



**SCOPE OF WORK
FOR
ELECTRICAL RECTIFICATION AND UPGRADING
WORKS AT SEAPLANE HANGAR**

05/09/2026



1. BACKGROUND AND OBJECTIVES

Following recurring power outages at the IASL Seaplane Hangar, a comprehensive electrical diagnosis was carried out to identify the underlying causes affecting the facility's electrical system. The assessment identified several deficiencies, including overloaded electrical protection, inadequate cable sizing, damaged wiring, missing protective devices, compressor-related issues, and poor load distribution. This scope of work has been developed to implement all recommended corrective actions and restore the safety, reliability and performance of the hangar's electrical infrastructure.

The objective of this project is to carry out all recommended electrical and mechanical rectification works identified in the attached report. The works are intended to improve system safety, eliminate recurring power outages, ensure compliance with applicable electrical standards and regulations, enhance equipment reliability, and provide a stable and efficient electrical distribution system for the continued operation of the Seaplane Hangar.

2. SCOPE:

The scope of work for this project includes, but is not limited to:

2.1 Description of Work

2.1.1 General preliminaries:

- a. Site management:
 - i. Allow for on and off-site management costs including cost of foreman and assistants, temporary services, telephone, hoardings and similar.
- b. Logistics:
 - i. Allow for cost of supply, transport and mobilization of all necessary tools, machinery, equipment and material required to execute all the works highlighted in this scope of work.
- c. Site clearance:
 - i. Allow for cleanup of entire work site upon completion of work daily and disposal of construction waste and debris.

2.1.2 Main distribution board upgrade:

- a. Supply and replace existing 160A 3P MCCB incomer with new 250A 3P adjustable MCCB complete with accessories and installation.
- b. Modify MDB busbar connection and mounting arrangements to accommodate new breaker.
- c. Reconfigure and calibrate overcurrent relay (OCR) settings in accordance with URA requirements and approved protection coordination study.
- d. Carry out complete protection coordination study and relay settings calculations.



- e. Functional testing of upgraded incomer breaker under load conditions.

2.1.3 Compressor power supply upgrade:

- a. Supply and installation of new 70mm² XLPE/PVC copper 4-core feeder cable from MDB directly to compressor panel including glands, lugs, terminations.
 - i. *Cable wiring distance from MDB to compressor sub-DB = ~190ft.*
 - ii. *Cable wiring distance from sub-DB to compressor unit = ~135ft.*
- b. Removal of existing undersized 30mm² and 50mm² feeder cables where necessary.
- c. Replacement of damaged cable sections and repair all insulation defects identified during testing.
- d. Supply and installation of heavy-duty cable supports, saddles, and cable identification labels.
- e. Megger testing and continuity testing of new feeder.

2.1.4 Compressor protection system:

- a. Supply and installation of overcurrent relay (OCR) for compressor feeder.
- b. Supply and installation of earth leakage relay (ELR) complete with core balance CT.
- c. Modify control wiring for relay integration.
- d. Protection relay testing, calibration and commissioning.
- e. required.

2.1.5 Protection coordination improvements:

- a. Review and resize oversized downstream breakers to achieve selective coordination.
- b. Replacement of incorrectly rated breakers where required.
- c. Installation of ELR/OCR protection on all MSBs exceeding 63A.
- d. Carrying out complete relay coordination testing.

2.1.6 Metering system:

- a. Supply and installation of multifunctional digital power meter compatible with existing MDB.
- b. Reconnection of CTs and voltage sensing circuits.
- c. Configuration of monitoring parameters.
- d. Commissioning and verification of readings.

2.1.7 Wiring rectification:



- a. Locating faulty lighting circuits identified during insulation testing.
- b. Repairing of insulation faults and damaged wiring.
- c. Location of faulty socket circuits.
- d. Repairing of neutral-earth faults.
- e. Repeating insulation resistance testing after repairs.

2.1.8 Socket outlet upgrade:

- a. Supply and replacement of all existing socket outlets with IP65-rated industrial weatherproof socket outlets suitable for marine environments.
- b. Replacement of damaged back boxes and glands where necessary.
- c. Testing polarity, earth continuity and insulation.

2.1.9 Phase load balancing:

- a. Surveying all single-phase circuits connected to MDB.
- b. Redistribution of loads evenly across all three phases.
- c. Updating the circuit schedules and panel labels.
- d. Conducting load balancing verification under operational conditions.

