

Name of work – NIT of Electrical work at LHS (01 No LHS).		
Technical Specification		
S.N.		Description
1	Intelligent tank level monitoring instrument	Supply installation testing and commissioning of Intelligent tank level monitoring instrument capable monitoring continuously water level, DC powered coma having 4-20mA communicable outputs for IFD hardware to connect to cloud computing based with Tier III level secured data centre along with necessary sensor cables, mounting arrangement with of all accessories etc as per site requirement.
2	SITC of Intelligent field device (IFD)	SITC of Intelligent field device (IFD) having process, AC/DC Powered as per site availability energy metering, LCD display, analogue and digital input/ Outputs censor monitoring Provision for battery inside, Mounting arrangement with monitoring End control of pump capability Etc as per site requirement.
3	2KVA UPS with 150Ah Battery	SITC of 2KVA wave 150AH/12V X02Nos, battery backup-2hours and warranty should be required for 3years.
4	Senor wire 1sqmm-3core	SITC of sensor wire 1sqmm 3core cooper shielded.
5		SITC of Sheet metal canopy for IFD unit.
6		Annual subscription-cloud software server data storage and 24 X 7 Tier-III hosted data Centre management, SIM charges, SMS based alerts and Control, daily automated reports and unlimited Department access etc
7		Remote site technical support services, Remote site annual maintenance and Technical support, onsite Breakdown and preventive maintenance, Repair and or replacement of electronic parts, Cheque proper functioning for all electronics cheque, Check GPRS SIM Signal strength, Cheque Sensor for level calibration, general cleaning work, repaint etc
8	50mm HDPE Pipe	Supply & fixing / laying of HDPE pipe in in already excavated trench/under floor/road/railway track etc. or as per site requirement. It involves laying HDPE pipe in already excavated trench. HDPE pipe should be ISI marked & confirming to IS: 4984-2016 or latest. Dimensions of HDPE pipes: Outer dia – 50mm, Wall thickness- 3.7 to 4.2mm, PN-6, PE-63 grade. It shall be possible to withdraw the cables for repair or replacement without disturbing the Railway work. The pipes shall be laid with a gradient to facilitate drainage of water and it shall be at right angle to the track. Original Test certificate of above HDPE Pipe shall be supplied with

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		material.
		Note: The contractor shall arrange inspection of HDPE Pipe at manufacturer's works before dispatch at his own cost and shall have to submit original test certificate
9	LT Cable Laying	<p>Laying and commissioning of different sizes of LT/HT XLPE/PVC cables under the road / under the track / along with pole / wall / in air/cable tray/ already laid pipe etc. Before laying of cable the trench should be thoroughly checked for sharp ballast and stones so that the cable may not be damaged. Before and after laying the cable the IR value should be checked. While laying the cable, care should be taken that no tree roots come on the way of cable, as it may damage the outside insulation of cable. Armouring at both ends of cable should be earthed properly. At termination point of cable aluminium lugs and glands of suitable size and good quality shall be provided. Cable markers should be provided on both the sides/ each turn of the cable and all bends (The cost of cable marker is taken separately). Bending radius of the cable shall not less than 16times of dia of the cable.</p> <p>The above HT/LT cable will be laid in already excavated trench & already laid pipe as per site requirement. Whether the cable emerges out of the ground at least two loops of sufficient radius should be laid. Installation of cable along with wall / pole / underneath sheds wherever required shall be done with support of GI Saddles/MS clamp /J bolts of proper size /GI Pipe to prevent the cable from external damage.(The cost of G.I. Pipe is taken separately).</p> <p>Breaking of floor / wall / road and other civil structures and repairing up to original condition, shall be done by the contractor, and no extra cost will be paid for it. Permission for crossing any road, if required, shall be arranged by the contractor in coordination of concerned railway supervisor, and all the expenditures will be borne by the contractor. Before and after laying of cable, IR value should be checked. All the instruments required for insulation testing/ high voltage testing shall be arranged by contractor at his own cost. In case of cable is to be laid in trench without pipe then cable shall be covered with good quality of bricks (18 bricks per meter).</p> <p>NOTE- Transportation of the HT/LT cable is to be done by contractor at his own cost from main depot of railway to required site and cut in pieces as per site requirement according to instruction of railway supervisor. Any damaged to the cable during transportation or laying/cutting/storage etc. will be borne by contractor.</p>

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10	GI Pipe B Class 50mm dia	Supply and fixing of delivery GI pipe B class 50mm dia as per IS-1239 or latest for bore well/open well with flanges/sockets/bends as required as per site conditions in 3/6mtr lengths or as per Railway requirement.
11	Astronomical Timer	Supply, fixing testing and commissioning of Astronomical timer multifunctional digital Legrand Make (Catalogue No.412657 or latest) or similar complete in all respect as per railway requirement.
12 & 21	1.5sqmm point wiring	<p>Supply of material and wiring of LP/TP/FP/Ex-Fan point wiring shall be done by 3 X 1.5Sqmm multi stranded copper flexible PVC insulated ISI marked Copper wire 1100 volts grade wire, confirming to relevant IS specifications and make of reference list shall be used for point wiring wire /switches for phase, neutral and earth shall be laid / done in concealed with heavy duty ISI marked PVC Conduit pipe, minimum 20mm dia and thickness 1.5 mm along with bend / junction, inside PVC duct/ conduit as per instruction of site Engineer. One-way piano type modular switch type 6/10A and good quality 3-terminal ceiling rose. Switches shall be provided on phase wire. The entire M.S. box shall have modular plate for switches and 6/10Amp. modular plug with required modular design groove cutting for fixing of switches / sockets etc. The wiring shall be done in such fashion that minimum conduit pipes run inside the room as far as possible. Piano type switches, 6/10Amp. Modular Sockets, ceiling rose/batten holder etc. The contractor shall dismantle old wiring completely in case it is replaced with new wiring. Samples of all wiring items shall be got approved from Railway before installation. The copper wire used for earthing purpose shall not be less than wire used for wiring. Wire shall be ISI marked confirming to relevant IS specifications and make of reference list shall be used. The sub wiring shall be done in such fashion that minimum conduit pipes run inside the room as far as possible.</p> <p>The circuit wiring in is to be done by 3 X 2.5/4.0/6.0Sqmm insulated multi-strand copper wire for phase, neutral and earth inside PVC conduit 20mm (or PVC conduit 25mm as per site requirement). The PVC conduit shall be properly fixed with the help of MS clamps /rawal plugs as per the instructions of site Engineer. The contractor will be responsible for proper plastering and distempering / fixing of tiles to restore the original finish of wall such that it matches with original surface and colour of wall on which conduit pipe has been laid. There should be no loose connections and joints in the wiring circuit. Bends or flexible conduits should be used as per the site requirement. The wiring should be in well dressed up manner. Any discrepancy occurred in engineering work during the wiring should be restored in the</p>

