Immediate Airfield Rehabilitation at

René Mouawad Airport

Method of Measurement and Bill of Quantities

PL250359-FD-BOQ-15A-PMC-02 REV 1

November 2026

Dar.com

METHOD OF MEASUREMENT & BILL OF QUANTITIES

TABLE OF CONTENTS

METHOD OF MEASUREMENT

01 GENERAL RULES AND REQUIREMENTS

26 ELECTRICAL

31 EARTHWORK

32 EXTERIOR IMPROVEMENTS

34 TRANSPORTATION

BILL OF QUANTITIES

01 GENERAL REQUIREMENTS

26 ELECTRICAL

31 EARTHWORK

32 EXTERIOR IMPROVEMENTS

34 TRANSPORTATION

SUMMARY

01 GENERAL RULES AND REQUIREMENTS (REMEASURED CONTRACT)

1. Introduction

1.01 The Contract is based on remeasured quantities and the Works shall be measured in accordance with this Method of Measurement. This Method of Measurement has been used for the preparation of the Bill of Quantities and shall apply to the measurement of the executed Works, for the valuation of Variations, Provisional Sums, Optional Items or other adjustments expressly permitted under the Contract.

1.02 "Bill of Quantities" means the pricing document forming part of the Tender and / or Contract Documents, used for presenting the itemised descriptions, quantities, rates and prices for the works. The quantities stated in the Bill of Quantities are estimated only (not confirmed quantities) and shall be subject to remeasurement in accordance with the Conditions of Contract and this Method of Measurement.

1.03 "Rate-only Item" means an item of work expressly identified as such in the Bill of Quantities without any stated quantity or amount, for which only a unit rate shall be stated by the Tenderer / Contractor. The amount of a Rate-only Item shall be determined by the Engineer based on the actual quantity of work properly executed, completed and measured in accordance with the Contract.

1.04 "Optional Item" means an item of work expressly identified as such in the Bill of Quantities which the Employer may, at its discretion, elect to have executed or not, whether partially or in whole. The relevant Works shall not be executed by the Contractor, unless and until they are instructed by the Engineer. If instructed / completed, the amount of an Optional Item shall be determined by the Engineer based on the actual quantity of work properly executed, completed and measured in accordance with the Contract. The Optional Items are designated in the Bill of Quantities for the execution of any parts of the Works upon the Employer's discretion and the Contractor shall have no right to claim for any compensation due to the omission of these items.

1.05 The Bill of Quantities is to be read and construed in association with the Drawings, the Specification, and this Method of Measurement. Information which is given on the Drawings, and / or in the Specification, is identified by cross-references included in the descriptions of work in the Bill of Quantities.

1.06 Where an item of work cannot be fully described or is not capable of detailed breakdown for pricing purposes, it is given as a "Provisional Sum".

1.07 Unless the term metre, used in this Method of Measurement, is preceded by the words square or cubic it is deemed to be linear.

1.08 Items missing from the Bill of Quantities, which are considered to be inferable or necessary for the completion, execution, proper functioning and operation of the Works, are deemed to be included in the rates and prices included in the BOQ.

1.09 The rates and prices inserted in the BOQ shall be deemed to include for all costs with respect to local religious holidays and customs and the provision of all amenities customary in the country of Lebanon.

2. Quantities

2.01 Quantities set out in the Bill of Quantities are the estimated quantities and they shall not be taken as the actual and correct quantities for ordering and purchasing of materials.

2.02 Works shall be measured net as fixed in position in accordance with the rules contained in this Method of Measurement except where otherwise stated in a measurement rule applicable to the work.

2.03 Dimensions used in calculating quantities are taken to the nearest 10 mm (i.e. 5 mm and over is regarded as 10 mm; less than 5 mm is disregarded).

2.04 Quantities measured in tonnes are given to two places of decimals. Other quantities shall be given to the nearest whole unit, except that any quantity less than one unit is given as one unit.

2.05 Unless otherwise stated, minimum deductions for voids referred to in this Method of Measurement shall apply only to openings within the boundaries of measured areas. Openings located at the boundaries of measured areas shall always be deducted, irrespective of size.

2.06 The Contractor shall price every item in the pricing sections of the Bill of Quantities. Any item left unpriced shall be deemed to have been allowed for in the prices of other items. No claim for additional payment in respect of unpriced items will be accepted.

2.07 Descriptions of work and materials are not necessarily fully complete in the Bill of Quantities and the Contractor should refer to the Conditions of Contract, the Specifications, Scope of Works and to the Drawings for additional information. The prices inserted in the Bill of Quantities must be comprehensive and shall be fully inclusive of the cost of the work in every respect and of all general liabilities and obligations set forth or implied in the documents on which the Tender is based. The comprehensive prices submitted must truly reflect the value of the items included in the Bill of Quantities.

3. Composite items and general items

3.01 One-off specific composite items, being items comprising a number of elements, are included in the Bill of Quantities as an "Item."

3.02 Where the use of other units of measurement is not appropriate, the relevant work may be included in the Bill of Quantities as an "Item."

3.03 Where "Item" is used as the unit of measurement, no quantity shall be inserted against that item. The item shall be priced, and the price shall be carried to the total amount of the relevant section or division. The price shall be deemed to include all requirements of the Contract Documents relating to that item of work.

4. Descriptions

4.01 Headings and subheadings to items in the Bill of Quantities are to be read as part of the descriptions of the items to which the headings apply.

4.02 Dimensions are stated in descriptions generally in the sequence length, width, and height. Where ambiguity could arise, the dimensions are identified.

4.03 Dimensions given in descriptions are in millimetres unless otherwise indicated.

4.04 Unless otherwise specifically stated in the Bill of Quantities or herein, the costs of all items in the following are deemed to be included in the rates and prices:

Installation including labour and all costs in connection therewith,

Materials, products, goods and all costs in connection therewith,

Contractor's equipment, including but not limited to construction plant, scaffolding, tools, vehicles and the like, and all costs in connection therewith,

Assembling, fitting and fixing materials, products and goods in position,

Any method of fixing, fixing to any nature of base or background including preparation and providing fixing materials,

Transportation, hoisting, lifting up or lowering down to work location, including multiple handling,

Breaking down for transport and installation and subsequent re-assembly of composite items manufactured off site,

Waste of materials,

Square, raking and curved cutting,

Forming to shape including all kinds of joints, grooves and the like,

Work at any location or height,

Work in small, isolated quantities,

Protection of all work,

Cleaning down and preparing surfaces to receive work,

Protection of all existing structures, utilities, site improvements, trees and vegetation, features, pavements and other facilities on and adjacent to the site, which are to remain upon completion of the work,

All other enabling tasks, associated and subsidiary components and items of work, which are indicated or reasonably inferred from the Drawings and/or Specification, and necessary to perform and complete the work described,

Coordination of different trades,

Establishment and overhead charges and profit.

4.05 The provision of liabilities and requirements stipulated in the Tender & Contract Conditions and General Requirements, which include, but are not limited to, the following, may not have separate items in the Bill of Quantities and are deemed to be included in the rates of all work:

Site administration and security,

Insurances,

Warranties,

Bonds and guarantees,

Water for the works,

Lighting and power for the works,

Temporary accommodation for the use of the Contractor and the Engineer,

Temporary telephones for the use of the Contractor and the Engineer, and the cost of calls,

Temporary roads, hard standings, crossings and the like,

Temporary fencing, hoardings, screens, fans, footways, guardrails, gantries and the like,

Giving notices and making applications, including the payment of fees and charges in connection therewith,

Safety, health and welfare of workpeople,

Compliance with traffic regulations,

Maintenance of public and private roads, services and adjoining property,

Control of noise and pollution, prevention of fire and compliance with all other statutory and general obligations,

Removing rubbish, protective casings and coverings and cleaning the works on completion,

Drying the works,

Testing and commissioning of service installations including providing fuel,

Samples of materials and testing of materials, including providing equipment for testing,

Design, coordination, shop drawings, installation and as-built record drawings and the like,

Preparation and submittal of reports, records, certificates, notices, proposals, designs, details, calculations and other information and data required by the Specification,

Allow in unit rates for all other requirements, services, provisions, liabilities and obligations contained in the General Requirements and Conditions of Contract.

Maintaining, adapting, clearing away and making good are deemed to be included in the items for temporary works.

5. Symbols, abbreviations and definitions

5.01 The following symbols and abbreviations are used in this Method of Measurement and in the Bill of Quantities:

m	=	linear metre
m²	=	square metre
m³	=	cubic metre
cm	=	centimetre
mm	=	millimetre
Nr	=	number
kg	=	kilogramme
t	=	tonne
%	=	percentage
DN	=	nominal diameter
Qty	=	quantity
Drg	=	drawing
MPa	=	megapascal
Item	=	Composite Item
PS	=	Provisional Sum

5.02 The following definitions apply to all work:

'horizontal' means level or sloping work not exceeding 15 degrees from the horizontal,

'sloping' means sloping work exceeding 15 degrees but not exceeding 80 degrees from the horizontal,

'vertical' means work exceeding 80 degrees from the horizontal,

'curved' means curved in any direction or in more than one direction and to any radius or radii, and includes curved work to domes, vaults and the like.

5.03 The term 'extra over' means that the work so described involves extra cost over the basic work in which it occurs. No deduction of the quantity of basic work is made for the extra over work.

6. Work of special types

6.01 Work of each of the following special types is separately identified:

Work on or in existing buildings (i.e. buildings existing before the current project),

Work to be carried out and subsequently removed (other than temporary works),

Work outside the boundaries of the site,

Work carried out in or under water (i.e. canal, river or sea water),

Work carried out in compressed air.

26 ELECTRICAL

260500 BASIC ELECTRICAL MATERIALS AND METHODS

1. General Rules For Electrical Work

1.01 Rates for electrical work are deemed to include the costs of:

supply, installation, testing, commissioning, putting into satisfactory operation and handing over complete systems,

coordination with local electricity authorities for power supply provision, including necessary instrumentation, enclosures and accessories required by them to effect complete kWh-metering installations as shown on Drawings. The kilowatt-hour meters shall be approved by the local electricity authority,

short circuit and protection coordination study for the LV normal and emergency networks distribution including setting of all protective relays and circuit breakers,

provision of maintenance and operation manuals and spare parts lists and submitting the required number of copies,

coordination with other trades including minor approved modifications and additions to ensure compatibility,

minor items and accessories required for normal operation and maintenance,

items which do not appear in the list and which are necessary for normal operation of listed items,

all costs in connection with the supply, installation and use of materials, labour, accessories and all incidentals necessary for the proper execution and completion of all works in accordance with the specifications,

marking the positions of and cutting or forming holes, mortices, chases and the like in any surface and making good all work disturbed,

assembling and jointing together component parts of composite units and providing any necessary jointing materials,

patterns, moulds, templates and the like,

priming or painting off site and proprietary finishes or surface treatments applied as part of the manufacturing process,

corrosion protective treatments and coatings to fixings, hangers and supporting materials,

sleeves through walls, ceilings and floors including cover plates,

fire sealants,

brackets and supports,

temporary works and removing and making good after,

extra material, spare parts, tools and instruments as called for in specifications and/or recommended by the manufacturers, except where required to be included separately,

plates, labels and tags for the identification of plant, equipment, cables, switches and the like,

factory witness tests including all expenses where specified,

builder’s works for electrical installations including excavation, equipment foundation, etc., except where required to be included separately,

warranties as specified,

software and software licenses, where required,

temporarily operating each installation, including attendants, special insurance and providing power supply,

cutting and pinning ends of supports for equipment, ancillaries, fittings, trunking, trays and the like,

painting on site including colour coding,

training Employer's personnel in operation and maintenance of systems,

necessary equipment and accessories for interface with other systems,

anti-vibration mountings, including anti-vibration material and seismic restraints,

seismic switches and associated control and monitoring provisions.

260519 LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

1. Generally

1.01 Each kind of cable is given separately (except where required to be included with other items), stating the type, size and method of installation.

1.02 Cables are given in linear metres, measured the net length.

1.03 Rates for cables are deemed to include the costs of:

conduits, fittings, draw wires and the like (except where conduit work is required to be measured separately),

cable sleeves where required and with size and type as shown on the drawings,

cable connectors and cable joints (where permitted) including joint boxes, sealing boxes, shrouds and the like, materials and heat for making the joints,

allowance in cable length for cables entering fittings and accessories, equipment or control gear,

necessary components and accessories for fixing cables on walls, ceilings and on cable trays.

260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

1. Generally

1.01 Earthing system is given as an item.

1.02 Rates of earthing system are deemed to include the costs of:

a complete system as specified and shown on the drawings including trench excavation, backfilling, reinstatement, etc. (excluding protective earthing conductors that run with branch circuit wiring and protective earthing cables run with main and sub-feeders which are measured separately),

earthing loop conductors, conduits for earthing conductors, lattices, pits, electrodes, connectors, clamps, earthing conductors from earthing loops, earth lattices and building steel rebars to building earth bars, exothermic welding to these earthing loops and rebars, earthing conductors from bars to transformers, generators, switchboards (MV & LV), outdoor ring main units, outdoor packaged substations and equipment, equipotential earthing of mechanical plant rooms and equipment, earthing of telecommunications rooms and equipment (including Signal Reference Potential Plane (SRPP)) and electrical identification as required by specifications,

bonding and connection between earthing networks, at various levels of rock cut line, where applicable,

bonding to all metallic equipment and to building reinforcement & steel structure as per specification,

calculating / measuring earth fault loop impedance and checking its compliance with specifications.

260536 CABLE TRAYS FOR ELECTRICAL SYSTEMS

1. Generally

1.01 Each kind of cable tray or ladder is given separately (except where required to be included with other items), stating the type and dimensions.

1.02 Cable trays/Cable ladders are given in linear metres, measured the net length.

1.03 Rates for measured work are deemed to include the costs of:

mounting fittings, including cutting and jointing thereto,

jointing between sections, bends, tees, expansion joint connectors, etc.,

covers, where applicable,

components for earth continuity,

adapters and connections between trunking and items of equipment or control gear requiring the use of flanges and/or the forming of apertures,

supports including fixing,

warning signs,

insulating barriers to separate different systems, where applicable.

260543 UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

1. Generally

1.01 Builder's work in connection with electrical installations is not given separately (except where specifically required) and the costs are deemed to be included in the rates for measured work for electrical installations.

1.02 The costs for bases/foundations and supports (where not forming an integral part of the building structure) are deemed to be included in the rates for equipment, unless otherwise included separately.

2. Cable Trenches

2.01 Cable trenches are given separately, stating the type or width and depth.

2.02 Cable trenches are given in metres.

2.03 Rates for measured work are deemed to include the costs of:

excavation, including backfilling, disposal of surplus excavated material and earthwork support,

protective tile and/or tapes,

cable markers.

keeping the excavation free from water, however arising, including ground water.

3. Cable ducts and duct banks

3.01 Cable ducts and duct banks are each given separately, stating the type, number and size of ducts.

3.02 Cable ducts and duct banks are given in metres.

3.03 Rates for measured work are deemed to include the costs of:

excavation, including backfilling, disposal of surplus excavated material and earthwork support,

duct couplers, plugs, bends and other duct accessories,

duct racks/spacers.

keeping the excavation free from water, however arising, including ground water.

4. Manholes, handholes and other underground structures

4.01 Manholes, handholes, and other underground structures (where not forming an integral part of the building structure) are each given separately, stating the type and/or dimensions.

4.02 Manholes, handholes and other underground structures are enumerated.

4.03 Rates for measured work are deemed to include the costs of:

excavation including backfilling, disposal of surplus excavated material and earthwork support,

concrete, reinforcement, formwork and waterproofing,

blockwork, brickwork and rendering,

building in ends of pipes including cutting pipes,

keeping the excavation free from water, however arising, including ground water,

step irons, covers and frames.

262413 SWITCHBOARDS
262416 PANELBOARDS

1. Generally

1.01 Each kind of switchboard and panelboard is given separately, stating the reference of equipment.

1.02 Switchboards and panelboards are enumerated.

1.03 Rates for measured work are deemed to include the costs of:

termination of incoming and outgoing cables to equipment including cable glands, terminations and accessories,

fixing and support structures and materials required for installation of wall or floor mounted equipment as indicated,

all components housed within the switchboard or panelboard,
AC or DC power supply for switchgear control and operation,

interconnection control cables and other accessories for interface with other systems such as BMS, SCADA and the like, as described in the specifications or as shown in drawings

spare parts, tools, and instruments,

harmonic analysis, where required.

1.04 Concrete bases and support structures – where applicable or required for outdoor distribution panels and feeder pillar shall be measured and included separately in "Underground Ducts and Raceways for Electrical Systems"

263353 STATIC UNINTERRUPTIBLE POWER SUPPLY (UPS)

1. Generally

1.01 Each kind of static UPS system is given separately, stating the capacity, autonomy and reference.

1.02 Static UPS systems are enumerated.

1.03 Rates for measured work are deemed to include the costs of:

UPS units (single, dual, or "n+1" multi-unit parallel redundant; number as per single line diagrams and/or specifications), automatic static bypass transfer switch, external bypass switch, input/output isolation transformer, and output transformer where applicable or required,

batteries, battery chargers, battery cabinets and racks and interconnecting cables and accessories,

termination of incoming and outgoing cables including cable terminal boxes and accessories,

remote control and indicating panels and interconnects,

interconnection control cables and other accessories for interface with the BMS and the like as shown in the specifications,

spare parts, tools and instruments, where specified.

31 EARTHWORK

311000 SITE CLEARING

1. Site preparation

1.01 Clearing the site generally is given as an item.

1.02 Work is deemed to include:

removing site features and obstructions required to be removed, (including fences, gates, walls, roads, paved areas and the like; but excluding demolition of structures), including breaking out foundations,

removing trees and tree stumps, including grubbing up roots,

clearing site vegetation (including hedges, bushes, scrub and undergrowth) including grubbing up roots,

protecting site features, trees and site vegetation which are to remain,

removing general debris and rubbish,

stripping topsoil as required and disposing of as directed, including multiple handling, depositing in stockpiles or spreading and levelling on site, or removing from site,

filling voids and depressions where further excavation or earthwork is not indicated or required,

disposal of materials,

temporarily diverting ditches, field drains and other waterways including reinstating on completion or cleaning and filling.

removing all surplus and unsuitable materials arising from site clearing operations and legally disposing of off-site, including multiple handling, providing tips, and paying all fees and associated costs,

PAY ITEM	UNIT OF MEASUREMENT
Site Clearing	Item

2. Excavation

2.01 Excavation to foundation and/or subgrade (including excavation for roads, airfield elements, excavation to foundation, beds, thickening of beds, ground beams and trenches) and/or to reduce level is given in cubic metres. The quantities given are the bulk before excavating.

2.02 The excavation is measured from the existing grade levels.

2.03 Excavation to reduce level is given separately.

2.04 Rates for measured work are deemed to include the costs of:

providing all equipment required to perform the works,

extra volume required to ensure stable side slopes,

any method of excavating and working, including hand excavations

excavating in any material whatsoever encountered including rock,

variations to bulk,

multiple handling,

commencing excavating at any level, and excavating to any depth,

any width of trench and any number of pits,

curved excavation,

excavating below ground water level (irrespective of any difference between the post-contract and pre-contract level),

Any temporary dewatering (avoiding any piping of soil below the excavation level and within the side slopes) to enable excavation in dry conditions, unless otherwise specified elsewhere in the BOQ, including design, installation, operation, maintenance and removal of system,

excavating to levels and grades shown on drawings,

inspection of the excavation level and removing all the unsuitable materials and replacement by approved materials,

maintaining any adopted dewatering system in operation, as needed, in a safe and efficient manner according to the approval of the Engineer until adequate safety factor of the structure is ensured against buoyancy,

excavating next to existing services and around existing services crossing excavations including temporary support, temporarily re-routing, sealing and removing services as required,

breaking out existing materials and hard pavings including concrete, reinforced concrete, brickwork, blockwork, stonework, drains, and coated macadam or asphalt and the like,

extra excavation for working space and to accommodate earthwork support including additional disposal, backfilling, work below ground water level, breaking out and earthwork support,

design, installation, and subsequent removal of temporary earthwork support (including interlocking steel piling) including support below ground water level, to unstable ground, next to roadways, next to existing buildings and support left in,

disposal of ground water and surface water,

keeping excavation free from water,

backfilling to excavations with material arising from excavations or imported filling material including depositing and compacting in layers and multiple handling,

subgrade inspection, testing, preparation and treatment, QA/QC, and other required testing as per Specification and drawings,

inspecting the bottom of excavation upon reaching the foundation levels. Implement subgrade treatment solution under foundations (removal of the unfavourable / unsuitable material, and replacing the removed materials by Foundation soil material) as and where deemed necessary according to project specifications,

disposal of excavated material, on site or off site, including spreading and levelling or depositing in spoil heaps, providing tip and paying fees and multiple handling,

suitable surplus excavated material generated from general and structural excavation after re-using as backfill shall be the property of the Employer,

disposal of unsuitable excavated material on-site/off-site and to approved locations/dumps approved by the Engineer, including transporting, depositing, spreading and levelling or depositing in spoil heaps, providing tip and paying fees and multiple handling,

surface treatments including compacting surface of ground and bottoms of excavations, levelling and grading to falls, trimming sloping surfaces and trimming vertical surfaces to sides of cuttings (including trimming in rock) and applying herbicides and pesticides,

Anti-termite treatment. Providing equipment and applying anti-termite treatment. Providing method statements, designs, materials, and mockups to the approval of the Engineer, obtaining NOCs and any approvals or permits from authorities required for the execution of the works, all health and safety measures per Specification and local Authority requirements, any subsidiary items, or ancillary works necessary to complete the works as specified.

3. Soil fill and Foundation soil material

3.01 Soil fill, engineered fill materials quantities are given in cubic metres measured as equal to the void filled after compaction.

3.02 Quantities of each of the following are given separately:

fill material used to raise existing grade under paved areas using Satisfactory Soils for Airfield and Roadway Construction

Foundation soil material as specified under structural elements (slab on grade, footings and foundations).

3.03 Rates for measured work are deemed to include the costs of:

preparing surfaces to receive filling or backfilling and compacting as specified,

furnishing selected material according to specifications,

determining the optimum amount of water to be used with fill material to obtain maximum dry density, for every borrow pit and for every type of filling material,

the required tests for approval of the borrow areas and the periodic test for the verification that no change has occurred since the original approval, submitting representative samples for approval as per specification,

commencing filling at any level, and backfilling at any depth

using material arising from excavations including selecting and treating or using imported filling material, the excavation and the transportation of the material from approved borrow areas to site,

spreading in layers, watering and compacting each layer including levelling and grading to falls and slopes, and loss of material into ground during filling and compaction,

carrying out field density test as specified and at the rates specified,

filling of any thickness or width,

multiple handling,

variations to bulk,

filling below ground water level,

trimming sloping and vertical sides of filling and embankments,

excavating benching in sloping ground to receive filling and in sides of sloping filling, including disposal,

blinding surfaces of filling with sand, gravel, ash or other fine material,

providing protective filling and removing on completion,

removing from site unsuitable and surplus filling materials,

quality control testing of placed fill layers according to project specifications.

4. Subgrade Preparation and Graded Strip Preparation

4.01 Subgrade preparation for pavement and graded strip shall be measured by square metres (m^2), including any required excavation below top of subgrade, grading, scarifying, removing undesirable matter, replacing the existing soil with suitable/satisfactory soil for subgrade layers, or adding new layers of suitable/satisfactory soil and compacting to the specified density and grades. Measurements shall be of areas computed from cross sections shown on the Drawings and/or actually executed on site and approved by the Engineer.

32 EXTERIOR IMPROVEMENTS

321723.13 AIRFIELD PAVEMENT MARKING

1. Generally

1.01 Each kind of paint is given separately.

1.02 Pavement marking lines and painted pavement markings are given in square metre of reflectorised paint of each type furnished.

1.03 Rates for measured work are deemed to include the costs of surface preparation, application and curing.

324113.13 PAVEMENT DEMOLISHING

(1) Removal, wholly or in part, and satisfactory disposal of existing rigid pavement layers as per requirements of project pavement layout drawings. This shall be measured in square metres (m²) regardless of the number of pavement layers and the thickness of each of these layers encountered on site.

Rates shall include:

- Site preparation
- Saw cutting of slabs or parts of slabs to be replaced
- Cleaning
- Disposal of material
- Scarifying and recompacting of underlying soil/granular layers for areas to receive reconstruction or slabs/parts of slabs to be replaced
- Filling of any level cavities after removal of existing pavement layers
- Removal of lighting equipment
- Protection of Existing Utilities
- Protection of quality of existing surrounding rigid pavement slabs during slab removal and reconstruction works
- Repair of any existing rigid pavement slabs damaged during demolition works

PAY ITEM		UNIT OF MEASUREMENT
(1)	Demolition/Removal of the existing rigid pavement slab requiring replacement.	Square metre (m²)

321116.16 AGGREGATE SUB-BASE COURSE

(1) Aggregate Sub-Base Course shall be measured by cubic metres (m^3) of aggregate materials furnished, crushed and screened, mixed with water, placed, spread, compacted and finished, completed, and accepted. Measurements shall be of volumes computed from the cross sections shown on the Drawings and of the field measurements of area and compacted depths. No measurement shall be made for direct payment of over-depth construction, regardless of the Engineer's permission for it to remain in place.

	PAY ITEM	UNIT OF MEASUREMENT
(1)	Aggregate Sub-base Course Supply, installation and compaction of aggregate sub-base course (CBR not less than 30%).	Cubic metre (m^3)

321123 AGGREGATE BASE COURSE

(1) Aggregate Base Course shall be measured by cubic metres (m^3) of aggregate materials furnished, crushed and screened, mixed with water, placed, spread, compacted and finished, completed, and accepted. Measurements shall be of volumes computed from the cross sections shown on the Drawings and of the field measurements of area and compacted depths. No measurement shall be made for direct payment of over-depth construction, regardless of the Engineer's permission for it to remain in place.

	PAY ITEM	UNIT OF MEASUREMENT
(2)	Aggregate Base Course Supply, installation and compaction of aggregate base course (CBR not less than 80%).	Cubic metre (m^3)

321216.30 ASPHALT PAVING

(1) Asphalt Concrete Layers shall be measured in square metres (m²) of mix of the indicated targeted layer thickness, furnished, spread, compacted, completed and accepted. Measurements shall be based on the areas and compacted thickness as shown on the Drawings.

(2) Surface preparation, protective measures to avoid staining or damage to appurtenances, blotting of prime coats when required, and cleaning stains and repairing damage caused by equipment, etc. shall not be measured for direct payment, but shall be considered as subsidiary works the costs of which will be deemed to be included in the contract prices for the Pay Items.

(3) Asphalt Concrete Layers constructed by order of the Engineer to correct deficiencies in total thickness of bituminous courses or to compensate for major deficiencies in the thickness of any underlying bituminous course, shall not be measured for direct payment, but shall be considered as subsidiary works the costs of which will be deemed to be included in the contract prices for Pay Items.

(4) Bituminous prime and tack coats shall be measured by the square metre (m²) of the areas coated at the appropriate rate approved by the Engineer.

(5) Establishment of mix designs and Job Mix Formula of various types of mixes, testing, trial sections, surface preparation, construction of joints, hand painting of contact surfaces, remedial treatment of surface irregularities, cutting of cores and slabs for testing or measurement purposes, reinstatement of core and slab areas of pavement, rolled down longitudinal bituminous edge strips, additional thickness of bituminous course in excess of the specified thickness, and other ancillary items shall not be measured for direct payment, but shall be considered as subsidiary works the costs of which will be deemed to be included in the contract prices for Pay Items.

(6) The rates of asphalt concrete layers and all paving works shall cover the cost of all QA/QC testing and material testing by a third-party / independent testing agency. These rates shall cover the cost of maintenance and calibration of asphalt performance testing equipment and/or any other equipment required for performing any required test.

(7) The rates of asphalt concrete surface layers shall cover the cost of roughness testing as per QA/QC requirements of relevant Specification Sections.

(8) The rates of all paving works shall cover the acquisition of various materials needed to perform the paving works.

PAY ITEM	UNIT OF MEASUREMENT
(1) Asphalt Concrete Surface Course (Indicate thickness in mm) Provision/Supply, installation and compaction of Asphalt Concrete complete in all respects as per Specifications, Method of Measurement and the relevant Drawings.	Square metre (m^2)
(2) Bituminous Prime Coat	Square metre (m^2)
(3) Bituminous Tack Coat	Square metre (m^2)

321313 CONCRETE PAVING

(1) In-situ Jointed Portland Cement Concrete Pavement Slab, of a thickness in mm as indicated on relevant drawings, is given in cubic metres (m^3), stating its flexural strength and the type of cement. Measurement shall be based on the Drawings and on the field measurements of area and thickness.

(1) Lean Concrete Base Course to a thickness as indicated in the relevant pavement section of the drawings shall be measured by cubic metres (m^3) of mix furnished, stating its compressive strength and the type of cement. Measurements shall be based on the areas and compacted thickness as shown on the Drawings or as directed by the Engineer

(2) Concrete pavement works are deemed to include:

- Designing mixes
- Any method of pouring, placing, compacting and curing
- Pouring on or against earth or unblinded hardcore
- Any thickness, cross-sectional area or number of members
- Preparation of in-situ granular/soil layers prior to placement of new lean concrete base layer.
- Horizontal, sloping, vertical and curved work
- Placing or finishing to falls and cross falls
- Formwork of any type, shape and size including fixing and removing
- Shaping of reinforcement steel of any diameter and length with all necessary hooks, tying wire, spacers, chairs and the like including cutting, bending, lapping and fixing in position
- Basic finish as struck from formwork (including coffered or troughed formwork) and tamped worked finish
- Surface texture (brush or broom finish) as specified
- Extra width of concrete or formwork to edges of blinding beds
- Reinforcement content of any percentage of the volume of concrete
- All labours on concrete including working around pipes or cables, cutting channels, chases, mortises, pockets and holes and including subsequent grouting or filling and making good

- All types of expansion, contraction and construction joints to spacing, dimensions and details shown on the pavement For Construction Drawings, including:
  - Formwork to formed joints
  - Horizontal, sloping, vertical and curved work
  - Treatment of reinforcement crossing the joint (if any)
  - Treatment of concrete joint faces
  - Any width or depth of joint
  - Crack inducing grooves (saw cuts) in induced contraction joints
  - Preparation of surfaces, cleaners, primers, backing strips and bond breakers
  - Dowel bars (smooth or deformed) of the diameters, spacing and lengths shown on the pavement For Construction Drawings
  - De-bonding compound and dowel caps
  - Joint filler board used in the appropriate types of joints as shown on the pavement For Construction Drawings.

(3) Polyethylene sheets used as Vapour Barrier shall be measured in square metres of the material furnished, laid and fixed in place, including any overlaps and ending parts necessary for complete coverage of the paved areas.

PAY ITEM		UNIT OF MEASUREMENT
(1) (2)	Jointed Portland Cement Concrete Pavement, Flexural Strength 5.0 MPa (Indicate Thickness)	Cubic metre (m^3)
(2)	Lean Concrete Base Course (Indicate Thickness and Strength)	Cubic metre (m^3)
(3)	Polyethylene Sheet (Vapour Barrier)	Square metre (m^2)

321373 CONCRETE PAVING JOINT SEALANT

(1) Joint Sealing: joint sealing shall be measured in linear metres (m) and shall be deemed to include sawing, cutting, routing, shaping the sealant reservoir, cleaning the reservoir, furnishing and installing backer rods and sealing the joint to its full width and depth shown on the Drawings.

PAY ITEM	UNIT OF MEASUREMENT
(1) Joint Sealant Provision and installation of Joint Sealant, complete in all respects as per Specifications, Method of Measurement, and the Drawings.	Linear metre (m)

320129 RIGID PAVING REPAIR

1. Rigid paving repairs shall comprise full-depth repair, partial-depth repair, diamond grinding, and joint and crack resealing, as indicated on the Drawings, identified by field assessment, or directed by the Engineer.

2. Only completed and accepted repair work within the limits authorized by the Engineer shall be measured. Work outside the authorized limits, corrective work arising from the Contractor's operations, and repair of damage to adjacent pavement or utilities shall not be measured for direct payment.

3. Rigid paving repair shall be measured by number (Nr) of existing slabs repaired, completed and accepted, separately for each repair category stated in the Pay Items below, regardless of slab thickness and of the area, depth or length of repair carried out within each slab. The rate per slab is deemed to include the following, as applicable:

4. **Full-Depth Repair:** full-depth replacement of part of an existing concrete pavement slab within the authorized saw-cut limits, regardless of slab thickness.

5. **Partial-Depth Repair:** removal and replacement of localized deteriorated or spalled concrete confined to the upper portion of a slab, within the authorized saw-cut limits, regardless of repair depth.

6. **Diamond Grinding:** grinding of the existing concrete pavement slab to restore profile, drainage, ride quality, and surface texture (Pay Item 2 only).

7. **Crack Sealing:** removal of existing sealant, and preparation and sealing of cracks within the slab. Resealing of joints is measured separately under Section 321373 Concrete Paving Joint Sealant.

8. The actual quantities of the Existing Rigid Pavement Repair Works (including Crack Injection and Localized Patching) shall be based on site survey that shall be carried out jointly between the Engineer's pavement engineers on site and the Contractor's engineers to provide a detailed mapping of the specific concrete slabs that are showing distresses and quantify these distresses by types and the corresponding treatment. These distresses may include, but are not limited to, linear cracks, durability cracking, shrinkage cracks, joint spalling, joint seal damages, corner break, surface scaling, faulting/settlement of certain slabs, improperly executed patching, shattered slabs, etc.

9. The repair works shall ensure proper treatment for each distress type, based on the exact location shown on the above-mentioned mapping and to the satisfaction of the supervising engineer, all in compliance with the relevant sections of the project specifications.

10. Rates for rigid paving repair shall include, as applicable:

- Survey, setting out, condition assessment, marking, traffic control, protection, and site preparation.
- Site Verification of the condition of rigid pavement slabs and finalizing through shop drawings the details repair measures per slab.
- Saw cutting, breaking out, lifting, removal, loading, transport, and off-site disposal of existing concrete and other excavated materials.
- Cleaning and preparation of exposed concrete, joints, cracks, excavation, subgrade, sub-base, and base surfaces.
- Compaction and making good of underlying earth or granular material, and replacement of damaged stabilized base with approved lean or flowable concrete where required.
- Drilling, epoxying, supplying, and installing dowel bars and tie bars; realignment of reusable bars; sleeves, coatings, debonding materials, and caps.
- Formwork, bonding grout or epoxy, concrete or approved repair material, placing, vibration, compaction, finishing, texturing, curing, and protection until opening to traffic.
- Grinding, slurry collection and disposal, cleaning, and restoration of surface profile, texture, and transverse drainage.
- Removal of old sealant; routing or shaping reservoirs; washing, sandblasting, air cleaning, and drying; backer rods, primers, fillers, and sealants.
- Sampling, trial mixes, quality-control testing, surface-tolerance checks, and all incidentals necessary to complete and accept the work.

PAY ITEM	UNIT OF MEASUREMENT
1. Repair of Distressed Rigid Pavement Slab by Crack Treatment and Sealing, and/or Patching Works	Number of Slabs
2. Repair of Distressed Rigid Pavement Slab by Crack Treatment and Sealing and/or Patching Works with Diamond Grinding for level corrections	Number of Slabs

34 TRANSPORTATION

344314 AIRFIELD LIGHTING EQUIPMENT

1. Airfield Ground Lighting Fixtures

1.1. Each kind of airfield ground lighting fixture is given separately, stating the type.

1.2. Airfield lighting fixtures are enumerated.

1.3. Work is deemed to include all requirements and hardware as per specifications including:

Light fitting, LED modules or halogen lamps, optical assembly, lenses and secondary leads and connectors,
Drivers and power supply units as applicable,
O-ring gasket and fixing screws, as applicable,
Mounting accessories for elevated lights including all needed accessories and foundations such as PAPI units.
Mounting and levelling works and accessories, for fixtures and bases,
Works for fixing bases in pavement,
Frangible couplings for elevated lights.

2. Isolating Transformers

2.1. Each type of isolating transformer is given separately, stating the rating.

2.2. Isolating transformers are enumerated.

2.3. Work is deemed to include all requirements and hardware as per specifications including:

Primary and secondary cable leads and connectors,
Earthing connection to earth terminals,
Mounting and installation of the transformers including accessories.

3. Constant Current Regulators

3.1. Constant Current Regulators are enumerated, stating the rating.

3.2. Work for CCR is deemed to include all requirements, hardware, and software as per specifications including:

Mounting provisions,
Series circuit cut out,
Control cabling and interfaces
LV cabling, protection devices (circuit breakers), connection to terminals at the substation, and all needed works to enable installation and energization
Protecting cables and terminations, clipping neatly, marking, labelling and tagging back to marshalling box
Earthing
Connections to ATC Tower Cab for ON/OFF control

4. Guidance Signs

4.1. Guidance signs are enumerated or given as an item.

4.2. Work is deemed to include all requirements and hardware as per specifications including:

Guidance sign as specified, with frangible couplings, supports, concrete foundation, excavation, backfill and making good to all surfaces.

5. Earthing of AGL Installation

5.1. Earthing of AGL installations, equipment and cables and non-current carrying metal parts is given separately as an item.

5.2. Work is deemed to include all requirements and hardware as per specifications including:

a complete network of counterpoise wire run above primary AGL network, including a main earth bar at the electrical airfield lighting room in the ATC technical block with all metal bases, cable screens, lighting fixtures, structures, isolating transformers, structures and supports, and earthed at least every 150 m to 300 m through a ground rod, as detailed to achieve 6 Ω,

all jointing materials, bolted connectors, earth bars, protective covers where necessary, and terminal lugs, bolts and nuts etc. carried to completion in a satisfactory manner in accordance with the codes and standards applicable.

6. Airfield Lighting Cables

6.1. Airfield lighting cables are measured where the net length is given in metres stating the type, rating, size and method of installation except where such cables are included in other items.

6.2. Airfield lighting cables are deemed to include all requirements and hardware as per specifications including:

Cable installation, connections and terminations, primary and secondary connectors.

7. Testing and Commissioning

7.1. Testing and commissioning is given as an item.

7.2. Work is deemed to include all requirements, software, and hardware as per specifications including:

Inspection of materials and equipment;

Verification of installation against approved drawings and specifications;

Functional and photometric testing of lighting circuits and control systems;

Calibration and programming of CCRs and monitoring equipment;

PAPI units calibration;

Submission of test reports and as-built documentation;

Testing of AGL circuits including resistance tests and operational tests.

All required accessories, mounting hardware, labelling, and documentation to complete a proper and functional testing to the satisfaction of the Engineer.

IMMEDIATE AIRFIELD REHABILITATION

Item	Description	Qty	Unit	Rate	Amount USD
	GENERAL REQUIREMENTS				
	01-A GENERAL AND PARTICULAR CONDITIONS OF CONTRACT				
	The Contractor shall be deemed, prior to submitting his Tender, to have carefully studied, understood fully and made due allowance in his Tender, for all provisions and requirements, expressed and implied, in the Conditions of Contract.				
	Allow and price for all direct and indirect costs and associated expenses necessarily incurred in complying with and fulfilling the Contractor's obligations and responsibilities prescribed in and/or reasonably inferred from the Conditions of Contract in addition to the profit margin, unless otherwise priced and included separately in the "Bill of Quantities".				
A	Performance Security		Item		
B	Programme and Cash Flow		Item		
C	Contractor's superintendence for the Works including the subcontractors when applicable		Item		
D	Safety, Security and Protection of the Environment		Item		

Item	Description	Qty	Unit	Rate	Amount USD
A	Insurance of Works and Contractor's Equipment		Item		
B	Third Party Insurance		Item		
C	Insurance Against Accident to Workmen		Item		
D	Advance Payment Guarantee		Item		
E	Avoidance of Damage to Roads		Item		
F	Fencing including lighting		Item		
G	Site Offices		Item		
	Costs of Tests and Investigations				
H	Defects Notification Period, Completion, Cost of Outstanding Work and Remedying Defects		Item		
	Temporary Barricades				
J	Taxiway Closure Barricades; provide, install, maintain, relocate as required, and remove upon completion, complete with supports/ballast, reflective markings, warning lights and all necessary accessories.		Item		

Item	Description	Qty	Unit	Rate	Amount USD
	01-B GENERAL REQUIREMENTS				
	The Contractor shall be deemed, prior to submitting his Tender, to have carefully studied, understood fully and made due allowance in his Tender, for all provisions and requirements, expressed and implied, in Division 1 - General Requirements.				
A	Allow for all General Requirements including project administration, submittals, substitutions, progress and photographic documentation, HSE and quality requirements, temporary facilities and controls, construction waste management and disposal, closeout and record documents, including galvanized steel hoarding and lockable access gates complete with all associated civil works, all in accordance with the Contract Documents.		Item		

Item	Description	Qty	Unit	Rate	Amount USD
	Additional items				
	Allow for any items of work necessary for the proper completion of the Works in this Section, in accordance with the Specifications, Drawings and other Tender Documents which have not been covered elsewhere in the Bill of Quantities.				
	_____				
	_____				
	_____				
	GENERAL REQUIREMENTS To Summary			USD	

Item	Description	Qty	Unit	Rate	Amount USD
	26 - ELECTRICAL				
	260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS				
A	Complete earthing system as specified, including earthing conductors, earth pits, and all necessary accessories and connections		Item		
	263353 - STATIC UNINTERRUPTIBLE POWER SUPPLY				
	UPS system complete, externally redundant, including automatic static bypass transfer switch, external manual bypass switch, isolation transformer, batteries, charger & battery racks/cabinets, central monitoring system and inter-cabling; 15-minute backup time;				
B	30 kVA; with 3-phase, 380V, 50Hz input and 3-phase, 380V, 50Hz output;	2	Nr		

Item	Description	Qty	Unit	Rate	Amount USD
	260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES including Feeder cables of different sizes, Single core or multicore copper conductor, XLPE insulated, LS0H sheathed; armoured; 0.6/1 kV; installed on cable tray; including Fire resistant cables for Life safety loads. Earthing cables of different sizes, Single core, copper conductor, LS0H insulated earthing cables; unarmoured; 0.6/1 kV; installed on cable tray; including Fire resistant cables for Life safety loads.				
A	4C,25 mm2 CU/XLPE/LS0H	50	m		
B	4C,10 mm2 CU/XLPE/LS0H	20	m		
C	1C,16 mm2 CU/LS0H	50	m		
D	1C,10 mm2 CU/LS0H	20	m		

Item	Description	Qty	Unit	Rate	Amount USD
	260536 - CABLE TRAYS FOR ELECTRICAL SYSTEMS				
A	Perforated Cable trays for LV cables		Item		
	262416 - PANEL BOARDS including Distribution, sub distribution, and final branch circuit panel boards and feeder pillars, and including all necessary items installations, cables etc.. needed to feed the required loads				
B	Distribution panel board	1	Nr		
C	Final Branch Circuit Panel board	1	Nr		

Item	Description	Qty	Unit	Rate	Amount USD
	260543 FL - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS				
	Civil Works for AGL				
A	Trench for primary AGL cables including bedding and backfilling	5,000	m		
B	Trench for secondary cables including bedding and backfilling	70	m		
C	Concrete Encased Primary duct bank (2x2 mm) with pavement re-instatement as applicable	220	m		
D	Secondary concrete encased ducts (1x50 mm) with pavement re-instatement as applicable	250	m		

Item	Description	Qty	Unit	Rate	Amount USD
	Additional items				
	Allow for any items of work necessary for the proper completion of the Works in this Section, in accordance with the Specifications, Drawings and other Tender Documents which have not been covered elsewhere in the Bill of Quantities.				
	_____				
	_____				
	_____				
	26 - ELECTRICAL To Summary			USD	

Item	Description	Qty	Unit	Rate	Amount USD
	31 - EARTHWORK				
	311000 - SITE CLEARING				
A	Clearing the site generally, including all work described in Method of Measurement Section 311000 Site Clearing		Item		
	SUBGRADE PREPARATION FOR AREAS TO RECEIVE NEW FLEXIBLE PAVEMENT AND FOR PREPARATION OF GRADED STRIPS AND RESAs				
B	PREPARATION OF GRADED STRIP AND RESAs (INCLUDING 300 mm SUBGRADE LAYER COMPACTED TO 95% M.D.D.)	291,500	m²		

Item	Description	Qty	Unit	Rate	Amount USD
	Additional items				
	Allow for any items of work necessary for the proper completion of the Works in this Section, in accordance with the Specifications, Drawings and other Tender Documents which have not been covered elsewhere in the Bill of Quantities.				
	_____				
	_____				
	_____				
	31 - EARTHWORK To Summary			USD	

Item	Description	Qty	Unit	Rate	Amount USD
	32 - EXTERIOR IMPROVEMENTS				
	321723.13 - AIRFIELD PAVEMENT MARKINGS				
A	Airfield Marking (Black Colour)	4,826	m²		
B	Airfield Marking (Yellow Colour)	5,494	m²		
C	Airfield Marking (White Colour)	10,993	m²		
D	Airfield Marking (Red Colour)	240	m²		
E	Airfield Marking (Blue Colour)	31	m²		
F	Removal of Existing Marking	2,228	m²		
	RIGID PAVEMENT SLABS OF APRON, TAXIWAYS AND RUNWAY TO BE ENTIRELY REPLACED TO FULL DEPTH (typical slab dimensions: 7.0 m × 7.5 m with a total of 22 slabs)				
	324113.13 - PAVEMENT DEMOLISHING				
G	Removal of existing rigid pavement slabs that require replacement	1,155	m²		
	321313 - CONCRETE PAVING				
H	CONCRETE LAYER, WITH FLEXURAL STRENGTH 5.0 MPa	347	m³		
J	POLYETHYLENE SHEETING (VAPOUR BARRIER).	1,155	m²		
K	WITH COMPRESSIVE STRENGTH OF AT LEAST 14.0 MPa	173	m³		

Item	Description	Qty	Unit	Rate	Amount USD
	RIGID PAVEMENT SLABS OF APRON, TAXIWAYS AND RUNWAY TO BE PARTIALLY REPLACED TO FULL DEPTH (typical dimensions: 3.0–4.5 m × 7.5 m with a total of 68 slabs)				
	324113.13 - PAVEMENT DEMOLISHING				
A	Removal of existing rigid pavement slabs that require replacement	1,913	m²		
	321313 - CONCRETE PAVING				
B	300 mm PORTLAND CEMENT CONCRETE LAYER, WITH FLEXURAL STRENGTH 5.0 MPa	574	m³		
C	POLYETHYLENE SHEETING (VAPOUR BARRIER).	1,913	m²		
D	150 mm LEAN CONCRETE LAYER, WITH COMPRESSIVE STRENGTH OF AT LEAST 14.0 MPa	287	m³		

Item	Description	Qty	Unit	Rate	Amount USD
	EXISTING RIGID PAVEMENT REPAIRS				
	321373 - CONCRETE PAVING JOINT SEALANT				
A	Joint Sealant for new and existing joints.	36,000	m		
	320129 - RIGID PAVING REPAIR				
B	Repair of Distressed Rigid Pavement Slab by Crack Treatment and Sealing, and/or Patching Works (typical slab dimensions: 7.0 m × 7.5 m)	615	Nr		
C	Repair of Distressed Rigid Pavement Slab by Crack Treatment and Sealing and/or Patching Works with Diamond Grinding for level corrections (typical slab dimensions: 7.0 m × 7.5 m)	46	Nr		

Item	Description	Qty	Unit	Rate	Amount USD
	Additional items				
	Allow for any items of work necessary for the proper completion of the Works in this Section, in accordance with the Specifications, Drawings and other Tender Documents which have not been covered elsewhere in the Bill of Quantities.				
	_____				
	_____				
	_____				
	32 - EXTERIOR IMPROVEMENTS				
	To Summary		USD		

Item	Description	Qty	Unit	Rate	Amount USD
	34 - TRANSPORTATION				
	344314 - AIRFIELD LIGHTING EQUIPMENT				
	Aircraft guidance signs, including sign foundation, support system, sign facia, frangible coupling, complete				
A	Airfield guidance sign	9	Nr		
	Refurbishment of existing AGL equipment (obtained from BRHIA airport) and installation.				
B	Shallow bases for inset lights	12	Nr		
	Procurement and respective installation as specified.				
C	Inset combined runway threshold and runway end lights (bi-directional green & red)	12	Nr		
D	PAPI units, complete with optical assemblies, mounting arrangements,	8	Nr		
E	Runway guard light fittings, elevated with respective mounting accessories	2	Nr		

Item	Description	Qty	Unit	Rate	Amount USD
A	AGL Earthing/counterpoise system complete with earth cables and rods		Item		
B	Secondary cable (2x4mm²)	600	m		
C	Isolating transformer, 6.6A/6.6A, including primary and secondary connectors (100W)	2	Nr		
D	Isolating transformer, 6.6A/6.6A, including primary and secondary connectors (150W)	24	Nr		
E	Isolating transformer, 6.6A/6.6A, including primary and secondary connectors (300W)	16	Nr		
F	AGL primary series-circuit cable, 1C, 6mm², 5 kV	5,500	m		
	Constant Current Regulators with respective communication set and all needed accessories and installation				
G	CCR, 15 KVA	1	Nr		

Item	Description	Qty	Unit	Rate	Amount USD
	Additional items				
	Allow for any items of work necessary for the proper completion of the Works in this Section, in accordance with the Specifications, Drawings and other Tender Documents which have not been covered elsewhere in the Bill of Quantities.				
	_____				
	_____				
	_____				
	34 - TRANSPORTATION To Summary			USD	

Item	Description	Amount USD
	SUMMARY	
01	GENERAL REQUIREMENTS	
26	ELECTRICAL	
31	EARTHWORK	
32	EXTERIOR IMPROVEMENTS	
34	TRANSPORTATION	
	SUMMARY Total carried to Form of Tender	