

ASSAM PROJECT
ON
FOREST AND BIO-DIVERSITY CONSERVATION
BILL OF QUANTITIES OF EXTERNAL ELECTRICAL AND SOLAR SYSTEM WORKS
FOR
CONSTRUCTION OF NEW RESIDENTIAL COMPLEX
– AT REHABARI, GUWAHATI - 781 008.

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
	Wiring in surface/ recessed PVC conduit FR (Finolex /RR Kabel /Nicco / Anchor or Equivalent Make as approved by the Deptt.) cable CIRCUIT WIRING					
1.	Wiring for light/fan/call bell point with 2x1.5 sq. mm. P.V.C. insulated single core unsheathed industrial (Multistrand) cable FR conforming to IS-694: 1990 with flexible bright annealed electrolytic copper conductor for voltage grade up to 1100 volts (Finolex /RR Kabel /Nicco / Anchor or Equivalent Make as approved by the Deptt.) in surface/ recessed conduit wiring system with 20mm dia 2mm thick / heavy rigid PVC IS: 9537 Part - III conduit (Berlia/ AKG / Precision/ Presto Plast/Polycab/ MW or equivalent make as approved by the Deptt.) including 6 Amp flush type switch/ bell push (Anchor penta /Gold medal /Kolor kany.Kom/Havells or equivalent make as approved by the Deptt.) GI/ MS switch board (ISI marked) with phenolic laminated sheet cover ,ceiling rose (Anchor penta /Gold medal /Kolor kany.Kom/Havells or equivalent make as approved by the Deptt.) etc. complete					

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
(i)	Short point up to 3.00 metre. length.	Each	8			
(ii)	Medium point up to 6.00 metre. Length.	Each	7			
(iii)	Long point up to 10.00 metre. Length.	Each	6			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
2.	Wiring to 5 a pin 6 Amps plug point with 1.5 sq. mm P.V.C. insulated single core unsheathed industrial (Multistrand) cable FR conforming to IS-694: 1990 with flexible bright annealed electrolytic copper conductor for voltage grade up to 1100 volts (Finolex /RR Kabel /Nicco / Anchor or Equivalent Make as approved by the Deptt.) in surface/ recessed 2 mm thick/ heavy rigid ISI marked IS: 9537 PART - III rigid PVC conduit (Berlia/ AKG / Precision/ Presto Plast/Polycab/ MW or equivalent make as approved by the Deptt.) wiring system including 5 pin 6 Amps flush type plug socket and 6 Amps F/T switch (Anchor penta /Gold medal /Kolor kany.Kom/Havells or equivalent make as approved by the Deptt.), GI/ MS switch board (I.S.I. mark with phenolic laminated sheet cover including earth continuity with 1.5 sq. mm. cable to third pin of the plug socket etc. as required complete, when placed elsewhere.	Each	1			
(i)	Short point up to 3.00 metre. length.					
(ii)	Medium point up to 6.00 metre. Length.	Each	2			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
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3.	<p>Wiring for 5/6 pin 16 Amps power plug point with 4 sq. mm. P.V.C. insulated single core unsheathed industrial (Multistrand) cable FR conforming to IS-694: 1990 with flexible bright annealed electrolytic copper conductor for voltage grade up to 1100 volts (Finolex /RR Kabel /Nicco / Anchor or Equivalent Make as approved by the Deptt.) in surface/ recessed conduit wiring system including and fixing 5/6 pin 16 Amps flush type socket outlets and 16 Amps flush type switch (Anchor penta /Gold medal /Kolor kany.Kom/Havells or equivalent make as approved by the Deptt./ Havells make), GI/ MS switch board (I.S.I. mark with phenolic laminated sheet cover earth continuity with 2.5 sq. mm cable to the 3rd pin of the socket as required complete with 20 mm. dia. 2mm thick/ heavy rigid ISI marked IS: 9537 PART - III rigid PVC conduit (Berlia/ AKG / Precision/ Presto Plast/Polycab/ MW or equivalent make as approved by the Deptt.)</p> <p>Extra long point up to 15.00 metre. length.</p>	Each	2			

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				(In Figures)	(In Words)	
4.	Wiring for 5 pin 6 amp plug with 1.5 sq mm P.V.C. insulated single core unsheathed industrial (Multistrand) cable FR conforming to IS-694: 1990 with flexible bright annealed electrolytic copper conductor for voltage grade up to 1100 volts (Finolex /RR Kabel /Nicco / Anchor or Equivalent Make as approved by the Deptt.) including 5 pin 6 amp socket outlet (Anchor penta /Gold medal /Kolor kany.Kom/Havells or equivalent make as approved by the Deptt.)make) and 6 amp flush type switch (Anchor penta /Gold medal /Kolor kany.Kom/Havells or equivalent make as approved by the Deptt.)make) earthing the 3rd pin of the socket as required on the switch board in surface/ recessed P.V.C. conduit wiring system. When fitted on same board of light and fan.	Each	3			
5.	Wiring for drawing sub-main line with P.V.C. insulated single core unsheathed industrial (Multistrand) cable FR conforming to IS-694: 1990 with flexible bright annealed electrolytic copper conductor for voltage grade up to 1100 volts (Finolex /RR Kabel /Nicco / Anchor or Equivalent Make as approved by the Deptt.) PVC conduit (Berlia/ AKG / Precision/ Presto Plast/Polycab/ MW or equivalent make as approved by the Deptt.) including earth continuity in surface/ recessed 20 mm. dia. 2mm thick/ heavy ISI marked IS: 9537 PART - III rigid PVC conduit wiring system.					

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
6.	(i) With 2 x 2.5 sq. mm. + earth continuity with 1x1.5 sq. mm. in 20 mm. dia. 2mm thick/ heavy rigid PVC IS: 9537 Part - III conduit.	RM	80.00			
	(ii) With 2 x 10 sq. mm. + earth continuity with 1x 6 sq. mm. cable in 25 mm. dia. 2mm thick/ heavy rigid PVC IS: 9537 Part - III conduit.	RM	15.00			
	SUPPLY AND FIXING OF RIGID PVC CONDUIT (AKG / Precision/ Presto Plast/Polycab/ MW or equivalent make as approved by the Deptt.) IN SURFACE AND RECESS WIRING SYSTEM					
	Supply and fixing 19 mm dia 2.00mm average wall thickness heavy rigid PVC IS: 9537 Part - III conduit (Berlia/ AKG / Precision/ Presto Plast/Polycab/ MW or equivalent make as approved by the Deptt.) in recessed system including cutting the wall and making good the same as required:	Metre	20.00			

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7.	Wiring with HFFR cable and Modular switch etc. (ALL PRODUCTS SHOULD BE ENERGY EFFICIENT AND ENVIRONMENT FRIENDLY)	Metre.	50.00			
	Supplying ,installation, testing & commissioning of 5 pair Unarmoured Telephone Cable through existing conduit in surface/ recess system.					
	FITTINGS AND ACCESSORIES (ALL PRODUCTS SHOULD BE ENERGY EFFICIENT AND ENVIRONMENT FRIENDLY)					
8.	Supplying and fixing of 250/305 mm dia (Nominal size flush type circular ceiling fittings complete with holder, Aluminium anodized back plate and brass holder, 20 Watt CFL lamp including connection as approved by the Deptt.)as required. [CL]	Each	2			
9.	Supplying and fixing of Fan box (AKG or equivalent as approved by the Deptt.)with inbuild rod as required.	Each	3			

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				(In Figures)	(In Words)	
10.	Supplying and fixing of polished Brass Bracket of 18 S.W.G, 25 cm long cast back plate and brass lamp holder complete including connection as approved by the Deptt.)as required Without Lamp/ [BK]	Each	3			
11.	Supplying and fixing of bulk head fitting suitable for CFL lamp complete with all accessories including 20 watts CFL lamp and connection as approved by the Deptt.)as required. [BH]	Each	6			
12.	Supplying and fitting of 18/20 Watt CFL lamp in the existing batten holder/angle holder/decorative bracket/bulk head fitting/ pendent holder etc. as specified and directed by the deptt.	Each	3			
13.	Supplying and fixing of Frosted glass shade of 100 mm dia (Nominal Size as required.	Each	3			

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14.	MCB DB (ABB, SCHNEIDER MG, LEGRAND, HAGER MAKE) & (SCHNEIDER NEO BREAK, C&S, Havells, INDOASIAN, HPL OR EQUIVALENT MAKE AS APPROVED BY THE DEPTT.)	Each	1			
	MCB IN-comer SPN DB					
	Supplying with fitting and fixing sheet steel, phosphatised, powder painted dust & vermin proof Double door IP-43 surface mounting SPN MCB DB incorporated with bas-bar, Neutral link, Earth bar and din rail etc fitted on wall with grouting nuts & bolts as reqd. complete with making necessary connection as approved, specified and directed by the deptt. ABB, Schneider MG, legrand, Hager make)					
(a)	8 way SPN Double Door					
(b)	12 way SPN Double Door	Each	1			
15.	MCB IN-comer TPN (Horizontal DB)	Each	18			
	Supplying with fitting and fixing sheet steel, phosphatised, powder painted dust & vermin proof Double door IP-43 double door surface mounting TPN MCB DB incorporated with bas-bar, Neutral link, Earth bar and din rail etc fitted on wall with grouting nuts & bolts as reqd. complete with making necessary connection as approved, specified and directed by the deptt.					
	ABB, Schneider MG, legrand, Hager make)					
(a)	4 way TPN (4+12) double door					

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16.	<p>MCB, MCCB, RCCB, RCBO (ABB, SCHNEIDER MG, LEGRAND, AND HAGER MAKE) & (SCHNEIDER NEO BREAK, C&S, Havells, INDO ASIAN, HPL OR EQUIVALENT MAKE AS APPROVED BY THE DEPTT.) MCB (Conform to IS / IEC 60898-1:200/ MCCB (Conform to IS/IEC 60947- RCCB (Conform to IS/IEC 12640 / 61008)</p> <p>Supplying with fitting and fixing single Pole 10 KA 240/415V 50Hz MCB of the following capacity complete with making necessary connection as approved, specified and directed by the deptt.</p> <p>C Series (Schneider MG, legrand, Hager make) 6 to 32A</p>	Each	23			
17.	<p>Supplying with fitting and fixing DP 10 KA 240/415V 50Hz MCB of the following capacity complete with making necessary connection as approved, specified and directed by the deptt.</p> <p>C Series (ABB, Schneider MG, legrand, Hager make) (a) 6 to 32A</p>	Each	1			
(b)	40A	Each	1			

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18.	Supplying with fitting and fixing 4P 10 KA 240/415V 50Hz MCB of the following capacity complete with making necessary connection as approved, specified and directed by the deptt. C Series (ABB, Schneider MG, legrand, Hager make)					
(a)	40A	Each	1			
(b)	63A	Each				
19.	Supplying with fitting and fixing 30/100/300mA sensitivity 240/415V 50Hz DP RCCB of the following capacity complete with making necessary connection as approved, specified and directed by the deptt. 100/300mA sensitivity DP RCCB (ABB, Schneider MG, legrand, Hager make)					
(a)	25A	Each	1			
(b)	40A	Each	1			

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				(In Figures)	(In Words)	
20.	EARTHING Supply, installation & testing of G.I. earth station with perforated 40 mm dia and 4.50 Metre long heavy duty G.I. pipe with necessary 40 mm dia. G.I. Fittings such as Socket, Tee, elbow, nipple and 50 mmx40 mm G.I. reducing socket for funnel including locking arrangement 300 mmx300 mmx6 mm hinged cover C.I. earth plate complete with digging of earth pit, construction of brick chamber and plastering of both inner & outer surface of wall as specified and directed by the deptt .	Each	12			
21.	Supply, installation & testing of Copper Plate earth station with 600 mmx600 mmx3 mm copper earth plate with necessary 40 mm dia. G.I. medium duty watering pipe with G.I. Fittings such as Socket, Tee, elbow, nipple and 50 mmx40 mm G.I. reducing socket for funnel including locking arrangement with 300 mmx300 mmx6 mm C.I. hinged cover plate complete with digging of earth pit, construction of brick chamber and plastering of both inner & outer surface of wall as specified and directed by the deptt .	Each	4			
22.	Extra for using salt (5 K and Charcoal (64 K in pipe Earth Station pit to provide low impedance ground in location of high soil resistivity as and when required and specified by the Deptt.	Each	12			