2.1.10 Final testing & commissioning:

- a. Complete insulation resistance testing.
- b. Earth continuity testing.
- c. Earth fault loop impedance testing.
- d. RCCB trip testing.
- e. Protection relay functional testing.
- f. Power quality analysis after completion works.
- g. 72 hour operational monitoring under normal hangar load.
- h. Submission of commissioning reports, calibration certificates and as-built drawings.



3. RESPONSIBILITIES

3.1 Employer Responsibilities

- Shall provide a detailed and comprehensive project brief outlining the objectives, scope, deliverables, and any specific requirements for the project.
- Maintain open and effective communication with the Contractor throughout the project duration to ensure alignment, address queries, and provide necessary feedback.
- Furnish all relevant and essential information, data, and access required by the Contractor to execute the project successfully.
- Define clear expectations regarding project timelines, milestones, quality standards, and any other specific project requirements.
- Provide timely approvals for project deliverables and any required changes or variations.
- Identify and communicate any potential risks or challenges associated with the project to the Contractor promptly.
- Review and accept project deliverables based on the agreed-upon acceptance criteria.
- Provide necessary support during the project closure process to ensure a smooth handover.

3.2 Contractor Responsibilities

- Ensure that all construction activities comply with local regulations, building codes, and safety standards.
- Source and provide all material, equipment, and supervision to complete the technical requirements in this scope of work. The contractor shall be responsible for hiring labor, equipment, vendors and shall follow security and safety directives.
- Employ and manage a skilled and qualified workforce to carry out various tasks during the project, ensuring they have the necessary expertise and training.
- Shall appoint a Site Supervisor, and he should be available on site while the work is being carried out.
- Shall be responsible for transportation of personnel and materials to site, including any airport escort fees.
- The Contractor shall not be admitted to areas of the property beyond the areas designated for the project except with the permission. The Contractor shall address the impact of the consequent disruption caused by the proposed work.
- Prepare the project site, including clearing, excavation, grading, and disposal as needed.
- Implement quality control measures to ensure that all work meets the specified standards and adheres to best practices.
- Any damage during the project execution shall be rectified on contractors' cost. Any contingencies shall be taken into consideration during project execution.
- If the quality of workmanship is below the acceptable standard, the contractor shall rectify the situation to the satisfaction of the employer at his own expense.
- Prioritize the safety of the workforce and all stakeholders, implementing safety protocols and maintaining a hazard-free work environment.
- Maintain clear and regular communication with the project manager, and other stakeholders, providing updates on progress and addressing any concerns promptly.
- Ensure a smooth project closeout, including final inspections, obtaining necessary approvals, and handing over all relevant documentation and deliverables to the Employer.



- The contractor shall ensure that all personnel employed under the agreement are skilled, qualified, and possess the necessary approvals and permits required to perform their respective duties, including valid work permits for foreign employees.
- The contractor shall be responsible for applying for airport passes required by the Aviation Security Command (AVSECOM).
- The employer shall endorse the airport pass application forms as necessary, however, all administrative processes related to the application, including submission, follow-up, and payment of applicable fees, shall be the sole responsibility of the contractor.
- The contractor shall actively follow up with AVSECOM regarding the status of airport pass applications and provide regular updates to the employer on the progress until the passes are issued.

4. VARIATIONS AND CHANGE ORDERS

All communications regarding the project shall be directed to the Project Manager. If any changes to the scope of work are required during the project duration, they will be communicated in writing through an email to the contractor by the Project Manager. Any changes shall be implemented once approval for variation (if any) is provided to the contractor through email by the Project Manager. This includes any modifications requested by the Employer that may impact the project timeline or cost.

No variations will be accepted without approval from the Project Manager, and any alterations made without approval shall be rectified at the contractor's expense.

Note:

1. Final Measurements shall be taken during the site visit.
2. Comprehensive work schedule shall be presented prior to commencement of work. [Mention working hours]
3. All foreign employees must possess valid work permit.
4. Airport pass shall be always displayed.
5. Electricity and water required for the project will be provided by the Employer.
6. All material to be used shall be presented before commencement and nor substitution will be allowed prior approval.
7. The metric system of units shall be used throughout

Any complaints, queries during the project shall be informed via telephone during an emergency to [+960 785-3613], IASL Manager appointed for the project. Or via email to: [\[naizan@iasl.aero\]](mailto:naizan@iasl.aero)

Prepared by (Project Manager):

Name: Abdhulla Naizan

Sign:

Approved by:

Ali Nashath Hameed (General Manager, FMS)

Sign: