** |
|  |  |  |  |  |  |  |  |  |
|  | **OR as the condition of site** |
|  |  |  |  |  |  |  |  |  |
| **26** | **Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing earthing stations to Main panel, Feeder pillars & MBs. **2 earthing stations & connections required for two or more phase power supply and 1 earthing stations & connections required for single phase power.** |
|  |  |  |  |  |  |  |  |  |
| **27** | **Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing earthing stations to Main panel, Feeder pillars & MBs. **The earthing conductor from the electrode up to the building shall be protected from mechanical injury by a medium class, 15mm dia. GI pipe in the case of wire, and by 40mm dia, medium class GI pipe in the case of strip. The protection pipe in ground shall be buried at least 30 cm deep (to be increased to 60 cm in case of road crossing and pavements)** |
|  |  |  |  |  |  |  |  |  |
| **28** | **Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing earthing stations to MBs, SMBs, DBs etc or loop earthing |
|  |  |  |  |  |  |  |  |  |
| **29** | **The items non repairable/obsolete are to be dismantled where the work has to be executed and take away by the giving the credit to the work estimate** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for credit the items which are to be dismantled for replacement by this work. Item contained whole activity like dismantling, taking away and give sredit to the work/estimate on “as is where is” basis. |