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23.	Extra for using salt (5 K and Charcoal (96 K in G.I./Copper plate Earth Station pit to provide low impedance ground in location of high soil resistivity as and when required and specified by the deptt .	Each	4			
24.	Supplying & laying of 6 SWG G.I. earth from Earth Electrode (below G.L.) to electrical switch gears or electrical machineries including making necessary connection as approved, specified and directed by the deptt.	Metre.	600.00			
25.	Supplying & laying of following size 25mmX5mm G.I. strips drawn on surface from earth electrode to Electrical switch gears, machineries etc complete with supply of G.I. nuts & bolts, screws etc including riveting, soldering & making necessary connection as approved, specified and directed by the deptt.	R.M.	150.00			
26.	Supplying & laying of following 25mmX5mm size Copper strips drawn on surface from earth electrode to Electrical switch gears, machineries etc complete with supply of Brass nuts & bolts, screws etc including riveting, soldering & making necessary connection as approved, specified and directed by the deptt.	Metre.	60.00			

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27.	<p>LUMINAIRES</p> <p>Supplying with fitting fixing of CFL/Fluorescent luminaries complete with all accessories such as ballast, starter etc. directly on wall / ceiling including connection as approved by the Deptt.)with 1.5 sq mm P.V.C. insulated S.C. copper conductor as required and as directed by the department.</p> <p>Striplite luminaries complete with VPIT copper ballast/ Electronic ballast and decorative end cap and 1 X 36 / 40 watt Fluorescent tube.(Crompton Greaves make) Model- DSG1114LDB CROMGOLD / DSG1114LDBN CROM GOLD NEW / DSG1314EB CG GOLD / DSG 1414EB PLANET GOLD with Super Saver / Super Brite Lamp. Or equivalent (Equivalent will be selected by the deptt considering the mother items rate) PHILIPS/ WIPRO/ BAJAJ/ Havells/ HPL/ SOLAR/ JAQUAR make. [FL]</p>	Each	1			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
28.	<p>Supplying with fitting fixing of CFL/Fluorescent luminaries complete with all accessories such as ballast, starter etc. directly on wall / ceiling including connection as approved by the Deptt.)with 1.5 sq mm P.V.C. insulated S.C. copper conductor as required and as directed by the department.</p> <p>Sleek Box type luminaries complete with Electronic ballast and plastic holder brackets with 1 X 36 / 40 watt Fluorescent tube.(Crompton Greaves make) Model- DJB 1314LDB50 / DJBN1314EB CROMTEK with Super Saver / Super Brite Lamp or equivalent (Equivalent will be selected by the deptt considering the mother items rate) PHILIPS/ WIPRO/ BAJAJ/ Havells/ HPL/ SOLAR/ JAQUAR make. [TL]</p>	Each	4			
29.	<p>STREET LIGHT LUMINAIRES AND PANEL BOARD</p> <p>Supplying with fitting & fixing of the following road lighting luminaries complete in the existing pole with high power LED and extendable up to with unique peanut lens to ensure uniform distribution including making necessary connection as approved by the Deptt.)with 2x 2.50 sq.mm F.R. multistrand and P.V.C. insulated single core copper cable as specified and directed by the department.</p> <p>Philips make) type: 919515810052, BRP 320 1x24/45 LED or equivalent (Equivalent will be selected by the deptt considering the mother items rate WIPRO/ BAJAJ/ HAVELS/ HPL/ SOLAR/ CROMPTON make)</p>	Each	15			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
30.	<p>Supplying and installation and commissioning of vermin and dust proof totally enclosed double door cubical type compartmental floor mounting panel board of size 1.20 m x1.00 m x0.50 m made of 16 SWG(1.66mm) thick CR sheet and 35 mm x 35 mm x 6 mm size angle and 35 mm x6 mm flat iron having 4 nos legs at the bottom and G.I. Sheet reefing on the top complete painting with 2 coats of red oxide metal primer and 2 coats of enameled paint. The panel board is to be erected in 1:3:6 RCC pole foundation including excavation of trench and brick soling etc. complete neatly internal wiring done as specified and directed by the department comprising of the following electrical items.</p> <p>1. 40 Amp 4 pole 415 Volt 50 Hz MCCB as incomer - 1 no</p> <p>2. 32 Amp 2 pole open execution with HBC fuse SDFU unit as outgoing - 3 nos.</p> <p>3. 25 mm x 5 mm size 4 strip copper Bus-Bar- 1 set</p> <p>4. 40 Amp 4 pole ON-OFF poser contactor - 1 No.</p> <p>5. Surface mounting timer switch - 1 No.</p> <p>6. 63 Amp bakelite HBC fuse kit-kat - 3 Nos</p> <p>7. 0-40 Amp electro-mechanical counter display 3 Phase 4 wire electronic hybrid energy meter</p>	Each	1			

