

**VOL-3
BILL OF QUANTITIES
SRFDCL**

**NAME OF WORK:-CONSTRUCTION OF PUBLIC PLAZA AND UNDERGROUND
PARKING FACILITY AT SANSKAR KENDRA - TAGORE HALL CAMPUS
CONNECTING RIVERFRONT FOR SRFDCL.**

RECAPITULATION SHEET

No.	Item of Works	Amount in Rs.
A	Civil Works + Plumbing Work	43,41,55,193.67
B	Electrical & ELV,ELV, & HVAC Work	6,03,93,331.17
C	Fire Protection Work	1,77,65,008.15
	Total Amount (Without GST)	51,23,13,532.99

PRICE BID
(VOLUME - 3 For Electrical,ELV&HVAC Works)

CLIENT:

Price Bid: Bill of Quantities (BOQ)

Name of Contractor : _____

Address :

Tender Amount : Rs.

Contractor's Quoted Rates :

..... % above Add Rs.

OR

..... % below deduct Rs.

.....

..... Only)

Ahmedabad Municipal Corporation

PLEASE NOTE : PLEASE DO NOT FILL PRICE BID IN HARD COPY.



SUMMARY

No.	Item of Works	Amount in Rs.
B	Electrical & ELV,ELV, & HVAC Work	6,03,93,331.17
		6,03,93,331.17

PROJECT- SANSKAR KENDRA PLAZA, AHMEDABAD**DOCUMENT-BOQ****Schedule of rate for R & B**

Item No.	Description of Item	Quantity	Unit	SOR Rate (Rs.)	Amount (Rs.) Without GST	Total Amount (Rs.)
Electrical & ELV Work						
1	DG SET					
1.1	<p>Supplying and erecting, commissioning and testing of Diesel Generating set confirming to IS: 4722:1968 & BS:5514 having continuous rating, 3 phase, 415 volts, 50 cycles A.C. supply comprising of a totally enclosed air/water cooled diesel engine with multi-cylinders developing suitable BHP not less than following capacity at 1500 RPM with 10% overload for one hour in 24 hours with standard accessories like fly wheel, lubricating oil cooler, "A" class governor, heavy duty fuel wheel and lubricating oil filter, oil bath air filler, lubricating oil pressure gauge, end exhaust manifold, standard set of tools with adjustable spanners, screw drivers, cylinder head to cover, joint cylinder head to exhaust, element lube oil filter, 12 / 24 volts electric starting equipment complete with standard heavy duty battery, dynamo, cut-outs, ammeter, necessary wiring, pressure gauge, starter etc and heavy duty Residential type exhaust silencer and vertical hot air duct both</p> <p>logged with asbestos rope, save oil trays, exhaust piping of required length, standard wall/floor mounted fuel with level indicator and piping and drip proof alternator, self excited, self regulated, screen protected, with excitation system, capable of delivering the rated system output at 415 volts, 3 phase, 0.8 PF, 50 Hz, 4 wire, running at 1500 RPM, conforming to IS-4722- 1968 with voltage regulation +/- 5% of rated voltage from no load to full load. Both the engine and alternator fitted on a common fabricated steel base plate with antivibration mounting engine and alternator both connected to each other by flexible flange coupling and with floor/wall mounted control panel box comprising of voltmeter ammeter, selector switches, ACB / MCCB / MCB of adequate capacity, indicator lamps duly wired with HRC fuses. The alternator & control panel shall be connected with provided suitable capacity armoured cable and complete with Acoustic enclosure (canopy) made out of 16 SWG CRCA Sheet, sound abR&B R&B SORbing material Rockwool of 64 density & 100 mm thick conforming to IS:8183 / PU Foam of 40 Density - at least 40 mm. The resin bonded rockwool covered from inside the canopy by perforated sheet with 3/4 mm holes, sound level not more than 75 dB at a distance of 1 mtr, as per PVCT norms. Erection, commissioning and satisfactory testing as per requirement with first filling of fuel, oil, etc. with guarantee / Warrantee of complete system for Two years. & with obtaining all necessary certificate from Electrical Inspector. The Capacity and Ratings of DG sets are as below.</p> <p>(V) Continuous rating of 500 KVA ,BHP not less than 600 BHP</p>	1.00	Each	40,18,180.00	40,18,180.00	4018180.00

1.2	<p>Supply, installation, testing and commissioning of approved make AMF control panel suitable for following size of 3 phase, 415 V., 50 cycles, A.C. diesel generating set complete of scope as detailed below:</p> <p>1) Power module: A pair of electromechanically interlocked contactors (for mains & generator) Overload relay for generator contactor Neutral contactor for mains and generator Power socket for connections.</p> <p>2) Control and metering module: Line voltage monitor. Generator voltage monitor Ammeter 3 items attempt start facility. Air circuit breakers/MCB/MCCB of suitable rating for auto/manual operation. Auto/manual switch. Emergency stop push buttons. Manual start push button. frequency meter. Engine hour meter. Two earthing studs.</p> <p>3) Protection module: The engine shutdown in the unlikely event of Low lube oil pressure High cylinder head temperature. V belt failure.</p> <p>4) Indicators with alarm Load on generator.</p> <p>5) Indicators Load on mains Engine fails to start . Emergency stop battery charger.</p> <p>The AMF Panel of following capacity (G) AMF Control Panel for 500 KVA 3 phase DG Set</p>	1.00	Each	4,38,931.00	4,38,931.00	438931.00
Total						4457111.00
2	LT PANEL					
	<p>Supply, installation, testing and commissioning of 3 phase 415V 4 wire Free Standing Floor mounted MV panel made out of minimum 14 SWG CRCA sheet after seventank process and painting with Epoxy powder coating including all switchgear as detailed below. The panel having PU/Neoprene rubber gasket of not less than 3mm thickness, separate detachable, gland plate M.S. base channel, hinged door with locking arrangement for equipment/switchgear. The panel shall consist of suitable rating FP/TPN Aluminium- busbar-as per SLD (at the rating of 0.8ASq.mm) supported with DMC/ SMC barriers and colour coded with Heat shrinkable sleeves. The Metering shall be provided as specified. The panel shall have Short circuit with standing capacity as given in SLD and consist of the switchgear as mentioned below. The panel shall be mounted on plinth, stand, etc. including all materials. The panel shall be got fabricated from manufacturers with CPRI Test certificate only. All the Panels shall have minimum 25% outgoing as per SLD. The earth bus shall be continuously run without any jointing/welding and its Size should be per SLD. The size of all Panel Mounting Meters shall be 96X96mm. The Panels shall be mounted on U channels including supply and fixing of the same. MCBs shall be provided for Control purposes. (All Panels shall be extendable type only). Price shall be inclusive following:</p> <p>Shifting of panels from site store to the suitable location. Installation of panel as located in electrical drawings or as per site conditions, including removing packing etc. Earthing all components, frame etc. to a common internal earth bar. Connection, testing & commissioning. Electrical contractor shall carry out the insulation test at site & all the readings shall be submitted in copy to the consultant or engineer-in-charge. Supply, installation, testing and commissioning all accessories, supporting structure, hard ware etc to complete the job. Supply, installation, testing and commissioning of necessary tools, hard ware, testing hard ware, testing equipment etc. The rates for the distribution boards apart from the Breakers and instruments shall also include the following :</p> <p>This schedule of Quantities shall be read in conjunction with the technical specification, General & Special conditions as well as all tender drawings. Supporting rigid steel framework. Cubicle type, 14 gauge CRCA sheet steel enclosed. Proper bonding to earth. Painting/lettering on Breakers and distribution boards, the location they serve, providing on each panel its circuit diagram.</p> <p>Providing cable clamps / supports within distribution boards cable alley.</p> <p>All MCB's shall be of minimum 10 KA breaking capacity.</p> <p>The breaking capacity of MCCB's are mentioned panel wise. All MCCB's shall be with thermal magnetic releases upto 250 amps and microprocesR&B R&B SOR based for 250 amps and above capacity, unless specified otherwise.</p>					

2.1	SITC OF Main LT PANEL ALSO REFER SLD ALONG WITH THIS. ALL SHOULD BE AS PER SLD & REQUIREMENT.	1.00	Each	6,53,663.00	6,53,663.00	653663.00
2.2	SITC OF External Lighting Panel SFP (Outdoor Type) ALSO REFER SLD ALONG WITH THIS. ALL SHOULD BE AS PER SLD & REQUIREMENT.	4.00	Each	1,13,420.00	4,53,680.00	453680.00
Total						1107343.00
3 JUNCTION BOXES						
3.1	Supply, installation, connection, testing and commissioning of IP-67 Water tight Junction box with terminal strip + entries & material of polypropylene, glass fiber reinforces & dimention (180x130x77) equivalent to hensel make DK1010 G	5.00	Each	2,059.75	10,298.75	10298.75
Total						10298.75
4 DISTRIBUTION BOARD						
SPN Distribution Board :						
4.1	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for (A) Single phase incoming and horizontal single phase outgoing (b) Sheet Steel double door (IP-43) (iii) 8 way	11.00	Each	1,141.00	12,551.00	12551.00
4.2	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for (A) Single phase incoming and horizontal single phase outgoing (b) Sheet Steel double door (IP-43) (iv) 12 way	1.00	Each	1,478.00	1,478.00	1478.00
TPN Distribution Board :						
4.3	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for suitable for (PPI DB) (B) three phase incoming and single phase horizontal type outgoing Per phase isolation type (PPI) (b) Sheet Steel double door (ii) 6way	5.00	Each	2,885.00	14,425.00	14425.00

4.4	Providing and erecting Sheet Steel powder coated MCB distribution board - flush / surface mounted fitted with busbar, neutral link, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3 without MCB to house appropriate nos. of MCBs.(The DBs should be used of same company of MCB to be used) suitable for suitable for (PPI DB) (B) three phase incoming and single phase horizontal type outgoing Per phase isolation type (PPI) (b) Sheet Steel double door (iii) 8way	1.00	Each	3,379.00	3,379.00	3379.00
VTPN Distribution Board :						
4.5	Providing and erecting Sheet Steel powder coated Vertical MCB distribution board (VTPN) - flush / surface mounted double door (IP54) fitted with copper insulated busbar, isolated neutral bar, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3, suitable for 63/100 AMP TPN MCCB + RCCB as incomer and three phase outgoing as per following .(The DBs should be used of same company of MCB to be used) (C)8 way outgoing	1.00	Each	8,319.00	8,319.00	8319.00
4.6	Providing and erecting Sheet Steel powder coated Vertical MCB distribution board (VTPN) - flush / surface mounted double door (IP54) fitted with copper insulated busbar, isolated neutral bar, earth bar and DIN rail, Conforms to IS 8623-1 & 3, IEC 61439-1 & 3, suitable for 63/100 AMP TPN MCCB + RCCB as incomer and three phase outgoing as per following .(The DBs should be used of same company of MCB to be used) (D)12 way outgoing	1.00	Each	10,857.00	10,857.00	10857.00
MCB 's and its Accessories						
4.7	Providing & erecting insulated socket 3P+N+E with Plug16A rating which is comprised of Four pole MCB slot and insulated socket IP40 Cat-III.	2.00	Each	1,690.00	3,380.00	3380.00
4.8	providing and erecting Miniature circuit breaker single pole 6A to 25A suitable to operate on 240 V A.C. system and having breaking capacity 10 KA to be erected in existing box. confirming to IS 8828/1996 with ISI Mark Cat.III.	155.00	Each	111.00	17,205.00	17205.00
4.9	Providing & erecting 240 V MCB double pole switch for motor & inductive load having 10 KA breaking capacity & confirms to IS : 8828 in existing box having following capacity (A) 6 to 32 Amp.	1.00	Each	297.00	297.00	297.00
4.10	Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (a) 6 to 32 Amp. (Cat.III)	1.00	Each	590.00	590.00	590.00
4.11	Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (b) 40 Amp. (Cat.III)	8.00	Each	662.00	5,296.00	5296.00
4.12	Providing & erecting 415 V MCB Four Pole for Motor & Inductive Load having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (c) 63 Amp. (cat III)	1.00	Each	730.00	730.00	730.00
4.13	Providing & erecting 415 V MCB three Pole for Motor & Inductive Load having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (a) 6 to 32 Amp. (Cat.III)	13.00	Each	582.00	7,566.00	7566.00

4.14	Providing & erecting 415 V MCB three Pole for Motor & Inductive Load having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (b)40 Amp. (Cat.III)	2.00	Each	641.00	1,282.00	1282.00
4.15	Providing & erecting 415 V MCB three Pole for Motor & Inductive Load having 10KA breaking capacity & confirms to IS :8828 in existing box having following capacity (C)63 Amp.(Cat.III)	1.00	Each	709.00	709.00	709.00
4.16	Providing and erecting Approved make RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 10 KA and suitable for operation on single phase 240 V,50Hz. having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component. for following Max. rating erected as directed (i) 25 Amps.DP (Cat. III)	28.00	Each	1,950.00	54,600.00	54600.00
4.17	Providing and erecting Approved make RCCBs conforming to IS: 12640 and having sensitivity of 30 mA and Short Circuit withstand capacity of 10 KA and suitable for operation on single phase 240 V,50Hz. having characteristic of quick action & tripping with all advance feature & do not incorporate any electronic component. for following Max. rating erected as directed (ii) 40Amps. DP (Cat. III)	1.00	Each	2,213.00	2,213.00	2213.00
4.18	Supplying & erecting approved make RCCB + MCB (Electro magnetic type only) working on residual current device having 10 KA short circuit breaking capacity and 30 mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed. [a] 6A / 10A / 16A / 20A / 25A 2 pole single phase Cat. II	1.00	Each	1,798.00	1,798.00	1798.00
4.19	Supplying & erecting approved make RCCB + MCB (Electro magnetic type only) working on residual current device having 10 KA short circuit breaking capacity and 30 mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed. [b] 32A / 40A, 2 pole Single Phase Cat. II	1.00	Each	1,925.00	1,925.00	1925.00
4.20	Supplying & erecting approved make RCCB + MCB (Electro magnetic type only) working on residual current device having 10 KA short circuit breaking capacity and 30 mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed. [e] 32A to 40 A, 4 Pole Three Phase Cat. II	1.00	Each	2,145.00	2,145.00	2145.00

4.21	Supplying & erecting approved make RCCB + MCB (Electro magnetic type only) working on residual current device having 10 KA short circuit breaking capacity and 30 mAmp. Sensitivity & 30 mili sec. tripping time conforming to IS 12640 test knob facility trip free mechanism operating for rated leakage at nominal ten volt, complete erected including all materials lugs screws etc. completed. [f] 63A, 4 pole Three Phase Cat. II	1.00	Each	2,806.00	2,806.00	2806.00
4.22	SITC of Sheet steel metal encloser for DP MCB	1.00	Each	175.00	175.00	175.00
4.23	SITC of Sheet steel metal encloser for FP MCB	2.00	Each	623.00	1,246.00	1246.00
4.24	SITC of IP 65 - outdoor type - 4Way SPN DB	1.00	Each	2,407.50	2,407.50	2407.50
4.25	SITC of Blank Plates	10.00	Each	9.00	90.00	90.00
Total						157469.50

5	LT CABLES & CABLE TERMINATION					
5.1	UNARMoured COPPER CABLES.					
5.1.1	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (E) 3 core 2.5 Sq. mm	10.00	Mtr.	136.00	1,360.00	1360.00
5.1.2	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (F) 3 core 4 Sq. mm	10.00	Mtr.	187.00	1,870.00	1870.00
5.1.3	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (K) 4 core 4 Sq. mm	10.00	Mtr.	238.00	2,380.00	2380.00
5.1.4	Supplying & erecting XLPE(IS:7098)(I)-88 ISI unarmoured copper cable 1.1 KV grade to be erected as directed of following size. (L) 4 core 6 Sq. mm	10.00	Mtr.	361.00	3,610.00	3610.00
5.2	ARMoured ALUMINIUM CABLES					
5.2.1	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (A) 4 core 16 Sq. mm	10.00	Mtr.	152.00	1,520.00	1520.00
5.2.2	Providing and erecting XLPE (IS:7098)(I)-88 ISI armoured cable multistrand / Solid Aluminium conductor for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (C) 4 core 10 Sq. mm	10.00	Mtr.	139.00	1,390.00	1390.00
5.2.3	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (I) 3 1/2 core 25 Sq. mm(16 Sq. mm 1/2 core)	10.00	Mtr.	182.00	1,820.00	1820.00
5.2.4	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (B) 3 1/2 core 35 Sq. mm(25 Sq. mm 1/2 core)	10.00	Mtr.	218.00	2,180.00	2180.00
5.2.5	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (C) 3 1/2 core 50 Sq. mm (25 Sq. mm 1/2 core)	10.00	Mtr.	282.00	2,820.00	2820.00

5.2.6	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (D) 3 1/2 core 70 Sq. mm (35 Sq. mm 1/2 core)	10.00	Mtr.	375.00	3,750.00	3750.00
5.2.7	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (E) 3 1/2 core 95 Sq. mm (50 Sq. mm 1/2 core)	420.00	Mtr.	486.00	2,04,120.00	204120.00
5.2.8	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (F) 3 1/2 core 120 Sq. mm (70 Sq. mm 1/2 core)	534.00	Mtr.	535.00	2,85,690.00	285690.00
5.2.9	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (G) 3 1/2 core 150 Sq. mm (70 Sq. mm 1/2 core)	30.00	Mtr.	724.00	21,720.00	21720.00
5.2.10	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (H) 3 1/2 core 185 Sq. mm (95 Sq. mm 1/2 core)	10.00	Mtr.	896.00	8,960.00	8960.00
5.2.11	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (I) 3 1/2 core 240 Sq. mm(120 Sq. mm 1/2 core)	90.00	Mtr.	1,157.00	1,04,130.00	104130.00
5.2.12	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor with water swellable coating which should protect against saline water & for 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe of following size of cables (J) 3 1/2 core 300 Sq. mm(120 Sq. mm 1/2 core)	5.00	Mtr.	1,394.00	6,970.00	6970.00
5.3	ARMOURED COPPER CABLES					
5.3.1	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (A) 3 core 2.5Sq. Mm	144.00	Mtr.	213.00	30,672.00	30672.00

5.3.2	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (B) 3 core 4 Sq. mm	492.00	Mtr.	285.00	1,40,220.00	140220.00
5.3.3	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (C) 3 core 6 Sq. mm	1116.00	Mtr.	392.00	4,37,472.00	437472.00
5.3.4	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable.. (A) 4 core 2.5 Sq. mm	10.00	Mtr.	269.00	2,690.00	2690.00
5.3.5	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (B) 4 core 4 Sq. mm	1540.00	Mtr.	361.00	5,55,940.00	555940.00
5.3.6	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (C) 4 core 6 Sq. mm	54.00	Mtr.	505.00	27,270.00	27270.00
5.3.7	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (A) 4 core 10 Sq. mm	594.00	Mtr.	670.00	3,97,980.00	397980.00
5.3.8	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor with water swellable coating which should protect against saline water & 1.1 KV. to be laid on wall with necessary clamps or in existing trench / pipe at road crossing or floor of following size of cable. (B) 4 core 16 Sq. mm	714.00	Mtr.	978.00	6,98,292.00	698292.00
5.4	CABLE GLANDS.					
5.4.1	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (A) 2 to 4 core 2.5/4 Sq. mm	64.00	Each	33.00	2,112.00	2112.00
5.4.2	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (B) 2 to 4 core 6 Sq. mm	20.00	Each	38.00	760.00	760.00

5.4.3	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (C) 2 to 4 core 10 Sq. mm	10.00	Each	38.00	380.00	380.00
5.4.4	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (D) 2 to 4 core 16 Sq. mm	10.00	Each	47.00	470.00	470.00
5.4.5	Providing and, fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (B) 3 & 1/2 core 35/50 Sq. mm	2.00	Each	75.00	150.00	150.00
5.4.6	Providing and, fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (C) 3 & 1/2 core 70 Sq. mm	2.00	Each	102.00	204.00	204.00
5.4.7	Providing and, fixing heavy duty flange type brass double compression type cable gland with rubber ring for PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (D) 3 & 1/2 core 95 Sq. mm	4.00	Each	130.00	520.00	520.00
5.4.8	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for FRLS PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (E) 3 & 1/2 core 120 Sq. mm	6.00	Each	139.00	834.00	834.00
5.4.9	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for FRLS PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (F) 3 & 1/2 core 150 Sq. mm	2.00	Each	189.00	378.00	378.00
5.4.10	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for FRLS PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (G) 3 & 1/2 core 185 Sq. mm	2.00	Each	236.00	472.00	472.00
5.4.11	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for FRLS PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (H) 3 & 1/2 core 240 Sq. mm	6.00	Each	245.00	1,470.00	1470.00

5.4.12	Providing and, fixing heavy duty flange type brass cable gland with rubber ring for FRLS PVC insulated armoured cable complete with out going tails, insulating tape etc for following size of cables. (I) 3 & 1/2 core 300 Sq. mm	2.00	Each	278.00	556.00	556.00
5.5	Aluminium lugs					
5.5.1	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (D) 35/50 Sq.mm.	8.00	Each	20.00	160.00	160.00
5.5.2	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (E) 70 Sq.mm.	8.00	Each	25.00	200.00	200.00
5.5.3	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (F) 95 Sq.mm.	16.00	Each	40.00	640.00	640.00
5.5.4	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (G) 120 Sq.mm.	24.00	Each	45.00	1,080.00	1080.00
5.5.5	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (H) 150 Sq.mm.	8.00	Each	61.00	488.00	488.00
5.5.6	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (I) 185 Sq.mm.	8.00	Each	80.00	640.00	640.00
5.5.7	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (J) 240 Sq.mm.	24.00	Each	85.00	2,040.00	2040.00

5.5.8	Supply, installation, testing and commissioning of Solderless crimping type Aluminium lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (K) 300 Sq.mm.	8.00	Each	98.00	784.00	784.00
5.6	Copper lugs					
5.6.1	Supply, installation, testing and commissioning of Solder less crimping type Copper lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (A) 1.5/2.5 to 6 Sq.mm	336.00	Each	8.00	2,688.00	2688.00
5.6.2	Supply, installation, testing and commissioning of Solder less crimping type Copper lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (B) 10 Sq.mm	48.00	Each	10.00	480.00	480.00
5.6.3	Supply, installation, testing and commissioning of Solder less crimping type Copper lugs conforming to IS suitable for cable of following size evenly crimped with high pressure tool & connected to switchgear terminals with brass/cadmium plated nut bolts in an approved manner. (C) 16 Sq.mm.	40.00	Each	12.00	480.00	480.00
Total						2962812.00
6	CABLE TRAY					
	Perforated type cable tray					
6.1	Providing and fixing approved make Perforated C type cable tray . Made from sheet steel. The cable tray should be single or double bended as per required and as per IS 2062/1079 and shall be coated with hot dip galvanizing as per IS 2629/4759. with max 17.5% perforation with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erection with necessary support(included) as per Specification and as per instruction of engineer in charge.. (3) 150 X 50 X 1.5 mm Thick	300.00	Rmt	420.00	1,26,000.00	126000.00
6.2	Providing and fixing approved make 'T' Junction for Perforated C type cable tray . Made from sheet steel. The Junction should be bended as per IS 2062/1079 and shall be coated with hot dip galvanizing as per IS 2629/4759. with max 17.5% perforation with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge of following size (3) 150 X 50 X 1.6 mm Thick 'T' Junction	10.00	Each	183.00	1,830.00	1830.00
6.3	Providing and fixing approved make '90° Elbow' for Perforated C type cable tray . Made from sheet steel. The Junction should be bended as per IS 2062/1079 and shall be coated with hot dip galvanizing as per IS 2629/4759. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (3)150 X 50 X 1.6 mm Thick 90° Elbow	10.00	Each	162.00	1,620.00	1620.00

6.4	Providing and fixing approved make 'Cross over Junction' for Perforated C type cable tray . Made from sheet steel. The Junction should be bended as per IS 2062/1079 and shall be coated with hot dip galvanizing as per IS 2629/4759. with max 17.5% perforation with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (3) 150 X 50 X 1.6 mm Thick Cross Junction	1.00	Each	242.00	242.00	242.00
Ladder type cable tray						
6.5	Providing and fixing approved make Ladder type cable tray . Made from M.S sheet. The cable tray should be bended as per IS 2062/1079 shall be fabricated of double bended channel section longitudinal members with single bended Channel section. Rungs of members welded to the base of the longitudinal members at 250 mm c/c spacing . as per IS and shall be coated with hot dip galvanizing as per IS 2629/4759. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (8) 150 X 100 X 1.6 mm Thick	264.00	Mtr.	518.00	1,36,752.00	136752.00
6.6	Providing and fixing approved make Ladder type cable tray . Made from M.S sheet. The cable tray should be bended as per IS 2062/1079 shall be fabricated of double bended channel section longitudinal members with single bended Channel section. Rungs of members welded to the base of the longitudinal members at 250 mm c/c spacing . as per IS and shall be coated with hot dip galvanizing as per IS 2629/4759. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (10) 300 X 100 X 2.0 mm Thick	478.00	Mtr.	551.00	2,63,378.00	263378.00
6.7	Providing and fixing approved make Ladder type cable tray. Made from M.S sheet. The cable tray should be bended as per IS 2062/1079 shall be fabricated of double bended channel section longitudinal members with single bended Channel section. Rungs of members welded to the base of the longitudinal members at 250 mm c/c spacing . as per IS and shall be coated with hot dip galvanizing as per IS 2629/4759. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (11) 400 X 100 X 2.0 mm Thick	34.00	Mtr.	619.00	21,046.00	21046.00
6.8	Providing and fixing approved make 'T' Junction for ladder type cable tray . Made from M.S sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. A 'T' Junction (8) 150 X 100 X 1.5 mm Thick 'T' Junction	10.00	Each	619.00	6,190.00	6190.00

6.9	Providing and fixing approved make 'T' Junction for ladder type cable tray . Made from M.S sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. A 'T' Junction (10) 300 X 100 X 2.0 mm Thick 'T' Junction	10.00	Each	700.00	7,000.00	7000.00
6.10	Providing and fixing approved make 'T' Junction for ladder type cable tray. Made from M.S sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. A 'T' Junction (11) 400 X 100 X 2.0 mm Thick 'T' Junction	2.00	Each	853.00	1,706.00	1706.00
6.11	Providing and fixing approved make '90° Elbow' for ladder type cable tray . Made from M.S sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (8) 150 X 100 X 1.6 mm Thick	10.00	Each	437.00	4,370.00	4370.00
6.12	Providing and fixing approved make '90° Elbow' for ladder type cable tray . Made from M.S sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (10) 300 X 100 X 2.0 mm Thick	10.00	Each	531.00	5,310.00	5310.00
6.13	Providing and fixing approved make '90° Elbow' for ladder type cable tray. Made from M.S sheet steel. The Junction should be bended as per IS 2062/1079. with coupler plate / Fish plate and GI hardware like nut - bolt and washers etc. erected on existing support as per Specification and as per instruction of engineer in charge.. (11) 400 X 100 X 2.0 mm Thick	2.00	Each	633.00	1,266.00	1266.00
6.14	Supplying , fabricating and installation of various sizes clamps for cable tray supports using available M.S. sections & rod as per drawings or instructions of engineer in charge or consultant including applying zinc chromate yellow oxide and two to three coats of required enamel paints with anchor fasteners etc.	1076.00	Kg	77.00	82,852.00	82852.00
	Total					659562.00
7	INTERNAL WIRING					

7.1	<p>Point wiring for Tissino / Modular secondary light point with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (green) both are of ISI marked 1.1 KV grade ZHFR/ HRFR PVC insulated multi strand copper wires, in below type of pipe to be erected complete with earth continuity and necessary connection with primary light with accessories erected on Metal / PVC / wooden box covered with 3 mm thick PC(Polycarbonate) / Acrylic sheet for open / concealed wiring, with necessary Lamp holder / ceiling rose / H.D.Connector as directed.</p> <p>(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	601.00	Pt.	174.30	1,04,754.30	104754.30
7.2	<p>Point wiring for Light / Bell with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade ZHFR/ HRFR PVC insulated multi strand copper wires up to 10 mtr length , in below type of pipe erected with 6A Modular type switch / bell push & accessories and earth continuity of following type, erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected, with necessary Lamp holder/ceiling rose / H.D.Connector as directed.</p> <p>(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete(cat III) NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	150.00	Pt.	505.05	75,757.50	75757.50
7.3	<p>Point wiring for FAN with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (Green) both are of .ISI marked 1.1 KV Grade ZHFR/ HRFR PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected with 6A Modular type switch and hum free EME step type electronic fan regulator mounted and accessories with earth continuity of following type erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured/metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary ceiling rose / H.D.Connector as directed.</p> <p>(f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete(cat III) NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	10.00	Pt.	701.40	7,014.00	7014.00
7.4	<p>Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade ZHFR/ HRFR PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories.</p> <p>[I] For 6A Plug and 6 a switch with 2-1.5 sq.mm Cu. Wire from nearby switchboard/mcb db board (f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete (cat III) NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	6.00	Pt.	492.45	2,954.70	2954.70

7.5	<p>Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade ZHFR/ HRFR PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories.</p> <p>[III] For 16A Plug and 16 amp switch with 2-2.5 sq.mm Cu. Wire with 2.5 sq.mm (green) earthing wire from mcb d b board. (f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete (cat III) NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	30.00	Pt.	774.90	23,247.00	23247.00
7.6	<p>Point wiring for Individual Plug with & earth wire of 1.5 sq.mm (Green) both are of ISI marked 1.1 KV grade ZHFR/ HRFR PVC insulated multi strand copper wires up to 10 mtr length, in below type of pipe erected complete with Modular type switch & 5 pin Plug erected on PVC / Metallic/Wooden box covered with appropriate front plate modules erected on / in wall / ceiling as per pipe erected with following type of accessories.</p> <p>[III] For 16A Plug and 16 amp switch with 2-4 sq.mm Cu. Wire with 2.5 sq.mm (green) earthing wire from mcb d b board. (f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete (cat III) NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	4.00	Pt.	906.15	3,624.60	3624.60
7.7	<p>Point wiring for on board Looped Plug with 6A Modular type switch & 5 pin socket erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate modules erected on / in wall / ceiling with following type accessories Cat. III NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	6.00	Pt.	267.75	1,606.50	1606.50
7.8	<p>Point wiring for Two Way Controlled Light Point with 2-1.5 sq.mm & earth wire of 1.5 sq.mm (green) both are of .ISI marked 1.1 KV grade ZHFR/ HRFR PVC insulated multi strand copper wires erected in below type of pipe with 6A Modular type switches and following type of accessories erected on PVC / Metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate modules erected on / in wall / ceiling as per pipe erected. with necessary batten/angle holder or ceiling rose or H.D.Connector as directed. (f) with medium class Rigid PVC pipe and accessories erected concealed in wall/ceiling complete(cat III) NOTE:1. For use of ZHFR/HRFR Copper wires in place of FRLS PVC wires add 5% in Item of Point wiring Item No 1-1-1 to 1-2-6 & 1-5-1 & 1-5-2.</p>	2.00	Pt.	627.90	1,255.80	1255.80

7.9	Providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (A) With medium class Rigid PVC pipe and accessories (a) 2 wire 1.5 sq. mm	13366.00	Rmt.	62.00	8,28,692.00	828692.00
7.10	Providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected concealed in /flushed on wall/ceiling, with 1.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (A) With medium class Rigid PVC pipe and accessories (b) 2 wire 2.5 sq. mm	1548.00	Rmt.	82.00	1,26,936.00	126936.00
7.11	providing and erecting Mains with 1.1 KV grade FRLS PVC insulated ISI marked stranded Copper conductor wire in following type of pipe to be erected in / on wall / ceiling with 2.5 sq. mm copper conductor FRLS PVC insulated stranded wire of green colour for earth continuity of following size (A) with medium class Rigid PVC pipe and accessories (a) 2 wire 4 sq. mm	50.00	Rmt.	111.00	5,550.00	5550.00
7.12	Providing & erecting Switch board for Computer or electric apparatus consisting of following modular type accessories mounted with PVC / Metallic concealed/open box with single mounting base frame covered with textured/metallic /white front plate,modules erected with necessary connections as directed 1 no. 6A/16A universal plug-switch combined. 3 nos. 6A Switch 3 nos. 6A 5 pin Plug For Modular Type accessories Cat. III	6.00	Pt.	1,122.00	6,732.00	6732.00
7.13	providing and erecting Mains with ISI marked, 1.5KV grade electrolyte multi stranded, annealed copper conductor with heat resistant PVC insulated conforms to IS 694, IEC - 227 erected in existing pipe of following size (Specifically for control panel, relays, power switchgears, motor starters & control wiring) with required size of copper lugs, nuts and bolts if required. (F) One wire 10.00 sq. mm	96.00	Rmt.	91.00	8,736.00	8736.00
7.14	SITC of following type of Modular Type accessories mounted with PVC / metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate , modules erected with necessary connections as per site situation directed by Engineer In charge. (5) Electronic hum Free four or more steps EME Fan regulator (cat III)	10.00	Each	395.00	3,950.00	3950.00
7.15	SITC of following type of Modular Type accessories mounted with PVC / metallic/Wooden box, single mounting base frame covered with textured / metallic/white front plate , modules erected with necessary connections as per site situation directed by Engineer In charge. (7) Blank Plate Single (cat III)	10.00	Pt.	25.00	250.00	250.00
7.16	Providing & erecting 16 gauge HGS conduit pipe (as per IS) painted black surface/concealed of following size complete to be erected on/in wall or ceiling with erected with necessary saddles, screws, bends, junction boxes etc. with following (Nominal Bore) dia of pipes, in approved manner as directed (2) 25 mm	20.00	Rmt.	107.00	2,140.00	2140.00

7.17	Providing & erecting 16 gauge HGS conduit pipe (as per IS) painted black surface/concealed of following size complete to be erected on/in wall or ceiling with erected with necessary saddles, screws, bends, junction boxes etc. with following (Nominal Bore) dia of pipes, in approved manner as directed (3) 32 mm	10.00	Rmt.	138.00	1,380.00	1380.00
7.18	Providing & erecting 16 gauge HGS conduit pipe (as per IS) painted black surface/concealed of following size complete to be erected on/in wall or ceiling with erected with necessary saddles, screws, bends, junction boxes etc. with following (Nominal Bore) dia of pipes, in approved manner as directed (4) 38/40 mm	10.00	Rmt.	226.00	2,260.00	2260.00
TOTAL						1206840.40
8 INDOOR LIGHT FIXURE						
8.1	Supply, Installation Testing and Commissioning of 36W CEILING/WALL MOUNTED TUBE LIGHT POINT (A) Tube Light with integral driver (v) 36-40 Watts, Surge-2 KV, IP-20, conventional 4 feet	500.00	Each	530.00	2,65,000.00	265000.00
8.2	Supply, Installation Testing and Commissioning of 12W CEILING SURFACE MOUNTED LIGHT POINT (A) Square/ Circular shaped Surface/Recessed Mount Downlight with provision for spring loaded mounting clips complete.IP20 (ii) 11-15 watts, Surge-2 KV Cat-II	68.00	Each	293.00	19,924.00	19924.00
8.3	Supply, Installation Testing and Commissioning of 10W WALL MOUNTED MIRROR LIGHT POINT (H) Mirror Light 9 Watts, wall mounted minimum 1 feet long Note: All lighting fixture colour to be matched with architecture finishes.	4.00	Each	309.00	1,236.00	1236.00
8.4	Supply, Installation Testing and Commissioning of Flood Light: (B) Flood Light (IP-65), Surge protection -4KV integral and ,Light must have 440VAC line supply with over-voltage protection. (vi) above 160 to 200 watts	0.00	Each	9,552.00	-	0.00
8.4.1	Type -A1 (with Basic Rate of Rs.5000/-) Rs. 5000 to Rs. 10000	8.00	Each	7,500.00	60,000.00	60000.00
8.4.2	Type -B1 (with Basic Rate of Rs.20000/-) Rs. 10000 to Rs. 25000	4.00	Each	22,000.00	88,000.00	88000.00
8.4.3	Type -C1 (with Basic Rate of Rs.40000/-) Rs. 35000 to Rs. 45000	4.00	Each	42,000.00	1,68,000.00	168000.00
8.5	Ceiling Fan: Supply, Installation, Testing and Commissioning of suitable sweep, BEE 5 Star rated, Ceiling fan with Brush Less Direct Current (BLDC) permanent ferrite magnet Motor, class of insulation: B, Rust free 3 nos.Aluminium blades, 2 nos. canopies, shackle kit with earthing provision, copper winding, Power factor not < 0.9, Service Value (CMM/W) minimum 6.85, Air delivery minimum 215 CMM, 350 RPM,230v (tolerance as per IS : 374-2019), THD < 10%, with remote unit for Speed Control and all remaining accessories including safety pin, nut bolts, washers, temperature rise = 75 degree C (Max.), suitable for 140 to 285 Voltage and rectifier circuit with surge, over current and overload protection , 50 Hz, Single phase AC Supply, earthing etc. Complete as required.[Make shall be approved by Engineer in Charge] (A) 900 mm Sweep (36")	10.00	Each	2,772.00	27,720.00	27720.00
Total						629880.00
9 EARTHING						

9.1	SITC of required size HOT deep Galvanised iron strip for earthing of H.T. , OCB/ ACB/ Transformer LT panel board, Motors etc. using proper clamp.	1028.40	Kg.	77.00	79,186.80	79186.80
9.2	SITC of required size Copper strip for earthing of H.T. OCB / ACB/ Transformer, LT panel board, Motors etc. using copper clamp.	96.50	Kg.	787.00	75,945.50	75945.50
9.3	SITC of Annealed bare Copper wire 8 to 16 SWG.	51.50	Kg.	787.00	40,530.50	40530.50
9.4	SITC of HOT deep Galvanised iron strip wire 8 to 16 SWG.	10.00	Kg.	77.00	770.00	770.00
9.5	Supplying & erecting earth pit of minimum bore dia.150mm size approved make Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free hot dipped G.I.Pipes having Outer pipe dia of 50mm having 80-200 Micron galvanising, Inner pipe dia of 25 mm having 200-250 Micron galvanising, connection terminal dia of 12mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications with chamber and heavy duty cover. (A)(approved make OEM has to submit test certificate including value of earth resistance of installation duly stamped and signed by agency and officer Incharge has to ensure the value of earthing resistane mentioned in test Certificate) & having back filling compound of (B) Inner chemical (CCM Compound)- Resistivity:- 0.2 ohm / meter testing as per IEC 62561-2017, Voltage drop:- < 1 volt at no load & dry form, Sulphar content:- <2%(C) Back fill Compound :- Earthing compound should be capable to retain moisture for long time Necessary test report must be submitted by Agency. (c) For Electrical Installation covering Transformer Neutrals, Lightning arrester Earthing, A.C.Plant & Sensitive Computer System(like Automation, SCADA) i.e independent Earthing in normal soil. Length of Pipe : 3.00 mtrs Back filling Compound :2 nos Bags of 25 Kg.	29.00	Each	8,551.00	2,47,979.00	247979.00
Total						444411.80
9	SAFETY ITEMS					
9.1	SITC of metallic vitrified danger notice board as per language suggested by engineer incharge for MEDIUM VOLTAGE installation to be erected as per IS-2551.	5.00	Each	69.00	345.00	345.00
9.2	SITC of printed instruction chart both in English and Gujarati and duly framed with front glasses, for treatment of person suffering from Electric shock with minimum 50" diagonally size.	1.00	Each	129.00	129.00	129.00
9.3	SITC of rubber matting of 3 mm thickness as per IS 15652 and IEC 61111. (A) 3 mm	10.00	Sq.mtr	763.00	7,630.00	7630.00
9.4	SITC of stand first AID box with antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-aid) adhesive tape for medicinal user, ScisR&BR&BSORs, anti-	1.00	Each	297.00	297.00	297.00
9.5	SITC of FIREbucket round bottom of9 litres capacity made out of 24 gauge G.I. sheet with extra handle at bottom duly painted white inside andRed out side with FIRE mark, filled with dry-sand and kept on existing stand provided or hung	1.00	Each	212.00	212.00	212.00
9.6	SITC of floor mounting stand for keeping four nos. of FIRE buckets comprising 1500 mm in length, 900 mmheight frame made out of 30mm X30 mm X 4 mm angle iron with cross supports for legs, welded with 4 hooks and duly	1.00	Each	933.00	933.00	933.00
9.7	Wall hook 22 to 25 cms. projection for keeping fire buckets made out of 15 mm dia. M.S rod grouted in wall to a depth of minimum 15 cms.	1.00	Each	60.00	60.00	60.00
9.8	Supplying & erecting D.C.P. type fire extinguisher for following capacity cartridge type with gun metal cap 150 gram CO2 gas cartridge, powder and brackets conforming to IS 2171 1985 and complete erected with necessary clamps made from 50 x 6 mm M S Flat with nuts and bolts grouted in wall complete. [A] For 5 Kg Capacity	1.00	Each	1,696.00	1,696.00	1696.00

9.9	<p>Providing Fire stop mortar system , with minimum 2 hours fire rating when tested in accordance with UL 1479/ASTM-E 814 standards, for horizontal openings in floors or slabs after passing service lines like cables/cable bundles, cable trays etc. The mortar shall be a light weight cementitious product and shall carry test certificate in accordance with IEC 60068-2-57:1999-11 (Environmental Testing) as per Part 2-57: Test for Vibration-Time-history method and VERTEQII for seismic zone 4. The product shall be age tested as per Dafstb and DIBT standards. The product shall carry test certificate for mold resistance rating of 0 as determined by ASTM G21-96. The product shall be age tested as per Dafstb and DIBT standards. The system shall be UL listed & classified and product shall bear the UL and FM approval logo on the packing. If none of UL test certificate comply with actual application, an EJ document prepared by a qualified personnel and based on nearest third party tested & approved systems like UL test certificates & in accordance with IFC guidelines shall be produced by manufacturer. A firestop submittal shall be produced by manufacturer , in accordance with approved passive fire protection method statement, for technical approval. Firestop installation shall be done by Accredited Firestop Speciality Contractor (HAFSC) or by certified installers gone through' FIT service and in accordance with guidelines and UL system test certificates or approved EJ document. Firestop Speciality Contractor needs to submitt work completion certificate along with installation report through documentation Software CFS DM for periodic inspection & maintenance purpose. The gaps around inaccessible or complicated openings shall be sealed with exapnding firestop foam and shall be paid under separate heads and as mentioned below.</p>	1.00	Sq.mtr	36,139.25	36,139.25	36139.25
9.10	<p>Provide expanding firestop foam, with minimum 2 hours fire rating when tested in accordance with UL 1479/ASTM-E 814, for horizontal openings in floors or slabs made of concrete/ masonry or Gypsum after passing service lines like cable trays or cables/cable bundles. The expanding foam expands seven times its volume to fill the cavity at the time of dispensing the material and shall fully cure within two minutes after dispensing. The product shall be age tested as per Dafstb and DIBT standards. The product shall provide water tightness when tested for W rating as per UL standards and shall carry test certificate for sound insualtion of 50 db when tested in accordance with ASTM E 90. The product shall carry test certificate for mold resistance rating of 0 as determined by ASTM G21-96 and shall have a VOC content of approx. 1.3 g/l as per LEED 2009. The product shall be age tested as per Dafstb and DIBT standards. The product shall be tested in accordance with IEC 60068-2-57:1999-11 (Environmental Testing) as per Part 2-57: Test for Vibration-Time-history method and VERTEQII for seismic zone 4. The system shall be UL listed & classified and product shall bear the UL and FM approval logo on the packing. The product shall be age tested as per Dafstb and DIBT standards. If none of UL test certificate comply with actual application, an EJ document prepared by a qualified personnel and based on nearest third party tested & approved systems like UL test certificates & in accordance with IFC guidelines shall be produced by manufacturer. A firestop submittal shall be produced by manufacturer , in accordance with approved passive fire protection method statement, for technical approval. Firestop installation shall be done by Accredited Firestop Speciality Contractor (HAFSC) and in accordance with guidelines and UL system test certificates or approved EJ document. Firestop Speciality Contractor needs to submitt work completion certificate along with installation report through documentation Software CFS DM for periodic inspection & maintenance purpose.</p>	1.00	Each	7,383.00	7,383.00	7383.00
	Total					54824.25
10	EXTERNAL LIGHT FIXTURE AND POLE					

10.1	<p>PLANT UPLIGHTER SITC of Plant Uplighter: System Wattage : 12W LED,Driver Integral : Constant Current,Operating Voltage : 100-300Vac,Operating Temperature : -15°C~+50°C,Body : Die-cast Aluminium Alloy,Diffuser : Clear Toughened Glass,Mounting : Spike / Die-castAluminium BracketFinish : Powder coated.Light Source : CITIZEN.CRI (Ra) : ≥80.LED Colour Temperature : 3000K.Driver Power Supply : Integral.Input Voltage : 230-240Vac.Frequency : 50-60 Hz.Power Factor : >0.95. THD : <10%.Surge Protection : 4KV.Efficiency : >80%.Beam Angle : 25°.IP66</p>	31.00	Each	2,126	65,908.79	65908.79
10.2	<p>STEP LIGHT SITC of Step Light: System Wattage : 12W LED,Driver Integral : Constant Current,Operating Voltage : 100-277Vac,Operating Temperature : -15°C~+50°C,Body : Die-Cast Aluminium,Diffuser : Clear Acrylic,Gasket : Silicone,Mounting Sleeve : ABS Plastic,Mounting : Wall - Recess,Finish : Powder coated,Light Source : NICHIA,CRI (Ra) : ≥80,LED Colour Temperature : 3000K,Driver Power Supply : Integral,Input Voltage : 230-240Vac,Frequency : 50-60 Hz,Power Factor : ≥0.90,THD : <10%,Surge Protection : 2KV / 2.5KV,Efficiency : >85%,IP65</p>	46.00	Each	3,478	1,59,965.00	159965.00
10.3	<p>POST TOP FIXTURE Supply, Installation, assembling, connection, testing & commissioning of Post Top light fixture equivalent to 45W LED module of NICHIA/Cree/Osram LED source of CCT 3000K/4000K/5700K. Constructed out of Extruded aluminium graphite grey pipe of grade-6063 (with test certificate) , mounting Ø70(PIPE DIA) x 2.5mm thickness, suitable for mounting 4 mtr high pole , having spun aluminium top cover. The mechanical resistance of the luminaire is IK08 and with ingress protection of IP65. This luminaire contains built-in LED modules. LED modules are engineered accordingly to the existing regulations of Lumen Maintenance (LM80) and Technical Memorandum (TM21), Lifespan of the luminaire > 50,000 hours at 40°C. Translucent polycarbonate opal diffuser of 1.8mm thickness with controlled downward light emission, lamp fixed position. Operating ambient temperature range is from -15°C to +50°C. Driver efficiency >85%, power factor >0.9, THD <10%, Colour Rendering Index: Ra>80 and SDCM MacAdam step 3. Input voltage of 140-280Vac at 50-60Hz frequency with Surge protection 5KV and have 360 Degree light distribution and simple electronic On-Off driver. The luminaire is BIS & CE certifications. (NOTE: Final wattage capacity, light fixture colour, light Colour Coding Temperature,Fixture sample is to be done and approved by the architect and Engineer incharge after sampling and mock-up before finalization.) GRAPHITE GREY/ANTHRACITE GREY/JET BLACK. Dimensions:-Ø527X151mm.</p>	214.00	Each	10,850	23,21,857.20	2321857.20

10.4	<p>Post top Pole</p> <p>Supply of approved make FRP Pole having following specifications: FRP Light Pole made by CNC filament winding machine using thermoset resin polyester/epoxy resin system) having minimum 62% glass content. The pole should be in one piece and tapered round in shape, having smooth finish and should be totally free from corrosion as well as non conductive & shock proof Pole should be provided with FRP Anchor Base and it should be heavy duty, or MS Material duly painted with Epoxy paint.</p> <p>Pole should be flame retardant as per IS 6746. Resin used shall be UV resistance and pigmented. A highly weather resistant polyurethane coating shall be applied to the pole after applying suitable primer system that ensures proper adhesion of the paint. Minimum coating thickness shall be 80 to 100 micron. Deflection of the pole shall not exceed more than 10% of the length of pole for the given load“ Pole should be generally made as per the dimensional data, performance criteria and some interchangeability features of poles as per standard ANSI C 136.20 latest version or ASTM D 4923/01 including cable termination box with necessary accessories . The size of pole and type of installation with foundation as per manufacturer details and site requirement are as below .</p> <p>[D]Overall length of 4 Mtr. Average Thickness: 7.5mm OD Dia A/F 89/158 mm ± 2mm approx. approx. Weight of Pole 25 kg approx. (Without Base) Anchor Base (Size 250X250 & 16mm th.)</p>	214.00	Each	9,696	20,74,944.00	2074944.00
10.5	<p>Foundation for 3-4 meter height pole</p> <p>Providing cement concrete.for foundation or for concrete filling in 1:2:4 ratio with 20 to 25 mm stone metal duly plastered with necessary curing for pole muffing or any other purpose.</p>	214.00	Each	5,077	10,86,478.00	1086478.00
Total						5709152.99
11 UPS						
11.1	<p>Supplying and erecting approved make online Un-interruptible Power Supply system comprising flat cum-boost charger with IGBT base rectifier & Inverter & sealed maintenance free SMF batteries. The charger having operating capacity for input 160-270V AC & inverter having output 230V,50 Hz Ac with 0.8 load power factor with battery, over/under voltage output with over load & short circuit protection equipment. The system housed in CRC sheet duly powder coated paint with following power backup.with MS painted batteries stand, 10% Overload capacity for momentary load.</p> <p>[I]10 KVA 3 - phase with 1Hr Backup</p>	1.00	Each	2,68,306	2,68,306.00	268306.00
Total						268306.00
12 DWC PIPE AND CHAMBER						
12.1	<p>Drilling the road without breaking the road surface (Asphalt) for laying of cable for feeding power supply by making up to following size of holes at both ends complete.</p> <p>(A) Up to 100 mm bore dia</p>	50.00	Mtr.	488	24,400.00	24400.00
12.2	<p>SITC of R.C.C. Hume pipe for cable to be laid 90 cms. below ground across the road crossing or on floor with necessary material in an approved manner and making the ground as per original.</p> <p>(E)150 mm dia</p>	50.00	Mtr.	261	13,050.00	13050.00
12.3	<p>SITC of approved make Double walled corrugated pipes (DWC) of polyethylene(conforming to IS 14930 II)with necessary connecting accessories of same material at required depth in existing trench for laying of cable. below ground / road surface for enclosing cable.</p>					

12.3.1	(A)50 mm outer dia	100.00	Mtr.	62	6,200.00	6200.00
12.3.2	(B)63 mm outer dia	10.00	Mtr.	73	730.00	730.00
12.3.3	(C)90 mm outer dia	10.00	Mtr.	95	950.00	950.00
12.3.4	(D)120 mm outer dia.	100.00	Mtr.	136	13,600.00	13600.00
12.4	Excavating hard Murrum or Metal road by chiselling for preparing pit for poles or earth plates or for laying pipes & clearing the site by removing debris & making site good.	50.00	Cu.Mtr	238	11,900.00	11900.00
12.5	Construction of ELECTRICAL & ELV chamber of size 1000x1000x1200 (1800x1800x1450)mm including excavation, backfilling, watering, soling, compaction, Reinforcement, Rungs etc. complete. It includes R.C.C work of M-30 for walls, top and bottom slabs, also having 100mm thick PCC in M-15 at bottom level. It shall be plastered with 15mm thick Plaster with neat coat in CM 1:3 on internal including water proofing and outside of chamber with 20mm thick sand faced cement plaster in two coat at all sides. Top shall be covered with Pre-Cast SFRC Solid MH cover with clear opening of 900x900mm with frame and cover bearing load min. 25t and size as Mentioned in Drawing. It shall be completed with all respect in ture line level, plumb with neat & clean surface as per coordinated infrastructure detail drawing up to the level of satisfaction.	1.00	Each	46,769	46,769.00	46769.00
12.6	Construction of ELECTRICAL & ELV chamber of size 600x600x1000 (1000x1000x1250)mm including excavation, backfilling, watering, soling, compaction, Reinforcement etc. complete. It includes R.C.C work of M-30 for walls, top and bottom slabs, also having 100mm thick PCC in M-15 at bottom level. It shall be plastered with 15mm thick Plaster with neat coat in CM 1:3 on internal including water proofing and outside of chamber with 20mm thick sand faced cement plaster in two coat at all sides. Top shall be covered with Pre-Cast SFRC Solid MH cover with clear opening of 600x600mm with frame and cover bearing load min. 25t and size as Mentioned in Drawing. It shall be completed with all respect in ture line level, plumb with neat & clean surface as per coordinated infrastructure detail drawing up to the level of satisfaction.	3.00	Each	24,596	73,788.00	73788.00
12.7	Construction of ELECTRICAL & ELV chamber of size 450x450x600 (1050x1050x850)mm including excavation, backfilling, watering, soling, compaction, Reinforcement etc. complete. It includes Bela masonry work in Lime martar of 1:1.5 of Walls, R.C.C work of M-30 for top and bottom slabs, also having 100mm thick PCC in M-15 at bottom level. It shall be plastered with 15mm thick Plaster with neat coat in CM 1:3 on internal including water proofing and outside of chamber with 20mm thick sand faced cement plaster in two coat at all sides. Top shall be covered with Pre-Cast SFRC Solid MH cover with clear opening of 450x450mm with frame and cover bearing load min. 25t and size as Mentioned in Drawing. It shall be completed with all respect in ture line level, plumb with neat & clean surface as per coordinated infrastructure detail drawing up to the level of satisfaction.	1.00	Each	9,052	9,052.20	9052.20
12.8	Construction of ELECTRICAL & ELV chamber of size 600x600x1000 (1000x1000x1250)mm including excavation, backfilling, watering, soling, compaction, Reinforcement etc. complete. It includes R.C.C work of M-30 for walls, top and bottom slabs, also having 100mm thick PCC in M-15 at bottom level. It shall be plastered with 15mm thick Plaster with neat coat in CM 1:3 on internal including water proofing and outside of chamber with 20mm thick sand faced cement plaster in two coat at all sides. Top shall be covered with Pre-Cast FRP Recessed MH cover with clear opening of 600x600mm with frame and cover bearing load min. 25t and size as Mentioned in Drawing. It shall be completed with all respect in ture line level, plumb with neat & clean surface as per coordinated infrastructure detail drawing up to the level of satisfaction.	1.00	Each	29,296	29,295.53	29295.53
	Total					229734.73

13	SERVICE WORK					
13.1	Service charges for Liasion with supply company including submission of application forms, obtaining load sanction and other all associated works to complete the job. It is lumpsum job item and may vary as per requirement.	1.00	Job	25,000.00	25,000.00	25000.00
	Total					25000.00
14	MAINTENANCE & OPERATION FOR ELECTRICAL & ELV WORK					
14.1	Provide annual maintenance service (including supply of material) and operation for 3 years after handing over of work for electrical and ELV works as per schedule including necessary materials to be given under warantee free of cost, etc. 1st Year (During DLP Period)	1.00	Year	5,46,585.79	5,46,585.79	546585.79
14.2	2nd Year (After DLP Period)	1.00	Year	4,00,766.79	4,00,766.79	400766.79
14.3	3rd Year (After DLP Period)	1.00	Year	4,00,766.79	4,00,766.79	400766.79
14.4	4th Year (After DLP Period)	1.00	Year	4,00,766.79	4,00,766.79	400766.79
14.5	5th Year (After DLP Period)	1.00	Year	4,00,766.79	4,00,766.79	400766.79
	Total					2149652.94
15	CCTV SYSTEM					
15.1	Supply, Installation, Testing and Commissioning of IP based 2MP Resolution (1920 X 1080), H.265 H.265 Dome Camera, True day / night, Up to 50m IR distance with Smart IR,Shutter Speed 1/4s to 1/32000s, Memory Capacity 1GB RAM and 512MB Flash, Focal Length 2.7mm to 13.5mm, DC-iris, 30fps @ all resolution (up to 60 fps on resolution of 1920x1080), Image Setting with time stamp, text overlay, flip & mirror, ROI, Saturation, Brightness, Contrast, Wide Dynamic, Sharpen, white balance, video rotation, AGC etc. EIS, Slow Shutter support, Defog, Video Privacy 8 zones video mask, Multiple Exposure Method, 2D/3D DNROne Touch Auto-Focus by Motorized V/F Lens, True WDR up to 120dB, 3D DNR, Triple streams, Smart codec by ROI, 2-way Audio with built-in MIC & Alarm IN/OUT, On-board Encrypted Storage, Advanced Intelligent Video Analytics with AI Object Classification with AI Object Analytics, Object Classes: Person, Bicycle, Bus, Car, Motorbike, Train, Truck, Any Class, Trigger Rules: Object Detected, Perimeter, Linger, Dwell, Abandoned / Removed, Enter, Exit, Crowd, Queue, AI Tamper Detection Blackout, Whiteout, Scene Change (FoV tamper), Object Sub-Classes: Person Clothing Colour, Vehicle Colour, ,Network Protocol TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, RTSP, ICMP, Unicast, Multicast, NTP, SMTP, WS-Security, SNMP, CIFS, FSTP, UPnP™, SIP, Built-in micro SD card slot, up to 1TB (Encrypted Storage), ONVIF Profile S, G, T & M, Cyber Security Secure Boot, Enhanced Security Mode (forces complex passwords, HTTPS and disables discovery); TLS 1.2 (256 bit cipher minimum); Security Overview Page (status and configuration); RTSP Authentication; IEEE 802.1X Client; Remote Accessible Audit logs; Role-Based Access Control, Video Encryption for local storage and streaming, CE, FCC, UL & BIS, NDAA Compliant IP67 / IK10, Operating Temperature -40°C to 60 °C, 0% ~ 95% relative humidity, 5 Years Warranty.	38	Each	₹ 20,169.50	7,66,441.00	766441.00

15.2	Supply, Installation, Testing and Commissioning IP based 2MP Resolution (1920 X 1080), H.265 H.265 Bullet Camera, True day / night, Up to 70m IR distance with Smart IR, Shutter Speed 1/4s to 1/32000s, Memory Capacity 1GB RAM and 512MB Flash, Focal Length 2.7mm to 13.5mm, DC-iris, 30fps @ all resolution (up to 60 fps on resolution of 1920x1080), Image Setting with time stamp, text overlay, flip & mirror, ROI, Saturation, Brightness, Contrast, Wide Dynamic, Sharpen, white balance, video rotation, AGC etc. EIS, Slow Shutter support, Defog, Video Privacy 8 zones video mask, Multiple Exposure Method, 2D/3D DNR One Touch Auto-Focus by Motorized V/F Lens, True WDR up to 120dB, 3D DNR, Triple streams, Smart codec by ROI, 2-way Audio with built-in MIC & Alarm IN/OUT, On-board Encrypted Storage, Advanced Intelligent Video Analytics with AI Object Classification with AI Object Analytics, Object Classes: Person, Bicycle, Bus, Car, Motorbike, Train, Truck, Any Class, Trigger Rules: Object Detected, Perimeter, Linger, Dwell, Abandoned / Removed, Enter, Exit, Crowd, Queue, AI Tamper Detection Blackout, Whiteout, Scene Change (FoV tamper), Object Sub-Classes: Person Clothing Colour, Vehicle Colour, Network Protocol TCP/IP, IPv4, IPv6, TCP, UDP, HTTP, FTP, DHCP, WS-Discovery, DNS, DDNS, RTP, TLS, RTSP, ICMP, Unicast, Multicast, NTP, SMTP, WS-Security, SNMP, CIFS, FSTP, UPnP™, SIP, Built-in micro SD card slot, up to 1TB (Encrypted Storage), ONVIF Profile S, G, T & M, Cyber Security Secure Boot, Enhanced Security Mode (forces complex passwords, HTTPS and disables discovery); TLS 1.2 (256 bit cipher minimum); Security Overview Page (status and configuration); RTSP Authentication; IEEE 802.1X Client; Remote Accessible Audit logs; Role-Based Access Control, Video Encryption for local storage and streaming, CE, FCC, UL & BIS, NDAA Compliant IP67 / IK10, Operating Temperature -40°C to 60 °C, 0% ~ 95% relative humidity, 5 Years Warranty.	31	Each	₹ 20,169.50	6,25,254.50	625254.50
15.3	Supply, Installation, Testing and Commissioning of 64 Channel NVR - 64 Channel Embedded NVR, 8 SATA Upto 144TB, H.265 / H.264 / MJPEG video compression, RAID 5, 0TB, 512Mbps / 512Mbps (Incoming / Outgoing), HDMI 2.0 X 1 (Main), Single Stream, Main or Sub Stream, 2 X RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface, SATA interfaces : 8 SATA @ 18TB each supported, RAID Arrays : RAID 0 / 1 / 5 / 10 supported, Protocol Support : TCP/IP, UDP, DHCP, NTP, RTSP, PPPoE, SMTP, FTP, UPnP, DDNS, RTP, IPV4, DNS, RTCP, ICMP, HTTP, QoS, ARP, NVR Operating System : Linux, Network Interfaces : 2 X RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface, USB interface : Total 3 USB ports: 2x USB 2.0 and 1x USB 3.0, ONVIF : ONVIF Profile S, Alarm I/O : 2IN / 1OUT, Alarm Mode : Manual, Sensor, Motion, Exception, Smart Events, etc., Alarm Action : Record, Snapshot, Call Preset, E-mail, Buzzer, Certification : CE, FCC, BIS, NDAA Compliant. iOS and Android mobile app support (25 FPS, 2 MP Resolution, 30 Days Recording at 2 Mbps Bit Rate)	2	Each	₹ 1,47,125.00	2,94,250.00	294250.00
15.4	Supply, Installation, Testing and Commissioning of 10 TB Surveillance Grade HDD	8	Each	₹ 22,470.00	1,79,760.00	179760.00
15.5	Supply, Installation, Testing and Commissioning of Intel Core i7-12700 12C Processor 25M Cache, up to 4.90 GHz / 16GB DDR5 / 512 SSD / Win 10 Pro Operating System / No Monitor / DVD RW / 3 Yrs NBD / PS 1000W / NVIDIA GeForce RTX 3070 8 GB GDDR6 Workstation Graphics Card including 3 DP - HDMI	1	Each	₹ 2,15,605.00	2,15,605.00	215605.00
15.6	Supply, Installation, Testing and Commissioning of 55"4K Android Smart TV, 4K Resolution 3840*2160, Wi-Fi, Screen Mirroring, TV Mirroring, Stereo Sound, USB to USB file Transfer, INPUT: 2* USB, RJ 45*1, 3*HDMI, 1*AV, Coaxial/optical-out*1, Android 9, 2GB/16GB	1	Each	₹ 47,775.50	47,775.50	47775.50
15.7	Supply, Installation, testing and commissioning of Back box for CCTV	38	Each	₹ 214.00	8,132.00	8132.00
15.8	Supply, Installation, testing and commissioning of Weather Proof Back box for CCTV	31	Each	₹ 267.50	8,292.50	8292.50
Total						2145510.50
16	NETWORKING SYTEM					
16.1	SITC of O. F. Cable 06F Outdoor - Armoured Unitube SM - HDPE Sheath [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	2200	Mtr.	₹ 50.00	1,10,000.00	110000.00

16.2	SITC of LIU 12 PORT Rack Mount - Loaded (LC) SM [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	15	Each	₹ 6,833.00	1,02,495.00	102495.00
16.3	SITC of PATCH CORD LC-LC SM DUPLEX LENGTH- 3m [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	32	Each	₹ 1,883.00	60,256.00	60256.00
16.4	SITC of CAT6 UTP 23AWG Solid: Per Meter [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	6095	Mtr.	₹ 43.00	2,62,085.00	262085.00
16.5	SITC of CAT6 UTP 24AWG PATCH CORD:1M,Plug 30U' Snag less [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	94	Each	₹ 155.00	14,570.00	14570.00
16.6	Supply, Installation, testing and commissioning of Cat 6 RJ 45	90	Each	₹ 21.40	1,926.00	1926.00
16.7	SITC of 24 x 10/100/1000BASE-T PoE ports 4 x Gigabit RJ45/SFP Combo ports Advanced L2 switching and security features L2+ Static Routing Optional "standard mode" or "surveillance mode" management user interface 193 W PoE budget [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	4	Each	₹ 31,680.00	1,26,720.00	126720.00
16.8	SITC of Maximum distance of up to 10 km Hot-pluggable Single-mode fiber 1000BASE-LX (IEEE 802.3z standard) Duplex LC connector MSA, RoHS-compliant [Approved by Competent Authority i.e. not Below the rank of Executive Engineer]	10	Each	₹ 4,754.00	47,540.00	47540.00
16.9	Supply, Installation, Testing and Commissioning of 8port 240W Industrial Giga L2 managed POE + 2 SFP uplink ports, temperature range of -40°C to +75°C.	8	Each	₹ 24,556.50	1,96,452.00	196452.00
16.10	Supply, Installation, Testing and Commissioning of Fiber SFP modules 1G for 20 km, LC for Single Mode.	16	Each	₹ 3,504.25	56,068.00	56068.00
16.11	Supply, Installation, Testing & Commissioning of 9U (550W X 600D)MM Wall mount closed rack with PDU, Horizontal Cable manager, self, mounting hardware and cooling fan with standard accessories. UL Certified. Racks should be manufactured by ISO9001:2015, ISO14001:2004 & OHSAS 18001 : 2007, DIN41494 and Equivalent EIA/ISO/EN /CEA Certified company and should have proper EHS Policy.	3	Each	₹ 8,065.66	24,196.98	24196.98
16.12	Supply, Installation, Testing & Commissioning of 9U (600W X 600D)MM Wall / Pole mount outdoor rack with PDU, Horizontal Cable manager, self, mounting hardware and cooling fan with standard accessories. UL Certified. Racks should be manufactured by ISO9001:2015, ISO14001:2004 & OHSAS 18001 : 2007, DIN41494 and Equivalent EIA/ISO/EN /CEA Certified company and should have proper EHS Policy.	8	Each	₹ 19,434.41	1,55,475.28	155475.28
16.13	Supply, Installation, Testing & Commissioning of 17U (600W X 600D)MM floor rack with PDU, Horizontal Cable manager, self, mounting hardware and cooling fan with standard accessories. UL Certified. Racks should be manufactured by ISO9001:2015, ISO14001:2004 & OHSAS 18001 : 2007, DIN41494 and Equivalent EIA/ISO/EN /CEA Certified company and should have proper EHS Policy.	1	Each	₹ 18,107.61	18,107.61	18107.61
16.14	Supply, Laying and Fixing of 25 mm diameter MMS PVC conduit with all required accessories.	900	Mtr.	₹ 50.29	45,261.00	45261.00
16.15	Supply, Laying and fixing of HDPE pipe 25mm	5500	Mtr.	₹ 101.00	5,55,500.00	555500.00
16.16	Supply, Laying and Fixing of 25MM Rainforce Pipe	80	Mtr.	₹ 64.20	5,136.00	5136.00
16.17	Supply, Laying and Fixing of 32MM Flexible Pipe	120	Mtr.	₹ 46.01	5,521.20	5521.20
16.18	Supply, Laying and Fixing of 50MM Flexible Pipe	50	Mtr.	₹ 87.74	4,387.00	4387.00
16.19	Supply, Laying and Fixing of 100 x 50 mm trunking	10	Mtr.	₹ 347.75	3,477.50	3477.50
	Total					1795174.57

17	FIRE ALARM SYSTEM					
17.1	Supplying, installing, testing and commissioning of Microprocessor based Networkable Analogue Addressable Fire Alarm Control Panel. The Panel shall be compliant with EN54-2, EN54-4 and approved by LPCB. The Fire Alarm Control Panel shall have inbuilt 4 loops and expandable capacity upto 8 loops. The Panel must have Full colour 800 x 480 LCD with resistive touch screen and automatic backlight dimming. The Panel must also have the capability to take Addressable Intelligent Wired and Wireless Devices on same loop. Each loop shall have a capacity of 127 analogue Addressable devices and 127 Base sounders/Base Sounder Beacons. The panel shall have an event log of minimum 10,000 events @ 1 second resolution, Filterable and Printable. The Panel shall have Three access levels. Panel shall support upto 5000 Cause & Effects entries, with upto 20,000 inputs controlling & 20,000 Controlling outputs across the network. The Panel shall have capability for Peer to Peer networking through RS485 network card. The Panel must have 4 inbuilt programmable sounder circuits, each circuit rated at 2.5A. The Panel must have inbuilt 3 programmable inputs and 5 inbuilt programmable relay outputs. The Panel shall have up to sub-addressable 512 programmable Inputs/Outputs via optional RS485 COMMS serially connected expansion cards. The Panel shall have 240 V AC power supply along with automatic Battery Charger. The Panel shall be fully expandable via common plug in loop driver boards. The user shall have a choice of using the panel with 5.25 Amp or 10.25 Amp power supply unit which is inbuilt in the FACP and should be approved to EN54-4. The Panel shall have configurable via USB port to PC or memory stick. The Panel shall have dedicated RS232 serial port for optional printer. Approved by LPCB	1	Each	₹ 2,67,500.00	2,67,500.00	267500.00
17.2	Supply, Installation, Testing and Commissioning of Analogue Addressable above false ceiling Multi- Sensor which is fully compatible with Analogue Addressable Protocol, having removable high performance chamber with Twin fire LED's allow 360 degree viewing, User selectable sensitivity modes 1% to 4.5% obs/m, Incorporate Optical and dual Heat elements, lock mechanism (sensor to base), Electronically addressed, Pulsing/non-pulsing controlled from panel. Approved by LPCB & VdS.	1	Each	₹ 3,951.51	3,951.51	3951.51
17.3	Supply, Installation, Testing and Commissioning of Analogue Addressable Below false ceiling Multi- Sensor which is fully compatible with Analogue Addressable Protocol, having removable high performance chamber with Twin fire LED's allow 360 degree viewing, User selectable sensitivity modes 1% to 4.5% obs/m, Incorporate Optical and dual Heat elements, lock mechanism (sensor to base), Electronically addressed, Pulsing/non-pulsing controlled from panel. Approved by LPCB & VdS.	8	Each	₹ 3,951.51	31,612.08	31612.08
17.4	Supplying, installing, testing and commissioning of Analogue Addressable Multi- Heat Sensor which is fully compatible with Analogue Addressable Protocol, having removable high performance chamber with Twin fire LED's allow 360 degree viewing, User selectable sensitivity modes 0 to 88 degree celsius, Incorporates Fixed Temperature and Rate Of Rise Heat elements, lock mechanism (sensor to base), Electronically addressed, Pulsing/non-pulsing controlled from panel. Approved by LPCB (EN54: Part 5)	50	Each	₹ 3,621.95	1,81,097.50	181097.50
17.5	Supply, Installation, Testing and Commissioning of Optical Beam Detector with transmitter and receiver set. The detector shall have 5 - 100 m range, Automatic compensation, Maximum coverage 1500m2, Automatic Signal strength adjustment, Emitter unit can be powered directly from zone (or loop), Features a Latching or Non- Latching fault relay, Full line continuity options, Approved by LPCB & VdS	1	Each	₹ 49,384.78	49,384.78	49384.78
17.6	Supply, Installation, Testing and Commissioning of Analogue Addressable Single Zone Module with integral Short Circuit Isolator which allow Support single independent zones Up to 6 Conventional Detectors. fully monitored for short/open circuit. Addressing via DIL switches, Approved by LPCB.	1	Each	₹ 7,243.90	7,243.90	7243.90
17.7	Supply, Installation, Testing and Commissioning of CO Detector with base - 4 wire connection	1	Each	₹ 6,239.17	6,239.17	6239.17
17.8	Supplying, installing, testing and commissioning of Analogue Addressable Manual Call Point with Integral Short Circuit Isolator, Analogue Addressable Protocol having, Bi-coloured status LED (red for alarm, amber for (short-circuit), Non-frangible element fitted as standard (conforms to EN54), pulsing/non-pulsing can selectable via panel, Electronically addressed, Approved by LPCB.	4	Each	₹ 5,103.90	20,415.60	20415.60

17.9	Supplying, installing, testing and commissioning of Intelligent Loop Powered Wall Sounder Beacon, Variable Sound Output 90 ~ 102 dB(A) (± 2 dB(A)) output at 1 metre, High Intensity LED technology, 51 User-Selectable Tones (all tones EN54-3 compatible).	10	Each	₹ 8,231.51	82,315.10	82315.10
17.10	Supplying, installing, testing and commissioning of Addressable Single Input Module. which Includes a single monitored input, flying leads for easy installation. Electronically addressed, Approved by LPCB & Vds.	20	Each	₹ 3,909.78	78,195.60	78195.60

17.11	Supplying, installing, testing and commissioning of Addressable Single Output Module . which Includes a single output, flying leads for easy installation. Electronically addressed, Approved by LPCB & Vds.	5	Each	₹ 4,280.00	21,400.00	21400.00
17.12	Supplying, installing, testing and commissioning of sensor common mounting base, Features integral Short-Circuit isolator, slim profile, Approved by LPCB	4	Each	₹ 2,140.00	8,560.00	8560.00
17.13	Supplying, installing, testing and commissioning of Fire Fighter Telephone System - comprising of Master Control Panel with 8 Zone Location Alarm Indication, 8 nodes - Each Nod shall cover 8 Station - Maximum of 64 Telephone Station - Audio, V isual Indication to alert the operators - Group or All Call facility - full Duplex Audio conversations - Master to remote, Remote to Master Calling facility - Operating V oltag: 230V Input and DC Output 24V @ 100 mAmps Max. - Flush Mounted/Wall Mounted with suitable Back Box, etc. - Operating Temperature: 0 - 49° C - Humidity: 93 + 2% RH - it compiles with BS 5839 PT 92002	1	Each	₹ 85,254.39	85,254.39	85254.39
17.14	Supplying, installing, testing and commissioning of Response Indicator - Dual LED (Metal square plate type)	1	Each	₹ 181.90	181.90	181.90
17.15	Supplying, installing, testing and commissioning of Fire Fighter Telephone Jack - used for communication with central Fire Fighter Console by using portable Handset - Stainless Steel Enclosure - Unlimited number of Telephone Jack in daisy chain topology - Flush for Wall Mounted - 4.5mm or 6.5mm RJ11 Jack	1	Each	₹ 1,564.34	1,564.34	1564.34
17.16	Supplying, installing, testing and commissioning of Fire Fighter Telephone Handset - constructed with ABS Plastic - comes with coiled cord with RJ11 - Single Handset housed in a Cabinet - Cabinet Size: 300mm H x 200mm L x 100mm D	1	Each	₹ 6,437.12	6,437.12	6437.12
17.17	Supplying, installing, testing and commissioning of 2C X1.5 SQ. MM FRLS Armoured RED Cable With Required Accessories	2000	mtr.	₹ 164.78	3,29,560.00	329560.00
Total						1180912.99

18 PUBLIC ADDRESS SYSTEM						
18.1	Supply, Installation, Testing and Commissioning of EN-54 & ISO 7240-16 Certified EVAC PA controller capable of adding 12 zones in the system and expandable upto 400 zones with 14x 4 Audio matrix with full DSP functionality. 8 audio inputs, 4 audio outputs, 4 channel output matrix. Shall support the following: single line switching or redundant group A/B switching, amplifier redundancy, 4 x 100V audio inputs and 12 speaker line outputs. Fault, warning and event conditions log. Built in message manager for 100 emergency/business calls up to 85 minutes. 18 control inputs and 18 control outputs. Impedance measurement and Pilot Tone supervision for speaker line monitoring. The network controllers shall have a possibility to be integrated using an interface module which is able to send and receive Audio to and from other Controllers. Frequency response (ref. 1 kHz) 20 Hz to 20 kHz (-0.5 dB), Signal-to-noise ratio (A-weighted): Line in to line out: 106 dB typical, THD+N < 0.05%, Crosstalk (line level) Line in to line out (0 dB gain): < 100 dB at 1 kHz, Sample rate 48 kHz, DSP processing resolution 24-bit linear A/D and D/A conversion, 48-bit processing. Graphics User Interface software should be considered for Monitoring and control of signal.	1	Each	₹ 2,58,940.00	2,58,940.00	258940.00
18.2	Supply, Installation, Testing and Commissioning of EN54 Certified EVAC Router for adding 24 zones in the system and to route 4 channels into 8 100V audio inputs to 24 loudspeaker line outputs. 2-in-6 matrix. 20 Control Inputs, 26 Control Outputs. Shall support single line switching or redundant group A/B switching, amplifier redundancy. Impedance measurement and Pilot Tone supervision for speaker line monitoring.	1	Each	₹ 1,92,600.00	1,92,600.00	192600.00
18.3	Supply, Installation, Testing and Commissioning of EN-54 & ISO 7240-16 certified 2x 500W Class D, high efficiency amplifier. 70/100V loudspeaker output voltages, galvanically separated, 4 automatic selectable audio inputs on RJ45, local input. THD ≤1%. Frequency response, ref. 1 kHz, rated load, -3 dB : 50 Hz to 25 kHz. Signal-to-noise ratio (A-weighted) > 104 dB, Output noise (A-weighted) < -62 dBu, Crosstalk , ref. 1 kHz < -85 dB. Audio input level limiter, RMS output power limiter, high temperature, DC, short circuit, mains undervoltage protection, DC supply undervoltage protection, inrush current limiter, ground fault	1	Each	₹ 2,00,625.00	2,00,625.00	200625.00
18.4	Supply, Installation, Testing and Commissioning of The Digital call station shall be an EN54-16 & ISO 7240-16 certified user interface. It shall be designed in a modern and robust chassis with a graphical display. As standard, the call station shall have a gooseneck microphone with pop shield and permanent monitoring, an illuminated LC-display and an integrated loudspeaker to be used for system sounds It shall be possible to modify the call station to suit the user's requirements by connecting up to five remote call station extensions, each with 20 free customizable functions and selection buttons. The Call station shall have a built-in numerical keypad; it shall be possible to enable or disable the keypad during configuration • Five menu/function keys (pre-programmed) – four buttons shall provide each 1 LED (two LED's shall be 2 green and 2 LED's shall be yellow). • Green led on the microphone which is active during a call • 15 function and speed dial buttons (customizable), two LEDs (green/red) per button. • Button functions shall be programmable such as: • Zone select, source select, level control, emergency on/off, message on/off, failure acknowledge/reset. • switching output trigger on/off or 0 to 10V, select scheduled events, scheduled event on/off. • CAT5 cable for data and audio connection to controller (can bus, up to 1000 meter).	1	Each	₹ 77,789.00	77,789.00	77789.00

18.5	Supply, Installation, Testing and Commissioning of 6W ceiling mount speaker with excellent speech & music reproduction Rated Power: 6Watts, Power Tapping: 6/3/1.5W - Effective frequency range(-10 dB) : 65 Hz to 20 KHz - SPL at rated power (1Khz at 1 m) 95 dB - Opening Angle 1 KHz / 4 KHz:: 180° / 49°	15	Each	₹ 1,059.30	15,889.50	15889.50
18.6	Supply, Installation, Testing and Commissioning of 15W Compact ABS cabinet speaker with weather protection of IP 65 - Selectable 8 ohm, 70V or 100V input - Max. Power: 22.5 W, Rated Power: 15 W Watts, Power Tapping: 15/7.5/3.75/1.9 W - Effective frequency range(-10 dB) : (95 Hz to 20 kHz) - SPL at rated power (1Khz) 99 dB - Self extinguishing acc. to UL94 V0 - Safety acc. to EN60065 - Chlorine resistant acc. to IEC60068-2-42 --Corrosion resistant acc. to IEC60068-2-52 -- Salt mist acc. to IEC60068-2-11	17	Each	₹ 8,399.50	1,42,791.50	142791.50
18.7	Supply, Installation, Testing & Commissioning of 42 U Rack With Required Accessories Approved Makes : Valrack /Netrack /APW	1	Each	₹ 55,993.10	55,993.10	55993.10
18.8	Supply and Laying of 2 Core X 1.5 Sq.mm FRLS Multistrand PVC insulated Copper armoured BLACK cable with all required accessories.	1150	Mtr.	₹ 107.00	1,23,050.00	123050.00
Total						1067678.10
19 Dry Deck Fountain						
19.1	SITC of Musical Spout structure made of SS 304 grade industrial grade to make different patterns to create Water Effects of adjustable height. Comet Nozzle Height 1-3 Meter Comet Nozzle. DN40 SS304 nozzles. Make: Fontana Fountains, Crystal, WET	81	PC	3,798	3,07,638.00	307638.00
19.2	SITC of Electrically operated Pressure Valve designed for extremely fast operation and minimum obstruction for a high flow rate. Pressure Valve For uniformed or designed spray Height, Material: SS304 Diameter: DN40 Make: Fontana Fountains, Crystal, WET	162	PC	2,016	3,26,592.00	326592.00
19.3	SITC of Stainless Steel Submergible high speed multi stage horizontal, pump with volute type delivery with high efficiency, chemical resistant and ultra quiet operation made of Stainless Steel. Impeller:Stainless Steel impeller, Power: DC 24V DMX Power: 200W. Make: Grundfoss, willo, xylem or Equivelent	83	SET	1,91,250	1,58,73,750.00	15873750.00
19.4	SITC and digging, refilling For Pump Rubber Case with Underwater Multi-stand Copper Core(soft) cable 2core*4sqmm IEC Standard Conductivity with conduit for under water pump from Junction box to Electrical panel , pump to electrical panel, all electrical cabling with conduit and elbo , bend , tee, junction box, and cable from water boby to control room ,main feeder near control room to electrical panel feed, electrical panel to open well submesible pump, cable from electrical panel to under water lights, etc complete as per the electric drawing of the fountain (MAKE :- FINOLEX/ HEWELS/ ANCOR/International brad with IEC standard) or Equivelent	600	M	639	3,83,400.00	383400.00

19.5	SITC and digging, refilling For Pump Rubber Case with Underwater Multi-stand Copper Core(soft) cable 2core*6sqmm IEC Standard Conductivity with conduit for under water pump from Junction box to Electrical panel , pump to electrical panel, all electrical cabling with conduit and elbo , bend , tee, junction box, and cable from water boby to control room ,main feeder near control room to electrical panel feed, electrical panel to open well submesible pump, cable from electrical panel to under water lights, etc complete as per the electric drawing of the fountain (MAKE :- FINOLEX/ HEWELS/ ANCOR/International brad with IEC standard) or Equivelent	1500	M	819	12,28,500.00	1228500.00
19.6	SITC and digging, refilling For Led light Underwater cable, Rubber Case with Multi-stand Copper Core(soft) 2core*0.75sqmm Screend IEC Standard Conductivity with conduit for LED Light from Junction box to Electrical panel , pump to electrical panel, all electrical cabling with conduit and elbo , bend , tee, junction box, and cable from water boby to control room ,main feeder near control room to electrical panel feed, electrical panel to open well submesible pump, cable from electrical panel to under water lights, etc complete as per the electric drawing of the fountain (MAKE :- FINOLEX/ HEWELS/ ANCOR/International brad with IEC standard) or Equivelent	600	M	367	2,20,320.00	220320.00
19.7	SITC of SMART digital real time based Power Supply Cabinet for cfor distributing power to all control cabinets. Body shall be powder coated sheet metal cabinet for indoor installation, wall mounted, dust proof and shall be with hinged doors with rubber gasket. Panel shall come with single phase prevention. Make: Fontana Fountains, Crystal, WET	3	SET	8,16,750	24,50,250.00	2450250.00
19.8	SITC of IP 68 protected LED Under water Doughnut shape light system in SS housing and bracket, DC24V,12W LED Warm White Lamp Stainless Steel Case Tempered Glass Cover and with T joint IP68 Grade, Epoxy filled. With Separate driver in separate box for each Lamp with Light bracket. Make: Fontana Fountains, Crystal, WET	83	SET	27,000	22,41,000.00	2241000.00
19.9	SITC of SMART digital real time based control panel for controlling pumps, lights with programmable high/low voltage cutoff and high/low current cutoff. Body shall be powder coated sheet metal cabinet for indoor installation, wall mounted, dust proof and shall be with hinged doors with rubber gasket. Panel shall come with single phase prevention, phase reversal protection (in case of 3-phase pumps). Panel shall come with programmable auto-change over to ensure duty, standby pumps utilized efficiently & lights based on real time. Cabinets with necessary second-circuits appliances. Make: Fontana Fountains, Crystal, WET	3	SET	4,30,650	12,91,950.00	1291950.00
19.10	SITC of DMX Pump Driver, DMX Server, Control Computer, LED DC Supply, Amplifier and other accessories. Make: Fontana Fountains, Crystal,WET	1	Batch	28,04,345	28,04,345.00	2804345.00
Total						2,71,27,745.00
Total Electrical & ELV Amount						5,33,89,420.52

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SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate (W/O GST)	Total Amount in Rs.
HVAC WORK					
	MECHANICAL WORKS				
1.0	VENTILATION FAN				
1.1	CABINET TYPE INLINE CENTRIFUGAL EXHAUST AIR FAN				
	Supply, Installation, testing & Commissioning of Cabinet type Centrifugal Fans / Inline Fan for Exhaust Air System complete with SISW/DIDW Forward Curved blower, fan assembly shall be AMCA certified (AMCA certification required for Air Performance & Sound) & totally enclosed, fan-cooled, provided with class F insulation, and of approved make.,				
	Fan shall be provided with TEFC Sq.cage, direct driven F' Class induction motor with minimum IP-55 protection Motor shall be suitable for 220 ± 5% volts, Single phase, 50 cycles electric supply- I OR 415+/-10% V, 50 hz, 3 phase AC. The motor (Eff1 Class-Motor must be VFD Compatible) Max. noise level shall be 56 dBA at 1.5 meter in hemispherical reverberant room condition.				
	The complete fan assembly shall be CE Certified in accordance with EN-12101-3:2015 (Vendor shall submit the certifications for below listed fans)				
	The Fan units shall be designed as per the criteria mentioned in the specifications and selected so as to operate in the best efficiency zone; the units shall be statically and dynamically balanced.				
	Necessary starter shall be in scope of HVAC Contract. Power cable will be available up to starter panel. The controller will be BMS compatible with all required open protocol and required licence softwares.				
1.1.1	2000 CFM / 30 MM ESP	2	NOS	30,000.0	60,000.0
1.0	SUB TOTAL - VENTILATION FANS				60,000.0
2.0	AIR DISTRIBUTION NETWORK				

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SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate (W/O GST)	Total Amount in Rs.
2.1	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
2.1.1	24 G	435	SQM	1,100.0	4,78,500.0
2.1.2	22 G	10	SQM	1,296.0	12,960.0
2.2	SUPPLY INSTALLATION TESTING AND COMMISSIONING OF DIFFUSERS/ GRILLES AS PER FOLLOWING SCHEDULE				
2.2.1	Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers complete as per specifications and size & shape as per site requirement and approved design.	1	SQM.	10,328.0	10,328.0
2.2.2	Supplying & fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers complete as per specifications and size & shape as per site requirement and approved design.	1.5	SQM.	7,003.0	10,504.5
2.3	Rain Protection Fresh Air Grill for Façade installation.	1	Sqm	7,500.0	7,500.0
2.4	SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF DUCT DAMPERS				
2.4.1	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc, as per specifications.	0.5	SQM	8,298.0	4,149.0
2.5	Double Layer Weather Proof Machine Canvass Connection (CHW AHU - FAN - TFAU)	2	Set	3,500.0	7,000.0
2.0	SUB TOTAL - AIR DISTRIBUTION NETWORK				5,30,941.5
3.0	CIVIL SUPPORT STRUCTURE				

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SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate (W/O GST)	Total Amount in Rs.
3.1	MS Welded Structure (Supply and erection of M.S. angle stand with synthetic epoxy paint for all outdoor units)	30	Kgs	135.0	4,050.0
3.2	Core Cut up to 150mm Dia	2	Lot	1,350.0	2,700.0
3.0	SUB TOTAL - CIVIL SUPPORT STRUCTURE				6,750.0
4.0	BASEMENT CAR PARK VENTILATION SYSTEM				
	(Duct less ventilation System with Jet Dual Speed Fans)				
	Supply, installation, testing, programming and commissioning				
4.1	Car park Ductless Ventilation / Jet fans for Basement as per attached specifications for Normal ventilation and Smoke Extraction application. The complete fan assembly with its Casing, impeller & motor (not only the motor or one of the item) shall be imported from manufacturer and certified as tested for 300 Deg C for 2 hours operation.				
	Supply, Installation, Testing and commissioning of approved makes Induced Air Centrifugal Jet fans. Fan shall be AMCA certified for Thrust & Sound performance, balanced to vibration grade of G2.5 as per AMCA 204. Fan shall be complete with GSS casing (220 GSM), MS impeller, Dual speed smoke venting Class H, special rated motor certified for 300 Deg C for 2 Hrs - 415/3P/50Hz. Fire rating as per BSEN 12101-3:2015 from TUV SUD PSB Singapore or equivalent internationally recognized fire laboratory. The Locationing of the jet fans has to be done in such a way that the Air velocity at any point on the plane of 1m from the ground level should not be less than 0.25m/s during the normal mode The CFD Analysis should be done by Original Equipment manufacturer inorder to get actual jet fan quantity and jet fan positioning. Noise level should not exceed 76/59 db(A)@ 3 meter.				
4.1.1	Centrifugal Jet Fan	28	NO.	1,30,000.0	36,40,000.0
4.2	Tube Axial fans Supply, installation testing & commissioning of Tube axial fan having following specifications :-				

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SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate (W/O GST)	Total Amount in Rs.
	<p>Tube axial fan casing constructed from heavy-gauge ms, designed to withstand 300°C for 2 hours. Casing manufactured in ms with Sheet metal thickness of minimum 3mm for fan dia upto 1000mm Dia & minimum 4mm thickness for Fan dia 1120mm & above. The casings shall be Powder Coated for weatherproof conditions. Fans shall be supplied with necessary accessories like Universal Mounting Feet which can be used for ceiling suspension & Floor Mounted.</p>				
	<p>The rotor of the tube axial fan shall be constructed from cast aluminum alloy or cast steel, with die-formed aerofoil-shaped blades designed for optimal efficiency through varying twist and width. It shall be both statically and dynamically balanced to ensure smooth operation. The impeller and fan casing will be precisely matched with tight running tolerances to maximize performance and efficiency.</p>				
	<p>Motors shall be IE-3/4 with IP55 rated for 300C-2Hours of India origin. The motor shall be an energy-efficient, totally enclosed, fan-cooled, squirrel-cage induction motor with standard frame, class 'F' insulation, and designed for 415±10% V, 50 Hz, 3-phase AC, suitable for quiet, continuous duty operation. Fan efficiency shall be ≥70%, noise ≤80 dBA @ 3 m in hemispherical reverberant room; models with lower power use, lower noise, and higher RPM are acceptable.</p>				
	<p>The fans shall be AMCA certified for air performance, noise, FEG & efficiency. The proposed model by the oem should reflect on the AMCA website & the certificate of the certified AMCA range for which authorises the OEM bear the ACMA Seal for FEG Sound & Air Performance shall be furnished. Fan shall be CE certified for EN12101-3:2015 for F300°for 2hours. OEM should provide a valid Certificate for EN 12101-3:2015 from an approved 3rd party Laboratory and the website of the certifying body should have the valid documentation available for download in public domain. Motors offered shall be of Indian origin from reputed oem's Havells/Marathon/ABB/CG and should be certified to IS 12615:2018 for efficiency and performance. Factory test shall be required of all equipments. The material shall be delivered once all TDS will be approved by Consultant & dispatch clearance by site incharge.</p>				
	<p>The Following accessories Included such as Vibration Isolators for floor mounting OR Spring isolagtors for ceiling mounted, Mouting Plate, Silicon coated round fire retardant flexible Duct connector, Fan Silencers, Bird Screen, with all fans. Note : Civil foundation shall be done by us whrerver if required, <u>in Client Scope.</u></p>				

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SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate (W/O GST)	Total Amount in Rs.
4.2.1	1200 MM Dia / 40000 CFM / 15 mm WC External Static Pressure certified as tested for 250 Deg C for 2 hours fire operation.	12	NO.	1,15,000.0	13,80,000.0
4.3	Supply, programming, installation, testing and commissioning of Integrated control and electrical hardware for operation of Jet Fans and Tube Axial Fans in Normal and CO/Fire Mode comprising of				
	Duly internally wired and tested Electrical Power Panel with feeders and starters suitable for operation of total Jet Fans and total Tube Axial Fans with necessary accessories / relays / auto-manual provision etc as per above fan quantity				
4.3.1	For Basement-II	1	SET	1,35,000.0	1,35,000.0
4.4	SITC of Control Module housed within the electrical panel comprising of Programmable logic controller / signal wiring / hard wired integration with fan relays of Power panel for control of TA fans, Jet fans and CO sensors input signal				
4.4.1	For Basement-II	1	SET	40,000.0	40,000.0
4.5	Supply, installation, testing, and commissioning of Analog type Carbon Monoxide (CO) sensors designed for accurate detection of low-level CO concentrations in enclosed parking areas. Sensor range: 0–250 PPM, with accuracy of ±5% FS (0–100 PPM) and ±10% FS (100–250 PPM). Warm-up time: ≤30 seconds to reach 90% of final value. Sensors shall be installed at mid-height on columns for optimal air sampling. Sensors shall interface with the master control panel to initiate ventilation fan operation based on CO levels, enabling energy-efficient operation of the ventilation system.	18	NO.	9,000.0	1,62,000.0
Note: Fire status signal shall be provided from FA System - Elv Scope					
4.6	MS Powder coated Louvered Grill for basement Ventilation Exhaust out let at elevation level on Ground floor. Louvers shall be 2.5" in with and shall have 3" clearance between each louvers. The scope covers the fabricated support structure and site spray painting of the louvers and support fabricated structure.	25	SQM	7,500.0	1,87,500.0

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SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate (W/O GST)	Total Amount in Rs.
4.7	Simulation package to execute CFD Analysis (Takeoff price) for one basement	1	LOT	1,50,000.0	1,50,000.0
4.8	SITC of Power & Control cabling between Jet Fans and Panel / Signal & Control Cabling between CO Sensors and Jet Fan Panel PLC/Power Cabling, Cable tray and Control cabling between TAF Panel and TA Fans. The same shall be BMS communicable. (Suitable Core and Cable size to be considered)				
4.8.1	For Basement-II	1	LOT	75,000.0	75,000.0
4.0	Sub Total - BASEMENT CAR PARK VENTILATION SYSTEM				57,69,500.0

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HVAC WORK - AMC CHARGES

SR. NO.	DESCRIPTION	Qty	UNIT	Unit Rate in Rs.	Total Amount in Rs.
	ANNUAL MAINTENANCE CONTRACT (Note : From Each RA Bill, 5% retaination money to be deduct during O&M Period)				
	Comprehensive AMC for SITC of Ventilation System				
1.0	It includes all preventive maintainance , break down maintainance with all spares - repair or replacement of the defactive part or parts , this includes all cosumable if any applicable.				
1.1	1st year (From the date of Completion of DLP)	12	Months	1,59,179.8	1,59,179.8
1.2	2nd year (From the date of Completion of DLP)	12	Months	1,59,179.8	1,59,179.8
1.3	3rd year (From the date of Completion of DLP)	12	Months	1,59,179.8	1,59,179.8
1.4	4th year (From the date of Completion of DLP)	12	Months	1,59,179.8	1,59,179.8
	Sub Total - Comprehensive Maintenance				6,36,719.2
	Total HVAC Amount				70,03,910.7