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BOQ (Annex 1)

BILL OF QUANTITIES (BOQ)					
PART A: MAIN BUILDING STRUCTURE					
S/No	**DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
	DEMOLITION WORK				
	1. DEMOLISHING THE EXISTING STRUCTURES				
1.1	Demolish all the existing structures which is found in the project site and cart away all the unnecessary materials from the site. This work may include keeping and arrange relevant materials selected by the consulting office engineers. The price shall include all the expense for this work process.	LSM	1		
	Total				
	SUB- STRUCTURE				
	1. EXCAVATION & EARTH WORK				
1.1	Bulk excavation	M3	1,853.00		
1.2	Trench excavation in ordinary soil for masonry work to a depth not exceeding 0.45m starting from reduced level	M3	0.00		
1.3	Back fill on top of foundation (fill around an in the bulk excavation) and also around the masonry work with selected material and well rammed in layers not exceeding 25 cm thick.	M3	950.00		
1.4	Cart away surplus excavated material to an appropriate damping site.	M3			
1.5	25cm thick basaltic or equivalent stone hard core well rolled below ground floor as per the drawing. Price shall include all the expenses for this item construction.	M3	80.00		
	Total				
	2. CONCRETE WORK				

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2.1	5cm thick lean concrete class C-5, with minimum cement content of 150kg/m3, Under footing and masonry foundation. Price shall include all the expenses for this item construction. Price shall include all the expenses for this item construction.	M3	19.00		
	Reinforced concrete class C-30, with minimum cement content of 360 kg/m3 filled into formwork and vibrated around rod reinforcement. Steel bar and form work measured included. Price shall include all the expenses for this item construction listed below.				
	Mat slab	M3	303.00		
	Basement retaining wall 0.2m	M3	23.00		
	Basement retaining wall 1.2m	M3	157.00		
	Column neck	M3	5.00		
	Basement columns, lift shearwalls and staircase	M3	41.00		
2.2	10cm thick reinforced concrete basement floor and section of ground floor slab class C-30, with minimum cement content of 320 kg/m3 well spread and leveled (steel bar measured included). Price shall include all the expenses for this item construction. Price shall include all the expenses for this item construction.	M3	33.00		
	17cm thick ground floor slab	M3	32.00		
2.3	**Reinforced concrete class C-30, with minimum cement content of 360 kg/m3 filled into formwork and vibrated around rod reinforcement. Steel bar and form work measured included. Price shall include all the expenses for this item construction listed below.**				
	In Grade Beam basement	M3	16.00		
	In Grade Beam ground	M3	22.00		
	Total				

	3. MASONARY WORK				
3.1	Stone masonry bedded with cement mortar. Price shall include all the expenses for this item construction.	M3	70.00		
	Total				
	C. SUPER - STRUCTURE				
	1.CONCRETE WORK				
1.2	**Reinforced concrete class C -25, with minimum cement content of 360 kg/m3 filled into formwork and vibrated around rod reinforcement. steel bar and form work measured included. Price shall include all the expenses for the construction of these listed items.**				
	In columns ground floor	M3	30.00		
	In lift shear wall ground floor	M3	13.00		
	In staircase ground floor	M3	4.00		
	First , second, third and roof beam	M3	100.00		
	First , second, third and roof slab	M3	230.00		
	First , second, roof lift shear wall	M3	12.40		
	First , second, roof column	M3	75.00		
	First , second, roof staircase	M3	6.70		
	All elevation zigzag concrete wall	M3	137.00		
	Top tie beam on the parapet, lintels and wall stifner columns	M3	5.30		
	In top tie beam	M3			
	Total				
PART B: MAIN BUILDING FINISHINGS					
S/No	**Description**	**Unit**	**Quantities**	**Rate**	**Amount (USD)**
1)	**Blockwork**				
1.1	**Concrete block masonry with minimum compressive strength 7.0 N/mm^2, walling in 200mm course heights, bedded and jointed in cement sand mortar (1:4), reinforced with and including hoop iron reinforcement, wall ties in every alternate course, grouting**				

1.11	Basement floor 200mm thick Hollow Concrete Block Masonry For Exterior walls.	M2	0.00		
1.12	Basement floor 200mm thick Hollow Concrete Block Masonry For Interior walls.	M2	91.00		
1.13	Ground floor 200mm thick Hollow Concrete Block Masonry For Exterior walls.	M2	217.00		
1.14	Ground floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	308.00		
1.15	First floor 200mm thick Hollow Concrete Block Masonry For Exterior walls walls.	M2	172.00		
1.16	First floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	258.00		
1.17	Second floor 200mm thick Hollow Concrete Block Masonry For Exterior walls walls.	M2	167.00		
1.18	Second floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	240.00		
1.19	Third floor 200mm thick Hollow Concrete Block Masonry For Exterior walls walls.	M2	178.00		
1.2	Third floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	277.00		
1.21	Roof floor 200mm thick Hollow Concrete Block Masonry For Exterior walls walls.	M2	0.00		
1.22	Roof floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	87.00		
2)	**Wall Finishes**				
2.1	**2.1- Plasering**				
	15mm thick (1:4) cement/sand render plaster, wood floated to concrete or masonry works and dropped beams.				
2.11	**Basement floor**				

	Internal shear walls.	M2	204.00		
	Internal walls.	M2	182.00		
	Exposed beams.	M2	57.00		
	In stairs soiffit.	M2	20.00		
2.12	**Ground floor**				
	External walls.	M2	0.00		
	Internal walls.	M2	832.00		
	Exposed beams.	M2	62.00		
	In stairs soiffit.	M2	17.00		
2.13	**First floor**				
	External walls.	M2	30.00		
	Internal walls.	M2	688.00		
	Exposed beams.	M2	62.00		
	In stairs soiffit.	M2	15.00		
	In cantilever slab soffit.	M2	33.00		
2.14	**Second floor**				
	External walls.	M2	30.00		
	Internal walls.	M2	700.00		
	Exposed beams.	M2	62.00		
	In stairs soiffit.	M2	15.00		
	In cantilever slab soffit.	M2	33.00		
2.15	**Third floor**				
	External walls.	M2	30.00		
	Internal walls.	M2	710.00		
	Exposed beams.	M2	62.00		
	In stairs soiffit.	M2	15.00		
	In cantilever slab soffit.	M2	33.00		
2.16	**Roof floor**				
	External	M2	105.00		
	Internal walls	M2	0.00		
2.2	**Painting**				
2.21	**External painting**				
	Prepare and apply 1 coat primer, 1 coat of gravito painting and 3 coats of external weather-resistant medium-textured emulsion paint of approved quality to rendered surfaces, color is based on the design and the architect's prefrence.				
	Basement Floor	M2	0.00		

	Ground Floor	M2	0.00		
	First Floor	M2	0.00		
	Second Floor	M2	0.00		
	Third Floor	M2	0.00		
	Roof Floor and Parapets.	M2	104.00		
2.22	**Internal painting.**				
	Prepare and apply 3 coats of stucco on plastered surfaces while skimming, 1 coat primer and 2 coats of silk vinly first grade emulsion paint as "Crown paint' or other equal approved paints.				
	Basement Floor	M2	582.00		
	Ground Floor	M2	1,096.00		
	First Floor	M2	747.00		
	Second Floor	M2	821.00		
	Third Floor	M2	747.00		
	Roof Floor and Parapets.	M2	0.00		
2.3	**Wall tile.**				
2.31	**Supply and fix first-grade porcelain wall tiles of approved make, size, color and pattern, laid with approved tile adhesive and grout, including cutting, jointing, alignment, finishing, and all necessary accessories complete as per drawings and Engineer's approval.**				
	Wall tiles for Toilets and kitchens in all the floors.	M2	555.00		
2.32	**Supply and install approved marble stone cladding to lift face and entrance surround, including cutting, fixing, jointing, polishing, finishing, and all necessary accessories, complete as per drawings and Engineer's approval.**				
	Marble cladding	M2	35.00		
3	**Tile Work**				
3.1	**Supply and fix 600x600 first-grade porcelain wall tiles of approved make, size, color and pattern, laid with approved tile adhesive and**				

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	grout, including cutting, jointing, alignment, finishing, and all necessary accessories complete as per drawings and Engineer's approval.				
	Basement Floor	M2	176.00		
	Ground Floor	M2	380.00		
	First Floor	M2	285.00		
	Second Floor	M2	319.00		
	Third Floor	M2	319.00		
	Supply and install approved marble stone cladding to staircase seps and verandas entrance surround, including cutting, fixing, jointing, polishing, finishing, and all necessary accessories, complete as per drawings and Engineer's approval.				
	Staircase tiles inlcduing veranda steps				
	Thread	M2	58.00		
	Riser	M2	32.00		
	Landing on staricases only.	M2	18.00		
4	**Ceiling**				
4.1	**Supply, install, finish and paint 12mm thick gypsum board suspended ceiling on galvanized steel framing system, including all supports, hangers, joint treatment, accessories, putty and paint complete. Ceiling to be installed in 600mm width border bands around main offices and corridors, and full coverage in void areas, complete as per drawings and Engineer's approval.**				
	In all corrdiors, 1st floor executive office, 2nd floor general manager office, 3rd floor governor and his/her secretary and deputy governer office.	M2	376.00		

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4.2	**Supply and install suspended ceiling comprising 300×300 mm ceiling panels/tiles on exposed galvanized steel grid system, including main runners, cross tees, hangers, perimeter angles, cutting, fittings, and all accessories complete, finished and installed as per drawings and Engineer's approval.**				
	In toilets and basin area.	M2	81.00		
5	**Door, Windows & Clear Glass.**				
5.1	**Supply and install premium-quality double-glazed aluminium windows comprising 8 mm tempered Low-E outer glass + 16 mm argon-filled cavity + 8 mm clear tempered inner glass (32 mm total thickness), complete with thermally broken powder-coated aluminium frames, EPDM gaskets, weatherproof silicone sealants, approved ironmongery, fixing accessories, and all necessary installation works.**				
	W1 (1.5*1.8)	M2	62.10		
	W2 (2.4*0.9)	M2	4.32		
	W3 (4.3*0.9)	M2	3.87		
	W4 (1.2*3.6)	M2	4.32		
	W5 (0.8*3.6)	M2	5.76		
	W6 (0.9*3.6)	M2	3.24		
	W7 (1*3.6)	M2	3.60		
	W8 (0.7*3.6)	M2	5.04		
	W9 (0.9*3.3)	M2	8.91		
	W10 (0.8*3.3)	M2	26.40		
	W11 (1.2*3.3)	M2	19.80		
	W12 (1*3.3)	M2	9.90		
	W13 (0.7*3.3)	M2	13.86		
	W14 (1.8*3.3)	M2	11.88		
	W15 (1.5*3.3)	M2	19.80		
	Fire-rated steel door complete with steel frame, fire-resistant core, intumescent seals, heavy-duty hinges, approved fire-rated lockset				