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				(In Figures)	(In Words)	
31.	CEILING FAN, EXHAUST FAN AND AIR CURTAIN Supplying including fitting fixing of following A.C. Ceiling fan complete with all accessories like down rod, canopy etc. of following sweeps with making necessary connection as approved by the Deptt.)as required complete and as directed by the Department [Without regulator]. Premium model 1200 mm Sweep (ORIENT PSPO make) / Premium model 1050 / 1200 mm Sweep SS-390 Deco Havells make) [F]	Each	3			
32.	Supplying including fitting fixing of following A.C. Exhaust fan in the existing hole on the wall of following sweeps with making necessary connection as approved by the Deptt.)as required complete and as directed by the Department. Domestic Ventil Air DB 300 mm sweep (Havells make) [EF]	Each	2			
33.	Supplying fitting and fixing of ceiling fan Regulator including complete connections etc. complete as required and as directed by the department. Electronic Registrance Type	Each	3			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
34.	U. G. CABLE AND CABLE WORKS Supply and laying of following size PVC/XLPE insulated and PVC sheathed 1.1 KV G Solid Aluminium conductor up to 10 sq mm balance stranded conductor, XLPE Insulated, cores laid up, PVC tape inner sheathed, Armour (Aluminium for single core up to 70 sq mm balance Aluminium strip, Galvanised for cables up to 2x10 sq mm, 3x10 sq mm, 4x6 sq mm balance all galvanised steel strip) , extruded PVC Type ST2 sheathed, 650/1100V grade as per IS 7908(Part 1) 1988 armoured U.G. cable U.G. cable laid in ground/partially in air (as required for termination over ground including excavation of cable trench up to depth of 75cm, refilling, protective brick covering, Sand cushioning etc complete handling of surplus spoil, debris et to proper place as specified and directed by the depts. (Nicco/ Havells/ RPG/CCl/Polycab/Gloster/ Finolex make) .					
I. (i)	3 Core A2XWY A2XFY 4.00 Sq.mm 3 Core armoured U.G. cable	Metre	400.00			
(ii)	6.00 Sq.mm 3 Core armoured U.G. cable	Metre	150.00			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
II. (i)	3 & 1/2 Core A2XFY 25.00 Sq. mm.3 & 1/2 Core armoured U.G. cable	Metre	85.00			
	(ii) 240.00 Sq. mm.3 & 1/2 Core armoured U.G. cable	Metre	280.00			
35.	Supply and laying of following size Solid Aluminium conductor up to 10 sq mm balance stranded conductor, XLPE Insulated, cores laid up, PVC tape inner sheathed, Armour (Aluminium for single core up to 70 sq mm balance Aluminium strip, Galvanised for cables up to 2x10 sq mm.3x10 sq mm,4x6 sq mm balance all galvanised steel strip) , extruded PVC Type ST2 sheathed, 650/1100V grade as per IS 7908(Part 1) 1988, LT armoured U.G. cable laid in pucca flooring, road crossing, drain crossing as per site requirement and partially in air to connection as approved by the Depts. the control switch, through medium duty G.I. pipe (Tata/ Nezone make or equivalent as approved by the Deptt) bend and socket including excavation and refilling the trench and making good damage done as specified and directed by the deptt. (Nicco/ Havells/ RPG/CCI/Polycab/Gloster/ Finolex make)					

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I. (a)	Core - 3 A2XWY A2XFY 4.00 Sq.mm 3 Core U.G. cable in 25mm dia medium duty G.I. pipe	Metre	30.00			
(b)	6.00 Sq.mm 3 Core U.G. cable in 32mm dia medium duty G.I. pipe	Metre	15.00			
II. (a)	Core - 3 & 1/2 A2XWY A2XFY 25.00 Sq.mm 3&1/2 Core U.G. cable in 40mm dia medium duty G.I. pipe	Metre	10.00			
(b)	240.00 Sq.mm 3&1/2 Core U.G. cable in 100mm dia medium duty hot dip G.I. pipe (AKG OR equivalent as approved by the deptt.)	Metre	80.00			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
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36.	Supply and laying of following size armoured telephone cable laid in pucca flooring, road crossing, drain crossing as per site requirement and partially in air to connection as approved by the Depts. the control switch, through medium duty G.I. pipe (Tata/ Nezone make or equivalent as approved by the Deptt) bend and socket including excavation and refilling the trench and making good damage done as specified and directed by the deptt. . (Nicco/ Havells/ RPG/CCI/Polycab/Gloster/ Finolex make) .					
(a)	20 pair	Metre	40.00			
(b)	50 pair	Metre	60.00			
37.	Supply and laying of following size armoured telephone cable laid in air or through existing cable trench/ duct/ cable tray/ HDPE pipe including fitting required size of lugs at the both end of the cable by using crimping tool and making good damaged done as specified and directed by the deptt. (Nicco/ Havells/ RPG/CCI/Polycab/Gloster/ Finolex make) .					
(a)	20 pair	Metre	60.00			
(b)	50 pair	Metre	350.00			

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36.	Supplying including installation of cast iron cable marker as specified and directed by the deptt.	Each	100			
37.	CABLE KITS Supply including fitting and fixing of Resin Cast type outdoor end cable Termination Kit for 3 Core/1.1 KV PILC cable (MS - SE For the following sizes including testing and commissioning as specified and directed by the Deptt. 240.00 & 300.00 Sq.mm., 3.5 Core cable.	Each/ Set	4			
38.	Motor Pump Set Supplying including installation, connection as approved by the Deptt., testing and commissioning of CENTRIFUGAL MONOBLOCK PUMP SET complete as directed and specified by the deptt. 3 HP single Phase Centrifugal monoblock pump set (Crompton Greaves/ Aquatic/ CRI/ V-Guard make) 2900 rpm with DOL Starter (Crompton Greaves/ Control & Switch Gear/ BCH/ L& T / Siemens make) .	Each	2			

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				(In Figures)	(In Words)	
39.	<p>Supplying including installation, connection as approved by the Deptt., testing and commissioning of SUBMERSIBLE PUMP SET 3 (Three Phase) with steel cable rope and submersible cable complete as directed and specified by the deptt.</p> <p>Three phase Submersible motor pump set (Texmo / Crompton Greaves/ Aquatic/ CRI/ V-Guar suitable for 100 mm bore well and above. 3 HP STAGE 7 to 40 with MCB controlled Submersible motor pump set control panel.</p>	Each	2			
40.	SOLAR POWER OVER HEAD LINE					
	<p>Supplying including installation, testing and commissioning of Solar power plant as per following specification and as directed by the Department.</p> <p>5.12 KWp STANDALONE SOLAR POWER PLANT Load: 4000 Watts for 4 Hrs/Day Back up Or, Load: 2000 Watts for 8 Hrs/Day Back up</p> <p>Crystalline Solar PV Module - TBP1280M/ TBP1280 with RDSO Part-I Approval (as per IRS S: 84/92 or latest Amdt.) & IEC: 61215 Certification. 64 nos</p> <p>3 4 Module mounting structure with theft proof frame 16 nos</p> <p>4 Array Junction Box (AJ 2 nos</p> <p>5 Main Junction Box (MJ 1 no</p> <p>6 Power Conditioning Unit (PCU) – 96V DC- 5KVA- 230V AC, 50Hz 1 no</p>					

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				(In Figures)	(In Words)	
(i)	7 Battery Bank- Tubular Plate LMLA Battery Bank of 96V, 400Ah @ C10 1 set 8 2C X 2.5 Sq.mm. P.V.C Cu.cable 300 metres 9 2C X 6.0 Sq.mm. P.V.C Cu.cable 100 metres 10 2C X 10 Sq.mm. P.V.C Cu.cable 30 metres 11 1C X 25 Sq.mm. P.V.C Cu.cable 30 metres 12 1C X50 Sq.mm. P.V.C Cu.cable 15 metres 13 Earthing kit 6 nos 14 Installation kit 1 set Note: All cable lengths are estimated. Extra cables, if any, shall be charged extra at actual. All cable Lengths are calculated from the Solar Array to input of the Power Conditioning Unit (PCU). Loads & Load cables are not included in the Bill of Materials. SUGGESTED UNIT PRICE	Each	4			
	(i) Installation & Commissioning Charges					
(ii)	Installation & Commissioning Charges	Each	4			

