

Bill of Quantities

Project: SJH - Phase 1 Electrical Works
Building: SJH campus

Details: Electrical Works

Autoc ode	Description	Quantity	Unit	Rate	Total
1	PREAMBLES				
1.A	1. The following works are to be priced in accordance with the detailed design, specifications and scheme drawings as prepared by BDP. (Building Design Partnership)		Note		
	2. The tenderer is deemed to have visited the site to fully acquaint themselves with the scope of the works and conditions pertaining thereto		Note		
	3. The tenderer shall note that this Bill of Quantities (BOQ) is measured in accordance with the ARM4 Supplement 2 – Agreed Alternative Rules for the Measurement of Services Installations (Issue 1 2013) including Amendments issued 15 November 2019 unless otherwise stated.		Note		
	4. The tenderer is referred to the locational drawings, Architect's, Engineers, Mechanical & Electrical drawings, details, specifications, reports and all tender documentation accompanying this Bill of Quantities.		Note		
	5. For preliminaries particulars, please refer to tender documentation.		Note		
	6. The Tenderer is to provide a fully quantified schedule of rates to support their BOQ submission with all rates and prices extended. This will be requested within 15 working days following the issuance by the employer of Letter of acceptance (MF 1.4) to the successful tender.		Note		
	7. The work is measured as net fixed in position; as per the drawings; the tender shall allow for coordination which shall be deemed to be included within the rate.		Note		
	8. The Electrical BOQ shall be priced in strict accordance to the Electrical Specification, Drawings and Schedules listed:		Note		
	– Specifications: SPEC-001 – SJH Electrical Specification – Phase 1				
	– Drawings: (6-)E002 LV Schematic				

PREAMBLES

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Autoc ode	Description	Quantity	Unit	Rate	Total
1	PREAMBLES				(Continued)

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PREAMBLES
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Building: SJH campus

Details: Electrical Works

Autoc ode	Description	Quantity	Unit	Rate	Total
2	LV INSTALLATION				
	<u>Notes on Pricing</u> 1. All LV Equipment & material descriptions are to be interpreted as the supply, installation, inspection and setting to work, in accordance with the drawings and specifications 2. Quantities of all equipment, cabling, terminations etc. are to be taken as stated in this bill of quantities 3. LV Cables are to be priced as laid on or within containment with all fixings included in the rate 4. Electrical equipment rates to include for all ancillary items integral and associated with the equipment; including but not limited metering, fuses, shunts, earth terminals, surge protectors, factory inspection tests etc as required by the specifications and noted on the drawings. 5. Equipment supports and castings where an integral part of the item is deemed to be included 6. Disconnecting, setting aside and reconnecting for the convenience of other trades is deemed to be included 7. Rates to include marking out of all holes, chases mortices and the like. 8. Bus bars, switchgear, etc deemed to be included 9. Mains and sub-mains cable items are deemed to include terminations 10. Conduit accessories including all conduit boxes required for the final circuits are deemed to be included 11. All fixing, bending, cutting, screwing and jointing on final sub-circuits enumerated on a points basis are deemed to be included 12. The contractor shall carry out the works, complete and in accordance with the information as set out in the following specification section and drawing: 2.A – Specifications: SPEC-001 – SJH Electrical Specification – Phase 1 – Drawings: (6-)E002 LV Schematic <u>ELECTRICAL SUPPLY & ELECTRICITY CENTRE</u> <u>Medium Voltage Switchgear</u> <u>Supply, install, test and commission a new 4-way secondary modular air-insulated medium voltage switchgear assembly of fixed type construction, SF6-free vacuum interruption technology, complete with all integrated protection, control, metering, indication, and ancillary equipment as specified; All works shall be carried out in accordance with manufacturer requirements, IEC standards, IS 10101 where applicable, and project drawings and specifications.</u> 2.B New MV switchgear <u>Supply, install, test and commission all inter-tripping, alarm and control cabling between the new medium voltage circuit breakers and the circuit breakers within the main low voltage switchboard, complete with all associated containment, supports, terminations, glanding, ferruling, identification and accessories required for a complete operational i</u> 2.C inter-tripping cables between the new MV circuit breakers and the circuit breakers in the main LV switchboard <u>Temporary Generators</u>		Note Note Note Note Note Note Note Note Note Note Note Note		
		1	item		
		1	item		

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2	LV INSTALLATION				(Continued)
2.D	<u>Include for the temporary hire and installation of 1.0MVA temporary generators to include all temporary flexible cabling for the duration of the works to power the LV switchboards fed from these transformers. All power outages/shutdowns required must be agreed in advance via method statements with SJH Facilities Department; all in accordance with the drawings, schedules and specifications.</u> 1.0MVA temporary generators LV INSTALLATION <u>Supply and installation of electrical infrastructure upgrade – electrical supply and main distribution services, as described in SPEC-001 – SJH Electrical Infrastructure Specification – Phase 1, in accordance with The National Rules for Electrical Installations NSAI I.S. 10101, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications.</u> 10kV – 400V Transformer <u>The electrical specialist shall carry out the following work associated with the new transformer installation:</u>	2	Nr		
2.E	Supply and install single-core XLPE/AWA/PVC LSOH conductors in trefoil per phase & neutral from the MV switchboard to the main LV switchboard via the step-down transformers.	1	item		
2.F	Supply, install and terminate all control, monitoring and protection cables and cable containment systems associated with the transformer installation.	1	item		
2.G	Supply and install all the cable rack and all the galvanised structural steel supports necessary to install the main 400V / 10kV cables, earthing, and control cables associated with the transformer installation.	1	item		
2.H	For each transformer, supply and install 2No. 4-core 2.5sq.mm XLPE/SWA/LSOH cables and cable support systems, from the associated BMS junction box to the temperature and gas pressure protective devices on the transformer.	1	item		
2.I	Supply and install the earthing cables for the transformers.	1	item		
	Main Distribution Board & Sub-Main Reinstatement <u>Upgrade of the existing main SJH Energy Centre LV switchboard and general works to the main Switchroom: complete with all the necessary supports, fixing and accessories, all in accordance with the drawings, schedules and specifications.</u>				
2.J	Supply, install, test and commission a new main distribution board complete with all necessary MCCB/MCB protective devices, busbars, neutral and earth bars, gland plates, internal wiring, labelling, and accessories as required.	1	item		
2.K	Reinstate all previously disconnected sub-main and final sub-circuit cabling to the new distribution board	1	item		
2.L	Carry out all testing and commissioning in accordance with current IS 10101, ETCI regulations, and manufacturer requirements	1	item		
2.M	Reconnection of all remaining sub-circuits to the relevant distribution boards	1	item		
	Cabling <u>Supply and installation of mains and sub-mains cabling, including, but not limited to cables, terminations, conduits, cable ties and all other ancillary items; all in accordance with the drawings, schedules and specifications.</u>				
2.N	Mains & Sub-Mains Cabling	1	item		
	<u>PANELS</u> Control Panels				

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2	LV INSTALLATION				(Continued)
	<u>Supply and installation of new control panels for the generator system, including wiring, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications.</u>				
2.O	Generator – New Synchronization G10 Panel	1	no		
2.P	Remote Monitoring Panel	1	no		
2.Q	Other	1	item		
	<u>TIE-INS AND MODIFICATION WORKS TO EXISTING SERVICES</u>				
	<u>Supply and installation of the tie-ins and modification works required to the existing electrical supply and mains distribution system, including but not limited to, connections and modifications to existing Main MV switchboard of new cabling; complete with all the necessary supports, fixing and accessories, all in accordance with the drawings, schedules and specifications.</u>				
2.R	Tie-ins and modification works to existing Electrical supply and Mains distribution system	1	item		
	<u>STRIP-OUT WORKS/ DISPOSAL</u>				
2.S	Include for the dis-connection, removal, and safe disposal of existing ring main units to be replaced	1	item		
2.T	Include for the dis-connection, removal, and safe disposal of existing transformers replaced	1	item		
2.U	Strip-out and remove from site all existing redundant switchgear	1	item		
2.V	Phased de-commissioning, disconnecting, removal and replacement of the 2No. existing 2.2MVA FG Wilson generators in the existing Energy Centre Generator Room	1	item		
2.W	Strip-out and removal from site all existing redundant generator equipment, cabling and electrical services in the Generator room as indicated on the electrical drawings	1	item		
	<u>GENERAL EARTHING AND BONDING</u>				
	<u>Earthing and bonding to LV systems above as required; all in accordance with the drawings, schedules and specifications.</u>				
2.X	Earthing and bonding	1	item		
	<u>GENERAL</u>				
2.Y	Testing & commissioning	1	item		
2.Z	Operating and maintenance manuals	1	item		
2.AA	Working drawings	1	item		
2.AB	Co-ordination drawings	1	item		
2.AC	As built drawings	1	item		
2.AD	Identification plates, labels and the like	1	item		
2.AE	Keys, tools and spares parts (as required)	1	Item		
2.AF	Marking the position of holes, mortices and chases	1	Item		
2.AG	Any other works in this section	1	Item		

LV INSTALLATION

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Autoc ode	Description	Quantity	Unit	Rate	Total
2	LV INSTALLATION				(Continued)

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LV INSTALLATION
Carried to Summary:

3	CABLE LADDER/ TRAY / TRUNKING INSTALLATIONS				
3.A	<u>Notes on Pricing</u>				
	1. All containment bill descriptions are to be interpreted as the design, supply & installation of the containment in accordance with the specifications and as shown on the drawings.		Note		
	2. All bill rates are deemed to be inclusive of all accessories; including access hatches, cable ties/restraints, fixings, lugs, ferrules, glands, lids, seals, supports, special supports, saddles, uni-strut etc as required to complete the installation in accordance with the specifications and as shown on the drawings.		Note		
	3. The Contractor shall include for the complete cable containment installations associated with all LV mains and sub-mains cables, mechanical plant wiring, power, lighting system and ELV systems as required in accordance with the specifications and as shown on the drawings.		Note		
	4. The Contractor shall supply and install a complete cable support system using galvanised steel cable tray and support steelwork as required in accordance with the specifications and as shown on the drawings.		Note		
	5. The Contractor shall have allowed for all containment to be factory manufactured as described within the specifications and noted on the drawings.		Note		
	6. The bill rates are deemed to include for the cable containment installation to be electrically continuous throughout, this being ensured by fitting earth continuity connections across every joint as supplied by the cable tray manufacturer; where cable tray meet but do not mechanically join, they shall be bonded using 25 mm green/yellow cable, lugged and bolted to the tray.		Note		
	7. Contractor to include all secondary steel, walkways, ladders, gantries etc. required to support and access equipment or distribution systems.		Note		
	8. The Contractor shall, within his rates, make allowances for all necessary change of levels and direction and additions/variations to brackets which are not shown on the drawings, in order to provide a full system.		Note		
	9. Rates to include marking out of all holes, chases mortices and the like.		Note		
	10. Conduit accessories including all conduit boxes required for the final circuits are deemed to be included		Note		
	11. All fixing, bending, cutting, screwing and jointing basis are deemed to be included		Note		
	12. Accessories, seals and all items for connections to equipment or other cable housing are deemed to be included		Note		
13. The contractor shall carry out the works, complete and in accordance with the information as set out in the following specification section and drawing:		Note			
	– Specifications:				
	SPEC-001 – SJH Electrical Specification – Phase 1				
	– Drawings:				
	(6-)E002 LV Schematic				
	ELECTRICAL CONTAINMENT INSTALLATIONS				
	<u>Supply and installation of electrical infrastructure upgrade – electrical containment system, installed in order to complete a full compliant design, all necessary supports and brackets, as described in SPEC-001 – SJH Electrical Infrastructure Specification – Phase 1, in accordance with The National Rules for Electrical Installations NSAI I.S. 10101, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications.</u>				
	<u>CABLE TRAY/ LADDERS/ TRUNKING</u>				
	Cable Trays/ Ladders				

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Autoc ode	Description	Quantity	Unit	Rate	Total
3	CABLE LADDER/ TRAY / TRUNKING INSTALLATIONS				(Continued)
	<u>Supply and install galvanised steel cable tray, ladder and trunking systems in accordance with I.S. EN 61537:2007 and I.S. EN 10346:2015, complete with all bends, tees, reducers, couplers, supports, brackets, fixings and accessories required for a complete installation. Containment systems shall be segregated in accordance with the ETCI National Rules for Electrical Installations and installed in accordance with the drawings, schedules and specifications, including all supports, earthing continuity, identification, testing and associated ancillary works.</u>				
3.B	ELV Tray	1.00	Item		
3.C	Fire Alarm Tray	1.00	Item		
3.D	LV Tray/ Ladder	1.00	Item		
3.E	Other	1.00	Item		
	<u>Supply and install fire-rated cable penetration sealing systems to all wall and floor penetrations where electrical services pass through fire compartment elements, ensuring the fire integrity and performance of the barrier is fully reinstated to a rating equal to or greater than the original construction. Firestop systems shall comprise tested and certified proprietary products, including modular cable transit devices such as EZ-Path by Cablofil or approved equivalent, installed in accordance with manufacturers instructions and relevant fire certification requirements. Include all sleeves, sealants, backing materials, identification labels, testing, certification and associated builders work necessary to provide a complete compliant firestopping installation.</u>				
3.F	Fire Stopping	1.00	Item		
	<u>TIE-INS AND MODIFICATION WORKS TO EXISTING SERVICES</u>				
	<u>Supply and installation of the tie-ins and modification works required to the existing containment system; complete with all the necessary supports, fixing and accessories, all in accordance with the drawings, schedules and specifications.</u>				
3.G	Tie-ins and modification works to existing containment system	1	item		
	<u>GENERAL EARTHING AND BONDING</u>				
	<u>Earthing and bonding to LV systems above as required; all in accordance with the drawings, schedules and specifications.</u>				
3.H	Earthing and bonding	1	item		
	<u>GENERAL</u>				
3.I	Testing & commissioning	1	item		
3.J	Operating and maintenance manuals	1	item		
3.K	Working drawings	1	item		
3.L	Co-ordination drawings	1	item		
3.M	As built drawings	1	item		
3.N	Identification plates, labels and the like	1	item		
3.O	Keys, tools and spares parts (as required)	1	Item		
3.P	Marking the position of holes, mortices and chases	1	Item		
3.Q	Intumescent fire blocks	1	item		
3.R	Any other works in this section	1	Item		

CABLE LADDER/ TRAY / TRUNKING INSTALLATIONS

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3	CABLE LADDER/ TRAY / TRUNKING INSTALLATIONS				(Continued)

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CABLE LADDER/ TRAY / TRUNKING INSTALLATIONS
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Autoc ode	Description	Quantity	Unit	Rate	Total
4	GENERAL SERVICES AND SMALL POWER INSTALLATIONS				
	<u>Notes on Pricing</u> 1. All general services descriptions are to be interpreted as the supply, installation, inspection and setting to work, in accordance with the drawings and specifications 2. Quantities of all fittings, cabling, terminations etc. are to be taken as stated in this bill of quantities 3. Cables are to be priced as laid on or within containment with all fixings included in the rate 4. Fitting rates to include for all ancillary items integral and associated with the fitting; including but not limited face plates, back-boxes [if not include elsewhere] and the like as required to complete the installation. 5. All final circuit points rates are deemed to include for all cabling, terminations, conduit, conduit accessories, mountings, back-boxes, junction boxes and the like necessary to complete the works 6. Rates to include marking out of all holes, chases mortices and the like. 7. All fixing, bending, cutting, screwing and jointing on final sub-circuits enumerated on a points basis are deemed to be included 8. The contractor shall carry out the works, complete and in accordance with the information as set out in the following specification section and drawing: 4.A – Specifications: SPEC-001 – SJH Electrical Specification – Phase 1 – Drawings: (6-)E002 LV Schematic SMALL POWER INSTALLATIONS <u>Supply and installation of electrical infrastructure upgrade – small power services, as described in SPEC-001 – SJH Electrical Infrastructure Specification – Phase 1, in accordance with The National Rules for Electrical Installations NSAI I.S. 10101, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications.</u> <u>FITTINGS</u> Isolators <u>Supply and installation of isolators, power supply to all pieces of field equipment terminating in a local isolating switch, complete with all the necessary supports and brackets, fixings and accessories; all in accordance with the drawings, schedules and specifications.</u> 4.B 32A TPN Isolator at High Level, To new generators Spurs <u>Supply and installation of spur outlets/ fixed power installations, complete with all the necessary supports and brackets, fixings and accessories; all in accordance with the drawings, schedules and specifications.</u> 4.C Spur outlets <u>FINAL CIRCUITS (INCLUDING POINT TERMINATIONS)</u> <u>Supply and installation of final circuits, including, but not limited to wiring, point terminations, conduits, etc, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications.</u> Wiring to Isolator			Note Note Note Note Note Note Note Note	
		2	nr		
		10	nr		

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Autoc ode	Description	Quantity	Unit	Rate	Total
4	GENERAL SERVICES AND SMALL POWER INSTALLATIONS				(Continued)
4.D	32A TPN Isolator at High Level Wiring to Spurs	2	nr		
4.E	Spur outlets <u>TIE-INS AND MODIFICATION WORKS TO EXISTING SERVICES</u> <u>Supply and installation of the tie-ins and modification works required to the existing small power installations; all in accordance with the drawings, schedules and specifications.</u>	15	nr		
4.F	Tie-ins and modification works to existing small power installations <u>GENERAL EARTHING AND BONDING</u> <u>Earthing and bonding to above systems as required; all in accordance with the drawings, schedules and specifications.</u>	1	item		
4.G	Earthing and bonding <u>GENERAL</u>	1	item		
4.H	Testing & commissioning	1	item		
4.I	Operating and maintenance manuals	1	item		
4.J	Working drawings	1	item		
4.K	Co-ordination drawings	1	item		
4.L	As built drawings	1	item		
4.M	Identification plates, labels and the like	1	item		
4.N	Keys, tools and spares parts (as required)	1	Item		
4.O	Marking the position of holes, mortices and chases	1	Item		
4.P	Any other works in this section	1	Item		

GENERAL SERVICES AND SMALL POWER INSTALLATIONS

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4	GENERAL SERVICES AND SMALL POWER INSTALLATIONS				(Continued)

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GENERAL SERVICES AND SMALL POWER INSTALLATIONS
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Autoc ode	Description	Quantity	Unit	Rate	Total
5	LIGHTING SERVICES INSTALLATIONS				
	<u>Notes on Pricing</u> 1. All lighting services descriptions are to be interpreted as the design, supply, installation, inspection and setting to work, in accordance with the drawings and specifications 2. Quantities of all equipment, fittings, cabling, terminations etc. are to be taken as stated in this bill of quantities 3. Cables are to be priced as laid on or within containment with all fixings included in the rate 4. Equipment rates to include for all ancillary items integral and associated with the equipment; including but not limited fuses, earth terminals, factory inspection tests etc as required by the specifications and noted on the drawings. 5. Equipment supports and castings where an integral part of the item is deemed to be included 6. Disconnecting, setting aside and reconnecting for the convenience of other trades is deemed to be included 7. Rates to include marking out of all holes, chases mortices and the like. 8. Conduit accessories including all conduit boxes required for the final circuits are deemed to be included 9. All fixing, bending, cutting, screwing and jointing on final sub-circuits enumerated on a points basis are deemed to be included 10. All final circuit points rates are deemed to include for all cabling, conduit, terminations, mountings, back-boxes, junction boxes, clips, switches and the like necessary to complete the works 11. The contractor shall carry out the works, complete and in accordance with the information as set out in the following specification section and drawing:		Note		
5.A	– Specifications: SPEC-001 – SJH Electrical Specification – Phase 1 – Drawings: (6-)E002 LV Schematic LIGHTING SERVICES <u>Lighting system shall be installed in accordance with system drawings, comprising wiring in 3 x 2.5mm² LS0H PVC singles enclosed in galvanised steel conduit and/or trunking, originating from 10A MCB protective devices within the local distribution boards serving each area, complete with all accessories, containment, terminations and testing to provide a fully operational general lighting installation</u>		Note		
5.B	2.5sq.mm LS0H PVC singles enclosed in galvanised steel conduit and/or trunking, from a 10A MCB in the local distribution board serving the area.	3	Nr		
5.C	Luminaires shall be;				
5.D	Internal: 21-Watt surface mounted IP66 LED as Thorn Aquaforce Pro AQFPRO S LED2900 840 PC WB HF or equivalent.	1	item		
5.E	External: 15-Watt, IP65, IK10 vandal resistant wall mounting luminaire in anthracite (RAL 7016) with less than 2.5% ULOR. In polycarbonate body & cast aluminium back plate as Thorn Piazza II LED or equivalent.	1	item		

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5	LIGHTING SERVICES INSTALLATIONS				(Continued)
5.F	<u>Provide and install complete emergency lighting system in accordance with IS 3217 comprising a combination of self-contained non-maintained LED emergency luminaires and maintained LED exit signage as indicated on the drawings, each with integral automatic changeover facility to emergency operation in the event of mains or local circuit failure, providing a minimum 3-hour duration of illumination for emergency luminaires and maintained operation for exit signs</u> Emergency Lighting	1	item		
5.G	<u>Provide and install complete external lighting system designed to ensure safe movement of persons outdoors, including all building perimeter lighting and local external footpath lighting, supplied from the main distribution board with Hand/Off/Auto control switching located within the LV switch room</u> External Lighting	1	item		
5.H	<u>TIE-INS AND MODIFICATION WORKS TO EXISTING SERVICES</u> <u>Supply and installation of the tie-ins and modification works required to the existing fire alarm system; all in accordance with the drawings, schedules and specifications.</u> Tie-ins and modification works to existing Fire Alarm system	1	item		
5.I	<u>GENERAL EARTHING AND BONDING</u> <u>Earthing and bonding to the above systems as required; all in accordance with the drawings, schedules and specifications.</u> Earthing and bonding	1	item		
5.J	Testing & commissioning	1	item		
5.K	Operating and maintenance manuals	1	item		
5.L	Working drawings	1	item		
5.M	Co-ordination drawings	1	item		
5.N	As built drawings	1	item		
5.O	Identification plates, labels and the like	1	item		
5.P	Keys, tools and spares parts (as required)	1	Item		
5.Q	Marking the position of holes, mortices and chases	1	Item		
5.R	Any other works in this section	1	Item		

LIGHTING SERVICES INSTALLATIONS

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6	FIRE ALARM INSTALLATIONS				
	<u>Notes on Pricing</u> 1. All fire alarm equipment & material descriptions are to be interpreted as the design, supply, installation, inspection and setting to work, in accordance with the drawings and specifications to comply with IS 3218 2. Quantities of all equipment, fittings, cabling, terminations etc. are to be taken as stated in this bill of quantities 3. Cables are to be priced as laid on or within containment with all fixings included in the rate 4. Equipment rates to include for all ancillary items integral and associated with the equipment; including but not limited fuses, earth terminals, factory inspection tests etc as required by the specifications and noted on the drawings. 5. Equipment supports and castings where an integral part of the item is deemed to be included 6. Disconnecting, setting aside and reconnecting for the convenience of other trades is deemed to be included 7. Rates to include marking out of all holes, chases mortices and the like. 8. Conduit accessories including all conduit boxes required for the final circuits are deemed to be included 9. All fixing, bending, cutting, screwing and jointing on final sub-circuits enumerated on a points basis are deemed to be included 10. All final circuit points rates are deemed to include for all cabling, conduit, terminations, mountings, back-boxes, junction boxes, clips, switches and the like necessary to complete the works 11. The contractor shall carry out the works, complete and in accordance with the information as set out in the following specification section and drawing: 6.A – Specifications: SPEC-001 – SJH Electrical Specification – Phase 1 – Drawings: (6-)E002 LV Schematic FIRE ALARM INSTALLATION <u>Supply and installation of electrical infrastructure upgrade – Fire Alarm services, as described in SPEC-001 – SJH Electrical Infrastructure Specification – Phase 1, in accordance with The National Rules for Electrical Installations NSAI I.S. 10101, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications.</u> <u>FITTINGS</u> <u>Supply and installation of fire alarm fittings, required for the new generator, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications</u> 6.B Xenon beacon 6.C Electronic sounder <u>FINAL CIRCUITS (INCLUDING POINT TERMINATIONS)</u> Wiring to Fire Alarm Fittings			Note Note Note Note Note Note Note Note Note Note Note	
		1	no		
		1	no		

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6	FIRE ALARM INSTALLATIONS				(Continued)
	<u>Supply and installation of final circuits to the fire alarm fittings, including but not limited to wiring, point terminations, conduits, etc., complete with all the necessary fixings and accessories; all in accordance with drawings, schedules and specifications</u>				
6.D	Xenon beacon	1	no		
6.E	Electronic sounder	1	no		
	<u>TIE-INS AND MODIFICATION WORKS TO EXISTING SERVICES</u>				
	<u>Supply and installation of the tie-ins and modification works required to the existing fire alarm system; all in accordance with the drawings, schedules and specifications.</u>				
6.F	Tie-ins and modification works to existing Fire Alarm system	1	item		
	<u>GENERAL EARTHING AND BONDING</u>				
	<u>Earthing and bonding to the above systems as required; all in accordance with the drawings, schedules and specifications.</u>				
6.G	Earthing and bonding	1	item		
	<u>GENERAL</u>				
6.H	Testing & commissioning	1	item		
6.I	Operating and maintenance manuals	1	item		
6.J	Working drawings	1	item		
6.K	Co-ordination drawings	1	item		
6.L	As built drawings	1	item		
6.M	Identification plates, labels and the like	1	item		
6.N	Keys, tools and spares parts (as required)	1	Item		
6.O	Marking the position of holes, mortices and chases	1	Item		
6.P	Any other works in this section	1	Item		

FIRE ALARM INSTALLATIONS

To Collection:

Bill of Quantities

Project: SJH - Phase 1 Electrical Works	Details: Electrical Works
Building: SJH campus	

Autoc ode	Description	Quantity	Unit	Rate	Total
6	FIRE ALARM INSTALLATIONS				(Continued)

COLLECTION

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FIRE ALARM INSTALLATIONS
Carried to Summary:

7	MECHANICAL & BMS WIRING INSTALLATION			
7.A	<u>Notes on Pricing</u> 1. All mechanical & BMS wiring descriptions are to be interpreted as the supply, installation, inspection and setting to work, in accordance with the drawings and specifications 2. Quantities of all fittings, cabling, terminations etc. are to be taken as stated in this bill of quantities 3. Cables are to be priced as laid on or within containment with all fixings included in the rate 4. All final circuit points rates are deemed to include for all cabling, terminations, conduit, conduit accessories, mountings, back-boxes, junction boxes and the like necessary to complete the works 5. Rates to include marking out of all holes, chases mortices and the like. 6. All fixing, bending, cutting, screwing and jointing on final sub-circuits enumerated on a points basis are deemed to be included 7. The contractor shall carry out the works, complete and in accordance with the information as set out in the following specification section and drawing: – Specifications: SPEC-001 – SJH Electrical Specification – Phase 1 – Drawings: (6-)E002 LV Schematic MECHANICAL & BMS WIRING INSTALLATION <u>Supply and installation of Mechanical and BMS wiring, associated with the controls installations associated with the electrical infrastructure upgrade, as described in SPEC-001 – SJH Electrical Infrastructure Specification – Phase 1, complete with all the necessary fixings and accessories; all in accordance with the drawings, schedules and specifications</u> <u>MECHANICAL WIRING INSTALLATIONS</u> PANELS <u>Supply and Installation of wiring to the Mechanical control panels, complete with all the necessary supports, fixings and accessories; all in accordance with the drawings, schedules and specifications</u>			
7.B	To Fan – Control Panels	1	Item	
7.C	To Fuel Tank – Control Panel c/w UPS	1	no	
7.D	<u>BMS CABLING INSTALLATIONS</u> BMS Cabling <u>Supply and installation of BMS cabling, including, but not limited to wiring, point terminations and conduits, to BMS controlled mechanical and electrical equipment, such as generators, pumps, fans, Control panels, etc.; all in accordance with the drawings, schedules and specifications.</u> BMS cabling to BMS points	1	Item	
7.E	<u>TIE-INS AND MODIFICATION WORKS TO EXISTING SERVICES</u> <u>Supply and installation of the tie-ins and modification works required to the existing BMS cabling system; all in accordance with the drawings, schedules and specifications.</u> Tie-ins and modification works to existing BMS cabling system	1	item	

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Bill of Quantities

Project: SJH - Phase 1 Electrical Works
Building: SJH campus

Details: Electrical Works

Autoc ode	Description	Quantity	Unit	Rate	Total
7	MECHANICAL & BMS WIRING INSTALLATION	(Continued)			
	<u>GENERAL</u>				
7.F	Testing & commissioning	1	item		
7.G	Operating and maintenance manuals	1	item		
7.H	Working drawings / model	1	item		
7.I	Co-ordination drawings / model (incl builder's work)	1	item		
7.J	As built drawings / model	1	item		
7.K	Identification plates, labels and the like	1	item		
7.L	Keys, tools and spares parts (as required)	1	Item		
7.M	Marking the position of holes, mortices and chases	1	Item		
7.N	Any other works in this section	1	Item		

MECHANICAL & BMS WIRING INSTALLATION

To Collection:

Bill of Quantities

Project: SJH - Phase 1 Electrical Works	Details: Electrical Works
Building: SJH campus	

Autoc ode	Description	Quantity	Unit	Rate	Total
7	MECHANICAL & BMS WIRING INSTALLATION				(Continued)

COLLECTION

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MECHANICAL & BMS WIRING INSTALLATION
Carried to Summary:

Bill of Quantities

Project: SJH - Phase 1 Electrical Works	Details: Electrical Works
Building: SJH campus	

Autoc ode	Description	Quantity	Unit	Rate	Total
8	BUILDERS WORK				
8.A	INSPECTION, TESTING, COMMISSIONING & HANDOVER <u>The Contractor is referred to the Electrical Drawings packages, Electrical Particular Specification and MEP Builders Works Schedule for details.</u> General items to be allowed for in accordance with Electrical Particular Specification.	1	item		

BUILDERS WORK

Project: SJH - Phase 1 Electrical Works	Details: Electrical Works
Building: SJH campus	

Autoc ode	Description	Quantity	Unit	Rate	Total
8	BUILDERS WORK				(Continued)

COLLECTION

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BUILDERS WORK
Carried to Summary:

Bill of Quantities

Project: SJH - Phase 1 Electrical Works
Building: SJH campus

Details: Electrical Works

Autoc ode	Description	Quantity	Unit	Rate	Total
9	GENERALLY				
	INSPECTION, TESTING, COMMISSIONING & HANDOVER				
	<u>The Contractor is referred to the Electrical Drawings packages, Electrical Particular Specification and MEP Builders Works Schedule for details.</u>				
9.A	General items to be allowed for in accordance with Electrical Particular Specification.	1	item		
9.B	Allowance made for ID Plates, labels etc.	1	item		
9.C	Liaison with and Co-Ordination of the Installation	1	item		
9.D	Site Supervision, Site Facilities and Waste Disposal	1	item		
9.E	Inspection of Installation, Complete	1	item		
9.F	Final Clean of Installation, Complete	1	item		
9.G	Testing Installation, Complete	1	item		
9.H	Commissioning Installation, Complete	1	item		
9.I	Operating & Maintenance (O&M) Manuals	1	item		
9.J	As-Built Drawings	1	item		
9.K	Client Demonstration and Handover	1	item		
9.L	Any other works in this section	1	Item		

GENERALLY

To Collection:

Project: SJH - Phase 1 Electrical Works	Details: Electrical Works
Building: SJH campus	

Autoc ode	Description	Quantity	Unit	Rate	Total
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9	GENERALLY				(Continued)
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COLLECTION

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GENERALLY
 Carried to Summary:

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Bill of Quantities

Project: SJH - Phase 1 Electrical Works	Details: Electrical Works
Building: SJH campus	

Autoc ode	Description	Quantity	Unit	Rate	Total
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