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	and all necessary ironmongery, installed complete as per drawings and specifications.				
	D9 (1.5*2.1)	PCS	3.00		
5.2	**Supply and install uPVC door with door leaf thickness of 22mm, complete with frame finished with PVC film, including hinges, lockset, handles, sealants, fixing accessories and all necessary fittings, finished as per approved drawings and specifications, complete in all respects.**				
	D2 (0.9*2.1)	PCS	11.00		
	D4 (0.8*2.1)	PCS	12.00		
	D5 (0.7*2.1)	PCS	9.00		
5.3	**Supply and install clear tempered glass door complete with 10–12 mm thick clear toughened safety glass, SS hardware, hinges, handles, locks, sealants and all necessary accessories, fixed complete as per approved drawings and specifications.**				
	D1 (0.9*2.1)	M2	28.35		
	D6 (1.8*2.1)	M2	11.34		
	D8 (1.8*3.1)	M2	5.58		
	D11 (1.8*2.4)	M2	12.96		
	D10 (2.4*1.9)	M2	4.56		
5.4	**Supply and install heavy-duty metal door, fabricated from galvanized steel sheet with reinforced frame, complete with hinges, lockset, handles, fittings, primer and approved paint finish, including all necessary accessories and installation as per drawings and Engineer's approval.**				
	D3 (1*2.4)	PCS	4.00		
	Heavy-duty steel security vault door, fabricated from reinforced steel plate with concealed/secure locking mechanism, multi-point locking				

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	system, heavy-duty hinges, internal frame and complete ironmongery, including all necessary accessories, installation, alignment and finishing, complete as specified and approved.				
	D7 (1.8*2.1)	PCS	3.00		
5.5	**Supply and install clear float glass partition panels, thickness as per approved drawings, including cutting, polishing of exposed edges, silicone sealant, glazing beads/gaskets, supports, fixing accessories and all necessary materials and workmanship, complete in position as per approved details and Engineer's instructions.**				
	Clear glass.	M2	300.00		
6	**Handrail**				
6.1	**Supply and install 1.2m frameless glass handrail comprising 12–15 mm thick tempered laminated safety glass panels complete with base shoe/channel, SS fixing accessories, gaskets, sealants, edge polishing and all necessary hardware, fixed complete as per approved drawings and specifications.**				
	In veranda, voids and balconies	Lm	67.00		
7	**Waterproofing**				
7.1	**APP reinforced membrane 4mm thick: laid on and laid on and incldуing bitumen primer : with torch-on process from an approved manufacturer: finish to horizental roof slab walls excuted by a specialist under 10 years of guarantee and finally finished with cement screed, lapping space to not be counted.**				
	In roof terrace.	M2	318.00		

	In 3rd floor balconies and sitting spaces (Floor tile is calculated as top finishing not cement screed).	M2	57.00		
7.2	**Waterproof screed in toilets, kitchen, ablution and all wet areas.**				
	In toilets (Floor tiles as finishing item).	M2	95.00		
8	**Steel Structure**				
8.1	**Supply and install steel pergola structure complete with columns, beams, connections, base plates and anchor bolts, including fabrication, welding, erection and anti-rust primer and paint finish, with WPVC suspended ceiling/cladding fixed underneath the pergola soffit, including support framing, accessories, cutting around columns and all necessary fittings, complete as per drawings and Engineer's approval.**				
	Pergola in 3rd floors	LS	4.00		
8.2	**Supply, fabricate and install complete emergency steel staircase, including steel stringers, treads, landings, supports, handrails, connections, bolts and accessories, with steel mesh enclosure around the staircase as per 3D renders and approved design. Include anti-corrosion primer and approved finishing coats, complete as per drawings and Engineer's approval.**				
	Steel stairs	LS	1.00		
	Supply and install decorative steel mesh panels to the front elevations of both watchtowers, serving as both a protective barrier and an architectural feature, including all necessary steel framing, supports, welding, fixing accessories, and anti-corrosion paint finish, complete				

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	as per approved drawings and specifications.				
	Two Steel mesh	Ls	2.00		
9	**Cladding**				
9.1	**Supply and install approved marble cladding slabs on galvanized steel/aluminum support frame, securely fixed with approved mechanical anchors, including cutting, alignment, jointing and sealing with approved exterior-grade sealant, edge finishing and all necessary accessories, complete as per drawings and Engineer's approval. (Exterior Plastering and painting have been removed due to cladding being used instead of them)**				
	Marble cladding (Exterior Plastering and painting have been removed due to cladding being used instead of them)	M2	2,070.00		
	Total				

PART C: GUARD & WATCH TOWER FINISHES					
S/No	**Description**	**Unit**	**Quantities**	**Rate**	**Amount (USD)**
1)	**Blockwork**				
	Concrete block masonry with minimum compressive strength 7.0 N/mm^2, walling in 200mm course heights, bedded and jointed in cement sand mortar (1:4), reinforced with and including hoop iron reinforcement, wall ties in every alternate course, grouting				
	200mm thick Hollow Concrete Block Masonry For Exterior walls.	M2	49.00		
	200mm thick Hollow Concrete Block Masonry For Interior walls.	M2	47.00		
	Roof floor 200mm thick Hollow Concrete Block Masonry For Exterior walls walls.	M2	27.00		

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	Roof floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	0.00		
2)	**Wall Finishes**				
2.1	**2.1- Plasering**				
	15mm thick (1:4) cement/sand render plaster, wood floated to concrete or masonry works and dropped beams.				
2.11	**Ground floor**				
	Internal walls.	M2	94.00		
2.16	**Roof floor**				
	External	M2	0.00		
2.2	**Painting**				
2.21	**External painting**				
	Prepare and apply 1 coat primer, 1 coat of gravito painting and 3 coats of external weather-resistant medium-textured emulsion paint of approved quality to rendered surfaces, color is based on the design and the architect's prefrence.				
	Ground Floor	M2	47.00		
	Roof Floor and Parapets.	M2	110.00		
2.22	**Internal painting.**				
	Prepare and apply 3 coats of stucco on plastered surfaces while skimming, 1 coat primer and 2 coats of silk vinly first grade emulsion paint as "Crown paint' or other equal approved paints.				
	Ground Floor	M2	95.00		
	Roof Floor and Parapets.	M2	0.00		
2.3	**Wall tile.**				
2.31	**Supply and fix first-grade porcelain wall tiles of approved make, size, color and pattern, laid with approved tile adhesive and grout, including cutting, jointing, alignment, finishing, and all necessary accessories complete as per drawings and Engineer’s approval.**				

	Wall tiles for Toilets and kitchens in all the floors.	M2	60.00		
3	**Tile Work**				
3.1	**600x600x8.5 thick non-slip coloured Porcelain tiles, size and colour to Architects approval: laid on screed backing with an approved ahdhesive with and incldluing grouting in matching color.**				
	Ground Floor	M2	61.00		
4	**Door, Windows & Clear Glass.**				
4.1	**Supply and install premium-quality double-glazed aluminium windows comprising 8 mm tempered Low-E outer glass + 16 mm argon-filled cavity + 8 mm clear tempered inner glass (32 mm total thickness), complete with thermally broken powder-coated aluminium frames, EPDM gaskets, weatherproof silicone sealants, approved ironmongery, fixing accessories, and all necessary installation works.**				
	W1 (1.5*1.5)	M2	2.25		
	W2 (0.6*0.7)	M2	0.42		
4.2	**Supply and install uPVC door with door leaf thickness of 22mm, complete with frame finished with PVC film, including hinges, lockset, handles, sealants, fixing accessories and all necessary fittings, finished as per approved drawings and specifications, complete in all respects.**				
	D1 (0.9*2.1)	PCS	2.00		
	D2 (0.8*2.1)	PCS	1.00		
5	**Waterproofing**				
5.1	**APP reinforced membrane 4mm thick: laid on and laid on and incldluing bitumen primer : with torch-on process from an approved manufacturer: finish to horizental roof slab walls excuted by a**				

	specialist under 10 years of guarantee and finally finished with cement screed, lapping space to not be counted.				
	In roof terrace.	M2	55.00		
5.2	**Waterproof screed in toilets, kitchen, ablution and all wet areas.**				
	In toilets (Floor tiles as finishing layer).	M2	16.00		
	Total				
PART D: GENERATOR ROOM & WATCH TOWER FINISHES					
S/No	**Description**	**Unit**	**Quantities**	**Rate**	**Amount (USD)**
1)	**Blockwork**				
	Concrete block masonry with minimum compressive strength 7.0 N/mm^2, walling in 200mm course heights, bedded and jointed in cement sand mortar (1:4), reinforced with and including hoop iron reinforcement, wall ties in every alternate course, grouting				
	200mm thick Hollow Concrete Block Masonry For Exterior walls.	M2	100.00		
	200mm thick Hollow Concrete Block Masonry For Interior walls.	M2	0.00		
	Roof floor 200mm thick Hollow Concrete Block Masonry For Exterior walls walls.	M2	28.00		
	Roof floor 200mm thick Hollow Concrete Block Masonry For Interior walls walls.	M2	0.00		
2)	**Wall Finishes**				
2.1	**2.1- Plasering**				
	15mm thick (1:4) cement/sand render plaster, wood floated to concrete or masonry works and dropped beams.				
2.11	**Ground floor**				
	Internal walls.	M2	175.00		
	External	M2	15.00		
2.16	**Roof floor**				
	External	M2	28.00		

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2.2	**Painting**				
2.21	**External painting**				
	Prepare and apply 1 coat primer, 1 coat of gravito painting and 3 coats of external weather-resistant medium-textured emulsion paint of approved quality to rendered surfaces, color is based on the design and the architect's prefrence.				
	Ground Floor	M2	15.00		
	Roof Floor and Parapets.	M2	28.00		
2.22	**Internal painting.**				
	Prepare and apply 3 coats of stucco on plastered surfaces while skimming, 1 coat primer and 2 coats of silk vinly first grade emulsion paint as "Crown paint' or other equal approved paints.				
	Ground Floor	M2	15.00		
	Roof Floor and Parapets.	M2	0.00		
3	**Tile Work**				
3.1	**600x600x8.5 thick non-slip coloured Porcelain tiles, size and colour to Architects approval: laid on screed backing with an approved ahdhesive with and inclduing grouting in matching color.**				
	Ground Floor	M2	16.00		
4	**Door, Windows & Clear Glass.**				
4.1	**Metal window with louvered vent, devided into different panes as per the design, price to include manfacture, supply and apply.**				
	W1 (2.8*5.7)	M2	9.12		
4.2	**Supply and install heavy-duty metal door, some will have vent openeings as per the design fabricated from galvanized steel sheet with reinforced frame, complete with hinges, lockset, handles, fittings, primer and approved paint finish, including all necessary accessories**				

	and installation as per drawings and Engineer's approval.				
	D1 (2.1*2.4)	PCS	1.00		
	D2 (1.5*2.4)	PCS	1.00		
	D3 (1.5*2.4)	PCS	1.00		
	D4 (1*2.4)	PCS	2.00		
	D4 (1.5*2.1)	PCS	1.00		
5	**Waterproofing**				
5.1	**APP reinforced membrane 4mm thick: laid on and laid on and incldluing bitumen primer : with torch-on process from an approved manufacturer: finish to horizental roof slab walls excuted by a specialist under 10 years of guarantee and finally finished with cement screed, lapping space to not be counted.**				
	In roof terrace.	M2	50.00		
	Total				

PART E: LANDSCAPE WORKS					
S/No	**Description**	**Unit**	**Quantities**	**Rate**	**Amount (USD)**
1)	**Marble cladding**				
	Supply and install approved marble cladding slabs on galvanized steel/aluminum support frame, securely fixed with approved mechanical anchors, including cutting, alignment, jointing and sealing with approved exterior-grade sealant, edge finishing and all necessary accessories, complete as per drawings and Engineer's approval.				
	Marble caldding. (Exterior Plastering and painting have been removed due to cladding being used instead of them)	M2	500.00		
2	**Green space**				
2.1	**Supply and install green planter area including approved soil, suitable**				

	plants/landscaping, waterproofing, drainage, edging and all necessary accessories, complete as per drawings and Engineer's approval.				
	Green space	M2	151.00		
3	**Pavement tile.**				
3.1	**Supply and install pavement tiles of approved type, color, and pattern on prepared compacted subgrade/sub-base including sand bedding layer, cutting, joint filling, alignment, leveling, edge finishing including curb/edge restraint where required, and all necessary materials, labor, tools, and accessories complete as per drawings and Engineer's approval.**				
	Pavement tile.	M2	443.00		
	Supply, fabricate and install steel gate as per approved design and drawings including all steel members, hinges, locks, accessories, fixing and anchoring works, complete with anti-rust primer and two coats of approved paint finish, including all labour, materials, welding and finishing works to complete.				
	Gates	PCS	2.00		
4	**Checking Room**				
4.1	Interior plaster	M2	24.00		
4.2	Interior paint	M2	24.00		
4.3	Floor tiles	M2	10.00		
4.4	Steel heavy duty Doors	PCS	2.00		
4.5	Windows Aluminum tempered.	M2	3.20		
	Total				

PART F: FENCE, WATCH TOWERS & GUARD ROOM STRUCTURE					
S/No	**DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
	DEMOLITION WORK				
	1. DEMOLISHING THE EXISTING STRUCTURES				

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1.1	Demolish all the existing structures which is found in the project site and cart away all the unnecessary materials from the site. This work may includes keeping and arrange relevant materials selected by the consulting office engineers. The price shall include all the expense for this work process.	LSM	1		
	Total				
	SUB- STRUCTURE				
	1. EXCAVATION & EARTH WORK				
1.1	Clear off site to remove top soil to an average depth of 20cm.2000 mm offseted from the building parameter.	M2	0.00		
1.2	**Pit excavation in ordinary soil to depth of 2500mm from reduced level**				
	a) Ditto, but in soft rock [No working space accounted]	M3	61.22		
	b) Ditto, but in hardrock	M3	0.00		
1.3	**Trench excavation in ordinary soil for masonry work to a depth not exceeding 0.45m starting from reduced level**				
	a) Ditto, but in soft rock [No working space accounted]	M3	28.00		
	b) Ditto, but in hardrock	M3	0.00		
1.4	Backfill on top of foundation (fill pit excavation) and also around the masonry work with selected material and well rammed in layers not exceeding 20 cm thick.	M3	34.00		
1.5	Ditto, but under hard core by sprinkling water insure 95% modified AASHTO dry density.	M3	11.00		
1.6	Load and cart away excavated material as per engineers direction.	M3	60.00		
1.7	25cm thick basaltic or equivalent stone hardcore, well rolled, consolidated and blinded with crushed stone.	M2	27.00		
	Total				

	2. CONCRETE WORK				
2.1	**5cm thick lean concrete class C-5, with minimum cement content of 150kg/m3, Under footing and masonry foundation. Price shall include all the expenses for this item construction. Price shall include all the expenses for this item construction.**				
	a) Foundation	M3	34.00		
2.2	10cm thick reinforced concrete ground floor slab class C-20, with minimum cement content of 320 kg/m3 well spread and leveled (steel bar measured included). Price shall include all the expenses for this item construction. Price shall include all the expenses for this item construction.	M3	10.50		
2.3	**Reinforced concrete class C-25, with minimum cement content of 360 kg/m3 filled into formwork and vibrated around rod reinforcement. Steel bar and form work measured included. Price shall include all the expenses for this item construction listed below.**				
	a) To Footing pad	M3	18.00		
	b) To Foundation Columns	M3	6.50		
	c) To Grade beams and fence wall footing base	M3	93.00		
	Total				
	3. MASONARY WORK				
3.1	Stone masonry level bedded with cement mortar. Price shall include all the expenses for this item construction.	M3	32.00		
	Total				
	C. SUPER - STRUCTURE				
	1.CONCRETE WORK				

1.1	**Reinforced concrete class C -30, with minimum cement content of 360 kg/m3 filled into formwork and vibrated around rod reinforcement. steel bar and form work measured included. Price shall include all the expenses for the construction of these listed items.**				
	a) In elevation columns+fence shear wall	M3	111.50		
	b) All beams top tie beams top of parapets & Lintels	M3	7.50		
	c) slab and roof shade	M3	21.00		
	Total				
PART G: ELECTRICAL WORKS					
S/No	**DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
	SUPPLY AND INSTALLATION WORKS				
	HIGH CURRENT WORKS				
1	**Ring Main Unit**				
	Supply, deliver, install, test and commission an 11 kV medium-voltage Ring Main Unit (RMU), rated 12 kV class, 400 A busbar, 50 Hz, suitable for connection to the incoming 11 kV utility supply and feeding a 500 kVA, 11/0.4 kV transformer. RMU shall comprise appropriately rated incoming/outgoing ring ways and transformer feeder way, vacuum/SF_6 insulated switching arrangement as approved, load-break switches, transformer protection, earth switches, mechanical/electrical interlocking, fault indication, voltage presence indication, cable termination facilities, internal busbars, operating mechanisms, mimic diagram, padlocking facilities and all accessories necessary for safe operation. Unit shall comply with applicable IEC standards and utility requirements and shall include factory testing, delivery, installation,	No.	1.00		

	termination, earthing, testing and commissioning.				
2	**Transformer**				
	Supply, deliver, install, test and commission 500 kVA, 3-phase, 11/0.415 kV distribution transformer, 50 Hz, ONAN cooled, copper/aluminium windings as specified, Dyn11 vector group, suitable impedance, off-circuit tap changer, temperature indication, oil level indication, pressure relief and other standard transformer accessories. Transformer shall be complete with LV and MV termination facilities, transformer plinth/supports, earthing connections, protection accessories, cable boxes, testing and commissioning.	No.	1.00		
3	**Diesel Generator**				
	Supply, deliver, install, test and commission one 500 kVA, 400/415 V, 3-phase, 50 Hz diesel generator set, standby rated, complete with diesel engine, brushless alternator, electronic AVR, digital generator control panel, automatic engine starting system, batteries and charger, day/fuel tank, acoustic/weatherproof enclosure where applicable, exhaust system and silencer, radiator and cooling system, emergency stop, protective devices, circuit breaker, output terminals, vibration isolators and all standard accessories. Generator shall be suitable for automatic operation through the building automatic transfer system and shall include testing, commissioning and load-bank testing.		1.00		
4	**Fuel Storage Tank**				

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	Supply, deliver, install, test and commission diesel fuel storage tank of minimum 3,000 litres effective capacity, suitable for continuous operation of the 500 kVA standby diesel generator for a minimum period of 24 hours at the generator's specified full/maximum design fuel consumption. Tank shall be fabricated from heavy-gauge steel, suitably internally/external protected against corrosion and complete with lockable filling cap, fuel inlet, outlet, return connection, drain, isolation valve, level gauge/level transmitter, low-level alarm, high-level alarm, vent pipe with flame arrestor/vent termination, inspection/manhole cover, bund/secondary containment, flexible fuel connections and all necessary fittings and accessories. Tank shall be installed on suitable concrete foundation/supports and connected to the generator fuel system using appropriately sized fuel supply and return pipework. Complete with all pipework, fuel transfer pump, duty/standby pump arrangement where required, high/low level alarms, fuel filters, isolation valves, flexible connections, control panels, supports, identification, testing, leak testing and commissioning.	No.	1.00		
5	**Voltage Stabilizer**				

	Supply, deliver, install, test and commission an automatic three-phase voltage stabilizer/automatic voltage regulation system, rated to suit the final calculated electrical load, 400/415 V, 3-phase, 4-wire, 50 Hz, with automatic correction of incoming voltage fluctuations and suitable regulation accuracy for the connected equipment. Unit shall incorporate electronic/servo-controlled voltage regulation, input/output voltage monitoring, adjustable high/low voltage protection, overload and short-circuit protection, bypass arrangement, digital metering/display, alarm indication and all necessary control and protection accessories. Stabilizer shall be suitable for operation with the standby generator and utility supply, as applicable. Include all connections, bypass/isolation arrangement, supports, testing and commissioning.	No.	1.00		
6	**Power Factor Correction**				
	Supply, deliver, install, test and commission an automatic Power Factor Correction (PFC) capacitor bank, 400/415 V, 3-phase, 50 Hz, complete with automatic power factor controller, capacitor steps, contactors/switching devices, capacitor-duty protection, detuned harmonic-filter reactors, discharge resistors, fuses/MCCBs, incoming isolator, ventilation, temperature monitoring, digital power factor/kVAR display and all associated control and protection equipment. System shall automatically regulate the power factor to the specified target, nominally not less than 0.95 lagging, without causing unacceptable harmonic resonance or voltage	No.	1.00		

	distortion. PFC system shall be designed based on the final harmonic study and shall be suitable for the electrical characteristics of the connected loads and standby generator operation. NB: PFC capacitor banks shall not be connected to the dedicated UPS output or data-centre critical bus unless specifically approved by the UPS manufacturer and supported by a harmonic/power-quality study.				
7	**Earth Mats and earthing**				
	Supply, install, test and commission a complete buried earthing electrode/mat system comprising bare copper or appropriately sized copper-clad/galvanized steel earth conductors, interconnected earth electrodes/rods, earth grid/mat, inspection chambers, earth test links, clamps, exothermic/mechanical connections, protective sleeves and all accessories. Earthing system shall serve the electrical installation, transformer, generator, LV switchboards, data-centre equipment and associated metallic services. Earth grid shall be installed below ground around/under the electrical and data-centre facilities as appropriate and interconnected to all designated earth points. Complete system shall be tested and documented to demonstrate compliance with ≤5 ohms earth resistance. Final earth electrode quantity and conductor cross-section shall be determined from the soil resistivity survey and earthing design. Earth resistance shall comply with the project specification and applicable standards.	No.	6.00		

8	**Equipotential Bonding Bar**				
	Supply, install, test and commission equipotential bonding bars comprising suitably sized high-conductivity copper bar mounted on insulated supports within an accessible enclosure, complete with labelled bolted connection points for incoming protective earth conductor and bonding conductors. Bonding bar shall be connected to the main earthing system and shall provide bonding connections for the main LV switchboard, transformer, generator, UPS, data-centre racks, raised access floor, metallic cable trays, containment, HVAC/CRAC equipment, metallic pipework, structural steelwork and other exposed conductive parts as required. Include all copper bonding conductors, lugs, clamps, supports, labels and accessories.	No.	1.00		
9	**Main LV Switchboard with ATS**				
	Supply, deliver, install, test and commission a main low-voltage switchboard, rated 400/415 V, 3-phase, 4-wire, comprising transformer incomer and standby generator incomer, and equipped with suitably rated ACBs, electronic protection/LSIG trip units, metering and indication. Board shall incorporate an automatic transfer system for automatic changeover between normal utility/transformer supply and standby generator supply, with electrical and mechanical interlocking to prevent unintended paralleling unless specifically required and approved. The switchboard shall incorporate two segregated downstream distribution bus sections,	No.	1.00		

	comprising 630 A Data Centre Busbar and 250 A Main Building Busbar, complete with suitably rated outgoing MCCBs/ACBs, neutral and earth bars, surge protection, multifunction power meters, indication lamps, control circuits, terminal blocks, cable termination facilities, internal wiring, labels, gland plates, forms of separation as required, and all accessories necessary for a complete operational installation.Switchboard shall be floor-mounted, dead-front, minimum IP54 as appropriate to location, fabricated from adequately rated sheet steel, and shall have a minimum short-circuit withstand rating to be confirmed by the electrical fault-level study. Include factory testing, delivery, installation, cable termination, testing, commissioning and ATS functional testing.				
10	**DISTRIBUTION PANEL BOARDS**				
10.1	**Supply, Delivery and Installation, testing and commissionaling of panel boards in the Utility room c/w all the necessary accessories and components as per the Approved drawings, SLD layout and technical specifications, Consisting but not limited to:**				
a	8-WAY Main Distribution Board (MDB) For the Main Building WITH 200 Amperes main Switch, as per the SLD layout	No.	1.00		
b	8-way TPN MCCB Sub Main Distribution Board Ground Floor with 55 Amperes, as per the SLD layout.	No.	1.00		
c	8-way TPN MCCB Sub Main Distribution Board Pumps with 40 Amperes, as per the SLD layout.	No.	1.00		

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d	8-way TPN MCCB Sub Main Distribution Board Lift with 32 Amperes, as per the SLD layout.	No.	2.00		
e	6-way TPN MCCB Typical Sub Main Distribution Board VRF with 50 Amperes, as per the SLD layout.	No.	3.00		
f	12-way SPN MCB SDB/Consumer unit Ground Floor with 55 Amperes, as per the SLD layout.	No.	1.00		
g	6-way SPN MCB SDB/Consumer unit Security Tower with 63 Amperes, as per the SLD layout.	No.	1.00		
h	8-way SPN MCCB SDB/Consumer unit gate and Guard Room with 16 Amperes, as per the SLD layout.	No.	1.00		
i	8-way TPN MCCB Sub Main Distribution Board First Floor with 63 Amperes, as per the SLD layout.	No.	1.00		
j	12-way SPN MCB SDB/Consumer unit First Floor with 40 Amperes, as per the SLD layout.	No.	1.00		
k	12-way SPN MCB SDB/Consumer unit Second Floor with 55 Amperes, as per the SLD layout.	No.	1.00		
l	12-way SPN MCB SDB/Consumer unit Third Floor with 50 Amperes, as per the SLD layout.	No.	1.00		
m	8-way SPN MCB SDB/Consumer unit Kitchen with 63 Amperes, as per the SLD layout.	No.	1.00		
10.2	Supply, Delivery and Installation, testing and commissionaling of Circuit Breakers, busbars, isolators and all the neccesary accessories as mentioned in the SLD layout, to complete the entire power supply distribution network in the data center and the main building	Lot	1.00		
10.3	Power supply service from the Utility Panel to the MDB, SMDBs and SDBs, with necessary connections and terminations of the PFCs, ATS, Voltage stabilizers, and all the connections as	Lot	1.00		

	required in the approved drawings and specifications				
10.4	Construction of underground trench from the Generator room to the Utility room, of dimension 1m x 1m and Lating of Mains Power cable, c/w all the accessories as per the specifications and to the satisfaction of the consulting engineer.	Lot	1.00		
11	**LIGHT POINTS AND SWITCHES**				
11.1	4-Way Light point back box, fed through PVC insulated copper conductor of 2x2.5 sq. mm in PVC conduit of 16 mm diameter including junction boxes with covers and insulated screw cap connectors.	No.	250.00		
11.2	**4-Way power and switch back box, fed through PVC insulated copper conductor of 2x2.5/1.5 sq. mm in PVC conduit of 20 mm diameter including junction boxes with covers and insulated screw cap connectors.**				
a	Single back Boxes for switches and single sockets	No.	30.00		
b	Double back Boxes for sockets	No.	150.00		
11.3	**Extra-over Light point for flush mounted**				
	switches: -				
	I. 1G 1W switch	No.	50.00		
	II. 1G 2W switch	No.	5.00		
	III. 2G 1W switch	No.	20.00		
	IV. 2G 2W switch	No.	8.00		
	V. 3G 1W switch	No.	5.00		
	VI. Multi switch box	No.	2.00		
12	**FLUSH MOUNTED SOCKET OUTLETS WITH GROUND TERMINAL**				
12.1	16 Ampere,220 Volt, 1 Phase twine socket outlet fed through PVC insulated copper conductors of 3x2.5 sq. mm in PVC conduit of 16 mm diameter including junction boxes with covers, insulated screw cap	No.	150.00		

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	connectors and all other necessary accessories.				
	Ditto as above but for single sockets	No.	30.00		
12.2	25 Ampere / 3 Phase socket with switch and fed through PVC insulated conductors of 4 x 4 sq.mm in conduit 21 mm diameter, complete for stove.	No.	1.00		
13	**POWER CABLE & C0NDUITS**				
	Supply & installation of internal electrical cable, complete with conduit pipes, cable glands and all accessories to complete the system.				
a	2(4x185 + 1x50)mm SC, PVC/XLPE/SWA	M	10.00		
b	2(4x95 + 1x16)mm SC, PVC/XLPE/SWA	M	50.00		
c	4x35 + 1x10 mm SC, PVC/XLPE/SWA	M	30.00		
d	4x25 + 1x10 mm SC, PVC/XLPE/SWA	M	20.00		
e	4x16 + 1x6 mm SC, PVC/XLPE/SWA	M	30.00		
f	4x10 + 1x6 mm SC, PVC/XLPE/SWA	M	50.00		
g	3x 16mm Twin and earth cable	Roll	2.00		
h	3x 10mm Twin and earth cable	Roll	4.00		
i	3x 6mm Twin and earth cable	Roll	1.00		
j	3x 4mm Twin and earth cable	Roll	2.00		
k	3x2.5mm twin and earth cable	Roll	20.00		
l	3X1.5MM Twin and earth cable	Roll	20.00		
m	Concrete man hole with cover50cm x 50cm x 50cm	No.	10.00		
n	pvc 20mm conduit	Roll	40.00		
o	pvc 25mm conduit	Roll	40.00		
p	pvc 32mm conduit	Roll	20.00		
q	pvc 40mm conduit	Roll	10.00		
r	Copper earthing Rod 32MM Diam.,2m long c/w all accessories	No.	10.00		
14	**LIGHTING FITTINGS AND LAMPS**				
a	6 Lamp Chandelier, Warm White, 80W	No	3.00		
b	Wall Mounted Exterior Light Fitting, Warm White, 18W, weatherproof	No	15.00		
c	Ceiling Mounted LED panel Light fitting, Cool White, 12W, (Hallways, balcony, stairways and corridors)	No	60.00		

d	Ceiling Mounted LED Panel Lamps, 600 x 600 Cool White, 24W, Type (Office areas)	No	150.00		
e	Wall Mounted Mirror Lights, Warm White, 18W	No	12.00		
f	Boundary Wall Light Fitting, Cool White, 18W	No	15.00		
g	Incandescent Gate Lighting, Cool White, 18W	No	2.00		
h	Bathroom Incandescent Lamps, Cool White, 18W	No	30.00		
i	Double Fluorescent lamp, cool white, 20W (utility and gen set rooms)	No	12.00		
	Signage Light, made of LED strip Light as appropriate, on every letter of the signage	No	1.00		
15	**LIGHTENING PROTECTION SYSTEM**				
	Air termination system -preventor type P-4, or SI-60 or equivalent and approved by BDI with mast height of not less than 6m, complete with all fixing devices(anchor bolts, gay-wires, etc.) to be mounted on top of roof as per the electrical design.	LS	1.00		
16	**LOW CURRENT**				
16.1	**FIRE ALARM**				
	Supply, install, test, and commission complete conventional fire alarm system as per the design, approved make and model and subject to Engineer's approval. The system shall comprise of fire alarm control panel, smoke detectors in all areas, heat detectors, manual call points, alarm sounders, visual indicators, cabling, conduits/trunking, power supply, batteries, and all associated accessories and fittings, including termination, labeling, zoning, integration, testing, and commissioning, all in accordance				

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	with specifications and drawings, complete in all respects.				
a	2 Loop Addressable Fire Alarm Control and Indicating Panel (FACP) complete with cabinet, power supply unit, batteries, LCD/LED display, control buttons, zone/loop indication, fault monitoring, alarm indication, sounder circuits, auxiliary outputs, networking capability where required, and all accessories necessary for a complete operational system.	No	1.00		
b	Addressable Optical Smoke Detector complete with detector base, LED alarm indication, electronic addressing, contamination monitoring and all necessary accessories.	No	55.00		
c	Addressable Multi-Sensor Smoke/Heat Detector combining optical smoke and heat detection, complete with detector base, electronic addressing and all necessary accessories.	No	10.00		
d	Addressable Manual Call Point (MCP) resettable type, complete with protective cover, back box, LED indication, electronic addressing and all necessary accessories.	No	5.00		
e	Addressable Electronic Sounder complete with base, electronic addressing, selectable sound output and all necessary accessories.	No	5.00		
f	Addressable Input/Output Module for monitoring and controlling external fire protection and life-safety equipment, complete with enclosure and all necessary accessories.	No	5.00		
g	Fire Alarm Standby Battery Set rechargeable sealed lead-acid or approved equivalent batteries, sized to provide the required standby and alarm operating duration, complete	No	2.00		

	with terminals, links and battery enclosure.				
h	Fire Alarm Cable: 2.5mm Fire Resistant enhanced fire-resistant, low-smoke/zero-halogen cable of appropriate size, installed from the fire alarm control panel to detectors, MCPs, sounders, modules and other devices, including all supports and accessories.	M	270.00		
i	Testing and Commissioning of Fire Alarm System including testing of all detectors, MCPs, sounders, VADs, interfaces, batteries, loops, alarm/fault functions and cause-and-effect sequences, complete with test records.	Lot	1.00		
16.2	**DATA, INTERNET & STRUCTURED CABLING SYSTEM:**				
	Supply, install, terminate, label, test, certify and commission a complete structured data and Internet network system in accordance with the drawings, specifications and approved make and model, subject to the Engineer's approval. The system shall comprise Category 6 structured cabling, RJ45 data outlets, patch panels, data/network racks, cable management, network switches, PoE switches, wireless access points, routers/internet gateways, fibre optic backbone cabling and associated fibre termination equipment, together with all conduits, trunking, cable trays, supports, containment, patch cords, connectors, accessories, power and earthing/bonding provisions, configuration, integration, testing, certification, commissioning and as-built documentation, complete in all respects.				

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a	Structured Data Cabling System: Supply, install, terminate, label, test and commission a complete Cat 6 structured data cabling system, including all data outlets, Category 6 U/UTP cables, patch panels, patch cords, data racks/cabinets, cable management, faceplates, modules, containment, conduits/trunking, supports, fixings, accessories and all associated works, complete in accordance with the specifications, drawings and approved manufacturer's recommendations.	M	300.00		
b	RJ45 Category 6 Data Outlet: Supply and install complete Category 6 RJ45 data outlet comprising Category 6 keystone jack/module, faceplate, back box, shutter/dust cover where required, identification label and all accessories, terminated to the applicable T568A/B wiring standard and connected to the structured cabling system.	No	30.00		
c	Category 6 Patch Panel: Supply and install 19-inch rack-mounted Category 6 patch panel, complete with the required number of RJ45 ports, rear cable management/termination facility, port identification, labelling and all accessories, fully terminated to the structured cabling system and suitable for rack installation.	No	1.00		
d	Data Cabinet: Supply and install wall-mounted 19-inch data cabinet of appropriate size and capacity, complete with lockable glazed/perforated front door, removable side/rear panels, mounting rails, vertical/horizontal cable management, ventilation provisions, earthing/bonding, power distribution unit (PDU), shelves and all mounting	No	1.00		

	accessories required for installation of network equipment and patch panels.				
e	Wireless Access Point: Supply, install, configure, test and commission enterprise-grade wireless access point of approved make and model, suitable for the required Wi-Fi standard and user density, complete with PoE connection, mounting bracket, ceiling/wall mounting accessories, configuration, SSID/security configuration, integration with the network switches/router and coverage testing.	No	15.00		
f	Router: Supply, install, configure, test and commission enterprise-grade network router of approved make and model, complete with required WAN/LAN interfaces, firewall/security features, routing, DHCP/NAT functionality, bandwidth management, VPN capability where required, power supply, mounting accessories, configuration and integration with the LAN and Internet service provider connection.	No	9.00		
g	Data Cable Supports and Accessories: Supply and install all required cable supports, brackets, J-hooks, hangers, saddles, clamps, cable ties/Velcro, fixing accessories and other fittings required for the secure, neat and compliant installation of structured cabling throughout the building.	Lot	1.00		
h	Cable Identification and Labelling: Provide permanent machine-printed identification labels for all data outlets, cables, patch panel ports, network switches, fibre optic cables, fibre ports, racks and associated network equipment, with identification coordinated between both ends of every cable and corresponding drawings/schedules.	lot	1.00		

i	System Testing and Commissioning: Complete testing, commissioning and functional verification of the entire data and Internet system, including verification of connectivity between all data outlets, patch panels, switches, wireless access points, network cabinets, fibre backbone and Internet gateway, rectification of defects and final demonstration to the Engineer.	Lot	1.00		
16.3	**CCTV SURVEILANCE SYSTEM**				
	Supply, install, terminate, label, configure, test and commission a complete IP-based CCTV surveillance system in accordance with the drawings, specifications and approved make and model, comprising fixed/dome/bullet/PTZ cameras as indicated, NVRs, storage, monitors, PoE network switches, CCTV network cabling, fibre optic backbone where applicable, power supplies, containment, mounting accessories, camera brackets, connectors, patch cords, software, licenses, configuration, integration and all associated fittings and accessories, complete in all respects.				
	IP Bullet CCTV Camera: Supply, install, configure, test and commission 6MP IP bullet-type CCTV camera of approved make and model, suitable for external surveillance, complete with required resolution, lens, IR/night vision, WDR, motion detection, PoE capability and weather/impact protection, including mounting bracket, junction box, connectors, sunshield and all associated fixing accessories.	No	20.00		

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	IP Dome CCTV Camera: Supply, install, configure, test and commission 6MP IP dome-type CCTV camera of approved make and model, suitable for indoor/outdoor installation as applicable, complete with required resolution, lens, IR/night vision, WDR, motion detection, PoE capability and environmental rating, including ceiling/wall mounting base, brackets, junction box, connectors, fixings and all accessories required for a complete installation.	No	15.00		
	PTZ CCTV Camera: Supply, install, configure, test and commission 6MP IP PTZ CCTV camera of approved make and model, complete with pan, tilt and optical/digital zoom functions, preset positions, auto-tracking where specified, IR/night vision, WDR, required resolution, PoE/power supply and appropriate environmental protection, including mounting bracket/pole adaptor, junction box, connectors, cabling accessories and all necessary fittings.	No	2.00		
	Network Video Recorder (NVR): Supply, install, configure, test and commission a 64 channel professional IP network video recorder of approved make and model, with sufficient camera channels and recording capacity for the complete CCTV installation, supporting continuous/event-based recording, H.265/H.264 compression, playback, search, remote monitoring, alarm/event management, network connectivity, user access control and required recording resolution/frame rates, complete with power supply and all accessories.	No	1.00		

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	CCTV Storage Hard Disk: Supply and install surveillance-grade hard disk drives specifically designed for continuous CCTV recording, of approved capacity and compatibility with the proposed NVR, including installation, formatting, configuration and testing. Storage capacity shall be sufficient to achieve the specified minimum recording retention period.	No	5.00		
	CCTV Monitor: Supply, install, configure and commission professional 100 inch CCTV monitoring display/LED monitor of approved size and resolution, suitable for continuous surveillance operation, complete with HDMI/DisplayPort or other required interfaces, power supply, wall/desk mounting accessories and connection to the NVR/VMS.	No	3.00		
	PoE Network Switch: Supply, install, configure, test and commission managed/unmanaged PoE/PoE+ network switch of approved make and model, having sufficient ports and PoE power budget to supply all associated IP CCTV cameras, complete with uplink ports, power supply, rack/wall mounting accessories, patch cords and configuration.	No	1.00		
	CCTV Cat 6 Cabling: Supply and install Category 6, 4-pair, 100-ohm twisted-pair data cable for connection between each CCTV camera and the respective PoE/network switch, including routing, dressing, termination, identification, testing and certification, complete with all accessories.	M	300.00		

	CCTV Equipment Rack: Supply and install lockable 19-inch CCTV/network equipment rack or cabinet of appropriate size and capacity, complete with mounting rails, cable management, ventilation, PDU, shelves, earthing/bonding provisions and all accessories required for installation of NVRs, switches, patch panels and associated equipment.	No	1.00		
	Testing and Commissioning: Complete testing and commissioning of the entire CCTV surveillance system, including verification of all cameras, recording equipment, storage, monitors, network switches, fibre links, power supplies, UPS, remote viewing, recording/playback and system alarms, including correction of defects and final demonstration to the Engineer.	Lot	1.00		
	TOTAL				
PART H: MECHANICAL WORKS (MVAC & LIFTS)					
MECHANICAL WORKS					
S/No	**DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
1	**Mechanical Ventilation and Air conditioning Works**				
1.1	**Variable Refrigerant Flow (VRF) System**				
1.1.1	**VRF OUTDOOR UNIT**				
	Supply, install, test and commission air-cooled inverter-driven Variable Refrigerant Flow (VRF) outdoor condensing unit heat pump type(as Daikin or equivalent), minimum cooling capacity 50 kW, complete with DC inverter compressors, variable speed condenser fans, microprocessor controls, refrigerant charge, anti-corrosion coated heat exchanger, automatic oil balancing system, low ambient operation controls, fault diagnostics,	Nº	3.00		

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	communication interfaces and all accessories necessary for a complete operational system. Unit shall be suitable for connection to multiple indoor units through a common refrigerant piping network.				
1.1.2	**Ceiling Cassettes Indoor Units**				
	Supply, install, test and commission high wall indoor type VRF indoor air conditioning units, each having a minimum cooling capacity of 18,000 BTU/hr (3.56 kW), complete with decorative panel, washable air filters, electronic expansion valve, condensate drain pump, wireless wall controller, communication cabling and all accessories necessary for a complete installation. Units shall be suitable for suspended ceiling installation and connection to the VRF refrigerant piping network.		16.00		
1.1.3	**Ceiling Cassettes Indoor Units**				
	Supply, install, test and commission four-way ceiling cassette type VRF indoor air conditioning units, each having a minimum cooling capacity of 24,000 BTU/hr (7.1 kW), complete with decorative panel, washable air filters, electronic expansion valve, condensate drain pump, wireless wall controller, communication cabling and all accessories necessary for a complete installation. Units shall be suitable for suspended ceiling installation and connection to the VRF refrigerant piping network.	Nº	8.00		
1.1.3	**High Wall Indoor Units**				
	Supply, install, test and commission wall mounted VRF indoor air conditioning units, with cooling capacity of 18,000 BTU/hr (5.3 kW), complete with decorative panel, washable air filters, electronic	Nº	6.00		

	expansion valve, condensate drain pump, wireless wall controller, communication cabling and all accessories necessary for a complete installation. Units shall be suitable for suspended ceiling installation and connection to the VRF refrigerant piping network.				
1.1.4	**Refrigerant Copper Pipe Network**				
	Supply, install, pressure test, evacuate and commission complete refrigerant piping system for the VRF air conditioning installation comprising hard drawn seamless dehydrated refrigeration grade copper tubing for suction, liquid and gas lines, complete with all branch selector fittings, Y-joints, headers, brazed joints using nitrogen purging, supports, hangers, identification labels, UV-resistant weatherproof insulation, pipe sleeves, fire stopping materials, pipe protection, condensate drain piping, pressure testing, vacuum drying, refrigerant charging and all accessories required for a complete operational installation.	LS	1.00		
1.1.5	**VRF Controls and BMS Integration**				
	Supply, install, test and commission central VRF controller complete with scheduling functions, fault monitoring, temperature control, communication gateway and interface to Building Management System (BMS), including all cabling and accessories.	Ls	1.00		
2	**LIFTS**				
2.1	**Dedicated Vault Lift: Basement to Ground Floor**				

	Supply, deliver, install, test and commission one complete heavy-duty secure, electric traction type, goods/passenger lift serving the Basement Vault and Ground Floor only, installed within an architectural lift shaft of approximately 1.50 m × 2.10 m. The lift shall be designed for the secure transportation of heavy loads, secure equipment and authorised personnel, and shall have a minimum rated lifting capacity of 1,000 kg, or the maximum practical capacity achievable within the available shaft dimensions as confirmed by the manufacturer. Lift shall include the traction machine, VVVF drive, controller, guide rails, counterweight, suspension system, overspeed governor, safety gear, buffers, automatic heavy-duty landing and car doors, door protection system, landing call stations, car operating panel, floor position indicators, emergency lighting, alarm, emergency two-way communication system and all associated equipment required for a complete operational installation. Lift car and floor shall be designed for heavy-duty loading and repeated movement of wheeled cash/gold/equipment containers, with reinforced car flooring and heavy-duty stainless-steel or equivalent durable internal finishes. The lift floor loading shall be suitable for the anticipated concentrated and distributed loads associated with secure cash and equipment transportation. The lift shall incorporate appropriate security interface, emergency override and authorised manual operation facilities, without compromising statutory safety and rescue requirements. The lift shall	Lot	1.00		

	be connected to the standby generator supply and shall be provided with emergency operation/controlled return functionality upon loss of normal power. Provide appropriate interface with the fire alarm and emergency systems. Include all lift equipment, shaft equipment, landing entrances, pit equipment, electrical/control wiring, emergency power connection, access-control interface, testing, statutory inspection/certification, commissioning and operator training.				
2.2	**Main Building Lift: Basement to Third Floor**				
	Supply, deliver, install, test and commission one complete passenger lift serving Basement, Ground, First, Second and Third Floor levels, installed within an architectural lift shaft having an internal clear shaft dimension of approximately 1.40 m × 2.00 m. Lift shall be a machine-room-less (MRL) electric traction passenger lift, or approved equivalent compatible with the available shaft dimensions, complete with energy-efficient traction machine, controller, VVVF drive, guide rails, counterweight, suspension system, overspeed governor, safety gear, buffers, automatic landing and car doors, door protection system, landing call stations, car operating panel, floor position indicators, emergency lighting, alarm, emergency communication system and all accessories required for a complete installation. Lift shall provide automatic operation with automatic levelling and shall serve all five designated floors. Lift car capacity, dimensions and door opening shall be selected by the specialist lift	Lot	1.00		

	contractor to suit the available shaft dimensions, anticipated occupancy and applicable lift standards, subject to Architect/Engineer approval. Provide complete lift electrical supply and control connections, interface with the building fire alarm system, emergency power supply, emergency recall operation, access-control interface where required, shaft and pit equipment, testing, statutory inspection, certification and commissioning.				
	TOTAL				
PART I: PLUMBING & DRAINAGE WORKS					
S/No	**DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
1.0	**SANITARY FITTINGS**				
1.1	**Hand Wash Basin**				
	Supply, deliver and Install approved ceramic double wash hand basin complete with counter top, stainless steel tap(s), waste fitting, bottle trap, angle valves, flexible connectors, fixing brackets, and all necessary accessories, complete in all respects. Size:- 500 mm X 1200mm	Nº	8.00		
	Ditto as above but 500 x 600	Nº	4.00		
1.2	**W.C Suits (Low flush)**				
	Supply, Deliver and Install close-coupled water closet suite in approved ceramic finish complete with cistern, dual flush mechanism, soft-close seat cover, inlet and outlet connectors, angle valve, flexible hose, floor fixing bolts, sealant, and all necessary accessories, complete in all respects.	Nº	18.00		
1.3	**Floor Drain**				
	Supply, deliver and install 100mm UPVC floor drain in the bathrooms complete with grating cover, trap seal, outlet connections, bedding, and all	Nº	25.00		

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	necessary fittings, complete in all respects.				
1.4	**Bidet Spray**				
	Supply, deliver and install approved bidet spray set comprising trigger-operated nozzle, high-pressure flexible hose, wall mounting bracket, angle valve, and all necessary connectors and fittings, including fixing, jointing, connection to water supply system, testing, and commissioning, complete in all respects.	Nº	18.00		
1.5	**Glass Mirror**				
	Supply and fix crystal glass mirror splash blacks with copper back protected. Complete with all the necessary accessories. Size:-1200mm x600mm	Nº	8.00		
	Ditto as above but 800 x 600	Nº	4.00		
1.6	**Faucet**				
	Supply and install chrome-plated brass faucets of approved make and model, subject to Engineer's approval, complete with wall flange, connection fittings, and all necessary accessories, including fixing, jointing, testing, and commissioning, complete in all respects.	Nº	60.00		
1.7	**Kitchen Sink**				
	Supply and install double bowl stainless steel kitchen sink of approved make and model, subject to Engineer's approval, complete with mixer tap, waste fittings, basket strainers, P-trap, overflow, fixing brackets, sealant, and all necessary accessories, including connection to water supply and drainage systems, fixing, jointing, testing, and commissioning, complete in all respects.	Nº	1.00		
1.8	**Toilet Paper Holder**				

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	Supply and fix Toilet Paper Holder made of metal roller, Complete with fastening screws. Size; 150x25mm.	Nº	18.00		
2	**PLUMBING RETICULATION WORKS**				
2.1	**Water Supply & Distribution Pipes**				
	Supply, install and test Domestic Cold Water POLYPROPYLENE pressure pipes (P.P.R) PN25 to DIN 8077/8078 for domestic cold water pipes for above and under ground installations, complete with all the necessary pieces such as bends, Ys, Ts, reducers, nipples, unions, hangers, supporters, etc. Unit price Shall Include all the necessary assistance to the installation works such as chiseling of ,beams walls, slabs, floors, etc. and closing them with concrete or cement mortar to normal condition, disinfection of the pipes with chlorine, painting all exposed PP-R pipes, hangers supporters, etc., The installation shall be tested at a pressure of 10 Kg/cm^2 at the expense of the contractor.				
2.1.1	15 mm Dia. Pipes	M	50.00		
2.1.2	20mm Dia. Pipes	M	80.00		
2.1.3	25mm Dia. Pipes	M	40.00		
2.1.4	32mm Dia. Pipes	M	80.00		
2.1.5	40mm Dia. Pipes	M	60.00		
2.2	**Gate Valves**				
	Supply & fix bronze gate valves (PN25) of approved standards, on internal branch water pipes, pipe inlet to buildings at where shown on the drawing complete with all the necessary accessories.				
2.2.1	Diameter 25mm	Nº	18.00		
2.2.2	Diameter 32mm	Nº	14.00		
2.2.3	Diameter 40mm	Nº	12.00		
2.3	**PUMP SET**				

	Domestic Water Pump Set				
2.3.1	Supply, install, test, and commission domestic water booster pump set of approved make and model, subject to Engineer's approval, comprising duty and standby pumps (automatic changeover), each with 40mm inlet connection, capable of delivering water to elevated storage tanks at a minimum head of 20 meters, complete with electric motors, base frame, anti-vibration mountings, non-return valves, isolating valves, pressure gauges, control panel with automatic operation and protection devices, level controls, interconnecting pipework, wiring, and all necessary fittings and accessories, complete in all respects.	SET	1.00		
	Fire Hidrant Pump Set				
2.3.2	Supply, install, test, and commission high-pressure fire hydrant pump set of approved make and model, subject to Engineer's approval, comprising duty and standby electric pumps (with automatic changeover) and jockey pump, capable of delivering required flow and pressure for fire hydrant system operation, complete with electric motors, base frame, anti-vibration mountings, non-return valves, isolating valves, pressure gauges, pressure switches, control panel with automatic and manual operation, alarm and protection systems, interconnecting pipework, wiring, and all necessary fittings and accessories, complete in all respects.	SET	1.00		
2.4	**GROUND WELL WATER**				
	Construct 100 CBM capacity Reinforced Concrete Ground well including excavations, dewatering rebar reinforcement, gravel bedding &	LS	1.00		

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	formworks, manhole cover & etc. as shown on the detailed drawings to complete.				
3.0	**DRAINAGE RETICULATION WORKS**				
3.1	**Waste Water Drainage Pipes**				
	Supply and install soil, waste and vent pipe in horizontal branches and vertical stacks made of uPVC pipe of approved standard (PN6) including all the necessary fittings such as elbows,Ys,Ts, clean outs, increasing hangers, supporters ,etc pieces with tight joints. All horizontal branch pipes shall be laid in a minimum slope of 2 %. in the direction of flow. Unit price shall include all the necessary assistance to the installation work such as chiseling of walls, floor slabs,beams,etc, and closing them with concrete or cement mortar to normal condition.				
3.1.2	Diameter 50mm	M	60.00		
3.1.3	Diameter 63mm	M	70.00		
3.1.4	Diameter 75mm	M	70.00		
3.1.5	Diameter 100mm	M	130.00		
3.1.6	Diameter 150mm	M	50.00		
3.2	**Down Pipe**				
	Supply and fix 100mm diameter upvc down pipes where shown on the drawing, secured to wall with metal straps, complete with all the necessary accessories.	M	40.00		
3.3	**Inspection Chambers**				
	Excavate and construct inspection chambers of specified dimensions, complete with concrete base, benching and channeling, blockwork walls, internal plastering, reinforced concrete cover slab, medium-duty cover and frame, backfilling, and all necessary works, in accordance with specifications and to the approval of the Engineer, complete in all respects	Nº	5.00		

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3.4	**Septic Tank**				
	Construct stone massonry wall septic tank of size (6 x 3 x 3)CBM as per the shared design, including excavation, disposal of surplus excavated material, approved hardcore bedding, blinding concrete, reinforced concrete base, stone massonry walls and cover slab, internal dividing/baffle walls, manholes and access covers. The tank shall be internally divided into the required chambers with appropriately sized openings and access covers, including inlet and outlet pipes, tees/baffles, ventilation pipe, manholes/access covers, pipe connections, fittings, sealants and all associated accessories. Include backfilling, compaction, testing for water-tightness, connection to the incoming soil/wastewater drainage system and outgoing effluent/disposal system, and all necessary works to provide a complete, functional and durable septic tank installation in accordance with the drawings, specifications and Engineer's approval	No	1.00		
	TOTAL				
PART J: DATA CENTRE – ELECTRICAL WORKS					
S/No	**Description**	**Unit**	**QTY**	**RATE**	**AMOUNT**
A	**ELECTRICAL WORKS**				
1	**Data Centre UPS**				
	Supply, deliver, install, test and commission a three-phase online double-conversion UPS system dedicated exclusively to the data centre critical load, with a minimum capacity sufficient to support the calculated IT load of 100kW plus the approved future capacity allowance. The UPS system shall be configured to provide N+1 redundancy and shall be capable of concurrent maintenance	Nº	1.00		

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	without interruption to the critical IT load. The system shall comprise independent A and B power paths where required, with each critical rack provided with dual power supplies from independent UPS-backed distribution paths. UPS shall comprise rectifier/charger, inverter, static bypass, maintenance bypass, input/output isolation and protection, digital monitoring and control, battery management system, LCD/HMI display, alarms and communication interface for BMS/EPMS.				
2	**Battery Bank**				
	Supply, deliver, install, test and commission a complete UPS battery energy storage system, comprising maintenance-free valve-regulated lead-acid (VRLA) or approved lithium-ion battery modules, suitably rated for the specified UPS system and required autonomy, complete with battery racks/cabinets, interconnecting links, DC isolators/breakers, battery monitoring system, temperature monitoring, protective devices, labels and all accessories. Battery bank shall be sized to support the full designated critical data-centre UPS load for an autonomy period of 15 minutes at the manufacturer's end-of-life battery capacity, taking into account battery ageing, temperature, discharge rate, inverter efficiency and allowable end voltage. Include battery cabling, terminations, supports, testing and commissioning.	Nº	1.00		
3	**Emergency Lighting / Exit Sign Battery System**				

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	Supply, deliver, install, test and commission a centralized emergency lighting battery system comprising rechargeable battery bank, automatic charger, battery monitoring, DC distribution panel, outgoing protected circuits and all accessories required to supply emergency lighting and illuminated exit signage upon failure of the normal electrical supply. System shall automatically maintain the emergency lighting/exit-sign circuits upon loss of normal supply and shall provide the specified emergency duration in accordance with the applicable life-safety requirements. Include battery enclosure/rack, charger, DC protection, distribution wiring, monitoring, testing and commissioning.	Nº	1.00		
4	**Electrical Distribution Panels**				
	Supply, Delivery and Installation, testing and commissionaling of panel boards in the Utility room c/w all the necessary accessories and components as per the Approved drawings, SLD layout and technical specifications, Consisting but not limited to:				
a	14-way TPN MCCB Sub Main Distribution Board Data center with 150 Amperes, as per the SLD layout.	Nº	1.00		
b	8-way TPN MCCB Sub Main Distribution Board CRAC UNITS with 250 Amperes, as per the SLD layout.	Nº	1.00		
c	12-way TPN MCB Distribution Board Power Room with 40 Amperes, as per the SLD layout.	Nº	1.00		
6	**Lighting**				
	Lighting system for the Data Centre Consisting of but not limited to:				
6.1	Lighting system with 600 x 600 aesthetically designed fittings of	Nº	12.00		

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	adequate numbers, LED energy efficient lamps for providing uniform lighting intensity of 500 LUX at server Rooms. The system should include necessary switches, for each of the Data centres, fixed at locations as per the specifications and approved drawings. (Refer to the Lighting Layouts)				
6.2	Ditto as above but emergency	Nº	4.00		
6.3	battery Powered emergency Lighting system for all areas as per the specifications in the Lighting Layout	Nº	8.00		
7	**Cable Trays and Misc. Items**				
A	**Data Centre UTP Basket Tray**				
	Supply, deliver and install heavy-duty 600 X 100mm data centre type wire basket cable tray, manufactured from high-quality steel wire mesh, hot-dip galvanized or electro-galvanized with corrosion-resistant finish, suitable for installation within the data centre and associated telecommunications areas. Tray shall be complete with factory-manufactured bends, tees, crosses, reducers, couplers, splice plates, brackets, cantilever arms, trapeze supports, threaded rods, anchors, fixings, bonding/earthing accessories and all other components required for a complete installation.	M	40.00		
B	**Copper Power Cable Tray**				
	Supply, deliver and install heavy-duty perforated steel cable tray system suitable for supporting power cables within the data centre and associated electrical rooms, manufactured from galvanized steel or hot-dip galvanized steel, complete with straight tray sections, bends, tees, crosses, reducers, couplers, jointing hardware, brackets, cantilever supports, trapeze supports, threaded rods, anchors,	M	40.00		

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	cable cleats/retaining accessories and all necessary fixing and installation accessories.				
8	**Electrical safety Equipment**				
	Supply of Rubber mat of 10mm thickness of appropriate size in frint and rear of all the floor mount electrical panels in UPS and panel room.				
	Supply and installation of First Aid Box	Nº	2.00		
	Supply and installation of First Aid Chart	Nº	2.00		
9	**Services**				
	Installation, configuration, commissioning, documentation and training of electrical systems as per the above requirements.	Lot	1.00		
10	**Miscellanoues Works - Data Centre**				
	Any other electrical works required to complete the Data Centre requirement	Lot	1.00		
TOTAL					

PART K: DATA CENTRE – SAFETY & SECURITY SYSTEMS					
S/No	**Description**	**Unit**	**QTY**	**RATE**	**AMOUNT**
A	**FIRE SUPPRESSION SYSTEM**				
1	**Supply, delivery, installation, testing and commissioning of NOVEC 1230 or FM 200 Gas based fire suppression system for the server rooms UPS & Battery room and as per the the relevant NFPA Standards.**				
1.1	Novec 1230/ FM200 cylinder with beta valve	Nº	4.00		
1.2	Novec 1230/FM200 agent	Kg	450.00		
1.3	Primary Cylinder kit	Nº	2.00		
1.4	End slave cylinder Kit	Nº	4.00		
1.5	Discharge Nozzle	Nº	5.00		
1.6	Manifold	Nº	1.00		
1.7	M.S seamless pipes as per ASTM A 106 Gr. B, schedule 40 with necessary fittings	Lm	30.00		
1.8	Abort switch with accessories	Nº	1.00		

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1.9	Hooter cum strobe	Nº	2.00		
1.10.0	Warning signages "Do Not Enter"/ "Exit-Gas released" working on 24v DC power supply.	Nº	2.00		
1.11	2 C 1.5 Sqm amoured cable with accessories	Lm	20.00		
B	**Aspiration Based detector System**				
2	**Supply of VESDA aspiration-based smoke detection system with required piping, panels, sounders and accessories as per the approved drawings and specifications. The system shall be integrated with BMS using potential free digital I/O.**				
2.1	Early warning smoke detection system control panel with detection and all required accessories for the 2 server rooms	Nº	1.00		
2.2	capillary tubes	Nº	6.00		
2.3	Air termination Nozzles	Nº	8.00		
2.4	25mm dia PVC conduit	Lm	20.00		
2.5	Hooter cum Strobe	Nº	2.00		
2.6	2 C 1.5 sqmm Cu armoured FRLS cables	Lm	30.00		
C	**ACCESS CONTROL SYSTEM**				
3	Supply, delivery, installation, testing and Commissioning of Access Control System with all accessories and software as per the specifications for biometric and pin.	Lot	1.00		
3.1	4 reader access controllers with enclosures and power supply units with required accessories	Nº	6.00		
3.2	Access control System Software	Lot	1.00		
3.3	Fingerprint, PIN based biometric reader with accessories	Nº	6.00		
3.4	Electromagnetic lock for double leaf door with accessories	Nº	3.00		
3.5	Electromagnetic lock for single leaf door with accessories	Nº	3.00		
3.6	2 core 1.5 sqmm armoured shielded cable with accessories	Lm	100.00		

3.7	8 Core 1.0 sqmm armoured shielded cable	Lm	100.00		
3.8	CAT 6A unarmoured cable along with conduit	Lm	100.00		
3.9	Back up Non spillable battery with capacity for minimum 24Hrs	Nº	2.00		
D	**CCTV SURVEILLANCE SYSTEM**				
4	**Supply Delivery, Installation, testing and Commissioning of IP based CCTV surveillance system with 30 days of storage as per the following specifications:**				
4.1	6 Mega Pixel indoor dome dome camera	Nº	28.00		
4.2	6 Mega Pixel Outdoor dome Bullet camera	Nº	1.00		
4.3	48 channel Network Video recorder (NVR) with recording Storage of 30 days	Nº	1.00		
4.4	32 pot POE switch	Nº	1.00		
4.5	15 U rack c/w all the accessories like PDUs, blanking panels etc	Nº	1.00		
4.6	**CAT 6 UTP cable (305m Box) with all termination, crimping etc.**	**coils**	**3.00**		
4.7	25mm PVC Conduits with GI Saddle and spacers, flexible extensions, back boxes and gang boxes, junction boxes with elmex terminals etc, complete as required to fullfill the desired objective of cabling.	Lm	150.00		
4.8	8 TB HDD	Nº	4.00		
4.9	HDMI Cable	Nº	4.00		
4.10.0	75" TV SET	Nº	2.00		
E	**WATER LEAKAGE DETECTION SYSTEM**				
5	**Supply, Delivery, Installation, Testing and Commissioning of water leakage detection system for the server rooms as per the following specifications:**				
5.1	Water leakage detection panel with 4 zone detection modules, sound cum	Nº	1.00		

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	strobe units, potential free contacts for status indication and accessories				
5.2	Water leakage detection system sensing cables	Lm	80.00		
F	**Public Address System**				
6	**Supply, delivery, installation, testing and commissioning of Public Address system, complete with all the necessary accessories and as per the following specifications:**				
6.1	Call station table top microphone with 15M cable	Nº	1.00		
6.2	controller with aplifier (240w)	Nº	1.00		
6.3	20W wall mount speaker	Nº	10.00		
6.4	Music Player for BGM Application	Nº	1.00		
6.5	2 Core 1.0 sqmm armoured FRLS	Lm	50.00		
6.6	25mm FRLS PVC Conduit with accessories	Lm	50.00		
G	**INTELLIGENT BUILDING MANAGEMENT SYSTEM**				
7	Supply, installation, delivery, testing and commissioning of intelligent Building management system (IBMS) for the Data Center for monitoring and control of Access control system, Fire Alarm system, Fire Suppression system, Temperature and Humidity monitoring for the server rooms, UPS and battery room and other critical areas, VRF indoor units, VESDA, IT Racks DG parameters as per the technical specifications.	lot			
7.1	Temperature and relative humidity sensors	Nº	12.00		
7.2	Hydrogen sensors for battery room	Nº	12.00		
7.3	**IBMS software capable of monitoring all the specified parameters for the entire data centre**	**Lot**	**1.00**		
I	**SERVICES**				
9	**Installation, configuration commissioning, cocumentation and training of all safety and security**	**Lot**	**1.00**		

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	systems as per the above requirements				
	TOTAL CARRIED TO SUMMARY				
PART L: DATA CENTRE – PASSIVE NETWORK CABLING					
S/No	**Description**	**Unit**	**QTY**	**RATE**	**AMOUNT**
A	**RACKS**				
1	Supply, delivery, installation of Server and Network racks (42U) of 2100 Height x 600 width x 1200 depth) and 2 No.s of IPDUs with required accessories as per specifications	Nº	10.00		
B	**GENERAL CABLING**				
2	**Supply, delivery, installation of CAT 6 cabling for other data centre areas as per the approved drawings and specifications including IO points, cable terminations, patch panels, patch chords, etc.**	**M**	**1,000.00**		
	CAT 6 A 1-meter Patch cord	**Nº**	**110.00**		
	CAT 6A 2 meter patch cord	**Nº**	**110.00**		
C	**SERVICES**				
3	**Installation, configuration, commissioning,documentation and training of network cabling system as per the specifications.**	**Lot**	**1.00**		
D	**MISCELLANEOUS**				
4.1	Supply, delivery, installation, testing and commissioning of Personal Computer with windows 11 operating system as per the technical specifications for IT ROOM and TELECOM control room, etc.	Nº	20.00		
4.2	Supply, delivery, installation, testing and commissioning of professional grade 75" Video Wall LED monitors for BMS Room.	Nº	1.00		
4.3	**Supply and delivery, of maintenance equipment, tools and mandatory spares for the data center and on site user training for O&M.**	**Lot**	**1.00**		
Total					
PART M: DATA CENTRE – PRECISION COOLING SYSTEM					

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Item	Description	Unit	QTY	RATE	AMOUNT
i	**The bidder shall clearly indicate the brand and model of each proposed equipment priced for. Catalague/brochures/cut-sheets with clear marking of selected equipment shall also accompany the bid.**				
ii	**Provide for associated civil works required for the Mechanical Services Installation as described and listed in this BoQ and as shown on the drawings. The works shall include the formation of all holes for the services to pass through etc., and the sealing of the holes once the services have been installed. Provide structural supports / framing for the WU, EU & ACU, EF at height such as to allow for the installation of P- trap for condensate drain lines.**				
1	**PRECISION COOLING**				
1.1	Supply, install, test and commission precision air-conditioning unit such as STULZ CyberAir 3PRO DX or approved equivalent, nominal cooling capacity approximately 150 kW each, downflow configuration suitable for raised-floor air distribution, complete with EC fans, DX refrigeration system, evaporator coil, compressors, expansion/control valves, filters, controls, microprocessor controller, temperature/humidity monitoring, alarms, BMS interface, raised-floor plenum/base and all standard accessories required for a complete operational installation. Unit shall be suitable for continuous 24/7 operation in a mission-critical data-centre environment. Final model and	Nº	2.00		

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	capacity to be confirmed by manufacturer selection.				
1.2	Supply and installation of raised-floor support/plenum arrangement for each precision cooling unit, including adjustable support frame, floor stand, discharge connection, sealing and all accessories required to connect the unit to the 600 mm raised-floor supply-air plenum.	Set	2.00		
1.3	**Supply and installation of precision cooling unit control and sequencing system, including lead/lag rotation, automatic duty/standby changeover, common alarm, unit failure indication, temperature monitoring and BMS interface. System shall provide N+1 operation (2 duty + 1 standby).**	**Lot**	**1.00**		
2	**REFRIGERANT PIPE WORK**				
2.1	**Supply, install, test and commission refrigerant liquid pipework connecting each precision air-conditioning unit to its associated external air-cooled condenser, using refrigerant-grade copper tubing of suitable thickness and pressure rating, complete with fittings, brazed joints, supports, clamps, insulation, vapour barrier, identification labels and all accessories. Pipe sizes shall be selected and confirmed by the manufacturer based on final unit selection, refrigerant type, pipe length and vertical lift.**	**M**	**50.00**		
2.2	**Supply, install, test and commission refrigerant suction/gas pipework connecting each precision air-conditioning unit to its associated external air-cooled condenser, using refrigerant-grade copper tubing of suitable thickness and pressure rating, complete with fittings, brazed**	**M**	**50.00**		

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	joints, supports, clamps, insulation, vapour barrier, identification labels and all accessories. Pipe sizes shall be selected and confirmed by the manufacturer.				
2.3	**Supply and installation of refrigerant pipework thermal insulation, closed-cell elastomeric insulation suitable for refrigeration applications, including vapour-sealed joints, UV/weather protection where exposed externally, aluminium cladding or equivalent external protection where required.**	**M**	**100.00**		
2.4	**Refrigerant pipework fittings including elbows, reducers, branches, isolation/service valves, access fittings, vibration isolation and other proprietary accessories required for a complete installation.**	**Lot**	**1.00**		
2.5	**Refrigerant pipework pressure testing using dry nitrogen, evacuation/dehydration, leak testing and preparation of the refrigeration circuits for commissioning. Refrigerant charging, system commissioning and refrigerant balancing in accordance with the manufacturer's requirements, including provision of refrigerant required for the final installation.**	**Lot**	**1.00**		
3	**OUTDOOR AIR-COOLED CONDENSERS**				
3.1	Supply, install, test and commission double fan air-cooled external condenser, factory matched to the corresponding precision air-conditioning unit, complete with condenser coil, EC/variable-speed condenser fans, fan speed control, refrigerant controls, weatherproof casing, control interface and all	Nº	2.00		

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	manufacturer's standard accessories. Condenser shall be selected for the project design ambient temperature and final refrigerant circuit conditions.				
3.2	Supply and installation of galvanized steel/structural support frames for outdoor condenser units, including anti-vibration mounts, corrosion protection, anchor bolts, fixings and all accessories required for a complete installation.	Set	2.00		
3.3	Supply and installation of weatherproof protection/guarding around outdoor condenser units where required, including access for maintenance and manufacturer-required clearances	Set	2.00		
3.4	**Electrical power connection from designated distribution board to each outdoor condenser, including local weatherproof isolator, cable containment, power/control cabling and terminations.**	**lot**	**1.00**		
4	**AIR DISTRIBUTION & CONTAINMENT**				
4.1	Supply and installation of 600 x 600 high air flow directional perforated/vented raised-floor panels, such as Tate DirectPerf or approved equivalent, within the contained cold aisle, sized and positioned to provide the required cooling airflow to the IT racks, complete with supporting pedestals and stringers.	Nº	20.00		
4.2	Supply and installation of solid raised-floor panels to all areas not requiring air discharge, including cutting and sealing around services.	Nº	215.00		
4.3	Supply and installation of cold aisle containment system, fully enclosed and separated from the hot aisle, including roof/ceiling panels, end doors, side panels, framing, seals, access doors and all associated	Lot	1.00		

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	hardware. System shall be coordinated with the 20-rack arrangement.				
4.4	Supply and installation of blanking panels and sealing accessories for IT racks to prevent uncontrolled recirculation of hot air into the cold aisle.	Nº	20.00		
4.5	**Sealing of raised-floor cable penetrations and other openings within the cold aisle/raised-floor plenum to minimize uncontrolled air leakage and maintain the required underfloor static pressure.**	**Lot**	**1.00**		
5	**Services**				
	Installation, configuring, commissioning, documentation and training of precision cooling System. Allow for associated Electrical works from the isolator to the A/C and from indoor unit to outdoor unit. Also Allow for refrigerant pipework complete with lagging.	**Lot**	**1.00**		
TOTAL					