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41.	TRANSFORMER Supplying, installation testing and commissioning of the following rating copper wound indoor / out door type transformer complete including the payment to be made to power supply authority for supervision charge, labour charge, cost of L.T/H.T metering etc. (excluding the cost of load security) and making necessary arrangement for charging approval of the sub-station from the competent authority as directed and specified by the department. Transformer should be as per CEA guidelines as ammended up to date upto 200 KVA star rating up to 5 star, above 200KVA as per CEA guidelines for losses along with LV enclosure. 630 KVA,50Hz.11/0.433 KV. Oil filled transformer with Off Circuit tap change.	Each	1			
42.	OVER HEAD LINE Supplying and fitting fixing of galvanised L.T. T cross arm complete with clamps ,blots, nuts etc. as required and as directed by the department.	Each	6			
43.	Supplying and fitting fixing of galvanised channel of 100 mm x 50 mm x 65 x 2200 mm long complete with clamps ,blots, nuts etc. as required and as directed by the department.	Each	6			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
44.	Supplying and erection of 11 KV Pin insulator (Poly) with G.I.pin, bolts and nuts coach screw etc. as required and as directed by the department.	Each	6			
45.	Supplying and erection of 11 KV Disc insulator (Poly) 45 KN with hard ware fittings etc. as required and as directed by the department.	Each	12			
46.	Supplying and fixing of 11 KV 400 A Gang operated switch with all accessories complete as required and as directed by the department.	Set	1			
47.	Supplying and fixing of 11 KV 150 A D.O. fuse set complete as required and as directed by the department.	Set	1			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
48.	Supplying and fixing of 11 KV 5 KA Lighting arrestor (Poly) set complete as required and as directed by the department.	Set	1			
49.	Supplying and fitting fixing pole clamp complete as required and as directed by the department.	Each	12			
50.	Supplying and fitting fixing of H.T. danger plate complete as required and as directed by the department.	Each	10			
51.	<p>Supplying, erection and commissioning of the following specification as per IS:2713 : 410 SP hot dip Galvanized Steel tubular pole manufacturing out from electrically welded in 3 (three section having a base plate including providing all required building materials as directed and specified by the deptt. (BANSAL/SRP / Valmont / PARUTHI ENGR make)</p> <p>410 SP 56 Length of pole = 11.00 metre., Length of sections, Bottom = 5.60 M, Middle = 2.70 M, Top = 2.70 M, Out side dia. & Thickness Bottom = 193.70 x 5.40 mm, Middle =165.10 x 4.50 mm, Top =138.70 x 4.5 mm</p>	Each	4			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
52.	<p>OCTAGONAL POLE</p> <p>Supplying including installation of the Octagonal poles shall be designed to withstand the maximum wind speed of 169 km/hr. The top loading i.e. area and weight of fixtures are to be considered to calculate maximum deflection of the poles and the same shall meet the requirement of BS:5649 Part VI 1982. The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding of the pole shaft. The welding of the pole shaft shall be done by Submerged Welding process. All octagonal pole shafts shall be provided with the rigid flange plate of suitable thickness with provision for fixing 4 foundation bolts. The base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside. The welding shall be done as per process approved by Third Party Inspection agency. (BAJAJ/ PHILIPS/ VALMONT/ PARUTHI ENGR/Nezone make)</p> <p>Pole Type BOP or equivalent-8030 Height 8 m The materials of the pole as follows : Conforming to grade S355JO Conforming to grade S355JO, Base Plate :- Fe 410 Conforming to IS 226/ IS 2062, Foundation Bolts :- 6.8 Gr. As per IS 1367, Pole Sections :- The Octagonal Poles shall be in single piece with single longitudinal welding join, Galvanization :- The poles shall be hot dip galvanized as per IS 2629 / IS 2633 / IS 4759 standards with average coating thickness of 65 micron.</p>					

