

<u>SUMMARY OF COST</u>		
<u>PROJECTS:- STERLING GTAKE E-MOBILITY LTD. AT FARIDABAD</u>		
	ELECTRICAL & LV SYSTEM	
S. No.	PARTICULARS	AMOUNT
A.	CIRCUIT CUM POINT WIRING (SUPPLY, INSTALLATION, TESTING AND COMMISSIONING)	₹ 26,71,633
B.	SUPPLY & INSTALLATION OF CABLES, MAINS AND SUB MAINS	₹ 22,29,602
C.	CABLE TRAYS, RACEWAY & JUNCTION BOXES:	₹ 6,96,946
D.	FINAL DISTRIBUTION BOARDS	₹ 5,74,574
E.	EARTHING INSTALLATION (FOR DISTRIBUTION SYSTEMS & EQUIPMENTS)	₹ 7,02,544
F.	UPS / INVERTER 2 No. 20 KVA (1 no. UPS for future) (N+1 Configuration) & 1 No. 10 KVA (1 no. UPS for DYNO)	₹ 33,95,460
G.	INSTALLATION OF LIGHTING FIXUTRES /CEILING FAN/EXHAUST FAN	₹ 1,91,432
H.	CONDUITING WIRING AND CABLING FOR VOICE / DATA SYSTEM	₹ 22,09,874
I.	INSTALLATION OF LIGHTING FIXTURES & CABLES FOR EXTERNAL / LANDSCAPE LIGHTING	₹ 1,39,758
J.	SUPPLY, INSTALLATION, TESTNG & COMMISSIONING OF 50 KVA LT SERVO STABLIZER	₹ 1,64,773
K.	SUPPLY & INSTALLATION OF MAIN LT PANEL & DISTRIBUTION BOARDS	₹ 41,80,400
L.	INTELLIGENT ADDRESSABLE FIRE DETECTION & ALARM SYSTEM	₹ 28,52,250
M.	SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF 320 KVA DG SET INCLUDING ALL ACCESSORIES	₹ 35,84,500
	GRAND TOTAL	₹ 2,35,93,746

for APCO AIURCON

BILL OF QUANTITIES FOR ELECTRICAL WORKS					
PROJECTS:- STERLING GTAKE E-MOBILITY LTD. AT FARIDABAD					
GENERAL NOTES					
1	The items given in this schedule are provisional. The Tenderer shall be paid for the actual quantity of work executed as measured at the site at the rates tendered. The Client reserves the right to increase or decrease any of the quantities, or to omit totally any item of work. Any claim by the Tenderer on these accounts will not be entertained.				
2	All the items of work given in this schedule of quantities shall be executed strictly in accordance with the latest Indian Standard Specifications and the requirements of the Electricity Supply Authority read in conjunction with the relevant drawings and Specifications.				
3	The Tenderer shall visit the site and shall satisfy himself as to the conditions under which the work is to be performed. He shall also check and ascertain the location of any existing structure or equipment or any other situation which may affect the work. No extra claim as a consequence of ignorance or on ground of insufficient description will be allowed at a later date.				
4	All equipment and material shall be IS approved.				
5	All approvals shall be obtained from Client / Consultant				
6	All equipment and material shall be inspected at manufacturer's works as per relevant IS by the Client or his representative before despatch to site.				
7	All vendor drawings shall be approved by the Client /Consultant before fabrication work starts.				
8	All Testing and Commissioning shall be as per relevant IS for equipment and IS:732:1989 for the installation. All testing records are to be maintained and submitted for Client's representative.				
A.	CIRCUIT CUM POINT WIRING (IN RECESSED / SURFACE MS CONDUITS)				
	The rates for all point wiring items shall also include supplying, fixing, testing and commissioning of the following:				
1	Conduits, conduit specials, brass bushes (bends, pull boxes, junction boxes) and other fittings.				
2	Approved GI saddles and grouting the same for exposed conduit work.				
3	1.6 mm thick Outlet boxes and junction box.				
4	All fixing accessories such as clips, brass screws pull boxes etc. complete in all respect.				
5	All work necessary for wiring a point circuit of any length from the Final Distribution Board to connector via switch and shall include the circuit wiring also except where identified.				
6	Embedding conduits and accessories in walls and floors etc. during construction and / or cutting chases (with chase cutting machine) and making good the same as necessary in the case of concealed conduit work.				
7	Switch, socket outlet and necessary blank plates wherever required.				
8	PVC insulated copper conductor stranded flexible PVC insulated FRLS wire of Green colour with yellow bands for earthing of fixtures, outlet boxes and third pin of socket outlet.				
9	Repainting of MS conduits, outlet boxes and junction boxes where ever damaged.				
10	All wires shall be IS approved, 1100 volt grade, stranded flexible PVC insulated FRLS.				
11	All sockets shall be shuttered type with earth terminal.				
12	Suitable rating of plugs top shall be provided for all Industrial type splash proof socket outlets.				
13	Separate neutral and earthing wire shall be provided for each circuit.				
14	Lighting and power circuit to be kept separate.				
15	Different colours plates / switch socket shall be provided for UPS and raw power supply.				
16	Expansion joints for conduiting etc. shall be provided in case of crossing of building expansion joint and as approved by engineer in-				
17	Conduits shall be terminated in switch & socket boxes / DB's with good quality nuts & check nuts and brass bushes.				
18	Circuit cum point wiring shall be as per specification and also Indian Electricity Act				
S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
A.	CIRCUIT CUM POINT WIRING (SUPPLY, INSTALLATION, TESTING AND COMMISSIONING)				
1	Wiring for the following light points/ fan point/ exhaust fan point with 1.5 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires of approved make in concealed or surface mounted 25 mm dia 16 gauge MS Conduit including providing and fixing of 6 amps single pole rocker operated flush mounted switch of approved quality colour make & design in 1.2 mm thick GI box and earthing of fixtures and the outlet box with 1.5 sq.mm PVC insulated copper conductor stranded flexible "FRLS" wire.				

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
1.1	MCB controlled Primary point (from DB to switch board - cost of switch & board NOT included)	Pt	125	2,349	₹ 2,93,625
1.2	Secondary point with switch (from switch board to first point - cost of switch & board included)	Pt	125	1,488	₹ 1,86,000
1.3	Secondary point without switch (from light point to light point - cost of switch & board NOT included)	Pt	220	1,221	₹ 2,68,620
2	Wiring for the following light points/ fan point/ exhaust fan with 1.5 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires of approved make in concealed or surface mounted 25 mm dia 16 gauge MS Conduit including providing and controlled by SPMCB provided in the DB. (Cost of MCB not to be included here).			-	
2.1	Primary point controlled by one MCB.	Pt.	18	2,321	₹ 41,778
2.2	Same as item above but Secondary point. i.e. Points to be looped with Primary point.	Pt.	73	1,506	₹ 1,09,938
3	Wiring for 250 volts single phase and neutral 6 / 16 Amps switched socket outlet with 2.5 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in 25 mm dia 16 gauge MS conduit including providing and fixing of 6 / 16 Amps 6 pin switched sockets of approved make and design in 1.6 mm thick GI box with grid plates and earthing the third pin of each socket outlet with 2.5 Sq mm PVC insulated copper conductor stranded flexible FRLS wire (6 nos. Workstation shall be looped on one circuit), complete in all respect.			-	
3.1	Primary point for 6/16 amps switched socket outlet (Cost of switch & socket are not included)	Pt.	115	2,701	₹ 3,10,615
3.1	Same as item no. 4.1 above but secondary point looped with primary point (Cost of switch & socket are not included here.)	Pt.	275	1,506	₹ 4,14,150
4	Wiring for 250 volts single phase and neutral 6 / 16 Amps switched socket outlet with 2.5 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in Existing Raceway or conduit including providing and fixing of 6 / 16 Amps 6 pin switched sockets of approved make and design in 1.6 mm thick GI box with grid plates and earthing the third pin of each socket outlet with 2.5 Sq mm PVC insulated copper conductor stranded flexible FRLS wire (6 nos. Workstation shall be looped on one circuit), complete in all respect.			-	
	Note : Conduit Cost not be included here			-	
4.1	Primary point for 6/16 amps switched socket outlet (Cost of switch & socket are not included)	Pt.	50	2,349	₹ 1,17,450
4.2	Same as item no.5.1 above but secondary point looped with primary point (Cost of switch & socket are not included here.)	Pt.	235	1,453	₹ 3,41,455
5	Wiring for 250 volts single phase and neutral 25amps switch socket outlet with 4 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in concealed or surface mounted 25 mm dia 2 mm thick PVC conduit, including providing and fixing of 1 nos. 25 amps switched socket of approved make and design in 1.6 mm thick GI boxes with grid plates and earthing the third pin of socket outlet with 4 Sq. mm PVC insulated copper conductor stranded flexible FRLS wire (One no. switch socket outlet connected on one circuit for AC point.).	Nos.	20	3,235	₹ 64,700
6	Wiring for 250 volts single phase and neutral 20amps switch socket outlet with 4 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in concealed or surface mounted 25 mm dia 2 mm thick PVC conduit, including providing and fixing of 1 nos. 32 amps switched socket of approved make and design in 1.6 mm thick GI boxes with grid plates and earthing the third pin of socket outlet with 4 Sq. mm PVC insulated copper conductor stranded flexible FRLS wire (One no. switch socket outlet connected on one circuit for Gvser point.).	Nos.	1	3,274	₹ 3,274
7	Wiring for 250 volts single phase and neutral 32 amps polycarbonate splash proof (IP-65/66) 3 pin industrial socket outlet with 32 amps interlocked rotary switch in polycarbonate enclosure of approved size and design with 4 sq. mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in concealed or surface mounted 25 mm dia heavy duty FRLS PVC conduit , including providing and fixing of 3 pin industrial socket and earthing of third pin of the socket and outlet with 4 sq. mm PVC insulated copper conductor <u>stranded flexible FRLS wire</u> .	Pt.	11	3,471	₹ 38,181

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
7	Wiring for 415 volts single phase and neutral 32 amps polycarbonate splash proof (IP-65/66) 3 pin industrial socket outlet with 32 amps interlocked rotary switch in polycarbonate enclosure of approved size and design with 4 sq. mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in concealed or surface mounted 25 mm dia heavy duty FRLS PVC conduit , including providing and fixing of 3 pin industrial socket and earthing of third pin of the socket and outlet with 4 sq. mm PVC insulated copper conductor stranded flexible FRLS wire	Pt.	7	3,869	₹ 27,083
				-	
7	Wiring for 415 volts single phase and neutral 63 amps polycarbonate splash proof (IP-65/66) 3 pin industrial socket outlet with 32 amps interlocked rotary switch in polycarbonate enclosure of approved size and design with 4 sq. mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires in concealed or surface mounted 25 mm dia heavy duty FRLS PVC conduit , including providing and fixing of 3 pin industrial socket and earthing of third pin of the socket and outlet with 4 sq. mm PVC insulated copper conductor stranded flexible FRLS wire	Pt.	1	4,244	₹ 4,244
				-	
9	Supplying and fixing of Stepped type electronic fan regulator on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.	Nos.	15	1,488	₹ 22,320
				-	
10	Supplying and fixing of following switch socket with gangbox on the existing modular plate & switch box including connections but excluding modular plate etc. as reqd.			-	
10.1	6 amps switch	Each	550	256	₹ 1,40,800
10.2	3 pin 6 amp socket outlet	Each	550	313	₹ 1,72,150
10.3	16 amp switch	Each	125	416	₹ 52,000
10.4	6 pin 16 amp socket outlet	Each	125	506	₹ 63,250
	TOTAL CARRIED TO SUMMARY				₹ 26,71,633
B.	CABLES, MAINS AND SUB MAINS				
	The rate shall also include the following :				
1	Providing and fixing junction boxes with covers including painting.				
2	Effecting adequate and proper connections at terminations.				
3	Providing all fixing accessories such as clamping devices nuts, bolts and screws.				
4	Excavation laying of cable filling of sand, brick protection, back filling of earth, watering, ramming and making good.				
5	Wherever the cables are of aluminium and bus bars of copper bimetallic lugs shall be used.				
6	All cable shall be laid with one diameter gap.				
7	All cables shall be IS approved.				
8	Fire retardent paint one meter on both side of wall penetration and at termination as per specifications.				
9	Burried LT cables to be laid atleast 750 mm below ground.				
10	All cutouts / Sleeves shall be sealed with fire redardant sealent as per specification.				
B.	SUPPLY & INSTALLATION OF CABLES, MAINS AND SUB MAINS				
1	Supplying & laying of following 1100 volt grade XLPE insulated PVC sheathed aluminium conductor armoured cables as per specification in existing trenches, cable trays, ducts, clamped includes anchor fastners wall with suitable clamps, saddles fixing bolts including connecting testing and commissioning.				
1.1	3.5 core 300 sq. mm	RM	0	-	₹ -
				-	
1.2	3.5 core 240sq. mm	RM	100	2,288	₹ 2,28,800
				-	
1.3	3.5 core 185sq. mm	RM	150	1,802	₹ 2,70,300
				-	
1.4	3.5 core 70 sq. mm	RM	210	810	₹ 1,70,100
				-	
1.5	3.5 core 50 sq. mm	RM		-	₹ -
				-	
1.6	3.5 core 35 sq. mm	RM	160	431	₹ 68,960
				-	
1.7	3.5 core 25 sq. mm	RM	20	352	₹ 7,040
				-	

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
2	Supplying & laying of following 1100 volt grade XLPE insulated PVC sheathed copper conductor armoured cable as per specification in existing trenches, cable trays ducts, clamped includes anchor fastners to wall with suitable clamps, saddles fixing bolts including connecting testing and commissioning.			-	
2.1	4 core 4 sq.mm	RM	1035	448	₹ 4,63,680
2.2	4 core 6 sq. Mm	RM	270	634	₹ 1,71,180
2.3	4 core 10 sq.mm	RM	230	1,077	₹ 2,47,710
2.4	4 core 16 sq. mm.	RM	0	-	₹ -
2.5	3 core 2.5 sq.mm	RM	110	255	₹ 28,050
2.6	3 core 4 sq.mm	RM	70	352	₹ 24,640
2.5	14 core 2.5 sq.mm control cable	RM	100	954	₹ 95,400
2.6	1 core 16 sq. mm.Copper unarmored FRLS	RM	500	249	₹ 1,24,500
2.7	1 core 4 sq. mm.Copper unarmored FRLS	RM	70	65	₹ 4,550
3	Cable end termination of the following XLPE insulated PVC sheathed aluminium / copper conductor armoured cables of 1100 volt grade including supplying and fixing of crimping aluminium lugs, double compression glands with earthing facility at both ends of cables etc. complete as required.			-	
3.1	3.5 core 300 sq. mm	No.		-	₹ -
3.2	3.5 core 240sq. mm	No.	2	2,647	₹ 5,294
3.3	3.5 core 185sq. mm	No.	8	2,202	₹ 17,616
3.4	3.5 core 70 sq. mm	No.	6	1,250	₹ 7,500
3.5	3.5 core 50 sq. mm	No.		-	₹ -
3.6	3.5 core 35 sq. mm	No.	8	765	₹ 6,120
3.7	3.5 core 25 sq. mm	No.	2	542	₹ 1,084
	Single compression Gland			-	
3.4	4 core 4 sq.mm	No.	54	872	₹ 47,088
3.5	4 core 6 sq. Mm	No.	18	1,012	₹ 18,216
3.6	4 core 10 sq.mm	No.	14	1,118	₹ 15,652
3.7	4 core 16 sq. mm.	No.	0	-	₹ -
3.8	3 core 2.5 sq.mm	No.	4	523	₹ 2,092
3.9	3 core 4 sq.mm	No.	6	774	₹ 4,644
3.10	1 core 16 sq.mm	No.	30	287	₹ 8,610
3.11	1 core 4 sq.mm	No.	10	170	₹ 1,700
3.12	14 core 2.5 sq.mm control cable	No.	2	893	₹ 1,786
4	Supply and installation of following RCC (NP-2 class) Hume pipe under paved areas, including providing 75 mm thick cement concrete all around pipe 1:3:6 (1 cement, 3 coarse sand and 6 crushed stone aggregate).			-	
a.	300 mm dia ID	RM	100	1,667	₹ 1,66,700
5	2 core 2.5 sq.mm control Wire in MS Conduit for Dual Metering arrangement including terminations.	RM		-	₹ -

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
6	Designing and constructing brick masonry manhole chamber of the following size in brick work of class 75 in cement mortar 1:4 (1cement:4 fine sand), R.C.C. top slab with 1:2:4 mix (1cement : 2 coarse sand :4 graded stone aggregate 20mm. nominal size) RCC foundation slab 1:2:4 mix (1 cement : 2 coarse sand:4 graded stone aggregate 40 mm nominal size) both inside and outside cement plastering 12 mm thick with cement mortar 1:3 (1cement :3 coarse sand) finished with a floating coat of neat cement on inside face, including necessary centering and shuttering, reinforcement, excavation, in all kind of soil, dewatering, refilling, watering, ramming and removing the surplus excavated earth, making good the same complete as required. Contractor shall submit the structural design and drawings for the approval of Project Manager prior to execution including SFRC Cover and frame (heavy duty HD-20 grade designation)			-	
	560 mm internal diameter conforming to IS 12592, total weight of cover and frame to be not less than 182 Kgs fixed in cement concrete 1:2:4 (1 cement, 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)			-	
6.1	Inside size 900 x 900 mm	Nos.	5	4,118	₹ 20,590
	TOTAL CARRIED TO SUMMARY				₹ 22,29,602
C.	CABLE TRAYS				
	The cable management system shall comprise:				
1	Ladder cable trays , Reducer , Tee cross etc and supports.				
2	Perforated cable trays , Reducer , Tee, Cross and supports.				
3	Surface mounted wire ducts with brackets / supports.				
4	All cuts/perforations/folded sections where contact with wires/cables in expected shall be burr free.				
5	Zinc coating shall be 120 gm / square meter or more. The materials shall conform to relevant IS / BS standards for the category / application specified.				
6	The cable tray shall be factory built. Only cutting to achieve assembly system length shall be permitted at site.				
7	Accurate fabrication formed section with tolerances of + 2 mm on width and + 5 mm on length expected.				
8	Dimensional and general arrangement drawing of the system are expected to be provided by tenderer / cable tray / duct supplier.				
9	The system shall be designed for installation with a temperature classification of + 60 deg.C.				
10	The cable tray/duct systems shall be suitable for against corrosion.				
11	Details of fixing supports etc. shall be submitted for approval.				
C.	CABLE TRAYS, RACEWAY & JUNCTION BOXES:				
1	Supply and fixing of perforated type GI cable trays including accessories like Tee , Reducer , Cross and GI Support , Anchor fasner etc of the following sizes as per specification.				
1.1	750 mm x 40 x 40 x 2 mm thick	RM	15	2,048	₹ 30,720
1.2	600 mm x 40 x 40 x 2 mm thick	RM	60	1,680	₹ 1,00,800
1.3	450 mm x 40 x 40 x 2 mm thick	RM	40	1,278	₹ 51,120
1.4	300 mm x 40 x 40 x 2 mm thick	RM	80	920	₹ 73,600
1.5	200 mm x 40 x 40 x 2 mm thick	RM	60	675	₹ 40,500
1.6	150 mm x 40 x 40 x 2 mm thick	RM	100	567	₹ 56,700
1.7	100 mm x 40 x 40 x 2 mm thick	RM	200	438	₹ 87,600
2	Providing and laying 2 MM thick GI factory fabricated raceways in partition of the following sizes including providing removable 3 mm thick GI cover knock out holes and fixing accessories complete required including floor supports, bends, access boxes and tap off boxes as per specification and cross over as per site requirement.			-	
2.1	200 mm wide x 40 mm deep raceway	RM	10	1,560	₹ 15,600
2.2	150 mm wide x 40 mm deep raceway	RM	36	1,170	₹ 42,120
2.3	100 mm wide x 40 mm deep raceway	RM	90	920	₹ 82,800

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
				-	
3	Providing and fixing of 250 x 250 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	3	852	₹ 2,556
				-	
4	Providing and fixing of 200 x 200 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	10	714	₹ 7,140
				-	
5	Providing and fixing of 150 x 150 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	30	523	₹ 15,690
				-	
6	Providing and fixing in position the following PVC conduits concealed as called for including all accessories i.e. bends, junction boxes, with cover plates of approved make and design.			-	
				-	
6.1	25 mm dia	RM	1000	90	₹ 90,000
	TOTAL CARRIED TO SUMMARY				₹ 6,96,946
D.	FINAL DISTRIBUTION BOARDS				
	Supply, installation, testing and commissioning of the following cubicle type 1.6 mm thick CRCA sheet steel enclosed and partitions to segregate phases recessed in wall or surface mounted final distribution boards of the following description. Distribution board shall be powder coated and double door construction and in four tier configuration.				
1	Type A (LPDB RAW)				
1.1	TPN DB, 36 No. 6/16 Amps 'C' curve SP MCB's as outgoing with 3 No.63 Amps DP RCCB's of 100mA leakage current and 1No. 63 Amps 4 pole MCB as incomer with separate neutral link for each phase.	No.	5	28,824	₹ 1,44,120
				-	
2	Type B (LDB RAW)				
				-	
2.1	36 No. 6 Amps 'C' curve SP MCB's as outgoing with 3 No.25 Amps DP RCCB's of 30/100mA leakage current and 1No. 25 Amps 4 pole MCB as incomer with separate neutral link for each phase.	No.	1	25,412	₹ 25,412
				-	
3	Type C (PDB RAW)				
				-	
3.1	36 No. 6/16 Amps 'C' curve SP MCB's as outgoing with 3 No.63 Amps DP RCCB's of 100mA leakage current and 1No. 63 Amps 4 pole MCB as incomer with separate neutral link for each phase.	No.	1	28,488	₹ 28,488
				-	
4	Type D (VTPN DB)				
				-	
4.1	VTPN Double Door Distribution Board (Three phase I/P and Three & Single phase O/P) with 100A 4 Pole MCCB (25kA) as incomer and 9 Nos. Of 32A SP MCB, 4Nos, 32A TPN MCB & 1Nos. 63A TPN MCB at outgoing.	No.	1	40,588	₹ 40,588
				-	
5	Type E (UDB) UPS				
				-	
5.1	36 No. 6/16 Amps 'C' curve SP MCB's as outgoing with 3 No.63 Amps DP RCCB's of 100mA leakage current and 1No. 63 Amps 4 pole MCB as incomer with separate neutral link for each phase.	No.	6	29,167	₹ 1,75,002
				-	
6	Type F (ELDB) UPS				
				-	
5.1	8 No. 6 Amps 'C' curve SP MCB's as outgoing with 1 No.25Amps DP RCCB's of 30/100mA leakage current and 1No. 25 Amps DP MCB as incomer with separate neutral link for each phase.	No.	3	26,988	₹ 80,964
				-	
7	40 Amps FP MCB in MS enclosure box for EOL	No.	10	8,000	₹ 80,000
	TOTAL CARRIED TO SUMMARY				₹ 5,74,574
E.	EARTHING INSTALLATION (FOR DISTRIBUTION SYSTEMS)				
	Rates shall also include the following :				
1	All fixing accessories such as brass saddles, brass screws rawl plugs etc.				
2	Joining by rivetting and brazing after rivetting in case of copper and welding / bolting in case of GI earthing.				
3	Cutting chases holes and making good the same wherever required.				
4	Effecting adequate and proper interconnections.				

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
5	Use of copper thimbles.				
6	Earthing system shall comply to IS:3043-1987.				
7	All earthing pits shall be interconnected.				
8	All equipment motors, DB's, panels to be connected on either ends (double earthing) with suitable strip / wires.				
E.	EARTHING INSTALLATION (FOR DISTRIBUTION SYSTEMS & EQUIPMENTS)				
1	Supply, Testing & Commissioning, fixing of following bare Copper flat / wires including all necessary fixing accessories and effecting connections as per specifications.				
1.1	50 x 6 mm thick GI flat.	RM	100	643	₹ 64,300
1.2	50 x 6 mm thick CU flat.	RM		-	₹ -
1.3	25 x 6 mm thick cu flat.	RM	50	1,391	₹ 69,550
1.4	25 x 6 mm thick GI flat.	RM	300	410	₹ 1,23,000
1.5	25 x 3 mm thick GI flat.	RM	200	170	₹ 34,000
1.6	6sqmm Copper wire	RM	100	102	₹ 10,200
2	Providing, laying, testing and commissioning of following 1100 volts grade PVC insulated sheathed copper conductor unarmoured cable including copper thimbles, fixing hardware as required.			-	
2.1	Single core 16 sq.mm Green colour cable (for UPS / EPABX).	RM	100	260	₹ 26,000
2.2	Single core 6 sq.mm Green colour cable (for UPS / EPABX).	RM	100	93	₹ 9,300
3	Supply, laying, testing and commissioning of GI pipe under road / paved area crossing etc. including excavation back filling ramming and making good.			-	
3.1	100 mm dia GI pipe	RM	0	-	₹ -
4	Supply, Installation, Testing & Commissioning of long life Maintenance Free Electrolytic Earthing System with 20 year service warranty (UL listed). The Electrode shall be of flat inside pipe technology with 3.0M Long, 2 Nos of 32 x 4 mm Copper flat in 60mm dia & minimum 4.0 mm wall thickness GI Pipe, which does not require manual addition of water. The system should be with 60 kg environment friendly mineral filling compound for lowering resistance. The earth station shall be with Suitable Poly-plastic Pit Cover with lockable arrangement. The earth electroded should have CPRI approval & capable of bearing fault current of 25kA. (for 2No. UPS 2No server)	No.	6	29,167	₹ 1,75,002
4	Supply, Installation, Testing & Commissioning of long life Maintenance Free Electrolytic Earthing System with 20 year service warranty (UL listed). The Electrode shall be of flat inside pipe technology with 3.0M Long, 2 Nos of 32 x 4 mm Copper flat in 60mm dia & minimum 4.0 mm wall thickness GI Pipe, which does not require manual addition of water. The system should be with 60 kg environment friendly mineral filling compound for lowering resistance. The earth station shall be with Suitable Poly-plastic Pit Cover with lockable arrangement. The earth electroded should have CPRI approval & capable of bearing fault current of 25kA. (for dg & transformer)	No.	2	29,167	₹ 58,334
5	Supply, Installation, Testing & Commissioning of long life Maintenance Free Electrolytic Earthing System with 20 year service warranty (UL listed). The Electrode shall be of flat inside pipe technology with 3.0M Long, of 40 x 6 mm GI. flat in 60mm dia & minimum 4.0 mm wall thickness GI Pipe, which does not require manual addition of water. The system should be with 60 kg environment friendly mineral filling compound for lowering resistance. The earth station shall be with Suitable Poly-plastic Pit Cover with lockable arrangement. The earth electroded should have CPRI approval & capable of bearing fault current of 25kA. (for Panel)	No.	6	22,143	₹ 1,32,858
	TOTAL CARRIED TO SUMMARY				₹ 7,02,544
F.	UPS / INVERTER 2 No. 20 KVA (1 no. UPS for future) (N+1 Configuration) & 1 No. 10 KVA (1 no. UPS for DYNO)				

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
1	Supply, installation, Testing and commissioning of the following UPS SYSTEM as per specifications and complete in all respects.				
1.1	2 No. 25 KVA (1 no. UPS for future) (N+1 Configuration) three phase input (415 V \pm 15%), three phase output (415 V \pm 1%) with 15 minutes battery backup each complete with battery cabinet and Cables. Both the UPS to be connected in Parallel. (For all office area)	Set	2	14,37,500	₹ 28,75,000
1.2	1 No. 10 KVA (1 no. UPS for future) three phase input (415 V \pm 15%), three phase output (415 V \pm 1%) with 15 minutes battery backup each complete with battery cabinet and Cables. Both the UPS to be connected in Parallel.(For Dyno M/C setup only)	Set	1	4,90,698	₹ 4,90,698
2	Installation, testing and commissioning of following Inverter system with all accessories complete as required. (For Factory area)			-	
2.1	Shifting Installation testing and commissioning of Existing 6 KVA Inverter input single phase (240 V \pm 10%) output single phase (240 V \pm 10%) with sealed maintenance free batteries suitable for 30 minutes backup including providing suitable size of 14 gauge MS battery rack suitably painted.	Set	1	29,762	₹ 29,762
TOTAL CARRIED TO SUMMARY					₹ 33,95,460
G	INSTALLATION OF LIGHTING FIXTURES				
1	The rates shall include all components that may be required to make the Supply & installation complete in all respects such as :				
*	Suitable length of GI down rod, hanger and connecting wires where called for.				
*	Internal wiring between accessories.				
*	Wires for connecting the fixtures to the point through connector block.				
*	All metal blocks to serve as base of fixtures.				
*	Bonding with earth wires.				
2	Drilling holes in supports wherever required.				
3	Fixing clamps, GI bolts and nuts, brass screws, saddles, rawl bolts and other fixing accessories as required.				
4	Testing of all fixtures & fans before and after installation.				
G.	INSTALLATION OF LIGHTING FIXTURES /CEILING FAN/EXHAUST FAN				
1	Installation, testing,commissioning, receiving the lighting fixture from client store & assembling etc. of the following lighting fixtures including fixing arrangement and with all accessories as required with necessary GI pipe required for hanging of lighting fixtures.				
1.1	Adjustable, recessed ceiling down light 12W,Make, Cat no-as approved by client/architect.	Nos.	33	398	₹ 13,134
1.2	15 watt ,RECESSED, CEILING DOWNLIGHT Make, Cat no- as approved by client/architect.	Nos.	83	412	₹ 34,196
1.3	1X20 watt BATTEN CEILING DOWNLIGHT,Make, Cat no- as approved by client/architect.	Nos.	96	422	₹ 40,512
1.4	15 watt , CEILING SUSPENDED DOWNLIGHT,Make, Cat no- as approved by client/architect.	Nos.	58	398	₹ 23,084
1.5	Ceiling suspended pendent light 50w,Make, Cat no- as approved by client/architect.	Nos.	20	407	₹ 8,140
1.6	1X28 watt BATTEN CEILING DOWNLIGHT ,Make, Cat no- as approved by client/architect.	Nos.	30	402	₹ 12,060
1.7	36W 600MMX600MM GRID CEILING LIGHT ,Make, Cat no- as approved by client/architect.	Nos.	17	402	₹ 6,834
1.8	Mirror Light 10W ,Make, Cat no- as approved by client/architect.	Nos.	7	407	₹ 2,849
1.9	100 WATT CEILING LIGHT Make, Cat no- as approved by client/architect.	RM	73	536	₹ 39,128
2	Installation, testing and commissioning of following sizes fan including wiring etc. complete as required.			-	
2.1	Ceiling fans 1200 mm as approved by client/architect.	Nos.	4	632	₹ 2,528

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
2.2	Industrial Wall mounting fan Dia Size 900 mm	Nos.	11	625	₹ 6,875
2.2	Wall mounting fan Dia Size 400 mm	Nos.	4	523	₹ 2,092
				-	
3	Installation, testing and commissioning of Exhaust fans/air circulators of following sizes including making the holes to suit the size of the fan and making good the damages, including providing and fixing of louvers/shutters, connection, testing and commissioning etc. as required.			-	
				-	
3.1	Exhaust fans 300 mm as approved by client/architect.	Nos.		-	₹ -
3.2	Exhaust fans 450 mm as approved by client/architect.	Nos.		-	₹ -
	TOTAL CARRIED TO SUMMARY				₹ 1,91,432
H.	CONDUITING WIRING AND CABLING FOR VOICE / DATA SYSTEM				
	Supply, installation, testing and commissioning of all conduiting and cabling for telephone system including providing and fixing of the following:				
1	All necessary specials and fittings, brass bushes etc.				
2	Approved cover plates for inspection, junction and outlet boxes.				
3	2 mm thick outlet boxes and junction boxes.				
4	All fixing accessories such as clips, nails, screws etc.				
5	Providing and fixing approved saddles, hooks and grouting the same as required, in the case of all exposed conduit work.				
6	Embedding conduits and accessories in wall, floors etc. during construction and / or cutting chases and making good as necessary in the case of all concealed conduit work.				
7	Providing 14 SWG GI pull wire in all conduit work.				
8	Repainting of MS conduit, outlet boxes and junction boxes when ever damaged.				
H.	CONDUITING WIRING AND CABLING FOR VOICE / DATA SYSTEM				
1	Supply and fixing of Heavy Duty PVC conduits in following sizes including cost of junction boxes, bends, elbows, sockets, tees etc. laying in slab, cutting chases and making good or surface mounted including all fixing hardware.				
1.1	40 mm dia	RM	100	262	₹ 26,200
				-	
1.2	25 mm dia	RM	1800	110	₹ 1,98,000
				-	
2	Supply and fixing of Heavy Duty 16g MS conduits in following sizes including cost of junction boxes, bends, elbows, sockets, tees etc. laying in slab, cutting chases and making good or surface mounted including all fixing hardware.				
				-	
2.1	40 mm dia	RM	0	-	₹ -
				-	
2.2	25 mm dia (for Wifi in ceiling)	RM	0	-	₹ -
				-	
3	Supply and fixing of perforated type GI cable tray with cover of the following size including fixing hardware supports etc. as required as per specifications.				
				-	
3.1	300 x 40 x 2 mm thick	RM		-	₹ -
				-	
3.2	150 x 40 x 2 mm thick	RM	120	787	₹ 94,440
				-	
3.3	100 x 40 x 2 mm thick	RM	50	626	₹ 31,300
				-	
4	Providing and laying 2 MM thick GI factory fabricated raceways in partition of the following sizes including providing removable 3 mm thick GI cover knock out holes and fixing accessories complete required including floor supports, bends, access boxes and tap off boxes as per specification and cross over as per site requirement.				
				-	
4.1	300 mm wide x 40 mm deep raceway	RM	80	-	₹ -
				-	
4.2	200 mm wide x 40 mm deep raceway	RM	25	-	₹ -
				-	
4.3	150 mm wide x 40 mm deep raceway	RM	20	-	₹ -
				-	
4.4	100 mm wide x 40 mm deep raceway	RM	40	-	₹ -
				-	

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
5	Providing and fixing of 350 x 350 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	12	1,650	₹ 19,800
6	Providing and fixing of 250 x 250 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	3	1,500	₹ 4,500
4	Providing and fixing of 200 x 200 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	4	1,300	₹ 5,200
5	Providing and fixing of 150 x 150 x 60 mm deep (Nominal size) junction box including providing 3 mm thick GI cover required as per specification.	No.	12	1,200	₹ 14,400
6	Supply and fixing Data outlets with grid plate and RJ-45 jack (Female) in 1.6 mm thick GI box complete including cutting, chases, fixing of GI boxes and making good (Cover plate shall match the colour size and make of Wiring accessories to be used in the project).	Each	271	552	₹ 1,49,592
6.1	Supplying and fixing RJ 45 Jack (male) complete as required.	Each	271	431	₹ 1,16,801
7	Installation of ceiling mounted POE Wifi Router	Nos	21	625	₹ 13,125
8	Patch Cord - Supply of Cat 6 Patch Cord, 1 Mtr - outlet Switch Patching with rj-45 both side	Nos	155	436	₹ 67,580
9	Patch Cord - Supply of Cat 6 Patch Cord, 2 Mtr - outlet Switch Patching with rj-45 both side	Nos	116	582	₹ 67,512
10	Supply, installation, testing and commissioning of 4 pair Category 6e LAN cable consisting of 24 AWG solid copper conductors and as per the specification.B3843	RM	10600	65	₹ 6,89,000
11	Supply, fixing, cable termination, testing and commissioning of krone type Tag Blocks and boxes with lockable door etc. as required.			-	
11.1	100 pair tag box	No.	1	11,529	₹ 11,529
11.2	10 pair tag box	No.	0	-	₹ -
12	Supply and fixing telephone outlets with grid plate and RJ-11 jack in 1.6 mm thick GI box complete including cutting, chases, fixing of GI boxes and making good (Cover plate shall match the colour size and make of Wiring accessories to be used in the project).	No.	277	565	₹ 1,56,505
10	Supply, installation, testing and commissioning of following telephone cable as per the specification. The cable should have flexibleJacket and ripcord for easy stripability			-	
10.1	Cat6 cable	RM	8500	55	₹ 4,67,500
10.2	100pair 0.61mm Telephone cable	RM	200	91	₹ 18,200
10.2	10pair 0.61mm Telephone cable	RM	0	-	₹ -
11	DTH System			-	
11.1	Supplying and fixing GI box with modular type coaxial outlet for TV antenna complete as required.	Each	5	298	₹ 1,490
11.2	Providing, laying, connecting and testing of unarmoured TV cable RG-6 PVC insulated cable along wall or ceiling or through existing pipe.	Metre	400	43	₹ 17,200
11.3	Supplying and fixing of under noted sizes of heavy duty PVC conduit with accessories such as bend, pull outlet box with cover, lock nuts, saddles, PVC bushes and necessary materials etc. on surface or concealed including cutting the walls.			-	
11.3.1	25mm dia conduit pipe	Metre	400	100	₹ 40,000
TOTAL CARRIED TO SUMMARY					₹ 22,09,874
I	INSTALLATION OF LIGHTING FIXTURES & CABLES FOR EXTERNAL / LANDSCAPE LIGHTING				
	Rate for supply and installation of fixtures shall also include the following :				
1.0	All component that may be required to make the installation complete in all respects, such as :				
	* Suitable length of connecting wires.				
	* Internal wiring between accessories.				

S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
	* Connecting wires to the point through connection block.				
	* Bonding to earth wires.				
2.0	Drilling holes in supports wherever required.				
3.0	Fixing clamps, GI bolts and nuts/brass screws, saddles, rawl bolts and other fixing accessories as required.				
4.0	Painting with enamel paint of clamps and other fixing accessories.				
5.0	Testing of all fixture after installation.				
S. No.	PARTICULARS	UNIT	QTY	RATE	AMOUNT
I.	INSTALLATION OF LIGHTING FIXTURES & CABLES FOR EXTERNAL / LANDSCAPE LIGHTING				
1	,Installation in correct assigned position, making proper connections, testing and commissioning of the following lighting fixtures or approved				
1.1	POLE LIGHT 70W LED make or equivalent, accessories etc as approved by Architect.Model : or Equivalent	No.	10	1,163	₹ 11,630
				-	
1.2	Unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of 4.5 meter high aluminium painted MS pole B-Class IS 1239 weight should be 8.36kg/mtr. with 300mmx300mmx5mm thick base plate and cap welded at bottom complete as required with painting of approved colour including erection of G.I. pole in 1:2:4 cement concrete (1 cement : 2 coarse sand : 4 graded stone aggregate 40mm nominal size) including excavation & refilling etc as required below ground complete as per requirement with all accessories. (with Termination box).	No.	10	2,907	₹ 29,070
				-	
1.5	BOLLARD LIGHT (30W LED) make or equivalent, accessories etc as approved by Architect.Model : or Equivalent	No.	20	640	₹ 12,800
				-	
1.6	TREE UPLIGHTER SPIKE LIGHT 13W LED make or equivalent, accessories etc as approved by Architect.Model : or Equivalent	No.	10	647	₹ 6,470
				-	
1.13	FLOOD LIGHT 120W make or equivalent, accessories etc as approved by Architect.Model : or Equivalent (on terrace)	No.	6	655	₹ 3,930
				-	
2	Wiring for the following light points with 1.5 sq.mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires of approved make in concealed or surface mounted 25 mm dia 16 gauge PVC Conduit including providing and controlled by SPMCB provided in the DB. (Cost of MCB not to be included here).			-	
				-	
2.1	Primary point controlled by one MCB.	Pt.	10	2,229	₹ 22,290
				-	
2.2	Same as item above but Secondary point. i.e. Points to be looped with Primary point.	Pt.	36	1,488	₹ 53,568
	TOTAL CARRIED TO SUMMARY				₹ 1,39,758
J	SUPPLY, INSTALLATION, TESTNG & COMMISSIONING OF 50 KVA LT SERVO STABILIZER				
1	Supply , installation , testing and commissioning of 3 phase 50 KVA LT Servo Voltage Stabilizer , DRY Type unbalanced type input voltage INPUT VOLTAGE 330 V – 470V, output voltage 380 volts ± 1% with under voltage / over voltage releases as per specifications. The Servo shall be installed Indoor and automatic bypass Arrangement .	No	1	1,64,773	₹ 1,64,773
	TOTAL CARRIED TO SUMMARY				₹ 1,64,773

BOQ OF QUANTITIES FOR ELECTRICAL PANEL WORKS					
PROJECTS:- STERLING GTAKE E-MOBILITY LTD. AT FARIDABAD					
K	SUPPLY & INSTALLATION OF MAIN LT PANEL & DISTRIBUTION BOARDS				
	The rates for the distribution boards apart from the Breakers and instruments shall also include the following:				
1	Supporting rigid steel framework.				
2	Cubicle type, 14 gauge CRCA sheet steel enclosed.				
3	Complete with interconnections and distribution bus bars.				
4	Proper bonding to earth.				
5	Painting/ lettering on Breakers and distribution boards, the location they serve, providing on each panel its circuit				
6	Providing cable clamps/ supports within distribution boards cable alley.				
7	TPN ACB's/ MCCB's shall mean 3 pole ACB's/ MCCB's with adequate size of neutral link.				
8	All MCB's shall be of minimum 10 KA breaking capacity.				
9	The breaking capacity of MCCB's are mentioned panel wise. All MCCB's shall be with thermal magnetic releases upto				
10	All motor feeders MCCBs shall be of motor duty.				
11	Distribution panels shall be Powder Coated with Siemens gray paint shade no. RAL-7032 of IS-5.				
12	Degree of protection for following type of distribution panel enclosure shall be as per IS:13947-1993.				
a.	IP 52 for indoor panels.				
b.	IP 54 for kitchen and laundry panels.				
c.	IP 55 for outdoor panels.				
13	All MCCB's shall be provided with operating mechanism for door interlock.				
14	Tinned copper/ GI earth bus as specified in the BOQ shall be provided through out the length of each board.				
15	All measuring instruments (Meters) shall be of digital electronic with LED of approved make and compatible with BAS.				
16	All hinged door shall be earthed through 2.5 sq mm tinned braided copper wire.				
17	All panels shall have provision of the following:				
a.	Pad locking of Switch board doors.				
b.	Pad locking of MCCB's handles in "OFF" Position.				
18	Additional set of C.T.s, potential free contacts, connectors, contactors with wiring etc are to be provided for BAS				
19	All release shall be communicable with Rs 485.				
Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
K.	SUPPLY & INSTALLATION OF MAIN LT PANEL & DISTRIBUTION BOARDS				
	Design, installation, fabrication, assembling, testing, commissioning and supply of Main LT panel, Main Distribution Panels and Sub Distribution panels suitable for 415 V, 3 phase, 50 Hz, 4 wire power supply system.				

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
	Panels shall be fabricated out of 2 mm thick CRCA sheet steel in cubical formation, compartmentalized in Form 3b Construction, floor mounted, free standing and shall be dust and vermin proof. 3 mm thick cable gland plate, shall be provided both at the top and the bottom of the panel. All large panels shall be provided with lifting hooks. Distribution panels shall be fabricated in accordance with the specifications.				
1	LT ISO PANEL INDOOR TYPE				
	(I/C From Transformer supply)				
	(Location:- LT PANEL ROOM)				
a.	800 Amps 4 pole electrically operated manually drawout type air circuit breaker with built in microprocessor based release unit, for short circuit, over current , Current Unbalance, Temperature rise at breaker terminals, and earth fault protection with adjustable setting as per specification and with following accessories :				
	1 Set				
i.	Multifunctional meter (conserve – EM 6400 or equivalent) of accuracy class-I, with 3 Nos. 800/5 amps 15VA CTs to measure and display the following electrical quantities:				
a.	Total active energy (KWH/MWH)				
b.	Maximum demand (KVA/MVA) (KW/MW)				
c.	Current				
d.	Instantaneous power factor				
e.	Voltage				
f.	Frequency				
ii.	Phase indicating light through 415/ $\sqrt{3}$: 110V/ $\sqrt{3}$ PT, Primary/ Secondary of PT's shall be protected by 2 amps MCB's.				
	1 Set				
iii.	Breaker ON / OFF / TRIP indicating lights with fuse control MCB's.				
	1 Set				
iv.	Under/ over voltage Relay				
	1 Set				
v.	Earth fault protection Relay				
	1 Set				
vi.	Phase Monitoring relay				
	1 Set				
vii.	24 V DC Shunt trip coil.				
	1 Set				
viii.	Auto-manual / test selector / switch				
	1 Set				
ix..	Breaker control switch				
	1 Set				
x.	1 nos., 800/ 5 amp, 5VA CL : 1.0 CTS for APFCR.				
	1 Set				
xi	Auxiliary contacts required for necessary interlocking of breakers.				
	1 Set				
xii	surge protector of class - B				
	1 Set				
b.	Bus Bars				
	1000 amps TPN (50KA) Aluminum bus bars with colour coded heat shrinkable insulating sleeves				
	1 Set				
c.	Outgoing				

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
i.	630 Amps 4 pole electrically operated manually drawout type air circuit breaker with built in microprocessor based release unit, for short circuit, over current , Current Unbalance, Temperature rise at breaker terminals,and earth fault protection with adjustable setting				
	2 No.				
	Note : All Outgoing feeder shall be with R,Y,B Indication and Dual energy Meter with CT				
	LT ISO PANEL INDOOR TYPE as described above.	Set	1	10,40,700	₹ 10,40,700
				-	
2.0	Main LT Panel : -02 (Substation)			-	
	Section – I			-	
A.	Incoming Air Circuit Breaker 'A'			-	
	(For DG supply 320 KVA)			-	
				-	
a.	630 Amps 4 pole electrically operated manually drawout type air circuit breaker with built in microprocessor based release unit, for short circuit, over current , Current Unbalance, Temperature rise at breaker terminals,and earth fault protection with adjustable setting as per specification and with following accessories :			-	
	1 Set			-	
i.	Multifunctional meter (conserve – EM 6400 or equivalent) of accuracy class-I, with 3 Nos. 630/5 amps 15VA CTs to measure and display the following electrical quantities:			-	
a.	Total active energy (KWH/MWH)			-	
b.	Maximum demand (KVA/MVA) (KW/MW)			-	
c.	Current			-	
d.	Instantaneous power factor			-	
e.	Voltage			-	
f.	Frequency			-	
	1 Set			-	
ii.	Phase indicating light through 415/ $\sqrt{3}$: 110V/ $\sqrt{3}$ PT, Primary/ Secondary of PT's shall be protected by 2 amps MCB's.			-	
	1 Set			-	
iii.	Breaker ON / OFF / TRIP indicating lights with control MCB's and fuse.			-	
	1 Set			-	
iv.	Earth Fault Relay			-	
	1 Set			-	
v.	24 V DC Shunt trip coil.			-	
	1 Set			-	
vi.	Auto-manual / test selector / switch			-	
	1 Set			-	
vii.	Breaker control switch			-	
	1 Set			-	
viii.	Auxiliary contacts required for necessary interlocking of breakers.			-	
	1 Set			-	
ix.	Reverse power Relay			-	
	1 Set			-	
x.	PLC controller with auto load Management and interlocking features Shall be considered.			-	
	1 Set			-	
xi	DG Annuciation Panel			-	
	1 Set			-	
Xii	Battery Charges Units			-	
	1 Set			-	
				-	
2.1	Incoming Air Circuit Breaker - B			-	
	(I/C From LT ISO PANEL)			-	
				-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
a.	630 Amps 4 pole electrically operated manually drawout type air circuit breaker with built in microprocessor based release unit, for short circuit, over current , Current Unbalance, Temperature rise at breaker terminals, and earth fault protection with adjustable setting as per specification and with following accessories :			-	
	1 Set			-	
i.	Multifunctional meter (conserve – EM 6400 or equivalent) of accuracy class-I, with 3 Nos. 630/5 amps 15VA CTs to measure and display the following electrical quantities:			-	
a.	Total active energy (KWH/MWH)			-	
b.	Maximum demand (KVA/MVA) (KW/MW)			-	
c.	Current			-	
d.	Instantaneous power factor			-	
e.	Voltage			-	
f.	Frequency			-	
				-	
ii.	Phase indicating light through 415/ $\sqrt{3}$: 110V/ $\sqrt{3}$ PT, Primary/ Secondary of PT's shall be protected by 2 amps MCB's.			-	
	1 Set			-	
iii.	Breaker ON / OFF / TRIP indicating lights with fuse control MCB's.			-	
	1 Set			-	
iv.	Under/ over voltage Relay			-	
	1 Set			-	
v.	Earth fault protection Relay			-	
	1 Set			-	
vi.	Phase Monitoring relay			-	
	1 Set			-	
vii.	24 V DC Shunt trip coil.			-	
	1 Set			-	
viii.	Auto-manual / test selector / switch			-	
	1 Set			-	
ix..	Breaker control switch			-	
	1 Set			-	
x.	1 nos., 630/ 5 amp, 5VA CL : 1.0 CTS for APFCR.			-	
	1 Set			-	
xi	Auxiliary contacts required for necessary interlocking of breakers.			-	
	1 Set			-	
xii	surge protector of class - B			-	
	1 Set			-	
b.	Bus Bars			-	
				-	
	800 amps TPN (50KA) Aluminum bus bars with colour coded heat shrinkable insulating sleeves			-	
	1 Set			-	
c.	Outgoing			-	
				-	
i.	320 Amps TPN (25KA) MCCB with built in microprocessor based and over current / short circuit and earth fault microprocessor releases etc.			-	
	2 No.			-	
ii.	160 Amps TPN (25KA) MCCB.			-	
	4 No.			-	
iii.	125 Amps TPN (25KA) MCCB.			-	
	1 No.			-	
iv	100 Amps TPN (25KA) MCCB.			-	
	4 No.			-	
v	63 Amps TPN (25KA) MCCB.			-	
	3 No.			-	
vi	40 Amps TPN (25KA) MCB.			-	
	1 No.			-	
vi	25Amps TPN (25KA) MCB.			-	
	4 No.			-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
				-	
	Note : All Outgoing feeder shall be with R,Y,B Indication and Dual energy Meter with CT			-	
Note:				-	
i.	All outgoing feeders shall have suitable range of followings (except capacitor feeders)			-	
				-	
ii.	Digital electronic DEM meter with suitable rating of class I CT's (Conserve Model DM-5240 flush mounted or equivalent) (Compatible to BAS for energy management).			-	
				-	
iii.	Digital electronic ammeter with selector switch and 3 Nos. CT's.			-	
				-	
iv.	Wiring with space heater, thermostat and control MCB's shall be provided all vertical sections of main LT panel.			-	
				-	
v.	All breakers shall be electrically/ mechanically interlocked as per schematic diagram.			-	
				-	
vi.	All MCCB's shall be suitable for 50 KA (ICS=ICS) breaking capacity.			-	
				-	
vii.	All ACB's shall be suitable for 50 KA (Icu=Ics=Icw for 1 sec.)			-	
				-	
viii.	Wiring with space heater, thermostat and control MCB's shall be provided all vertical sections of main LT panel.			-	
				-	
ix.	Transformer incoming feeder shall have surge protector of class - B for protections line to neutral & line to ground.			-	
				-	
x.	All outgoing MCCB's feeders above 250 A shall be provided with built-in microprocessor release unit with earth fault protection and time delay.			-	
				-	
xi.	All incoming as well as outgoing feeders shall have pad locking facility.			-	
				-	
xii.	suitable danger board shall be provided.			-	
				-	
xiii.	PLC with Auto load management shall be suitable for interlocking of all incomers/Bus Coupler etc complete as per SLD.			-	
				-	
xiv.	All bus bar section/ backside panels shall have pad locking facility and hinged type door.			-	
xv.	2 KVA UPS- 1 No with 15 min Battery Back up			-	
				-	
	Main LT Panel-02 as described above.	Set	1	14,70,900	₹ 14,70,900
				-	
3	CAPACITOR BANKS WITH AUTOMATIC CONTROL PANELS			-	
				-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of Automatic control panels with mixed die electric type capacitors, fabricated out of 14 gauge CRCA sheet steel in cubicle compartmentised, 3b modular construction, free standing, floor mounted, dust and vermin proof with reinforcement of suitable size, angle iron, channel, 'T' sections and / or flats wherever necessary. Cable gland plates shall be provided on top the panels. Panels shall be treated with all anticorrosive process before powder coating as per specifications and final approved shade. 2 No. earthing terminals shall be provided for all distribution panels. Panels shall be suitable for 415V, 3 phase, 4 wire, 50 HZ supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel in the form of shop drawings before fabrication. Galvanised hardwares with zinc passivation shall be used in fabrication of panels.			-	
				-	
3.1	Incoming			-	
				-	
	1 No. 125amps TPN MCCB . as per specification and with following accessories -			-	
				-	
i.	96 x 96 mm sq. 0-500 Volt digital voltmeter with selector switch			-	
				-	
ii.	96 x 96 mm sq. 0-200A digital Ampere meter with selector switch			-	
				-	
iii.	Phase indicating light shall be protected by 2 Amps SP MCB's. - 3 Set			-	
				-	
iv.	Breaker ON / OFF / TRIP indicating lights with control MCB's. - 1 Set			-	
				-	
v.	Power factor compensating relay (including power factor meter) in 8 steps for automatic cut off or add on capacitor units to keep the power factor at 0.95 with variation of loads. All associated auxiliary contactors / relays / timer / auto manual selector switches to be provided - 1 Set.			-	
				-	
3.2	Bus Bars			-	
				-	
	150 amps TPN Aluminium bus bars with coloured heat Shrinkable insulated sleeves. - 1 set			-	
				-	
	Outgoing feeders consisting of following accessories.			-	
				-	
3.3	Outgoings -I&2			-	
				-	
	Outgoing feeders consisting of following accessories.			-	
				-	
i.	63amps TPN MCB - 2 Set			-	
				-	
ii.	63amps or capacitor duty 525 volts 50Hz contactors. - 2 Set			-	
				-	
iii.	"ON" /"OFF" push buttons and indicating lamps. - 2 Set			-	
				-	
iv.	20KVAR capacitor unit as specified - 2 Set			-	
				-	
3.4	Outgoings -3&4			-	
				-	
	Outgoing feeders consisting of following accessories.			-	
				-	
i.	32 amps TPN MCB - 2 Set			-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
				-	
ii.	32 amps or capacitor duty 525 volts 50Hz contactors. - 2Set			-	
				-	
iii.	"ON" /"OFF" push buttons and indicating lamps. - 2 Set			-	
				-	
iv.	10 KVAR capacitor unit as specified - 2Set			-	
				-	
3.5	<u>Outgoings -5&6</u>			-	
				-	
	Outgoing feeders consisting of following accessories.			-	
				-	
i.	25 amps TPN MCB - 2 Set			-	
				-	
ii.	25 amps or capacitor duty 525 volts 50Hz contactors. - 2 Set			-	
				-	
iii.	"ON" /"OFF" push buttons and indicating lamps. - 2 Set			-	
				-	
iv.	5 KVAR capacitor unit as specified - 2 Set			-	
				-	
3.6	<u>Outgoings -7</u>			-	
				-	
	Outgoing feeders consisting of following accessories.			-	
				-	
i.	16 amps TPN MCB - 1 Set			-	
				-	
ii.	16amps or capacitor duty 525 volts 50Hz contactors. - 1 Set			-	
				-	
iii.	"ON" /"OFF" push buttons and indicating lamps. - 1 Set			-	
				-	
iv.	3 KVAR capacitor unit as specified - 1Set			-	
				-	
3.7	<u>Outgoings -8</u>			-	
				-	
	Outgoing feeders consisting of following accessories.			-	
				-	
i.	16 amps TPN MCB - 1 Set			-	
				-	
ii.	16amps or capacitor duty 525 volts 50Hz contactors. - 1 Set			-	
				-	
iii.	"ON" /"OFF" push buttons and indicating lamps. - 1 Set			-	
				-	
iv.	2 KVAR capacitor unit as specified - 1Set			-	
				-	
				-	
b.	Microprocessor APFC controller shall continuously monitor all three phases and displays various Electrical Parameters like voltage, input current, capacitive current, KVA demand, KW, Power Factor, self diagnostic error code indication with printout facility of the above with RS 232C port. Controller should mounted on the front side of the panel.			-	
				-	
c.	Fast response time of 'ON' capacitors 40-60 milliseconds.			-	
				-	
d.	Fuse and links of the proper rating to be used for grouping the capacitor banks.			-	
				-	
e.	Thyristor having suitable capacity to carry expected current continuously.			-	
				-	
f.	Necessary control and firing card with proper wiring and lugs of the required rating to be provided.			-	
				-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
g.	Heavy duty exhaust fans to be provided for cooling Thyristors.			-	
				-	
h.	LED indication for number of capacitor banks 'ON'.			-	
				-	
i.	LED indication of Power Factor lagging or leading.			-	
				-	
j.	The APFC system shall be provided with following :			-	
				-	
	Protections:			-	
				-	
i.	Over voltage.			-	
				-	
ii.	Voltage imbalance.			-	
				-	
iii.	Over temperature-system should be in standby mode and automatically restart after above condition restored.			-	
				-	
iv.	Earth leakage.			-	
				-	
v.	Capacitor Units shall have 525 V and rating shall be suitably increased considering reactors into account.			-	
				-	
	75 KVAR Capacitor bank automatic control as described above.	SET	1	5,11,500	₹ 5,11,500
				-	
4	DYNO SETUP NEW PANEL			-	
	Location:- DYNO AREA			-	
	Incoming: (Main)			-	
	320 Amps TPN (25KA) MCCB with built in microprocessor based and over current / short circuit and earth fault microprocessor releases etc.			-	
				-	
i.	Multifunction digital electronic meter with inbuilt selector switch and 320/5 Amps 15 VA, CL 1 CTs . - 1 Set			-	
	1 Set			-	
ii	Phase indicating light through 415 / 110 V PT, primary & secondary of PT shall be protected by 2 amps SP MCB's.			-	
	1 Set			-	
	Bus Bars: (Main)			-	
				-	
i.	400 amps TPN (25 KA) aluminium bus bars with coloured heat shrinkable insulated sleeve.			-	
	1 Set			-	
	Outgoing:			-	
				-	
i.	100amps TPN MCCB			-	
	6 Nos.			-	
ii.	63 amps TPN MCB			-	
	8 Nos.			-	
iii.	25 amps TPN MCB			-	
	1 Nos.			-	
				-	
	DYNO SETUP NEW PANEL described as above	Set	1	2,00,000	₹ 2,00,000
				-	
5	FACTORY AREA MDB PANEL			-	
	Location:- FACTORY AREA			-	
	Incoming: (Main)			-	
	160amps 4 pole MCCB with following accessories:			-	
				-	
i.	Multifunction digital electronic meter with inbuilt selector switch and 160/5 Amps 15 VA, CL 1 CTs . - 1 Set			-	
	1 Set			-	
ii	Phase indicating light through 415 / 110 V PT, primary & secondary of PT shall be protected by 2 amps SP MCB's.			-	
	1 Set			-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
	Bus Bars: (Main)			-	
				-	
i.	200 amps TPN (25 KA) aluminium bus bars with coloured heat shrinkable insulated sleeve.			-	
	1 Set			-	
	Outgoing:			-	
				-	
i.	63 amps TPN MCB			-	
	7 Nos.			-	
ii.	25 amps TPN MCB			-	
	2 Nos.			-	
				-	
	FACTORY AREA MDB PANEL described as above	Set	1	1,88,100	₹ 1,88,100
				-	
6	(UPS Output Panel -02)			-	
	6KVA UPS (1 W)			-	
	Incoming: (Main)			-	
	63 amps 4 pole MCCB with following accessories:			-	
	1 Set			-	
i.	Multifunction digital electronic meter with inbuilt selector switch and 63/5 Amps 15 VA, CL 1 CTs . - 1 Set			-	
	1 Set			-	
ii	Phase indicating light through 415 / 110 V PT, primary & secondary of PT shall be protected by 2 amps SP MCB's.			-	
	1 Set			-	
	Bus Bars: (Main)			-	
				-	
i.	100 amps TPN (25 KA) aluminium bus bars with coloured heat shrinkable insulated sleeve.			-	
	1 Set			-	
	Outgoing:			-	
				-	
i.	63 amps TPN MCB			-	
	4 Nos.			-	
ii.	25 amps DP MCB			-	
	4 Nos.			-	
	UPS Output Panel -02 described as above	Set	1	1,74,700	₹ 1,74,700
				-	
				-	
7	M/C PANEL-3 FOR ASSEMBLY LINE			-	
	Loc:- NEAR ASSEMBLY LINE			-	
	Incoming: (Main)			-	
	160 amps 4 pole MCCB with following accessories:			-	
				-	
i.	Multifunction digital electronic meter with inbuilt selector switch and 160/5 Amps 15 VA, CL 1 CTs . - 1 Set			-	
	1 Set			-	
ii	Phase indicating light through 415 / 110 V PT, primary & secondary of PT shall be protected by 2 amps SP MCB's.			-	
	1 Set			-	
	Bus Bars: (Main)			-	
				-	
i.	200amps TPN (25 KA) aluminium bus bars with coloured heat shrinkable insulated sleeve.			-	
	2 Set			-	
				-	
	BUS SECTION -1 Outgoing :			-	
				-	
i.	125 amps TPN MCCB			-	
	2 Nos.			-	
ii	63 amps TPN MCB			-	
	2 Nos.			-	
iii	25 amps TPN MCB			-	
	4 Nos.			-	
	BUS SECTION -2 Outgoing :			-	
				-	

Item No.	Description	Unit	Qty.	Rate. (Rs.)	Amount (Rs.)
i.	40 amps TPN MCB			-	
	5 Nos.			-	
ii	20 amps 4POLE MCB			-	
	6 Nos.			-	
iii	25 amps TPN MCB			-	
	2 Nos.			-	
	M/C PANEL-3 FOR ASSEMBLY LINE described as above	Set	1	2,33,300	₹ 2,33,300
				-	
8	(UPS Output Panel-01) OFFICE AREA			-	
	25 KVA UPS (1 W+ 1 S) Connected in Parallel			-	
	Incoming: (Main)			-	
	100 amps 4 pole MCCB with following accessories:			-	
	2 Set			-	
i.	Multifunction digital electronic meter with inbuilt selector switch and 100/5 Amps 15 VA, CL 1 CTs . - 1 Set			-	
	2 Set			-	
ii	Phase indicating light through 415 / 110 V PT, primary & secondary of PT shall be protected by 2 amps SP MCB's.			-	
	2 Set			-	
	Bus Bars: (Main)			-	
				-	
i.	150 amps TPN (25 KA) aluminium bus bars with coloured heat shrinkable insulated sleeve.			-	
	1 Set			-	
	Outgoing:			-	
				-	
i.	63 amps TPN MCB			-	
	4 Nos.			-	
ii.	25 amps DP MCB			-	
	8 Nos.			-	
	(UPS Output Panel-01) OFFICE AREA described as above	Set	1	1,96,400	₹ 1,96,400
				-	
9	1ST FLOOR PANEL			-	
	Location:- 1ST FLOOR			-	
	Incoming: (Main)			-	
	160 amps 4 pole MCCB with following accessories:			-	
				-	
i.	Multifunction digital electronic meter with inbuilt selector switch and 160/5 Amps 15 VA, CL 1 CTs . - 1 Set			-	
	1 Set			-	
ii	Phase indicating light through 415 / 110 V PT, primary & secondary of PT shall be protected by 2 amps SP MCB's.			-	
	1 Set			-	
	Bus Bars: (Main)			-	
				-	
i.	200 amps TPN (25 KA) aluminium bus bars with coloured heat shrinkable insulated sleeve.			-	
	1 Set			-	
	Outgoing:			-	
				-	
i.	63amps TPN MCB			-	
	5 Nos.			-	
ii.	25 amps TPN MCB			-	
	4 Nos.			-	
	1ST FLOOR PANEL described as above	Set	1	1,64,800	₹ 1,64,800
	TOTAL CARRIED TO SUMMARY				₹ 41,80,400.00

BOQ FOR FIRE ALARM WORKS	
PROJECTS:- STERLING GTAKE E-MOBILITY LTD. AT FARIDABAD	
GENERAL NOTES	
1	All items of work under this Contract shall be executed strictly to fulfill the requirements laid down under "Basis of Design" in the specifications. Type of equipment, material specification, methods of installation and testing and type of control shall be in accordance with the specifications, approved shop drawings and the relevant Indian Standards, however capacity of each component and their quantities shall be such as to fulfill the above mentioned requirement.
2	The rate for each item of work included in the Schedule of Quantities shall, unless expressly stated otherwise, include cost of : <i>a. All materials, fixing materials, accessories, appliances tools, plants, equipment, transport, labour and incidentals required in preparation for and in the full and entire execution, testing, balancing, commissioning and completion of work called for in the item and as per Specifications and Drawings.</i> <i>b. Wastage on materials and labour.</i> <i>c. Loading, transporting, unloading, handling/double handling, hoisting to all levels, setting, fitting and fixing in position, protecting, disposal of debris and all other labour necessary in and for the full and entire execution and for the job in accordance with the contract documents, good practice and recognize principles.</i> <i>d. Liabilities, obligations and risks arising out of Conditions of Contract.</i> <i>e. All requirements of Specifications, whether such requirements are mentioned in the item or not. The Specifications and Drawings where available, are to be read as complimentary to and part of the Schedule of Quantities and any work called for in one shall be taken as required for all.</i> <i>f. In the event of conflict between Schedule of Quantities and other documents including the Specifications, the most stringent shall apply. The interpretation of the Architect / Engineer shall be final and binding.</i>
3	All equipments, quantities and technical data indicated in this Schedule are for the Contractor's guidance only, these are based on the documents prepared by the Services Consultant. This schedule must be read in conjunction with other documents. The Contractor shall be paid for the actual quantity of work executed by him in accordance with the approved Shop Drawings at the contract rates.
4	This Schedule shall be fully priced and the extensions and totals duly checked. The rates for all items shall be filled in INK including NIL items.
5	No alteration whatsoever is to be made to the text or quantities of this Schedule unless such alteration is authorised in writing by Services Consultant. Any such alterations, notes or additions shall, unless authorized in writing, be disregarded when tender documents are considered.
6	In the event of an error occurring in the amount of the Schedule, as a result of wrong extension of the unit rate and quantity, the unit rate quoted by the tenderer shall be regarded as firm and the extensions shall be amended on the basis of rates.
7	Any error in totaling in the amount column and in carrying forward total shall be corrected. Any error, in description or in quantity, omission of items from this Schedule shall not vitiate this Contract but shall be corrected and deemed to be variation required by the Services Consultant/Project Manager.
8	The Contractor shall procure and bring Materials/Equipment to the site only on the basis of drawings approved for construction and shop drawings and not on the basis of Schedule of Quantities which are approximate only. This also applies to the Contractor's requisition for Owner supplied materials.
9	The unit rate for all local equipment or materials (not being procured against duty benefit) in Indian Rupees shall include cost of equipment and materials including all taxes and duties and also including forwarding, freight, insurance and transport into Contractor's store at site, storage, installation, testing, balancing, commissioning and other works required.
10	The rates for item being procured against duty benefit shall be quoted under following heads. <i>a. Cost of supply of material in Indian Rupees for local item or in Foreign Currency for imported item.</i>

	<i>b. Other costs defined as that incurred for custom clearance, transportation, insurance of material upto handing over, loading / unloading, warranty during DLP, processing of paper work, installation, testing and commissioning.</i>				
	<i>c. Wherever the item is not divided under supply and other cost heads, the contractor shall quote rate as per clause 9 above in Indian Rupees.</i>				
L	INTELLIGENT ADDRESSABLE FIRE DETECTION & ALARM SYSTEM				
1	The rate of each item of work for Fire Detection and Alarm System shall also include the following :				
2	All materials, fixing materials, accessories, appliances, tools and equipment.				
3	Approved cover plates for inspection, junction and outlet boxes.				
4	1.6 mm thick outlet boxes and junction boxes.				
5	All fixing accessories such as clips, nails, screws etc.				
6	Providing and fixing approved saddles, hooks and grouting the same as required, in the case of all exposed				
7	Embedding conduits and accessories in wall, floors etc. during construction and / or cutting chases and making good as necessary in the case of all concealed conduit work.				
8	Testing and commissioning of each device, circuit as per the requirements of NFPA 72, TAC, local authorities and to be witnessed by the Construction Manager / Architect / Consultant / Client's Site representatives and or fire protection consultant.				
L	INTELLIGENT ADDRESSABLE FIRE DETECTION & ALARM SYSTEM				
1	FIRE ALARM PANELS				
	INTELLIGENT FIRE ALARM SYSTEM				
	Supply, installation, testing and commissioning of the following as per specifications :				
1.1	Microprocessor based intelligent analogue addressable, modular, expandable networkable, following loop (each loop consist of minimum 125 detector & 125 devices) fire alarm control panel with minimum 640 character LCD display, multiple access levels, event history file in non-volatile memory (EEPROM). The panel shall have a built-in integrated voice command center including amplifier . The panel shall support programmable relay for controlling lifts, staircase pressurizations fans, lift shaft & lift lobby pressurization fans, toilets exhaust fans, ventilation fans, monitoring of fire sprinkler and fire hydrant pump controlled by powerful Boolean logic equation. The panel shall have minimum five independent hazard release circuit built-in the panel. The panel shall have 240 volts AC power supply, automatic battery charger, 24 volts, sealed lead acid maintenance free batteries sufficient for 24 hours normal working and then be capable of operating the system for 4 hours during emergency condition.				
	Fire Panel shall be integrated with public addressable system.				
1.1.1	2 Loop Panel (Location : CCTV/Security Room at GF)	No.	1	2,38,550	₹ 2,38,550
				-	
1.1.2	Supplying, installation, testing & commissioning of repeater panel with 320 character/ Touch screen LCD display with inbuilt reset, acknowledge and silence switches complete as required. (at Reception/ Guard Room)	No.	0	-	₹ -
				-	
2	ALARM INITIATING DEVICES, MODULES & CONTROLS :			-	
				-	

	Supplying, installing, testing and commissioning of following items.			-	
				-	
2.1	Supplying, installation, testing & commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required.	No.	150	3,470	₹ 5,20,500
				-	
2.1	Supplying, installation, testing & commissioning of intelligent analog addressable heat detector complete with mounting base complete as required.	No.	2	3,390	₹ 6,780
				-	
2.2	Addressable control modules etc complete as required as per specifications.	No.	7	4,090	₹ 28,630
				-	
2.3	Addressable monitor modules for Sprinkler Flow Switch, Fire doors, magnetic contacts complete as required as per specifications.	No.	0	-	₹ -
				-	
2.4	Supplying, installation, testing & commissioning of fault isolator complete with base as required.	No.	10	4,940	₹ 49,400
				-	
2.5	Supplying, installation, testing & commissioning of addressable fire relay module complete as required.	No.	15	5,290	₹ 79,350
				-	
2.6	Supplying, installation, testing & commissioning of addressable manual call point complete as required.	No.	7	5,000	₹ 35,000
				-	
2.7	Supplying, installation, testing & commissioning of addressable horn cum strobe complete as required.	No.	7	5,650	₹ 39,550
				-	
2.8	Supplying, installation, testing & commissioning of fire fighter phone jack complete as required.	No.	3	4,220	₹ 12,660
				-	
3	CABLES / WIRES			-	
				-	
3.1	Supplying & laying of 4C X 1.5 sqmm fire alarm armoured cable, 600/1000V rated with annealed copper conductor having XLPE insulation, steel wire armouring & FRLS outer sheath complete as required.	RM	30	280	₹ 8,400
				-	
3.2	Supplying & laying of 2x1.5 sqmm fire alarm armoured cable, 600/1000V rated with annealed copper conductor having XLPE insulation, steel wire armouring & FRLS outer sheath complete as required.	RM	6000	220	₹ 13,20,000
				-	
4	PUBLIC ADDRESS SYSTEM			-	
4.1	Supplying, installation, testing & commissioning of Suitable zone, voice alarm controller with USB, MP3 player (including suitable zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as	No.	1	57,740	₹ 57,740
				-	
4.2	Suitable wattage amplifier, suitable rack mountable, LCD display for monitoring, 8 control inputs, 2 audio inputs, Automatic Changeover to standby Amplifier	No.	1	28,490	₹ 28,490
				-	
5	Supplying, installation, testing & commissioning of 2/4/6W metal box ceiling/wall speakers complete as required.	No.	60	1,120	₹ 67,200
				-	
6	Wiring for the following detector points with 2 core 1.5 sq.mm PVC sheathed copper conductor 1100 volts grade flexible twisted pair FRLS wire with MS 16 Gauge conduit with all necessary fixing hardware of approved make including fixing, supporting, saddling etc complete in all respect.			-	
6.1	2C X 1.5 cable	RM	2000	180	₹ 3,60,000

	TOTAL CARRIED TO SUMMARY				₹ 28,52,250

<u>BOQ FOR DG SET INCLUDING ALL ACCESSORIES (1 NOS. 320 KVA)</u>	
<u>PROJECTS:- STERLING GTAKE E-MOBILITY LTD. AT FARIDABAD</u>	
GENERAL NOTES :	
1	All items of work under this Contract shall be executed strictly to fulfill the requirements laid down in the specifications. Type of equipment, material specification, methods of installation and testing and type of control shall be in accordance with the specifications, approved shop drawings and the relevant Indian Standards, however capacity of each component and their quantities shall be such as to fulfill the above mentioned requirement.
2	The unit rate for all equipments or materials shall include cost in RUPEES for equipment and materials including all taxes and duties and also including forwarding, freight, insurance and transport into Contractor's store at site, storage, installation, testing, balancing, commissioning and other works required.
3	The rate for each item of work included in the Schedule of Quantities shall, unless expressly stated otherwise, include cost of :
	a. All materials, fixing materials, accessories, appliances tools, plants, equipment, transport, labour and incidentals required in preparation for and in the full and entire execution, testing, balancing, commissioning and completion of work called for in the item and as per Specifications and Drawings.
	b. Wastage on materials and labour.
	c. Loading, transporting, unloading, handling/double handling, hoisting to all levels, setting, fitting and fixing in position, protecting, disposal of debris and all other labour necessary in and for the full and entire execution and for the job in accordance with the contract documents, good practice and recognize principles.
	d. Liabilities, obligations and risks arising out of Conditions of Contract.
	e. All requirements of Specifications, whether such requirements are mentioned in the item or not. The Specifications and Drawings where available, are to be read as complimentary to and part of the Schedule of Quantities and any work called for in one shall be taken as required for all.
	f. In the event of conflict between Schedule of Quantities and other documents including the Specifications, the most stringent shall apply. The interpretation of the Consultant/Project Manager shall be final and binding.
4	All equipments, quantities and technical data indicated in this Schedule are for the Contractor's guidance only, these are based on the documents prepared by the Consultant. This schedule must be read in conjunction with other documents. The Contractor shall be paid for the actual quantity of work executed by him in accordance with the approved Shop Drawings at the contract rates.
5	This Schedule shall be fully priced and the extensions and totals duly checked. The rates for all items shall be filled in INK including NIL items.
6	No alteration whatsoever is to be made to the text or quantities of this Schedule unless such alteration is authorised in writing by Consultant. Any such alterations, notes or additions shall, unless authorized in writing, be disregarded when tender documents are considered.
7	In the event of an error occurring in the amount of the Schedule, as a result of wrong extension of the unit rate and quantity, the unit rate quoted by the tenderer shall be regarded as firm and the extensions shall be amended on the basis of rates.
8	Any error in totaling in the amount column and in carrying forward total shall be corrected. Any error, in description or in quantity, omission of items from this Schedule shall not vitiate this Contract but shall be corrected and deemed to be variation required by the Construction Manager/Consultant/Architect/Client.
9	Rates have been called for a number of items of works, as alternatives which, for the present do not form part of the total value of tender. However the rates for these items shall be quoted, with due care so that in the event of choice of an alternative item of work, said rate shall form part of the contract and shall not violate the contract any way.

10	The Contractor shall procure and bring Materials/Equipment to the site only on the basis of drawings approved for construction and shop drawings and not on the basis of Schedule of Quantities which are provisional only. This also applies to the Contractor's requisition for Client supplied materials. Choice of make shall be as per Construction Manager/ Consultant/ Architect/ Client.				
S. No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
M.	SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF 320 KVA DG SET INCLUDING ALL ACCESSORIES				
1	DG Sets 320KVA				
	Supply, installation, testing and commissioning of 320 kVA (PCC 2.2) Controller) prime (actual) rating radiator cooled diesel generating set along with Acoustic Enclosure, base frame, Alternator, Static Excitation System, Lube Oil System, Electronic Governor, Batteries, Battery Charger, Instrumentation, day oil fuel tank, Silencer with Bellows, Alarms, Engine Control Panel, AVM Pads, AVR Panel, Terminal Arrangements including cable termination box with all associated equipment / work as per specifications. Cable box for alternator with extension of terminals, connections. Alternator shall have class H insulation and rated for 256 KW output at 47deg. C. Engine shall not be derated upto 50 deg.C ambient. However Breaker controlling shall be done in Main LT panel cum change over panel.)				
	The D.G. Set shall be housed in weather proof enclosure & sound proof canopies fabricated out of 16 SWG CRCA sheet hot rolled MS channel or CRC cold formed pre-fabricated Steel sections, assembled at site with suitable fasteners door to be provided with EPDM gaskets. The acoustic container shall be made of modular construction for easy assembling and dismantling.				
	The wall and roof panels should be double walled CRC plain and perforated press bent sheet outside and inside respectively. The mineral wool confirming IS 8183 mattressed covered with fibre glass sheet & perforated poly carbonate epoxy coated sheet to be sandwiched through suitable framing and stiffener channels. The panels should be mounted on the structure through suitable clamps and fastness. Necessary doors and openings shall be provided as per site requirements. The sheet metal components should be hot dipped and seven tank pretreated clamps and fastness. Necessary doors and openings shall be provided as per site requirements. The sheet metal components should be hot dipped and seven tank pretreated.				
	The container shall be powder coated painted with pure polyster based powder, coated inside as well outside. The manufacture, has to guarantee the temp rise over ambient inside the container from 5 Deg C to 7 Deg C to avoid any deration.				
1.1	DG Set 320 KVA (PCCM 2.2) Radiator Cooled	Set	1	30,75,000	₹ 30,75,000
	Note : Hot Air exhaust Shall be from The TOP.			-	
	Note : Above 3 DG Should be Synch.			-	
				-	
B	EXHAUST PIPE			-	
				-	
1	Supply, installation, testing and commissioning of exhaust pipe fabricated out of 6 mm thick MS pipe with all fixing accessories and hardwares. The exhaust pipes shall be insulated with 75 mm thick mineral wool insulation of 150 kg/CUM density wrapped in chicken mesh and clad with 24 gauge aluminium sheet including all supporting structure as required.			-	
				-	
1.1	200 mm dia	RM	15	7,020	₹ 1,05,300
				-	
1.2	125 mm dia	RM	5	4,830	₹ 24,150
				-	
	Note : Structural Steel Support for Pipe at Shaft, DG room and Terrace is included in Piping rates.			-	
				-	
2	SUPPORTING STRUCTURE			-	

2.1	Supply and fixing of Galvanised MS steel structure suitable for 350mm dia 2 nos, & 200mm dia- 1no. exhaust pipe .	Kg	250	270	₹ 67,500
				-	
2.2	Supply of Earthing Insulator with necessary hardware	LOT	1	11,490	₹ 11,490
				-	
C	HSD STORAGE AND SUPPLY SYSTEM			-	
				-	
1	Supply, installation, testing and commissioning of 990 litres capacity day oil Buffer storage tank fabricated from 4 mm thick MS plates. Tank shall include 450 mm ID manhole cover, level indicator with isolation valve and flanged connection for inlet, outlet, overflow drain and probe provision for level controller. Tank shall be mounted on 2 m high structure support with access ladder (All to be painted with 2 coats of red oxide primer and paint).	No	1	79,070	₹ 79,070
				-	
2	Supply, installation, testing and commissioning of 990 litres capacity day oil tank fabricated from 4 mm thick MS plates. Tank shall include 450 mm ID manhole cover, level indicator with isolation valve and flanged connection for inlet, outlet, overflow drain and probe provision for level controller. Tank shall be mounted on 0.5 m high structure support with (All to be painted with 2 coats of red oxide primer and paint).	No	1	65,060	₹ 65,060
				-	
3	Providing & fixing M.S. class 'C' (heavy duty) pipe & fittings like tees, elbows, junctions, unions, bends, plugs etc. RCC pipe sleeves of larger diameter to the provided wherever the pipes are crossing the wall / slab and sleeves as per Consultant's requirement, including clamps hangers, nuts, bolts etc for pipe supports from wall / ceiling including cutting and making hole in wall / slab and making good the same. Including a coat of Synthetic enamel paint over two coats of primer complete as required			-	
				-	
3.1	25 mm dia	RM	40	190	₹ 7,600
				-	
3.3	Supplying and fixing 25 mm. Dia Ball valves.	Nos.	2	260	₹ 520
				-	
D	STATUTORY APPROVAL & CLEARANCE			-	
				-	
1	Obtaining clearance from Central Pollution Control Board (CPCB) & State Pollution Central Authority in respect of noise level and emission level being within permissible level and obtaining clearance from Electrical Inspectorate.	Lot	1	1,48,810	₹ 1,48,810
	TOTAL CARRIED TO SUMMARY				₹ 35,84,500