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		<p>original condition by the contractor, at his own cost. All metallic parts, fittings etc. shall be connected to the earth wire.</p> <p>Note: In case of S.No.-21 in schedule, point wiring by 3 X 1.5sqmm multi stranded copper flexible PVC insulated ISI marked Copper wire 1100 volts grade wire will be done in existing PVC Conduit pipe and remaining technical specifications will be same</p>
13	6/10A modular type switch and socket	Supply and fixing 6/10A plug 3-pin 230V modular type switch & socket on existing board and connection with 2.5sqmm PVC CU cable. A switch for controlling power supply of plug shall be connect in phase wire and earth wire size shall be same size of wiring to flow maximum fault current.
14&15	Wiring of submain for 3X2.5/4	<p>Wiring of sub-main with single core insulated, multi-stranded 3 X 2.5/4/6 Sqmm flexible PVC insulated ISI marked Copper wire 1100 volts grade wire for phase, neutral and earth shall be laid / done in concealed with heavy duty ISI marked PVC Conduit pipe, minimum 20/25 mm dia and thickness 1.5 mm along with bend / junction, inside PVC duct/ conduit 20/25 mm as per instruction of site Engineer. Wire shall be ISI marked confirming to relevant IS specifications and make of reference list shall be used. The sub wiring shall be done in such fashion that minimum conduit pipes run inside the room as far as possible. The contactor shall dismantle existing /old wiring completely in case it is replaced with new wiring. Samples of all wiring items shall be got approved from Railway before installation. The copper wire used for earthing purpose shall not be less than wire used for phase wiring. There should be no loose connections and joints in the wiring circuit. The PVC conduit shall be properly fixed with the help of MS clamps/rawl plugs as per the instructions of site Engineer. The contractor will be responsible for proper plastering and distempering / fixing of tiles to restore the original finish of wall such that it matches with original surface and color of wall on which conduit pipe has been laid. Bends or flexible conduits should be used as per the site requirement. The wiring should be in well dressed up manner. Any discrepancy occurred in engineering work during the wiring should be restored in the original condition by the contractor, at his own cost. All metallic parts, fittings etc. shall be connected to the earth wire.</p>
16	8 Modular GI Box	Supply and fixing 2/4/8/12 module GI Box with modular plates for fixing of switches/socket of good quality for concealed fixing.

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17	Fixing of ceiling Fan/Light	The ceiling fan/LED TL Fitting shall be fixed and commissioned and connected with cord flexible three core copper wire properly any discrepancy occurred in engineering work during the fixing of the ceiling should be restored in the original condition by contractor at his own cost.
18	Fan Regulator	Supply and providing modular type electronic fan regulator 5-step type on existing switch board and connection.
19	12 Way SPN DB	12 way double door SPN DB having suitable IP and IK protection for indoor installation having one No. RCBO of 40A Capacity, Sensitivity 30mA in the incoming & having 3Nos. 16A SP MCB & 3Nos. 32A SP MCB all MCB used should be of 'C' series – 10 kA having 35 Sq.mm incoming and outgoing terminal capacity, insulated sliding shutters at terminals for safety, two position DIN rail clamps & ISI marked (conforming to Legrand Cat. No.603234 & 603237 or similar). Make and model/sample of distribution board will be prior approved before execution.
20	40W Flood Light	SITC 40 W Flood light required CRI \geq 70, THD \leq 10%, Watt-40W, IP-65 protection, LED luminaries 100lumen/watt as per latest IS.
22	Excavation and refill 0.5mX1.2m Trench	Excavation and refill of 0.50Mtr. Width, 1.20Mtr. depth trench in all kinds of soil for laying of HDPE/spun concrete pipe etc. for laying of underground cable. Complete work will be done as per instruction & upto satisfaction of Rly. Site Engineer.
23	Feeder Pillar Box	Supply, erection, testing and commissioning of feeder pillar size 900x600x300 mm fabricated from 16 SWG MS sheet (tolerance as per IS permitted) hut shape suitable for outdoor installation, painted/ with red oxide and enamel/powder coated complete enclosed type dust and vermin proof, with gland plate in bottom as required including connecting incoming & outgoing cables with aluminum lugs and brass glands, with 63 amp MCCB 2Nos and 4 nos. aluminum bus bars suitable for 200A, complete with locking arrangement with MS angle stand 2 feet height angle size 40 x40 x6 mm Grouted in cement concrete mixture 1:3:6.
24	300mm Sweep Exhaust Fan	The contractor shall have to supply, install, test and commissioning of 300mm dia fresh air fan (Exhaust Fan), sweep : 300mm, 4-pole, capacitor type, 1-phase, 230volt with complete fitting as per IS: 2312/1967 or latest. The exhaust fan shall be fixed & commissioned by providing suitable size reg bolts/fasteners & washers etc. with Jali/lowers/guard ensuring all safety aspects as required & connected with 3 core flexible CU wire & earthed properly. Contractor should also make arrangement to make openings & fix the exhaust fan where masonry work is required, at his own cost. Make of exhaust fan will be prior approved before execution

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