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
	<p>The galvanizing shall be done in single dipping. Door opening:- The Octagonal poles shall have door of approximate 500 mm length at the elevation of 500 mm from the base plate. The door shall be vandal resistance and shall be weather proof to ensure safety of inside connection as approved by the Depts.. The door shall be flush with the exterior surface and shall have suitable locking arrangement. The pole shall be adequately strengthened at the location of the door compensate for the loss in section. There shall also be suitable arrangement for the purpose of earthing, Smart pack Junction box with 6 MCB & Terminals for mounting inside base compartment of Pole. Top Dia. (A/ 70, Bottom Dia. (A/ 135, Sheet Thickness:- 3mm, Base</p> <p>Plate Dimensions:- (L x B x T) " 225 x 225 x 16, Foundation Bolt Size :- (no. x dia.) 4 x 20 Dia, Pitch Circle Dia. (PC 210, Bolt Length:- 750 Projected Bolt Length:- 100, Anchor plate thickness:- 4 mm , Pole Foundation :- The octagonal poles shall be bolted on a pre- cast foundation with a set of four foundation bolts for greater rigidity. Foundation :- The foundation shall be done with (Earth work 2.04 cubic Meters.RCC 1:1.5 : 3 proportion 0.65 cubic metres. Steel 22.43 Kg. Shuttering 4.32 square metres. = 22.43 Kg.</p>	Each	15			

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				(In Figures)	(In Words)	
53.	Supplying including fitting and fixing of Hot Dip galvanised arm bracket for installation of luminaries. Header with top cap 300 mm long pipe of thickness 3 with arrangement to fix on pole top with 3 Nos. of bolts. i Armed of required length size 48.3mm out side dia x 3.25mm thick (BAJAJ/ PHILIPS/ VALMONT/ PARUTHI ENGR/Nezone make) Stiffener plate from arm of the following types :	Each	15			
(i)	Single arm bracket 1500mm long for 3m to 10 metre. Poles.					

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
54.	<p>Main Low Tension Panel : EXTERNAL Supplying and installation of metal enclosed floor mounted front operated cubical type switch gear panel suitable for indoor installation conforming to IS: 8623 (Part I & II). Panel should be made of sheet steel and thickness not less than 2mm and structural steel having light section. The panel shall be completely dust tight and vermin proof and shall be painted with anti corrosive and anti condensation type two coats of primer and two coats of paint. All wiring shall be PVC insulated and PVC sheathed of 1100 volt grade of required size. The panel should have provision of entry of cable at the bottom and also provision of outgoing feeders from the bottom of the panel. The panel shall incorporate busbar system of high quality electrolytic copper with uniform cross section. The panel shall consist of the following items (viz. multi function digital voltmeter, ammeter, CT, indicating lamps, selector switch etc.) connected as per drawing and shall be flush mounted on the front of the panel.</p> <p>Incomer 1250A 4P MCCB, 50 KA Electronic Release – 2 Nos. 1250 4P on-load changeover switch – 1 No.</p> <p>Bus-Bars: 1920 Amps TPN electrolytic copper bus bar of uniform cross-section – 2 sets (60mmx10mm)</p>	Set	1			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
	Outgoing 400A 4P MCCB, 36 KA – 2 Nos. 100A 4P MCCB, 25 KA – 2 Nos. 63A 4P MCCB, 25 KA – 1 No. 40A 4P MCCB, 25 KA – 2 Nos. 40A 4P MCB – 6 nos. 40A DP MCB – 1 No. 32A DP MCB – 2 Nos. Selector Switch –4 Nos. Digital Multi Function Meter , Ammeter, Voltmeter, PF meter – 4 Nos. CT1250A/5A & 630/5Amps - 2 Sets. Switch Fuse Unit – 6 Nos. LED Indicating Lamp Unit – 6 Nos.					
55.	Supplying with fitting and fixing sheet steel cable junction box of size 40cm x 20cm x 15 cm made of 16 SWG thick MS Sheet with provision for hinge door and panel locking arrangement complete painted with 2 coats of metal primer and 2 coats of enamelled gloss paint of approved brand and manufacture to give an even shape including cleaning surface to remove of all dirt, dust and other foreign matter, the box is to be fitted on the bottom section of pole with minimum 165 mm dia 25 mm x 5mm size flat iron pole clamp complete with making necessary connection as directed consisting of the following electrical items. 12mm x 2mm x 15cm long 2 strip copper Bus Bar - 1 set 32 Amp "L" series DP MCB - 1 No. 6/16 amp "L" series SP MCB as outgoing - 3 Nos.	Each	15			

Sl. No	Specification of item of works	Units	Quantities	Rate in Rs.		Amount (in Rs.)
				(In Figures)	(In Words)	
56.	Supply, Installation antistatic rubber mat suitable for 1.1 KV Voltage grade	Sq.M	4			
57.	Supply, Fitting Fixing of Shock Treatment Chart	Each	4			
TOTAL : Rs.						

(Rupees

Signature of the Contractor :

Date & Seal: