

**BILL OF QTY. CUM PRICE SCHEDULE**

**Annexure-I**

**PKG-A**

Name of Project  
Name of Work

:400KV GIS SUBSTATION AT UDANGUDI  
:CIVIL WORKS OF SWITCHYARD

ST. No.	Description of Item	Quantity	Unit	Unit Rate (Rs)	Amount (Rs)
1	Earth work in <b>excavation</b> in all types of soil which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.				
(a)	Depth from ground level but not exceeding 2 m	7500	cum	76.45	573375.00
(b)	Depth exceeding 2 m but not exceeding 4 m	7500	cum	88.57	664275.00
(c)	Depth exceeding 4 m but not exceeding 6 m	4000	cum	113.74	454960.00
A1	Extra over ST No. 1 for dewatering of ground water by well point method as per IS 9759.	7500	cum	312.31	2342325.00
2	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from excavated soil available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical				
(a)	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	14000	cum	108.14	1514016.00
3	Extra over ST No. 1 & 2 for carriage of excavated earth/selected materials	5000	cum	14.92	74600.00
4	Supplying and filling sand upto any depth under floors, around foundations, plinths etc.in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80%relative density as per IS-2720 (Part-XIV) including spreading, watering,ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	100	cum	810.82	81082.00
5	Providing and laying <b>rubble soling</b> with specified sizes of approved quality hard rock rubble or hand broken hard metal of sizes ranging from 100mm to 230mm, at all position and depths below or above finished ground floor level, below foundations, below flooring, and for providing hard standing etc in one or more layers each of approximately 230mm thickness, hand packing, filling in interstices with quarry spalls, grits and providing a layer of 50mm. thickness (consolidated) of moorum/equivalent locally available approved material over each layer of soling including watering, thoroughly compacting each layer with 10 tonne power roller with minimum 6 passes (or with vibrating plate of approved capacity at places not approachable by power roller) all as per the direction of the Engineer and as per specification.	100	cum	1514.96	151496.00
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work				
(a)	<b>M15</b> (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	1160	cum	4943.8	5734808.00
(b)	<b>M10</b> (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	100	cum	4522.52	452252.00
(c)	<b>M7.5</b> (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	390	cum	4148.54	1617930.60
7	Extra for providing and mixing <b>water proofing material</b> of zydex,sika or similar make in cement concrete work @ 1kg per	300	kg	41.73	12519.00
8	Providing and laying in position machine batched and machine mixed design mix <b>M-25 grade</b> cement concrete for <b>reinforced cement concrete</b> work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. (Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is				
(a)	All works <b>upto plinth level</b>	5000	cum	5887.43	29437150.00
(b)	All works <b>above plinth</b> level upto floor V level	10	cum	6691.00	66910.00
9	Extra for Providing <b>M-30 grade</b> concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum) .Excess/less cement used as per design mix is payable/recoverable separately).	4900	cum	55.26	270774.00
10	Add for using extra cement in the items of design mix over and above the specified cement content therein.	2450	quintal	533.82	1307859.00
11	Providing and laying <b>M20 reinforced cement concrete</b> in ground floor grade slab excluding the cost of centring,shuttering, finishing and reinforcement.	40	cum	5570.21	222808.40
12	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture phenolic base (krishna onchem or equivalent) in concrete as per detail specification of manufacturer etc. all complete. Payment shall be made per cum of	500	cum	216.00	108000.00
13	Centering and shuttering including strutting, propping, etc., and removal of form at all heights for.				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	2300	sqm	184.42	424166.00
(b)	Columns, Pillars, Piers, Posts and Struts .	8000	sqm	454.41	3635280.00
(c)	RCC walls at all levels (any thickness).	3300	sqm	369.24	1218492.00
(d)	Lintels, beams, plinth beams, girders, bressumers and cantilevers	100	sqm	333.23	33323.00
14	<b>Steel reinforcement</b> -Corrosion resistant steel				
(a)	<b>Including supply (Corrosion resistant steel of approved make with steel of grade Fe-500 confirming to IS:1786)</b> , straightning, cutting and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	10000	kg	69.09	690900.00
(a)	<b>Excluding supply</b> but including unloading, storing, watch & ward, testing, straightning, cutting, bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete. (Reinforcement steel shall be supplied by BHEL free of	309000	kg	11.11	3432990.00
15	<b>12mm cement plaster internal</b> of the walls in the mix:				
(a)	1:4 (1cement :4coarse sand)	300	sqm	164.71	49413.00
16	<b>Structural steelwork</b> welded in built up sections like edge protection angles,insert plates with lugs & framed work including providing, cutting, hoisting, fixing in position/ embedding in concrete and applying a priming coat of approved steel primer all complete.	35000	kg	72.00	2520000.00
17	<b>Steelwork</b> welded in built up sections/framed work including providing ,cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc., as required.				
(a)	In gratings, rails ,mono rails, frames, ladders, stair railings, gates (including pipe), crane girder/rails (beams,channels etc), and similar works.	8500	kg	93.65	796025.00
18	Providing & fixing in position design mix M30 precast cement concrete trench covers or perforated covers wherever necessary at various elevations in all kinds of work including moulding, formwork, mixing, laying out, compacting and curing, storing, transportation, erection without damage, setting in position with cement and sand mortar, grouting etc all as per specs, drawings and directions of Engr-in-Charge but excluding the cost of reinforcement, inserts, edge angles, etc. (Note:- Cement content considered in M-30 is @ 340 kg/cum) .Excess/less cement used as per design mix is payable/recoverable separately).	90	cum	10392.15	935293.56

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**Annexure-I**

**PKG-A**

**Name of Project**  
**Name of Work**

**:400KV GIS SUBSTATION AT UDANGUDI**  
**:CIVIL WORKS OF SWITCHYARD**

ST. No.	Description of Item	Quantity	Unit	Unit Rate (Rs)	Amount (Rs)
19	Providing and fixing at or near ground level factory made kerb stone of M-20 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1 : 2 (1 Cement : 2 coarse sand) including making joints with or without grooves ( thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for	20	cum	5179.43	103588.60
20	Providing and fixing (all dia & length) foundation bolts in position with help of proper templates ( template to be arranged by contractor free of cost),nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge.Template shall	15000	kg	87.19	1307850.00
21	Extra over item above for providing galvanised bolts ( Mass of zinc coating =910 gms /sqm),nuts & washer	15000	kg	11.01	165150.00
22	Fixing (all dia & length) galvanised foundation bolts in position with help of proper templates( template to be arranged by contractor free of cost) including nuts and washers all complete as per specs, drawings & directions of Engr-in-Charge .Template shall not be measured for payment purpose. (Foundation bolts shall be supplied by BHEL.)	10000	kg	9.20	92000.00
23	Preparation and consolidation of subgrade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5cm depth, dressing to camber and consolidating with road roller including making good the undulations etc., and re-rolling the sub grade and disposal of surplus earth lead upto 50m.	600	sqm	90.10	54060.00
24	Supplying and stacking of graded stone aggregate at site of size range				
(a)	90 mm to 45 mm size stone aggregate	200	cum	1278.69	255738.00
(b)	63 mm to 45 mm size stone aggregate	100	cum	1386.53	138653.00
(c)	53mm to 22.4 mm	10	cum	1475.02	14750.20
(d)	Stone screening 13.2 mm nominal size (type A)	10	cum	1439.66	14396.60
(e)	11.2 mm nominal size (Type B)	10	cum	1398.19	13981.90
(f)	Moorum	10	cum	563.01	5630.10
25	Laying spreading and compacting stone aggregate of specified sizes to WBM specifications including spreading in uniform thickness, hand picking, rolling with 3 wheeled road/vibratory roller 8-10tonne in stages to proper grade and camber, applying and brooming requisite type of screening/binding material to fill up interstices of coarse aggregate water and compacting to the required density (payment for stone aggregate, screenings, kankar, moorum and red bajri etc., to be made separately)	150	cum	449.10	67365.00
26	Providing and laying cement concrete of grade M30 using 20 mm nominal size stone aggregate with approved admixture (Bipolar Concrete Penetrating Corrosion Inhibiting Admixture (CPCIA). CPCIA shall be free from nitrites, chromates and non-migrating types and having 7-8 years of usage history in Indian conditions conforming to ASTM-G-109 with an efficiency factor of minimum 25 times. Dosage as per manufacturer specifications shall be compatible with the type of cement used.),provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing for work etc. all complete. (Excluding the cost of reinforcement and dowel bar) (Note:- Cement content considered in M-30 is @ 340 kg/cum)	150	cum	7136.62	1070493.00
27	Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete.	60	cum	3030.14	181808.40
28	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as perspecification, drawing and as directed by Engineer.	800	Kg	67.72	54176.00
29	Providing and laying non-pressure NP2 class (light duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	150mm dia. RCC pipe	10	RM	315.70	3157.00
(b)	250mm dia. RCC pipe	20	RM	429.98	8599.60
(c)	300mm dia. RCC pipe	20	RM	459.59	9191.80
(d)	450mm dia. RCC pipe	20	RM	639.06	12781.20
30	Providing and laying non-pressure NP3 class ( Medium Duty) RCC pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	150mm dia. RCC pipe	10	RM	533.37	5333.70
(b)	250mm dia. RCC pipe	10	RM	922.28	9222.80
(c)	300mm dia. RCC pipe	10	RM	830.05	8300.50
(d)	450mm dia. RCC pipe	10	RM	1660.11	16601.10
(e)	600mm dia. RCC pipe	10	RM	2159.04	21590.40
31	Providing and placing in position suitable PVC water stops conforming to IS 12200 or equivalent for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete. Serrated with central bulb(225mm wide,8-11mm thick)	940	meter	216.54	203547.60
32	Antiweed treatment in switchyard area including rolling/compacted to the lines & grades using half ton roller/surface vibrator with suitable water sprinkling arrangement ,surface dressing of earth to a extent of ± 200 mm & micro levelling etc as per Technical specification.	11600	sqm	18.98	220181.55
33	Supplying and spreading 100 mm thk stone aggregate of size 20 mm in switchyard as per drawing and specification all complete but excluding micro leveling, dressing & antiweed treatment .	50	sqm	166.20	8310.00
34	Providing and fixing PVC coated G.I chain link fence of 8 gauge ( excluding PVC coating) with mesh size 75x75 mm and of height 2400 mm above the toe wall including stretching and attaching by clips at 0.5m interval (or as per drg.) to 3 strands of HTSS wire of 12 guage interwoven in chain link wire mesh and attaching to the fence post with nuts and bolts all complete as per approved drawing and direction of Engineer-in-Charge. (The rate quoted against this item shall be inclusive of all items like chain link fence, clips, HTSS wire, nuts and bolts etc. all complete as per drawing /technical specification).	570	Sqm	623.92	355634.40
35	Supplying, fabricating and fixing angle galvanised iron posts,struts, flats of required size including bottom of post to be split and bent and top to be made Y shaped by cutting, bending and welding including drilling holes etc. all complete.( Cost of excavation, shuttering, concrete work, toe wall to be paid separately). Rate of zinc coating shall not be less than 910 g/m2	5000	Kg	83.01	415050.00
36	Supplying and fixing 600 mm high G.I. barbed wire fencing on top of switchyard fencing post ( Y shaped angle) consisting of 8 rows of barbed wire of 6 guage with anticlimbing arrangement including GI clips,anchors,accessoriesetc.allcomplete. (Structural post shall be separately )	570	RM	1179.34	672223.80

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**:CIVIL WORKS OF SWITCHYARD**

ST. No.	Description of Item	Quantity	Unit	Unit Rate (Rs)	Amount (Rs)
37	Supply, fabrication and installing in position and testing hot dipped galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, tubular sections (conforming to IS:1161), square welded mesh with 4 mm dia GI wire fabric & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, 20 mm wide x 80mm dia flat MS roller at the bottom, paintings, fixing to post	1	MT	106068.55	106068.55
38	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	140	cum	2012.80	281792.00
39	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent. (Cost of all material and cleaning of the	1	cum	42802.01	42802.01
40	Supplying and installation of <b>Dura board HD100</b> or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete. - 20mm wide joints	25	RM	836.26	20906.50
41	Providing and filling in position hot applied bitumen sealing compound (GradeA) of specified thick confirming to IS1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	200	RM	10.80	2160.00
42	Providing and laying polythene sheet of 125 microns between the PCC and RCC slab all complete as per direction of Engineer in charge.	600	sqm	14.76	8856.00
43	Providing & Laying 80 mm thick M20 Grade precast interlocking concrete pavers of approved colour and pattern as per specification and recommendation of manufacturer.	300	sqm	516.12	154836.00
44	Providing & laying 100 mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	300	sqm	238.66	71598.00
45	Providing and applying two coats of bitumen grade 85/25 as per IS 702 ( @ 1.7kg/sqm) with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation	4000	sqm	111.87	447480.00
<b>TOTAL</b>					<b>65468887</b>

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: CIVIL WORKS OF GIS & CRB BUILDING

ST.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Amount (Rs)
1	Earth work in <b>excavation</b> in all types of soil which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 500 m, spreading/levelling of disposed materials etc all complete for following depths below ground level.				
(a)	Depth from ground level but not exceeding 2 m	17000	cum	76.45	1299650.00
(b)	Depth exceeding 2 m but not exceeding 4 m	14000	cum	88.57	1239980.00
(c)	Depth exceeding 4 m but not exceeding 6 m	11000	cum	113.74	1251140.00
A1	Extra over ST No. 1 for dewatering of ground water by well point method as per IS 9759.	14000	cum	312.31	4372340.00
2	<b>Back filling</b> upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from excavated soil available within a lead upto 500m and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.				
(a)	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	28000	cum	108.14	3027920.00
3	Extra over ST No. 1 & 2 for carriage of excavated earth/selected materials for every 1 km or part thereof beyond an initial lead of 500m .	10000	cum	14.92	149200.00
4	Supplying and filling <b>sand</b> upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	780	cum	810.82	632439.60
5	Providing and laying <b>rubble soling</b> with specified sizes of approved quality hard rock rubble or hand broken hard metal of sizes ranging from 100mm to 230mm, at all position and depths below or above finished ground floor level, below foundations, below flooring, and for providing hard standing etc in one or more layers each of approximately 230mm thickness, hand packing, filling in interstices with quarry spalls, grits and providing a layer of 50mm. thickness (consolidated) of moorum/equivalent locally available approved material over each layer of soling including watering, thoroughly compacting each layer with 10 tonne power roller with minimum 6 passes (or with vibrating plate of approved capacity at places not approachable by power roller) all as per the direction of the Engineer and as per specification.	1000	cum	1514.96	1514960.00
6	<b>Anti termite chemical treatment</b> of soil with Chloropyrifos emulsifiable concentrates (1%) conforming to IS :8944 all complete. (Plinth area of building at ground floor only shall be measured for payment)	3120	sqm	87.63	273405.60
7	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				
(a)	<b>M15</b> (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	40	cum	4948.80	197952.00
(b)	<b>M10</b> (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	240	cum	4522.52	1085404.80
(c)	<b>M7.5</b> (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size)	180	cum	4148.54	746737.20
8	Providing and laying <b>Screed concrete</b> conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof at any level or thickness, drains etc complete.				
	<b>1:2:4</b> (1 cement : 2 coarse sand : 4 graded stone aggregate 6/12.5mm nominal size)	160	cum	6432.75	1029240.00
9	Providing <b>Damp Proof Course</b> 50mm thick 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.	180	sqm	444.70	80046.00
10	Providing and laying in position machine batched and machine mixed design mix <b>M-25 grade</b> cement concrete for <b>reinforced cement concrete</b> work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. (Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).				
(a)	All works <b>upto plinth level</b>	2500	cum	5887.43	14718575.00
(b)	All works <b>above plinth level</b> upto floor V level	2000	cum	6691.00	13382000.00
11	Extra for providing <b>M-30 grade</b> concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum) Excess/less cement used as per design mix is payable/recoverable separately).	4100	cum	55.26	226566.00
12	Add for using <b>extra cement</b> in the items of design mix over and above the specified cement content therein.	2040	quintal	533.82	1088992.80
13	Providing and laying <b>M20 reinforced cement concrete</b> in ground floor grade slab excluding the cost of centring, shuttering, finishing and reinforcement.	60	cum	5570.21	334212.60
14	Extra for providing and mixing <b>water proofing material</b> of zydex,sika or similar make in cement concrete work @ 1kg per 50kg of cement.	440	Kg	41.73	18361.20
15	Centering and <b>shuttering</b> including strutting, propping, etc., and removal of form at all heights for.				
(a)	Foundations, footings, bases of columns, etc., for mass concrete.	2850	sqm	184.42	525597.00
(b)	Columns, Pillars, Piers, Abutments, Posts and Struts	4170	sqm	454.41	1894889.70
(c)	RCC walls at all levels (any thickness).	1730	sqm	369.24	638785.20
(d)	Suspended floors, roofs, landings, balconies and access platform	3950	sqm	413.62	1633799.00
(e)	Lintels, beams, plinth beams, girders, bressumers and cantilevers	5150	sqm	333.23	1716134.50
(f)	Stairs (excluding landing)	80	sqm	391.50	31320.00
(g)	<b>Extra for additional height</b> in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a support height of 5 m, for every additional height of 1.5 metre or part thereof -- Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	9850	sqm	169.97	1674204.50
16	<b>Steel reinforcement</b> -Corrosion resistant steel				
(a)	<b>Including supply</b> (Corrosion resistant steel of approved make with steel of grade Fe-500 conforming to IS:1786) , straightning, cutting and bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete.	10000	kg	69.09	690900.00
(b)	<b>Excluding supply</b> but including unloading, storing, watch & ward, testing, straightning, cutting, bending, binding (i/c cost of binding wire), placing in position, etc., all labour & material, complete. (Reinforcement steel shall be supplied by BHEL free of cost)	300000	kg	11.11	3333000.00
17	<b>Brickwork with common burnt clay bricks</b> of class designation 75 in foundation and plinth in:				
(a)	Cement mortar 1:6 (1 cement : 6 coarse sand)	110	cum	4697.59	516734.90
18	<b>Brick work with flyash bricks</b> of class designation 75 in in foundation and plinth in				
(a)	Cement mortar 1:6 (1 cement : 6 coarse sand)	30	cum	4154.58	124637.40
19	<b>Brickwork with common burnt clay bricks</b> of class designation 75 in superstructure above plinth level upto V level in all shapes and sizes:				
(a)	Cement mortar 1:6 (1 cement : 6 coarse sand)	1740	cum	5355.29	9318204.60

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20	<b>Brick work</b> with clay <b>flyash bricks</b> of class designation 75 in superstructure above plinth level up to floor five level in :				
(a)	Cement mortar 1:6 (1 cement : 6 coarse sand)	50	cum	4812.28	240614.00
21	<b>Half brick masonry</b> with common burnt clay bricks of class designation 75 in <b>foundation and plinth</b> in:				
(a)	Cement mortar 1:4 (1 cement : 4 coarse sand)	10	sqm	562.70	5627.00
22	<b>Half brick masonry</b> with common burnt clay bricks of class designation 75 in superstructure <b>above plinth</b> upto floor V level.				
(a)	Cement mortar 1:4 (1 cement : 4 coarse sand)	90	sqm	653.36	58802.40
23	<b>20 mm cement external (on rough side) plaster</b> in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 8 mm thick cement plaster 1:3 (1 cement :3 fine sand) with water proofing compound.	5450	sqm	259.23	1412803.50
24	<b>18mm cement plaster internal (on rough side)</b> of the walls in the mix:				
(a)	1:4 (1cement :4coarse sand)	2060	sqm	190.40	392224.00
25	<b>12mm cement plaster internal (on even side)</b> of the walls in the mix:				
(a)	1:4 (1cement :4coarse sand)	7230	sqm	164.71	1190853.30
26	<b>6mm cement plaster</b> to ceiling of mix.				
(a)	1:3 (1 cement : 3 fine sand)	4160	sqm	138..39	575702.40
27	Providing and applying <b>plaster of paris</b> putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.	10500	sqm	117.08	1229340.00
28	Plaster <b>drip course /groove</b> in plastered surface or moulding to RCC projections:	1670	metre	34.15	57030.50
29	Applying <b>priming coat</b>				
(a)	With ready mixed <b>red oxide zinc chromate primer</b> of approved brand and manufacture on steel galvanised iron/ steel works	440	sqm	28.47	12526.80
30	<b>Structural steelwork</b> welded in built up sections like edge protection angles,insert plates with lugs & framed work including providing, cutting, hoisting, fixing in position/ embedding in concrete and applying a priming coat of approved steel primer all complete.	3700	kg	72.00	266400.00
31	<b>Steelwork</b> welded in built up sections/framed work including providing ,cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc., as required.				
(a)	In covering of floors/trenches inside the buildings with chequered plates, stringers, treads, landings etc of staircases involving use of chequered plates, wherever required, all complete.	6900	kg	80.80	557520.00
(b)	In gratings, rails ,mono rails, frames, ladders, stair railings, gates (including pipe), crane girder/rails (beams,channels etc), and similar works.	16900	kg	93.65	1582685.00
32	Providing and fixing <b>stainless steel ( Grade 304) railing</b> made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, ( for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	500	kg	418.68	209340.00
33	Supply, fabrication and fixing of <b>GI pipe hand railing</b> of 32 mm/40 mm/50 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	2	MT	112308.32	224616.64
34	Providing and laying 50 mm thick <b>granolithic</b> heavy duty cement concrete in <b>flooring</b> with non-metallic hardener pigmented topping 12mm thick in flooring. Under layer of 38mm thick cement concrete mix 1:1:2 (1 cement: 1 sand : 2 stone aggregates 12.5mm well graded) and top layer of 12mm thick non-metallic concrete of mix 1:2 (1cement hardner mix with approved quality non-metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips)	2810	sqm	566.83	1592792.30
35	Providing and laying 25 mm thick <b>granolithic</b> heavy duty cement concrete mix 1:1:2 (1 cement: 1 sand : 2 stone aggregates ) flooring in <b>skirting</b> and dado complete as per specification.	60	sqm	266.63	15997.80
36	Providing and applying two coats of <b>Epoxy coating</b> with suitable pigments of approved shade as per specification and direction of Engineer. The epoxy paint shall be a two pack material and shall be resistant to water, oil, splash, spillage & acidic environment. The epoxy paint coating shall be of minimum 150 micron thickness over epoxy primer.	2290	sqm	405.54	928686.60
37	Providing and laying heavy duty anti skid <b>ceramic tiles</b> of matt finish of size 300x300mm from reputed / approved manufacturer including under bed of cement mortar 1:3 (1 cement: 3 sand) including pointing in white cement mixed with pigment of matching shade complete. for following.				
	7mm thick tiles In flooring	50	sqm	931.35	46567.50
	7mm thick tiles In skirting and dado upto specific height	120	sqm	1559.71	187165.20
38	Providing & fixing 25mm thick <b>Acid / Alkali resistant (Chemical resistant) tiles</b> conforming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick ( to be laid in layers of 6mm each). The tiles shall be applied with 13 mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable. Total thickness of flooring shall be 50 mm.	280	sqm	3306.81	925906.80
39	Providing and laying 60mm thick factory made cement concrete <b>interlocking paver block</b> of M -30 grade made by block making machine with strong vibratory compaction, of approved s:ze, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.	20	sqm	549.38	10987.60
40	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 from reputed / approved manufacturer, complete including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following				
(a)	7.5 mm thick tiles In flooring	700	sqm	977.96	684572.00
(b)	7.5 mm thick tiles in skirting and dado upto specific height	50	sqm	1028.31	51415.50
41	Providing and fixing 18-20mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.				
(a)	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble	30	sqm	1949.45	58483.50
(a)	Granite of any colour and shade	220	sqm	3010.10	662222.00

Name of Project  
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: 400KV GIS SUBSTATION AT UDANGUDI  
: CIVIL WORKS OF GIS & CRB BUILDING

ST.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Amount (Rs)
42	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.				
(a)	On steel work	550	sqm	116.30	63965.00
(b)	On concrete work	110	sqm	118.46	13030.60
43	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length ( hold fast lugs or dash fastener shall be paid for separately).				
(a)	Second class teak wood	3	cum	92743.05	278229.15
44	Providing and fixing 35mm thick shutters of Pre-laminated Medium density Fiber Board (MDF Exterior grade) with one side decorative lamination and other side balancing lamination conforming to IS: 12823 Grade I Type II, of approved design, and edges sealed with water resistant paint and lipped with 2nd class teakwood beading of 35mmx12mm allround the shutter, including fixing with angle cleat, grip strip, cadmium plated steel screws, including fixing of bright finished steel piano hinges 100x63x4 mm etc. complete as per architectural drawing and direction of Engineer-in- Charge (Cost of lipping will be paid for separately).	25	sqm	1545.08	38627.05
45	Extra for providing lipping with 2nd class teak wood battens on all edges of flush door shutters (over all area of door shutter to be measured).	25	sqm	309.54	7738.50
46	Providing and fixing pressed <b>galvanised steel door frames</b> conforming to IS:4351 manufactured from commercial mild steel sheet of 1.25mm thickness, factory galvanised including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50X25mm, or base ties of 1.25mm pressed mild steel welded or rigidly fixed together by mechanical means, adjustable lugs with spit end tail to each jamb including steel butt hinges 2.5mm thick with mortar guards, lock strike plate and shock absorbers as specified and applying a coat of approved steel primer shop and final painting etc all complete.	55	RM	444.70	24458.50
47	Providing and fixing <b>galvanised double plate steel door shutters</b> with 45mm thk flush design shutter, comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres, reinforced with 18 gauge continuous pressed channel on sides, top and bottom, including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.	35	sqm	4530.33	158561.55
48	Providing and fixing <b>aluminium work for doors, windows, ventilators and partitions</b> with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : <b>Powder coated aluminium</b> (minimum thickness of powder coating 50 micron)				
(a)	For fixed portion	380	kg	334.55	127129.00
(b)	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)	3375	kg	391.32	1320705.00
49	Providing and fixing 12 mm thick <b>prelaminated particle board</b> flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, with decorative lamination on both sides, in panelling fixed in aluminium doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of Engineer-in-charge.	25	sqm	755.05	18876.25
50	Providing and fixing <b>glazing</b> in aluminium door, window, ventilator shutters and partitions, etc., with PVC/neoprene gasket, etc., complete as per the architectural drawings and directions of Engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item).				
(a)	With float glass panes of 6 mm thickness.	60	sqm	967.10	58026.00
(b)	With float glass panes of 4 mm thickness.	210	sqm	664.04	139448.40
51	Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post offcelsignal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.	15	sqm	7494.62	112419.30
52	Providing & fixing <b>double glazed hermetically sealed</b> glazing in aluminium windows, ventilators and partitions, etc, with 6mm thick toughened safety glass conforming to IS: 2553 on both sides having 12mm air gap including providing EPDM gasket, perforated aluminium spacers, dessicants, sealants (both primary & secondary sealant) etc. as per specifications, drawings & direction of Engineer-in-charge complete.	75	sqm	2741.55	205616.25
53	Providing and fixing factory made <b>P.V.C. door frame</b> of size 50x47 mm with a wall thickness of 5 mm, made out of extruded 5 mm rigid PVC foam sheet, mitred at corners and joined with 2 nos of 150 mm long bracket of 15x15 mm M.S. square tube, the vertical door frame profiles to be reinforced with 19x19 mm M.S. square tube of 19 gauge, EPDM rubber gasket weather seal to be provided through out the frame. The door frame to be fixed to the wall using M.S. screws of 65/100 mm size, complete as per manufacturer's specification and direction of Engineer-in-charge.	25	metre	438.75	10968.75
54	Providing and fixing factory made panel <b>PVC door shutter</b> consisting of frame made out of M.S. tubes for styles, top & bottom rails. M. S. frame covered with 5 mm thick heat moulded PVC 'C' channel of size 30 mm thickness forming styles, top & bottom rail and 115 mm wide lock rail on both side of the panel. panelling of 5 mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles & rails with 7 mm (5 mm + 2 mm) thick x 15 mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5 mm thick PVC strp of 20 mm width is to be stuck on the interior side of the 'C' channel using PVC solvent adhesive etc. complete as per direction of Engineer-in-charge, manufacturer's specification & drawing.				
(a)	30 mm thick plain PVC door shutters	15	sqm	2763.09	41446.35
(b)	30 mm thick pre laminated PVC door shutters	15	sqm	3227.69	48415.35
55	Providing and fixing double action <b>hydraulic floor spring</b> of approved brand and manufacture conforming to IS : 6315, having brand logoembossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot andsingle piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.	15	each	1777.08	26656.20
56	Providing and fixing <b>M.S. grills</b> of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat and two coats of approved shade synthetic enamel paint all complete.	3000	kg	97.51	292530.00
57	Providing and fixing aluminium <b>sliding door bolts</b> anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with nuts and screws etc., complete.				
(a)	300 X 16mm	20	each	184.35	3687.00
(b)	250 X 16 mm	20	each	164.68	3293.60
58	Providing and fixing aluminium <b>tower bolts</b> anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with necessary screws etc., complete.				
(a)	300 X 10mm	15	each	85.64	1284.60
(b)	250 X 10 mm	20	each	75.81	1516.20
(c)	200 X 10 mm	25	each	65.63	1640.75
(d)	150 X 10 mm	85	each	55.22	4693.70

# BILL OF QTY. CUM PRICE SCHEDULE

## Annexure-II

PKG-B

Name of Project  
Name of Work

: 400KV GIS SUBSTATION AT UDANGUDI  
: CIVIL WORKS OF GIS & CRB BUILDING

ST.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Amount (Rs)
59	Providing and fixing aluminium <b>handles</b> anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with necessary screws etc., complete. 125mm	30	each	43.86	1315.80
60	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	12	each	336.80	4041.60
61	Supplying and fixing <b>rolling shutters</b> of approved make, made of required size MS laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with mechanical arrangement for operation complete including the cost of providing and fixing necessary 27.5cm long wire springs grade no. 2 and MS top cover of required thickness for rolling shutters. 80X1.20 mm MS laths with 1.2mm thick top cover.	55	sqm	1618.05	88992.75
62	Providing and fixing <b>ball bearing</b> for rolling shutters.	5	each	329.39	1646.95
63	Extra for providing <b>mechanical device</b> chain and crank operating rolling shutters Operation.	4	each	724.05	2896.20
64	<b>White washing</b> with lime to give an even shade - New work (3 or more coats)	200	sqm	16.97	3394.00
65	Distempering with 1st quality <b>acrylic distemper</b> (ready mixed) of approved manufacturer, of required shade and colour complete, as per manufacturer's specification. Two or more coats on new work	8500	sqm	51.95	441575.00
66	Applying one coat of water thinnable cement <b>primer</b> of approved brand and manufacture on wall surface :	8500	sqm	36.27	308295.00
67	Wall painting with <b>acrylic emulsion paint</b> of approved brand and manufacture to give an even shade : Two or more coats on new work.	1800	sqm	80.15	144270.00
68	Finishing walls with <b>Acrylic Smooth exterior paint</b> of required shade. New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	5700	sqm	80.15	456855.00
69	Finishing walls with <b>water proofing cement paint</b> of required shade : New work : Two or more coats applied @3.84kg/10sqm.	400	sqm	56.21	22484.00
70	Painting with <b>synthetic enamel paint</b> of approved brand and manufacture to give an even shade: Two or more coats on new work.	400	sqm	74.91	29964.00
71	Painting with chlorinated rubber based <b>acid proof paint</b> of approved brand and manufacture of required colour to give an even shade. Two or more coats on new work.	430	sqm	243.33	104631.90
72	Providing and fixing white vitreous china <b>indian type water closet</b> squatting pan (size 580 x 440 mm with integral type foot rests) as per IS 2556 with 100 mm sand cast iron P or S trap, 10 litre low level P.V.C. flushing cistern ( of approved make ) with fittings, C.I./R.S. brackets, 32 mm CP flush pipe with fittings and clamps, overflow arrangement with specials and mosquito proof coupling of approved municipal design including painting of fittings and brackets, cutting and making good the walls and floors wherever required.	2	each	3192.12	6384.24
73	Providing and fixing white vitreous china pedestal type <b>water closet</b> ( European type W.C. Pan) as per IS 2556 with double plastic seat cover as per IS:2548, C.P. Brass hinges and rubber buffers, 10 litre low level PVC flushing cistern with fittings & CI/RS brackets 40mm dia CP flush pipe , overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design compete including painting of fittings and brackets, cutting and making good the walls and floors wherever required :	3	each	4173.15	12519.45
74	Providing and fixing white flat back glazed vitreous china <b>urinals</b> of size 440x265x355 mm with <b>photo voltaic control flushing</b> system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	4	each	8735.49	34941.96
75	Providing and fixing <b>granite stone slab</b> with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.	2	each	2719.15	5438.30
76	Supply and fixing glazed vitreous china <b>Wash Basin with photo voltaic control</b> fittings conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.	5	each	4367.74	21838.70
77	Providing and fixing stainless steel <b>kitchen sink</b> of size 750x510x200mm conforming to IS: 13983 including all fittings etc. all complete.	1	each	2197.71	2197.71
78	Providing and fixing C.I. <b>floor traps</b> size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	5	each	26.06	130.30
79	Providing and fixing <b>Emergency eye wash cum shower</b> including all fittings etc. all complete as per IS 10592 and specification.	1	each	6500.00	6500.00
80	Providing and fixing 600 x 450 x6 mm bevelled edge <b>mirror</b> of float glass ( of approved quality ) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. Brass screws and washers complete.	2	each	755.54	1511.08
81	Providing and fixing 1200 x 900 x6 mm bevelled edge <b>mirror</b> of float glass ( of approved quality ) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. Brass screws and washers complete.	3	each	1511.08	4533.24
82	Providing and fixing 600 x 120 x 5 mm <b>glass shelf</b> with edges rounded off supported on anodised aluminium angle frame with C.P. Brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc. complete.	5	each	522.99	2614.95
83	Providing and fixing 25 mm diameter stainless steel <b>towel rails</b> (600mm X 25mm) all complete.	5	each	1497.25	7486.25
84	Providing and fixing stainless steel / C.P. <b>liquid soap holder</b> cum dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	5	each	1497.25	7486.25
85	Providing and fixing toilet CP brass <b>paper holder</b> with suitable cover cum cutter fitted with CP screws etc. all complete.	5	each	351.69	1758.45
86	Providing and fixing <b>GI pipes</b> class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive paint, complete for <b>internal works</b> with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:				
(a)	15 mm dia nominal bore.	30	RM	170.61	5118.30
(b)	20 mm dia nominal bore.	20	RM	203.86	4077.20
(c)	25 mm dia nominal bore.	20	RM	225.31	4506.20
(d)	32 mm dia nominal bore.	20	RM	278.65	5573.00

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ST.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Amount (Rs)
87	Providing and fixing <b>GI pipes</b> class B complete for <b>external work</b> with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:				
(a)	15 mm dia nominal bore.	10	RM	146.22	1462.20
(b)	20 mm dia nominal bore.	10	RM	168.32	1683.20
(c)	32 mm dia nominal bore.	15	RM	221.03	3315.45
(d)	40 mm dia nominal bore.	25	RM	267.43	6685.75
88	Making connection of <b>GI distribution branch</b> with GI main of following sizes by providing and fixing tee, including cutting and threading the pipe etc., complete.				
	25 to 40mm nominal bore.	2	each	385.62	771.24
89	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck <b>bib cocks</b> including sockets, union, nuts etc all complete				
(a)	15mm nominal bore	5	each	248.49	1242.45
(b)	20mm nominal bore	2	each	267.97	535.94
90	Providing and fixing in position heavy duty brass <b>stop cock</b> of approved quality including all specials etc all complete				
(a)	15mm nominal bore	5	each	248.49	1242.45
(b)	20mm nominal bore	2	each	268.57	537.14
91	Providing and fixing gun metal <b>gate valve</b> with CI wheel of approved quality (screwed end)				
(a)	25mm nominal bore	2	each	365.84	731.68
(b)	40mm nominal bore	2	each	499.15	998.30
92	Providing and fixing <b>ball valve</b> (brass) of approved quality , high or low pressure with plastic floats complete.				
	25mm nominal bore	2	each	290.94	581.88
93	Supply, laying and jointing <b>HDPE pipes</b> including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.				
(a)	110 mm diameter.	75	RM	699.21	52440.75
(b)	160 mm diameter.	30	RM	1331.30	39939.00
94	Supply, laying and jointing <b>UPVC pipes</b> of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.				
(a)	110 mm diameter.	25	RM	423.26	10581.50
(b)	160 mm diameter.	25	RM	717.86	17946.50
(c)	200 mm diameter.	25	RM	904.31	22607.75
95	Providing and fixing square-mouth S.W. <b>Gully trap</b> grade 'A' complete with C.I. Grating brick masonry chamber with bricks of class designation 75 and water tight C.I. Cover with frame of 300 x 300 mm size ( inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as standard design.:				
	100 x 100 mm size P or S type	3	each	1462.79	4388.37
96	Providing and fixing in position pre-cast R.C.C. <b>manhole cover</b> and frame of required shape and approved quality				
	H D - 20 - Circular shape 560 mm internal diameter	5	each	1120.84	5604.20
97	Providing and placing on terrace ( at all floor levels ) polyethylene <b>water storage tank</b> of approved brand and manufacture with cover and suitable locking arrangement, float valve, stop cock etc. The tank should be ISI marked .	2000	per litre capacity	6.29	12580.00
98	Providing and applying PU based <b>water proofing treatment</b> with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation by applying polymerized mortar, 40g/sqm polysicrim cloth /fabric for edges, joints & vulnerable points etc all complete as per specifications and directions of engineer in charge.	3320	sqm	717.86	2383295.20
99	Providing and laying <b>wearing course</b> consisting of 40mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	3320	sqm	467.07	1550672.40
100	Providing and laying cement concrete <b>chequered flooring tiles</b> of 22 mm thickness and size 250x250 mm / 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway and entire equipment area with fine joints including sealing of joints (silicon/elastomeric sealant) etc all complete. (Water proofing paid elsewhere)	395	sqm	909.91	359414.45
101	Providing and fixing <b>HDPE down take pipes</b> conforming to IS:4984 as per specification of following diameters.				
(a)	110 mm diameter.	30	RM	576.15	17284.50
(b)	160 mm diameter.	715	RM	1109.42	793235.30
102	Providing and fixing permanently colour coated <b>aluminium false ceiling</b> of approved colour and Luxalon 84 C or approved equivalent with corrosion resistant aluminium alloy panels of minimum thickness 0.5mm including 50mm thick mineral wool insulation (density 48 kg/cum) conforming to IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc all complete.	350	sqm	2620.65	917227.50
103	Providing and Fixing 12mm thick <b>Gypsum board plain/perforated false ceiling</b> tiles(600x600mm) of India Gypsum or equivalent make in plan or elevation with aluminium grid, metal suspension system, anchor fastener adjustable hangers etc. including one coat of primer, two or more coats of acrylic emulsion paint of approved colour to give an even shade with smooth finish all complete.as per architectural design and detail.metal suspension system as per ASTM C-635 shall be hot dipped M.S.galvanized (grade 180 as per is :277) nominal size of T-section shall be 24 x 38 mm or 24 x 25 mm cross runners. 24mm wide exposed flange surface shall be permanently color coated.suspension system shall be as per manufacturer's specification supported over movment platform.The work to be complete as per specifications, drawings and direction of engineer. (Structural steel works for platform for movement is separately payable under relevant items of BOQ)	350	sqm	1248.35	436922.50
104	Providing and installing 50 mm thick <b>under deck insulation</b> with resin bonded mineral wool conforming to IS 8183 backed with 0.05 mm thick aluminium foil and 24 G x 25 mm wire mesh netting including fixing with 100x50x6 slotted mild steel plate welded to MS plate insert embedded at the soffit of the slab at suitable distance and 14G steel wire drawn through slots and fixing to wire netting etc. all complete.	700	sqm	395.72	277004.00
105	Constructing brick masonry <b>manhole</b> with 75 class designation bricks in cement mortar 1:4 (1 cement: 4 coarse sand) RCC top slab with 1:2:4 mix(1 cement:2 coarse sand: 4 graded stone aggregate 20mm nominal size) foundation concrete 1:4:8 (1 cement: 4 coarse sand: 8 graded stone aggregate 40mm nominal size) inside plastering 12mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 mix(1 cement:2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design.				



**BILL OF QTY. CUM PRICE SCHEDULE**

**Annexure-II**

PKG-B

**Name of Project  
Name of Work**

**: 400KV GIS SUBSTATION AT UDANGUDI  
: CIVIL WORKS OF GIS & CRB BUILDING**

ST.No.	Description of Item	Quantity	Unit	Unit Rate (Rs.)	Amount (Rs)
(a)	Inside size 90X80cm and 45cm deep including CI cover with frame (light duty) 455X610mm internal dimensions total weight of cover and frame to be not less than 38kg (weight of cover 23kg and weight of frame 15kg) - With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	3	each	7825.39	23476.17
106	Extra for depth for manholes With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2	RM	5400.92	10801.84
107	Making <b>soak pit</b> 2.5m diameter 3m deep with 45X45cm dry brick honeycomb shaft with bricks of class designation 75 and SW drain pipe 100mm diameter, 1.8m long complete as per standard design and specification.	1	each	19882.96	19882.96
108	Providing and laying non-pressure <b>NP2 class</b> (light duty) <b>RCC pipes</b> with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	150mm dia. RCC pipe	5	RM	315.32	1576.60
(b)	250mm dia. RCC pipe	5	RM	429.98	2149.90
(c)	300mm dia. RCC pipe	5	RM	459.59	2297.95
(d)	450mm dia. RCC pipe	5	RM	639.06	3195.30
109	Providing and laying non-pressure <b>NP3 class</b> (Medium duty) <b>RCC pipes</b> with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement: 2 fine sand) including testing of joints etc., complete.				
(a)	250mm dia. RCC pipe	5	RM	922.28	4611.40
(b)	300mm dia. RCC pipe	5	RM	1106.73	5533.65
(c)	450mm dia. RCC pipe	5	RM	1660.11	8300.55
110	Providing and placing in position suitable <b>PVC water stops</b> conforming to IS 12200 for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete. Serrated with central bulb(225mm wide,8-11mm thick)	500	meter	216.54	108270.00
111	Supplying and installation of <b>Dura board HD100</b> or its equivalent as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete. - 12mm wide joints	110	sqm	523.94	57633.40
112	Providing and applying <b>polysulphide based sealant</b> conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves: 12mm X 25mm	110	RM	394.36	43379.60
113	Providing and fixing <b>sheet covering over expansion joints</b> with iron screws as per design to match the colour/ shade of wall treatment.				
a)	Aluminium fluted strips 3.15mm thick	110	kg	309.77	34074.70
114	Providing and applying <b>two coats of bitumen</b> grade 85/25 as per IS 702 ( @ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	4000	sqm	111.87	447480.00
115	Supply and placing in position <b>chicken wire mesh</b> at the junction of RCC/Structural steel and brickworks including cutting, bending, fixing etc. complete.	1550	sqm	123.99	192184.50
116	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete, including painting of fittings and brackets, cutting and making good the wall wherever required : size 600 x 400 x 200 mm	5	each	2824.72	14123.60
117	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture phenolic base (krishna conchem or equivalent) in concrete as per detail specification of manufacturer etc. all complete. Payment shall be made per cum of concrete.	400	cum	216.00	86400.00
118	<b>Demolishing R.C.C.</b> work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	15	cum	1454.55	21818.25
119	<b>Demolishing brick work</b> in cement mortar manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.	15	cum	842.75	12641.25
120	Providing and laying <b>dry stone pitching</b> of 230 mm thickness for slope protection in cement mortar 1:6 including hammer dressing, raking of joints, pointing, preparing the bedding surface and voids filling with stone aggregate etc. all complete.	50	SQM	491.76	24588.00
121	Design, preperation of drawing, submission and approval from concerned authorities and construction of <b>rain water harvesting system</b> including all earthwork, brickwork, misc steel, gravel & boulder filling, drilling bore hole, supplying and installation of MS pipe etc. all complete as required for completion of work. Only concrete and reinforcement shall be paid seperately under respective items.	1	LS	244474.20	244474.20
	<b>TOTAL</b>				<b>94985978</b>

**Annexure-III**

**Name of Project - 2X660 MW UDANGUDI SUPERCRITICAL TPS,STAGE-I**

**Rev-00**

**BILL OF QUANTITIES FOR UNDER GROUND EARTHING AND ELECTRODES**

S. No	Description	Unit	Quantity	Unit Rate INR (excluding GST)	Total INR (excluding GST)
1	Unloading, storing and laying of 40 mm dia MS Rods at a depth of 600 mm measured from the top of Finished Ground Level and bringing out risers just below gravel level near the equipment foundations as per requirement including following works: - excavation of trenches - laying of MS rod - welding of rods - backfilling of soil for bringing out pig tail risers of 40 dia MS rod (approximately 1000) for equipments. Risers shall be raised from the earthmat (at 600 mm depth) to 150 mm above ground level to the nearest point of the equipment. This shall include all cutting, bending, welding, fixing, application of zinc rich paint on cutting surface, etc to the main earthmesh. - any other work necessary to complete the laying of earthmat (40 mm dia MS rod will be supplied by BHEL)	MT	90	6329.26	569633.52
2	Fabrication & laying of Auxiliary Mat of 40 mm Dia MS Rods at a depth of 300 mm from top of FGL including excavation & backfilling as per Drg No. C/ENG/STD/EARTHINGS/09, SH-4 Rev 00. - any other work necessary to complete the laying of earthmat (40 Diameter MS rod will be supplied by BHEL)	Nos.	2	2225.04	4450.08
3	Installation of 65mm diameter galvanised steel Pipe Electrode(to be driven - 3.0 Mtr) including following works: - excavation - installing the pipe electrode with alternate layers of Coke/charcoal and salt - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work (GI Pipe, Nuts, Bolts & Washers and funnel with wire mesh will be supplied by BHEL)	Nos.	4	8300.99	33203.97
4	Installing of 40 mm diameter Rod Electrode with test pit (LM, Tower with Peak, CVT & LA) including following works: - excavation - installing the rod electrode - backfilling and compaction - Casting the Test Pit with Cast Iron covers - any other work necessary to complete the work (40 mm dia MS rod will be supplied by BHEL)	Nos.	74	3825.30	283072.28
5	Installing of 40 mm diameter Rod Electrode without test pit/link including following works: - excavation/hammering of rod in earth - installing the rod electrode - backfilling and compaction - any other work necessary to complete the work  (40 mm Diameter MS rod will be supplied by BHEL)	Nos.	10	3453.77	34537.69
Note-	The above quantities may vary by any extent at contract stage			Total	924897.54
	Refer Drawing PE-DG-435-509-E005-REV 0 for Typical Below grounding detail.				

**Annexure-IV**  
**BOQ for Requirment of Stores (Open/Covered)**

Sl. No.	Description	Amount (Rs.)
1	Open Store of 3000Sqm size @ 488/Sqm	14,64,000.00
2	1 Nos. covered store of 200 Sqm size	12,63,430.00
	Total (Rs.)	<b>27,27,430</b>

<b>ANNEXURE-V</b>
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**TRANSMISSION BUSINESS GROUP  
(SUB- CONTRACTS MANAGEMENT)  
TBG - NOIDA**

**PRICE SCHEDULE FORMAT**

**SUB: Execution and Handing Over of Civil Works of 400KV Switchyard, GIS Building and CRB at 400KV GIS Substation at Udangudi**

(a) I/ We hereby agree to execute the above work at ----- % (in figure).....  
----- (in words) Above / Below/ At Par the rates of items given in BOQ  
(Annexure-I) of subject tender.

**NOTE:**

1. In this annexure the tenderer shall quote a percentage above/ below/At Par the rates shown in the Bill of Quantities (Annexure-I) of subject tender. The percentage quoted shall be clearly written both in words and figures In case of discrepancy in rates in figure and words, the minimum will be taken into account by BHEL.
2. The quoted percentage will apply to the individual items uniformly.

Date:

Place

Signature of tenderer

Name & Designation of authorized person(s) with seal

**ANNEXURE-VI**

**Execution and Handing Over of Civil Works of 400KV Switchyard, GIS Building and CRB at 400KV GIS Substation at Udangudi**

<b>Sl No.</b>	<b>Description</b>	<b>Amount (Rs.)</b>
1	Total amount as per the rates in BOQ for Execution and Handing Over of Civil Works of 400KV Switchyard, GIS Building and CRB at 400KV GIS Substation at Udangudi (Annexure-I,II,III& IV)	1641,07,192.00
2	Value of percentage above/below/at par (As indicated in Price Schedule Format, Annexure-IV) applicable to the total amount of civil work (Sl. no. 1 above)	.....% above/below/ at par
3	<b>Total amount after consideration of percentage above/below/ at par.</b>	