

**AIRPORTS AUTHORITY OF INDIA  
N.S.C.B.I. AIRPORT, KOLKATA - 700 052.**

**SCHEDULE OF WORK**

**Name of work: Operation and Maintenance of Aeronautical Ground Lighting System with ILCMS (CAT-I/II/III) at NSCBI Airport, Kolkata (2026-2028).**

Sl. No.	Description of Item	Quantity	Unit	Rate	Amount	Ref. to "BOQ.xls" in the e-tender portal
1	<p>Carrying out round the clock Operation and Maintenance including Preventive, Predictive and Break Down Maintenance and AICMC ( to the extent mentioned in succeeding paragraphs) of the Power Line Communication ILCMS monitored and controlled, integrated CAT-I/II/III AGL system at NSCBI Airport, Kolkata by providing certified, competency mapped and trained manpower by the OEM, using suitable and required diagnostic software tools including configuration software tools, field controller diagnostic interfaces, Power Line Communication analysers, CCR diagnostic utilities and ASD software tools etc. for the existing ILCMS in accordance with the OEM standards, DGCA CAR / ICAO requirement, approved SOPs / Aerodrome Manual / Station SMS and Regulatory Licensing Requirement of NSCBI Airport, Kolkata licensed for All Weather IFR, 4E operations including providing suitable logistics for transporting men, materials, tools &amp; plants and photometry testing etc. and providing sundry materials etc. complete as required as per the scope of work and specifications detailed in the Special Conditions of the Contract in the Tender Document and as mentioned below on all days including Saturdays, Sundays and Holidays:</p> <p>a) Power Line Communication Network type ILCMS ( ALCMS with single lamp monitoring) along with CWPs, MWPs, Servers, Racks, LIU, Switches, Simulators with its servers and HMIs, OFC &amp; CAT-6 Network ( from HMIs to KVM to Servers to Switches to CCRs), auxiliary power supply network and UPS of ILCMS etc. installed at Old ATC Tower, New ATC Tower, AOCC and CCR Halls etc.: AICMC and operation including supply and replacement of faulty components and network cables.</p> <p>b) CCRs : AICMC and Operation including supply and replacement of faulty components.</p> <p>c) Primary and Secondary Air Field Power cum data signal communication network with isolating transformers (IT) as power cum signal couplers, joints, earthing and its network and ASD cum IT boxes / pits etc. upto including light fittings: Operation and Maintenance without spares. Airfiled power cum data signal Cables, ITs, jointing kits and earthing components required, if any, will be provided by AAI.</p> <p>d) ASDs: AICMC and operation including supply and replacement of faulty ASDs.</p> <p>e) Light fixtures : Operation and Maintenance without spares. Spares and consumable like lamps / LED modules &amp; Drivers etc. required, if any, will be provided by AAI .</p> <p>Note: The successful bidder shall engage the OEMs / OEM-authorized agencies for AICMC of the ALCMS / ILCMS system.</p>					BOM 1
	i) 1st Year	12	Month			
	ii) 2nd Year	12	Month			

## SPECIAL CONDITIONS OF CONTRACT (SCC)

### 1. GENERAL:

1. Special conditions of Contract shall be read in conjunction with General Conditions of Contract, Technical Specifications, Drawings and any other documents forming part of this contract wherever the context so requires to deliver the ultimate purpose of this contract of successful execution of this work i.e. **Operation and Maintenance of Aeronautical Ground Lighting System with ILCMS (CAT-I/II/III) at NSCBI Airport, Kolkata, licensed for 4E, All Weather (CAT-III) as a regulatory requirement by DGCA under rule-78, Aircraft Rules-1937 to ensure system integrity, reliability and serviceability for safe aircraft operation complying DGCA CAR Section 4 Series B Part 1 (Aerodrome Design and Operations), Safety, Security Rules, ICAO Annexures and Documents, Manuals, approved SOP ( Standard Operating Procedures) and OEMs( Original Equipment Manufacturer) recommendations.** Kolkata is a major airport with high density operation; the present capacity of 39 operations / hour for primary runway and handles around 400 operations in a day. Even a partial closure of an AGL sub system in Kolkata can impact not only national air movement but also internationally. A highest standard of maintenance shall be followed to comply *ICAO Annex-14, clause 10.1.1 : "...maintenance programme, ....., shall be established at an aerodrome to maintain facilities in a condition which does not impair the safety, regularity or efficiency of air navigation."*
  - i) Notwithstanding the sub-division, if any, of the documents into the separate sections and volume, every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the CONTRACT so far as it may be practicable to do so.
  - ii) NSCBI Airport is provided with two parallel runways designated as 19L- 01R as Main Runway and 19R-01L as Secondary Runway. The Main Runway is 3633 mtrs long and 45 mtrs wide with 19L threshold displaced by 426 mtrs. The Secondary runway is 3271 mtrs long and 45 mtrs wide with 19R Threshold displaced by 88mtrs and 01L Threshold displaced by 438 mtrs. For further details, e-AIP is available in public domain.
  - iii) The main runway 19L-01R is equipped with CAT III lighting system on 01 R approach and on 19 L approach to provide visual aids to the aircraft during low visibility conditions. The secondary runway is provided with CAT-I lighting system on 19R side and Simple approach lights on 01L side.

- iv) The work is '**Safety Critical**' that is directly related aircraft operation at NSCBI Airport. To comply the controlling and monitoring requirement as per DGCA CAR / ICAO-Annexure-14, chapter 8.3, the AGL system is provided with **ALCMS of Type-D, L-890, FAA AC-150/5345-56B i.e ALCMS with single lamp monitoring facility or ILCMS (Individual Lighting Control and Monitoring System)) with power line data communication to each light fitting**. It migrates a general airfield series electrical circuits to an automated, high performance technology of '*computer on runway / taxiway / bay*' and makes the AGL system of Kolkata an integrated, software driven technical complex system. Hence all the components of the AGL System e.g HMIs, Servers, switches, CCRs, data communication cum primary power network, joints, isolating transformers, ASDs, secondary cables and fittings etc. are parts of a single integrated AGL system which is controlled and monitored by the ILCMS with power line communication where each light fitting works as an addressable node. CAT-III AGL system is analogous to ASMGCS and is part of air navigation as designated in ICAO.
- v) The system architecture of the airport lighting control and monitoring system is based on a modern, distributed, and fully scalable computer system. The computers are connected over a 100Mbit/s Ethernet (TCP/IP) connection. Both the individual computers as well as the network can be duplicated in order to increase operational security. Fiber optic cables are for communication among the equipment in different buildings and primary and secondary series AFL power circuits- shielded, low inductance with earthed joints and earthed isolating transformers- are for data communications to fittings.
- vi) For continuous checking of system health CCR has an additional M mode for keeping the circuits charged even when circuits are not used or in Off mode.
- vii) This AGL system is a distributed computer network of hundreds of KM Air Field Lighting cables and each element is compatible to the ILCMS. The existing ILCMS, software, Hardware, AGL Design, ASDs, CCRs and different diagnostic software tools like EMPGraph, LCM Server, SKMonitor and ASD tools etc. are the proprietary of its OEM, Honeywell Automation India Ltd. and protected by IP rights.
- viii) The integrated AGL system shall have to be operated and maintained by engaging OEM and duly certified, trained, retrained competency mapped manpower by the OEM of the ILCMS with due authority of software access etc. in compliance to complex ILCMS technology requirement and the regulatory requirement of the S-SMS, DGCA CAR Section 9 – Air Space and Air Traffic Management, Series 'D'

Part I, Issue II, 8th January 2010 and ICAO ( ICAO Doc no.9137, Part-9, clause: 2.1.1, 2.2, 2.5.1 and ICAO Doc-9137 part-8, Doc-9157 part-4 and 5 etc.) Annexure-14, para 10.1.2, ICAO DOC-9683 ( Human factor training Manual), ICAO doc 9981 PANS-Aerodromes trg, part -II , Chapter-1, AD-1/ 2011) to maintain the performance of the AGL System of response time 2 sec for STB and 5 sec for other circuits (clause 8.3.3 of ICAO Annex-14), ILCMS technology & circuit design parameters like shield continuity, shield resistance, scattered inductance of total circuit & part circuit, number of element, spacing between ASD and transformers, IR values, joint resistance and failsafe requirement and type of FO etc. for proper data communication through the power line to achieve minimum Serviceability standard as per para 10.5 of DGCA CAR sec-4, series-B, Part-1 of 2025 with reliability. A high quality Maintenance programme shall be established as per the DGCA CAR, ICAO, approved SOPs, Manuals and OEM recommendations and get it approved by AAI to comply DGCA CAR / ICAO Requirement. in letter and spirit. Yearly training programme and retraining programme by the OEMs for the engaged manpower shall be submitted to AAI at the beginning of the contract. Training and retraining to ATCOs / AAI Engineers with simulator, classroom / online with any change in LVP SOP, update in ILCMS, operation functionality, change in routing etc. shall also to be done by the OEM of ILCMS.

ix) **Aircraft Rules & Other Regulations**

- a. The work and the site are in aircraft operational area and hence are regulated by Aircraft rules 1937. Implementation agency is DGCA. Any Violation to these rules and regulations by the contractor and its individual manpower shall be treated under the appropriate law by the competent authority(s).
- b. The Work and site are also regulated by different ADACs, SOPs and Instructions and orders by the Department of Operation / Apron control / Ground Control / Directorate ATM. ADP (apron driving permit), PERCOW (permission to commencement of the work), NOTAM (Notice to Airman), Hot work permit etc. and liaison with different departments / organizations like CSO, BCAS, CASO, TSO, Operation and ATM etc. are required to be arranged by the agency to carry out the work.
- c. The documents and works are also subjected to audit by DGCA time to time like Fog preparedness, Annual Surveillance, S-SMS compliance, pre-monsoon and post monsoon and BA test compliance etc.

- x) **Site Access / AEP Guidelines:**
- a) The access to the site is regulated by Aircraft (security) rules 2023 with regulatory authority as BCAS
  - b) Detailed AEP guidelines are as per MOCA / BCAS AEP Guidelines-2022.
  - c) It is imperative on part of the contractor to submit the required documents to BCAS in e-sahaj & e-bcas portal and obtain necessary clearance and approval of the Security Programme before physically starting of the work at site.
  - d) All the workmen / employees of the contractor shall get their back ground checked from Police Authority and undergo one-day Security awareness class in the e-bcas portal for getting the AEPs.
  - e) Local Security coordinator (CSO / ASCO) shall undergo AVSEC Induction 5 days course within the stipulated time frame.
- xi) The work shall be generally carried out as per the following Standard and requirement. All the standards, requirements, SOPs and Manuals etc. shall mean any latest amendments during the currency of the contract. Any Kolkata airport specific documents like Aerodrome Manuals and SOPs etc. are available in the office of the AGM(EE), AGL Division, Department of Electrical Engineering and can be seen by the bidders on working days between 1600 to 1800 IST.
- a. Nomenclature of the items as given in the schedule of quantities (SOQ).
  - b. Technical specifications, Special conditions of contract, General conditions of contract
  - c. DGCA CAR Series-B, part-I, Issue-II and DGCA CAR Series-C, part-I, Issue-III and DGCA CAR-9 etc. as applicable.
  - d. ICAO: Annexure-14, Doc no-9157 P-4, 5 & 6, Doc-9137 part-8 & 9, DOC-9365 ( All Weather operation), DOC-9683 ( Human Factor, Training) etc.
  - e. OEMs: Honeywell, TKH, Efla etc.
  - f. FAA.
  - g. ADACs: 3 of 2009, 1 of 2011, 1 of 2012, 2 of 2019, 2 of 2022 etc. and all other relevant ADACs issued / to be issued time to time.
  - h. Manuals: Aerodrome, S-SMS etc.
  - i. SOPs: LVP, Maintenance, ALCMS failure, Tower Operation ( Old and New), Fog Preparedness, Cyclone, Pre and post monsoon, IR value, Daily Inspection VVIP movement.
  - j. IEC/ Indian Standard Specifications / Code of

Practice

- k. CPWD specifications with up to date amendment
- l. International Specifications / Code of Practice.

xii) The contractor may have to vacate its day's work any time as per Operation and Security guidelines. Working hour is 24 hours a day and 7 days a week. Any claim of loss viz. man hour, hiring tools and plants etc. in this regard shall not be entertained by AAI. The agency shall include such cost in their quoted price.

## 2. SCOPE OF WORK

The scope of the work is broadly as follows:

- i) Operation and Maintenance of CAT-I/II/III Integrated AGL System with ILCMS from CWP (HMI at ATC Tower) upto including the fittings of NSCBI Airport, Kolkata (**Inventory: Annexure-R**) maintaining the serviceability standard minimum as per DGCA CAR / ICAO by deploying men, materials ( all materials for comprehensive elements and only sundry materials for non- comprehensive elements), tools & plants, software prognostic tools and logistics for transporting men, materials, tools, photometric testing and inspection etc. as detailed herein. Maintenance Schedule will be made following the attached Schedule (**Maintenance Schedule as per the Aerodrome Manual attached: Annexure-Q**), ICAO, SOPs, DGCA observations and OEM standards and get it vetted by the OEM and AAI at the beginning of the work.
- ii) If the bidder is not OEM/OEM authorized agency of the ILCMS at NSCBI Airport, Kolkata, the bidder shall engage OEM or its authorized agency for providing necessary support for AICMC of the ALCMS / ILCMS system for providing hardware, spare parts, software supports, firmware, software tools for diagnostic, prognostic and break down maintenance, preventive maintenance, testing, performance certification, training / retraining & competency mapping of the Operation & maintenance personnel engaged by the bidder and AAI officials e.g ATCOs as per the regulatory requirement to ensure safe & reliable CAT-I/II/III operation with integrity at NSCBI Airport, Kolkata licensed for ALL Weather, IFR, 4E operation. The non-OEM successful bidder shall submit OEM escalation matrix and a copy of the agreement with the OEM.
- iii) AICMC and operation of ILCMS System including the Simulator i.e. CWPs, MWPs, Servers, racks, switches, LIU, KVM, OFC Network, positive feedback network, CAT-6 Ethernet network and Simulator

etc. including its software upto CCRs including supply and replacement of faulty components and network cables.

- iv) AICMC and Operation of CCRs, ASDs including softwares and firmwares including supply and replacement of faulty components. And replacement of irreparable / faulty ASDs with the latest version ASDs.
- v) Operation and Maintenance of Primary and Secondary Air Field Power cum data signal communication network with isolating transformers (IT) as power cum signal couplers, joints, earthing and its network and ASD cum IT boxes / pits etc. upto including light fittings without spares. Spares and components required, if any, will be provided by AAI.
- vi) Operation and Maintenance of Aeronautical Ground Light fittings / fixtures without spares. Spares and consumable like lamps / LED modules & Drivers etc. required, if any, will be provided by AAI.
- vii) The Inventory mentioned is indicative and not exhaustive. During currency of the contract if any system is integrated/added/ modified the same will come automatically under the scope of the operation and day to day maintenance from the date of operationalization upto 15% of the inventory. AAI shall provide the spares required for the newly integrated/added/ modified part(s) except the sundry materials. The newly integrated/added/ modified system can be under DLP and hence the contractor shall maintain a separate record for any defects inherent in elements or workmanship and submit report to AAI. As maintaining the serviceability and integrity of the whole AGL system is both safety and time critical, the contractor will directly communicate to the agency(s) under whom the newly integrated/added/ modified system is in DLP ( DLP Agency) and get it done under the contractor's supervision and co-ordination. If the response time of the DLP agency cannot be afforded for operational reason the contractor itself will do it under the intimation to AAI.
- viii) Any spare and sundry materials shall as per the approval / guidelines of the OEMs and the relevant standards like FAA, ICAO etc.
- ix) Preparation of Maintenance plan as per Manuals, SOP, OEMs and ICAO Doc and get it approved by AAI before starting of the work. It shall take into account that weekly NOTAM of primary runway will be available to the tune of 20 hours a week, all related maintenance and

testing shall be completed before LVP season. Manpower Deployment shall be changed accordingly to the NOTAM availability.

- x) Software update, firm ware update, software storage / backups.
- xi) ASDs mapping, ASD mode changing and FO reset for signal interface LED fittings by ALCMS / ILCMS.
- xii) Circuit and CCR configurations by software.
- xiii) System response time testing, simulation, resetting of different circuits like STB within 2 seconds etc.
- xiv) Software debugging, maintain cyber security policy as available to the existing system.
- xv) Software Error log checking, repairing etc. server switching.
- xvi) ILCMS event log checking and report generation as when demanded.
- xvii) Using software tools / application and fault finding, repairing and predictive maintenance etc.
- xviii) CCR output testing, calibration and certifications etc.
- xix) Bringing passive CCRs, ASD etc to online by configuration in software, testing and IP mapping etc.
- xx) IR value and Earth value maintaining as per ICAO including cabling and dressing at and inside IT boxes for the purpose of IR improvement.
- xxi) PAPI maintenance and calibrations as per SOP.
- xxii) FOD controls like all the tools to be serially numbered with the contractor's logo / name, carrying of bins / bags.
- xxiii) Complying Safety (S-SMS, DGCA CAR-1) and all AGL related SOPs, Manual and instructions, circulars.
- xxiv) Photometry testing of the inset fittings and elevated runway edge lights by the equipment provided by AAI.
- xxv) Maintaining 4Cs in the AGL system.
- xxvi) Tightening of fittings, angle settings, toe in angle checking, lense cleaning, numbering, IT box covering etc.
- xxvii) Day to day maintenance and operation but without spares of all the very specialized equipment provided by AAI for AGL maintenance purpose like Photometric instrument, clinometer, inclinometer, Dark room lab, Lumiclean, and binoculars etc.
- xxviii) Diagnostic, trouble shooting, Predicative / proactive maintenance by using software tools like EMP graphs, SAF Manager, LCM Server, LCM Servo and SK monitor etc. in dedicated laptop ( main and stand by) with hardware connections and take corrective measures like maintaining proper communication signal strength and other ILCMS parameters as per the OEM in the field power cum

- communication network for proper control and monitoring as required by DGCA CAR etc.
- xxix) Providing day and night closure as per DGCA CAR / ICAO for the NOTAM area / Runway / taxiways providing cloths, cones, flags etc.
  - xxx) Voluntary Safety Reporting.
  - xxxi) Data Management, Record Keeping and Report Generation (Monthly Technical Report, Fault Data bank, Incident Reporting, compliance report to DGCA/ Pilots/ Operations Department observations, preventive maintenance records, break Down maintenance records, Aviation Safety Department observations and compliance record, RST observations and compliance, ASC observations and compliance, SSC observations and compliance, NOTAM records, Drawings, Training and Retraining Records, Records related to Labour rules compliance, Records related to safety compliance, Records related to security compliance, Fog preparedness, Pre and post monsoon maintenance, pre and post cyclone maintenance etc.
  - xxxii) AGL store Management,
  - xxxiii) Tools box talk, LOTO, co-ordination Meeting with other agencies working in the same site.
  - xxxiv) Refresher training to ATCOs for ALCMS / ILCMS operation as and when required.
  - xxxv) Assisting TSO, TCO for operation of ALCMS / ILCMS under their instructions.
  - xxxvi) Preparing of internal SOPs and submission to AAI.
  - xxxvii) Training and retraining of the manpower by the OEM and competency mapping of the engaged manpower and their certification by the OEM of ALCM / ILCMS as per ADAC-1 of 2011, S-SMS and LVP SOP etc. Awareness training on sensitive, critical area, Runway incursions, excursions and FOD generations, BA testing, change in operation pattern, taxi routing etc.
  - xxxviii) Providing of sundry materials and consumables.
  - xxxix) Providing of Uniforms and PPEs.
  - xl) Providing of general and special Tools and tackles.
  - xli) Providing logistics for transportation of men, materials, tools, photometry testing and inspection etc.
  - xlii) The contractor shall be single point responsible for operating and maintaining the integrated AGL part of the AGL system under the scope of this work for operation and maintenance and accountable for any violation of DGCA CAR / ICAO / Indian Aircraft Rules / BCAS Regulations etc. and the consequence thereon.

### **3. Exclusion from the scope:**

- i) Operation and Maintenance of other non-integrated AGL system viz Apron Flood lights, Road Holding Lights, Unserviceability area Lights and obstruction lights, AVDGS, SVDGS, Beacon lights, bay identifications signages, Mandatory and information signages and Wind cone etc.
- ii) Photometric testing of the signages and elevated fittings in approach lighting system.
- iii) Spares and consumables like Isolating Transformers, primary and secondary connectors, cables both primary and secondary, earth cables, fittings, lamps, LED modules, driver modules, frangible coupling and lenses, HDPE or metal pipes. IT boxes, MS covers etc.
- iv) New work, Core cutting, kerf cutting, Shallow box dismantling, shallow box installations, trenching in PCC / PQC/ Bitumen pavement.
- v) Trenching in soil except at IT boxes.
- vi) Upgradation of the ILCMS or its components, replacement of CCRs, ALCMS / ILCMS and software modification, new software programming, new graphics modifications/ new graphics. New circuits integrations.
- vii) Concreting, ploysulphide work, dobefil work, civil work except minor civil work at IT boxes.
- viii) Cable or pipe laying except at IT boxes, secondary cabling in pipe
- ix) Painting other than top plate and numbering

#### **4. Other scope of Work:**

- i. Liasoning with other stakeholders of airport like Dept. of Operation, APSU / ASG, BCAS, DGCA, CNS, Civil Department etc.
- ii. Taking measure to mitigate possible hazards to aircraft operation related to the work as per the direction of the safety manager /Department of Operation.
- iii. Arranging PERCOW, NOTAM, AEP etc. as required from time to time as per the instruction of E-I-C or his authorized representative(s).
- v. Training and Retraining and competency mapping of the deployed manpower as per DGCA CAR / ICAO.
- vi. Attend AVSEC training, Apron Safety Training etc.
- vii. Conducting Daily Tools Box talk before starting of work and maintaining records.
- viii. Simulations and act as instructed by AAI for successful DGCA Inspections.
- ix. The Contractor shall also conduct awareness training to its staff for Fog Manual, S-SMS Manual, LVP SOP, any update in operation

and functionality of the system etc. The performance of the contractor shall also be evaluated from safety point of view as per DGCA CAR-1.

## **5. MANPOWER**

- i. **The manpower as shown below against BOQ items are the minimum deployment requirement for day to day operation, day to day preventive and day to day break down maintenance. Any additional very specific specialized manpower, like Safety officer, Security Officer (ASCO), OEM trained and certified manpower etc. as per complexity and competency level requirement like software programmer, CMS team Member, Network expert, Product team member, as required, for any work under the scope viz CMC, AMC of this contract shall be arranged as and when required basis and approved Maintenance plan by the contractor at his own cost.** Other BOQ items i.e BOQ items against which number of manpower are mentioned shall be arranged by the contractor as per the work plan and competency level requirement.
- ii. Manpower deployed should possess requisite qualifications and or valid permits and or license and or competency certificates and or access authorization to work in the required system by the OEM and or experience in airports operational area project work and or maintenance work of the relevant field as applicable and detailed in the subsequent sections.
- iii. Hiring of manpower by the main contractor from its vendor(s) is acceptable. The responsibility of the manpower for compliance to Labour rules and other regulatory and contractual requirements shall lie with the main contractor.
- iv. The workmen shall be properly trained regarding Dos and Don'ts / Ramp safety in operational area before engaging them to work. It's the responsibility of the contractor to sensitize his workmen about safety and security norms while working in operational airport and the penalty provisions there on. All the records in this regard shall be maintained by contractor and shall produce on demand by EIC or any statutory body like DGCA, BCAS, AAI Operations Department etc.
- v. The deployed manpower is subjected to BA test by the Department of Operation and shall be actioned as per the regulations.
- vi. For any safety and security violation, the individual shall be subjected to the rules and regulation and the responsibility will also be fixed to the contractor and the performance of the contractor shall be evaluated based on safety performance as per DGCA CAR-1.

- vii. The manpower shall undergo the Apron Safety Training conducted by Department of Operations.
- viii. Fully competent workmen duly certified shall perform the work herein specified in a thorough professional manner. AAI reserves right to disallow / remove any person having no proper experience, qualifications and or whose work creates risk /hazard to operation or attracts DGCA and or BCAS observations.
- ix. The manpower working in the existing contract(s) of AGL maintenance or has undergone training by AAI as apprentice or with previous experience of working in the operational area of airports in the relevant field i.e CAT-III In line Power line AGL system of Honeywell ALCMS / ILCMS will be given first preference.
- x. Contractor has to submit the details of staff such as, qualification, experience, competency certificate from the OEM and conduct KSA (knowledge, Skill, Attitude) competency test of all manpower and which will be witnessed by AAI. All the documents should be self-attested by each worker and signed and stamped by contractor / agency. The decision of Engineer-in-charge, to accept or reject any candidate on the basis of lack of experience, qualification, lack of skills or attitude required for job, will be final and binding on the Agency.
- xi. Once engaged after the approval from AAI, no manpower can be removed from the site without the consent of the EIC.
- xii. Any workman prosecuted or found guilty in sexual harassment case or any violation of the laws and rules of the land or committed misconduct or found an operational hazard or security threat to airport, shall be removed from AAI site immediately by the contractor.
- xiii. Individual manpower and the contractor as well shall be responsible for his omissions and commissions which may create risk for aircraft operation and contractor shall be accountable for such incidents / accidents and shall be liable for any action as per the law.
- xiv. Each shift shall consist of 8 hours and hence there will be 3 shifts in a day ( 24 hours). A workman will generally carry out duty of 8 hours a day for 6 days a week or more than 8 hours upto maximum 12 hours a day subjected to 48 hours ceiling a week as per the operational requirement and based on the availability of the NOTAM / syncing the duty pattern with the AOCC / Apron Control / to reduce hardship of manpower movement etc.
- xv. Successful tenderer shall maintain attendance register through physical and Biometric Attendance for all the staff deputed for the work.

**The deployment of manpower shall be as follows: -**

**For BOQ Item Nos. 01: -**

Sl. No.	Designation	Location	Deployment pattern	Function	Nos. per shift	Reliever	Total Nos.
1	ILCMS Engineer	CCR Hall / New ATC Tower/ Old ATC Tower/ Apron Control	Round the clock shift duty	Day to day maintenance, 1 <sup>st</sup> step trouble shooting, troubleshooting with the help of remote assistance and operation (general & emergency), Network integrity checking & testing, M-graph tool user, Performance checking, circuit response time checking, selective /collective control assurance, System re-booting, circuit configuration, Report generation, Control releasing / swapping, Simulator operation, helping ATCO for simulator training, helping ATCO for ALCMS	1	0.5	3.5

				operation, M-graph tool user etc.			
2	ILCMS Technician (Skilled)	CCR Hall / New ATC Tower/ Old ATC Tower/ Apron control	Round the clock shift duty	Continuous MWP ( Maintenance Working position) Watch and logging, Assisting ILCMS engineer in the above works	1	0.5	3.5

Sl. No.	Designation	Location	Deployment pattern	Function	Nos. per shift	Reliever	Total Nos.
3	Senior Engineer (CAT-I/II/III AGL)	All area i.r.o AGL Operation & Maint.	General Shift	Accountable engineer for serviceability as per DGCA CAR / ICAO for AGL operation & maintenance, overall-in-charge, 1 <sup>st</sup> point contact of the contractor, general administrator for the engaged manpower, document control, compliance officer for DGCA observation, pilot complaint, making internal SOPs, imparting	1	0	1

				<p>training, maintenance planner, scheduler, data bank maintainer, 1<sup>st</sup> point technical advisor to the deployed manpower, coordinator with other agencies, AOCC, photometry testing, dark room testing, M-graph tool user, ILCMS simulator trainer, Skill in RT communication etc.</p>			
4	<p>PLC Maintenance Engineer (CAT I/II/III)</p>	<p>All area i.r.o AGL Operation &amp; Maint.</p>	<p>Round the clock shift duty</p>	<p>Team leader for ensuring operation &amp; maintenance as per DGCA, tool box talk, LOTO, coordination, NOTAM handling and work completion within NOTAM and for emergency handover, trouble shooting by using software tools, FOD control and safety measures, day</p>	2	1	7

				<p>and night markers, site HOTO, report generation, fault/data bank updation, technical head to his team, SOP implementer, pre-monsoon, post-monsoon, Fog, LVP maintenance, DGCA inspection, METAR watch, ensuring field side ILCMS integrity , desing parameter requirement, selective / collective control from field side, FO Resetting, ASD mapping, photometry testing, training related to changes, PAPI &amp; APH angle calibration, handling of special tools / equipment, Skill in RT communication etc.</p>			
5	Engineer (CCR)	CCR Hall	Round the clock shift duty	CCR operation & maintenance, local & remote assistance trouble	1		3.5

				<p>shooting by software tools, configuration, IP mapping, performance checking, transformer tap setting as per load, maintaining power factor, coordinator to tower, ALCMS room and field team, assisting field team for trouble shooting, IP mapping of CCRs, positive feedback, Using SAP manager, SLCM update, IP configuration, SIO updation, firmware updation, manual CCR operation to ensure uninterrupted operation during ALCMS troubles, Skill in RT communication etc.</p>		0.5	
6	AGL Sr. Technician (CAT-I/II/III) (Skilled)	All area i.r.o AGL Operation & Maint.	Round the clock shift duty	Work of technician as detailed in Sl. No 7 along with specialized skill like Electronics, Geographical survey (total	1		3.5

				station), Core cutting, Kerf Cutting. Skill in RT communication. Capable of leading team as temporary measure during exigencies like vacating runway due to emergency.		0.5	
7	AGL Technician (CAT-I/II/III) (Skilled)	All area i.r.o AGL Operation & Maint.	Round the clock shift duty	Primary joints, secondary joints, IR checking & improvement, earthing checking and repairing, fitting dismantling & installation, assuring field side ILCMS requirement like shield continuity, shield resistance, circuit induction minimization, earth continuity, ASD mapping, ASD interfacing with fitting, pressure testing, FO resetting, follow all SOPs and safety guidelines, compliance of approved &	8	4	28

				breakdown maintenance plan and work as advised by shift AGL engineer			
8	AGL Technician (CAT-I/II/III) (Skilled)	All area i.r.o AGL Operation & Maint.	General Shift	Assisting CCR engineer & AGL shift engineer. Fitting, Welding, Cutting and special tool handler like lumiclean, working as AGL shift technician during NOTAM and as required etc.	3	0	3
9	AGL Inspector cum Operation Coordinator (Highly skilled)	All area i.r.o AGL Operation & Maint.	Any Two Shifts per day	Single point contact for: NOTAM tracker, RVR tracker, disseminating NOTAM & RVR information to all 3 <sup>rd</sup> party agencies working in AGL environment, coordinator for all different agencies (AGL project, maintenance Civil, CNS Ops etc.), inspection of all works in AGL environment to find out probable operational risk and directly reporting to AAI	2	0	2

				concerned project and maintenance engineers, Skill in RT communication etc.			
10	Security Liasoning Assistant (Skilled)	CCR Hall, Operational Office, BCAS Office, Training Centre	General Shift	Coordination with BCAS, CSO for AEPs, Tools permit, material permits, ADP, AVP, managing security trainings, and other misc. works	1	0	1
11	Store-handler (Semi-Skilled)	CCR Hall and operational area	General Shift	Store keeping of materials, tools, special tools, record/book keeping (physical and online), issuing and HOTO of materials, tools, report generation/ updation to AAI, dismantle material handling & record keeping, assisting in survey off etc.	2	0	2
12	AGL Assistant (Unskilled)	All area i.r.o AGL Operation & Maint.	Round the clock shift duty	Assisting AGL technician including grass cutting, painting, nut bolt tightening, lens cleaning, placing and removing day and night	10	5	35

				markers, material handling, soil digging, back filling, cable laying, pipe laying etc.			
13	AGL Assistant (Unskilled)	All area i.r.o AGL Operation & Maint.	Any One Shift per day	Assisting in CCR work, Hall cleaning, AGL Store works. Protecting fitting against painting during NOTAM etc.	2	0	2

Sl. No.	Designation	Location	Deployment pattern	Function	Nos. per shift	Reliever	Total Nos.
14	AGL Asst. cum Driver (Skilled)	All area i.r.o AGL Operation & Maint.	Round the clock shift duty	Ferrying men and material, day and night markers fixing and removal, carrying breakdown materials, spares etc., assisting in AGL O&M works	2	1	7

Sl. No.	Designation	Location	Deployment pattern	Function	Nos. per shift	Reliever	Total Nos.
15	AGL Asst. cum Driver (Skilled)	All area i.r.o AGL Operation & Maint.	Round the clock shift duty	Ferrying men and specialized equipment, sophisticated material,	1		4

				photometric testing, angle setting, QRT vehicle, operational area (RWY, TWY, Apron etc.) day and night and inspection, assisting in AGL O&M works. Specialized in driving skill required for photometric testing.		1	
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## 6. MINIMUM QUALIFICATION OF MANPOWER

- (i) **Senior Engineer (CAT-I/II/III AGL)** –BE / B Tech in Electrical Engineering with 6 years’ experience or Diploma in Electrical Engineering with 8 years’ experience in CAT III AGL with in line power line communication ALCMS / ILCMS in project / maintenance, duly certified and competency mapped by the OEM of the ALCMS / ILCMS, trained by OEM of ALCMS / ILCMS, AVSEC, Ramp safety, Fog preparedness etc., shall have clear functional idea and ILCMS requirement for the total integrated AGL system of Kolkata Airport with clear mental map of the system, shall have thorough knowledge i) about serviceability standard as per DGCA CAR / ICAO, ii) different SOPs like LVP, O&M AGL installations, Photometry, IR, ILCMS failure etc., iii) relevant manuals (Aerodrome manual, S-SMS, Fog preparedness etc.), iv) ICAO Annexure 14, ADM Part-4/5/6, vi) operation philosophy of Kolkata Airport, vii) Circuit design, ILCMS integration and its site requirements, interfacing with fittings etc., and skilled in photometric testing, dark room testing, fault data bank management, man management, EMP graph, imparting training, compliance report submission related to DGCA, AVS, RST, SSC, ASC etc. He / She shall have the attitude of zero tolerance towards safety violation and zero breakdown, preventive & prognostic maintenance and documentation etc. Proficient in computer, Bengali, Hindi & English languages, working knowledge in computer network.

- (ii) **ILCMS Engineer / PLC Maintenance Engineer / Engineer (CCR)**– BE / B Tech in Electrical Engineering with 4 years' experience or Diploma in Electrical Engineering with 6 years' experience in CAT III AGL with power line communication (PLC) ALCMS / ILCMS in project / maintenance as technicians / engineers, duly certified and competency mapped by the OEM of the ALCMS / ILCMS, trained by OEM of ALCMS / ILCMS, AVSEC, Ramp safety, Fog preparedness etc., shall have clear functional idea and ILCMS requirement for the total integrated AGL system of Kolkata Airport with clear mental map of the system layout / AGL circuits, shall have working knowledge i) about serviceability standard as per DGCA CAR / ICAO, ii) different SOPs like LVP, O&M AGL installations, IR, ILCMS failure etc., iii) relevant manuals (Aerodrome manual, S-SMS, Fog preparedness etc.), iv) ICAO Annexure 14, ADM Part-4/5/6, vi) operation philosophy of Kolkata Airport, vii) ILCMS integration and its site requirements, interfacing with fittings, ASD mapping etc., viii) Technical requirements of AGL installations and the parameters of different elements and skilled in photometric testing, dark room testing, tool box talk etc. He / She shall have the attitude of zero tolerance towards safety violation and zero breakdown, preventive & prognostic maintenance and ready to work beyond shift hours for operational safety etc. Preference will be given for engineer with prior ADP possession, photometry testing skill. Shall have thorough knowledge of electrical safety, aviation safety, sensitive / critical area, restricted area, NOTAM area, FOD control, wild life hazards. Working knowledge in computer, proficient in Bengali, Hindi & English languages. Engineers in their relevant field shall possess competency certificate from the OEM.
- (iii) **AGL Inspector cum operation coordinator:**  
BE / B Tech in Electrical Engineering with 2 years' experience or Diploma in Electrical Engineering with 4 years' experience in CAT III AGL with in line power line communication ALCMS / ILCMS in project / maintenance as technicians / engineers, duly certified and competency mapped by the OEM of the ALCMS / ILCMS, trained by OEM of ALCMS / ILCMS, AVSEC, Ramp safety, Fog preparedness etc., shall have clear functional idea and ILCMS requirement for the total integrated AGL system of Kolkata Airport with clear mental map of the system layout / AGL circuits, shall have working knowledge i) about serviceability standard as per DGCA CAR / ICAO, ii) different SOPs like LVP, O&M AGL installations, IR etc., iii) relevant manuals (Aerodrome manual, S-SMS, Fog preparedness etc.), iv) ICAO Annexure 14, ADM Part-4/5/6, vi) operation philosophy of Kolkata

Airport, vii) ILCMS integration and its site requirements, interfacing with fittings etc. He / She shall have the attitude of zero tolerance towards safety violation and zero breakdown and ready to work beyond shift hours for operational safety. Shall have awareness of electrical safety, aviation safety, sensitive / critical area, restricted area, NOTAM area, FOD control, wild life hazards. Working knowledge in computer, Bengali, Hindi & English languages. Shall have the skill of accessing METAR, NOTAM and disseminating to all concerned to establish proper coordination and seamless flow of information. Shall have skill of coordinating with the supervisors of different agencies and different departments of AAI. Shall have clear knowledge of what work of other agencies can create operational hazard and take action to mitigate the same.

- (iv) **AGL Sr. Technician / AGL Technician:** - BE / B Tech in Electrical Engineering with 1 year' experience or Diploma in Electrical Engineering with 2 years' experience or ITI / Wireman License with 4 years' experience or 10<sup>th</sup> pass with 07 years' experience in CAT III AGL with in line power line communication ALCMS / ILCMS in project / maintenance as technicians / work assistant, duly certified and competency mapped by the OEM of the ALCMS / ILCMS, trained by OEM of ALCMS / ILCMS, AVSEC, Ramp safety, Fog preparedness etc., shall have clear functional idea and ILCMS requirement for the total integrated AGL system of Kolkata Airport with clear mental map of the system layout / AGL circuits, shall have working knowledge i) about serviceability standard as per DGCA CAR / ICAO, ii) different SOPs like LVP, O&M AGL installations, IR, ILCMS failure etc., iii) Basic knowledge of Aviation safety, ADM part-5, iv) operation philosophy of Kolkata Airport, v) ILCMS site requirements, interfacing with ASDs, fittings, vi) Technical requirements of AGL installations and the parameters of different elements and He / She shall have the attitude of zero tolerance towards safety violation and zero breakdown, preventive maintenance and ready to work beyond shift hours for operational safety. etc. Shall maintain ownership of the fault till permanent restoration. Inter-shift coordination and HOTO of respective duties. Preference will be given for with prior ADP possession, other specialized skills like handling pneumatic hammer drill, welding machine, carpentry, fault detector, machinery, DG set, fitter, painter, mason etc. Shall have awareness of electrical safety, aviation safety, sensitive / critical area, restricted area, NOTAM area, FOD control, wild life hazards. Working knowledge in Bengali, Hindi & English languages. **AGL Sr. Technician** shall have additional skills in RT communication and capable of leading

tem with safety (min 75% score in KSA test) / Electronics / Geographical surveyor (total station) / core cutting / kerf cutting.

- (v) **Security Liaoning Assistant:** Graduate / Diploma / ITI / Wireman license with 04 years CAT-III AGL experience. Working knowledge in BCAS rules & regulations, AVSEC awareness, skilled in applying, coordinating and obtaining AEP, ADP, VEP, Material Permit, Tool Permit, PERCOW, Hot work permit experienced, aware of up to date security guidelines, circulars, advisory etc. Working knowledge in Bengali, Hindi & English languages.
- (vi) **AGL Store-handler:** Graduate/Diploma/ITI/wireman license in Electrician / Wireman trade with 02 years' experience in AGL works. Skilled in AGL store handling, record keeping physical and online data updation, dismantle store management, HOTO of materials and tools management etc.
- (vii) **AGL Assistant:** ITI /Wireman license/ VIII pass with 01 year AGL work experience with good physique. Skilled in grass cutting, cable pulling, earth excavation, pipe laying, cleaning, painting, nut bolt tightening etc. Shall have awareness of electrical safety, aviation safety, sensitive / critical area, restricted area, NOTAM area, FOD control, wild life hazards. Working knowledge in Bengali and Hindi.
- (viii) **AGL Assistant cum Driver:** Four wheeler driving license holder with minimum 01 year of driving in operational area at Kolkata Airport, ramp safety trained, ADP trained, AVSEC trained etc. Shall have awareness of electrical safety, aviation safety, sensitive / critical area, restricted area, NOTAM area, FOD control, wild life hazards. Has to undergo BA testing. Aware of Dos and Don'ts in operational area and shall have clear mental map about topography of operational area, vehicular lanes, safety marking of Kolkata Airport. Fully aware of runway incursion, runway excursion, day and night marker of vehicle, speed limit, LVP SOP etc. Working knowledge in Bengali and Hindi. Shall have specialized driving skill required for mobile photometric testing for persons engaged in the particular items.

## **7. Round the clock logistics for Transportation of workmen, materials, machines, photometric site testing etc.:**

- i) Providing round the clock logistics in compliance to Air Safety Circular - 4 of 2007 by DGCA with latest amendment for: a) transporting AGL Maintenance workmen, materials like cable drums, tools & tackles e.g. welding machines, jack hammers, spades, pick axes & grass cutters etc. , Closure Marker, Cones, lights

etc. by providing round the clock 02 ( two) nos. pick up vans ( Tata Yodha / Bolero Pick up not more than 3 years old) with necessary body modification for sun & rain hood and side guard, siting bench, materials loading and unloading arrangement for monthly average run of approx 2000 KM for each transport; and b) carrying out photometric testing of inset fittings, day and night inspection & maintenance by team leaders, carrying Lumiclean machine, portable DG set, mobile lighting tower, carrying of electronic spare parts, lamps, special tools, Sensitive instruments (e.g. Laptop, DGPS, sensors, inclinometer, binoculars and total station etc.) by providing round the clock 01 no ( one) AC vehicle ( Bolero not more than 3 years old) with necessary body modification and attachment for Photometric test machine & special tools like Lumiclean etc. for monthly average run of approx 1800 KM; inclusive of ADPs and vehicle entry passes for operational area along with necessary POL, maintenance, insurance, license, PUC, CIF etc. complete as required.

## **8. SITE PRECAUTIONS:**

As the work is directly in aircraft movement area utmost care and precaution and safety measure shall be followed to avoid zero incident.

- i) No FOD shall be created like forgetting tools or leaving loose materials/ objects on the TWY / RWY / apron / Bay. Ramp safety Regulation shall be maintained.
- ii) Work in active movement and maneuvering shall be done only after positive clearance from on duty Apron Control Manager / Tower Controller.
- iii) Take NOTAM / PERCOW / Hot Permit / Watch and ward permission as applicable for work.
- iv) No walking, running, eating and siting in active movement and maneuvering shall be done. ADAC 4 / 2007.
- v) The contractor shall take all precautions to avoid all accidents by exhibiting necessary day & night caution boards, speed limit boards, flags, lights and providing barriers. He/she shall be responsible for all damages and accidents caused due to negligence on his part. No hindrances shall be caused to traffic during execution of work.

## 9. CO-ORDINATION and DAMAGE TO THE EXISTING INFRASTRUCTURE

- i. There are various agencies working in airport operational area. The contractor is responsible for ascertaining all relevant coordination/information with other agencies including AAI for smooth progress and safe execution of work.
- ii. The contractor shall be responsible for any damage, resulting from his negligence either to buildings, structures, airport fixtures, underground cable, hard surface areas, water/telephone lines or other operational installations, Airport roads etc. The contractor shall restore, replace or repair any such damage to the complete satisfaction of the Engineer-InCharge and in default the Engineer-in-charge may cause the same to be made good by any other means and deduct the expenses from any sums due to contractor.

## 10. PRICES:

i) The quoted Price shall be inclusive of cost of materials as applicable and manpower, labour cess, tools & plants, testing, commissioning, packing, freight / transportation & insurance up to the site and insurance as per insurance clause, loading, site logistics, unloading, fees for testing, license, inspection, documents, etc., wherever applicable, Uniforms, extra allowance, Medical insurance premium and **GST (for Gem Portal)** but **excluding PF, ESIC, variation in minimum wages and Bonus, which will be reimbursed on claiming the same by the contractor with documentary evidence as detailed in the subsequent section.**

ii) Quoted rate shall include additional payment to workmen deployed on Independence Day, Republic Day, Gandhi Jayanti as per labour law.

iii) AAI does not give any concessional forms / certificates / permits towards any taxes, duties & other levies road taxes / permits, etc.

iv) Gratuity as per applicable rules to be paid by the contractor to the eligible workmen. **AAI shall not reimburse any amount in this regards.**

v) In case of change in rate of Tax or any provision relating to levy of Tax after the last date of the bid submission, resulting in increase in burden of Tax on the contractor, the contractor shall be

entitled to receive compensation for such increase in quantum of Tax payable by the contractor. Similarly, recovery shall be made from the contractor on account of decrease of rate of Tax or any provision relating to levy of tax.

vi) Tenderers are advised to inspect and examine the site, equipment and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground, the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or effect their tender. A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not. No extra charges consequent on any misunderstanding or otherwise shall be allowed.

## **11. REIMBURSEMENT**

Reimbursement on actual basis throughout the contract period for the deployed staffs on submission of the documentary evidence shall be made through contractor's bill for the following. No additional amount such as contractor's overhead & profit will be paid on reimbursement amount consisting of following accounts

- a) The difference in minimum wages based on actual payment made to the labor and wages mentioned in this tender.
- b) Employer's PF contribution including EDLI, administrative charges paid to the statutory authorities by the contractor.
- c) Employer's ESI (if applicable) contribution paid by the contractor to the statutory authorities.
- d) Bonus paid ( for workman of not more than Rs.21000/- monthly wages or as per the latest amendment of the rules) by the contractor to the deployed staffs.

## **12. PF, ESIC /MEDICAL INSURANCE, BONUS**

- a) The contractor shall have to register with PF & ESIC (where ever applicable) after award of work if not already registered. The agency is required to obtain the PF no. and ESI for the engaged workmen for the work within one month from starting of contract and submit the same to AAI for information failing which Bill will not be processed for payment action in addition to any other action as per the Labour Rules and Law.

- b) Annual Bonus amount as per latest Govt. rules or 8.33% of annual salary whichever is higher will be paid to the deployed manpower by the contractor. Bonus is applicable for employee having monthly wages not more than Rs. 21000 as per latest govt. rule or as amended from time to time.
- c) If ESIC is not applicable, then the agency shall provide not less than ₹2.0 lakh Mediclaim policy to each person engaged at the site including his/her family i.e. spouse and up to two children (unmarried daughters or sons up to 25 years of age) with zero waiting period within one month from award of work. **The Mediclaim policy expenses shall be borne by the agency, no reimbursement shall be made by AAI for the same. However, premium receipt shall be submitted along with bill.**
- d) AAI has the right to check the PF statement of any/all deployed staff(s) to verify employee's and employer's contributions.

### 13. LABOR RATE CONSIDERED IN THIS TENDER

The prevailing minimum wages vide order no. F.No. 1/6(3)/2025-LS-II dt. 30.03.2026 issued by the Chief Labour Commissioner (Central), Ministry of Labour and Employment, following daily labour wages w.e.f 01.04.2026 have been considered-

<b>Category of manpower</b>	<b>Rate of daily wages (in rupees) w.e.f. 01.04.2026 (For A Area) (wage for weekly off included in this rate)</b>
AGL Inspector cum Operation Coordinator (Highly Skilled)	₹1094/- (additional monthly Rs.2000.00)
AGL Sr. Technician (Skilled)	₹1008/- (additional monthly Rs.2000.00)
ILCMS Technician (Skilled)	₹1008/-
AGL Technician (Skilled)	₹1008/-
Security Liasoning Assistant (Skilled)	₹1008/-
AGL Assistant cum Driver (Skilled)	₹1008/-
Store Handler (Semi-skilled )	₹918/-

AGL Assistant (Unskilled )	₹827/-
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<b>Category of manpower</b>	<b>Rate (per day) (wage for weekly off included in this rate) (CPWD DSR E&amp;M 2022 basic rate of labour code no.1017)</b>
Senior Engineer (CAT I/II/III AGL)	₹1500/- (additional monthly Rs.4000.00)
ILCMS Engineer (CAT I/II/III)	₹1500/-
PLC Maintenance Engineer (CAT I/II/III)	₹1500/-
Engineer (CCR)	₹1500/-

#### **14. PAYMENT TERMS**

The running for the work done shall be processed for payment **Bi-Monthly** by AAI upon submission of the bill by the contractor with all necessary documents like:

- valid GST invoice, GST declaration, Test certificates (if any), delivery challans / invoice (if any) etc. as required, bank statement as proof monthly wages payment/ Bonus payment / difference of minimum wages/ to the deployed staffs, Challan and deposit receipt towards PF, ESIC (wherever applicable)/medical insurance contribution up to the previous month of the billing month, wages register etc. as require.

#### **15. Uniform:**

The contractor has to provide following uniform within one month from the start of each year to the deployed manpower:

- Full sleeve shirt - 3 nos. per year
- Trousers – 02 nos. per year
- Safety Shoe – 01 pair per year
- Socks – 03 pairs per year
- Winter jacket – 01 per two years
- High visibility Ramp jacket – 01 no. for every 06 months
- Rain coat – 01 no. for two years

If any item is worn out and unusable, the same shall be provided to the workmen again.

#### 16. Period of Contract:

The contract shall be for a period of **24 (Twenty-Four) months** from the actual date of start with Defect Liability period of **03 (three) months** from the certified date of completion.

#### 17. Penalty:

Penalty amount as mentioned in following clauses shall be deducted from the bill for the failure on the part of the contractor:

Penalty ground	Time Line / Remarks	Penalty
Failure to provide uniform	01 month from date of award of work	₹200/- per person per week
Failure to provide logbook and registers	From the date of start of work	₹500/- per week
Failure to provide Sundry material and consumables	From the date of start of work	₹1500/- per day
Failure to provide general tools	From the date of start of work	₹200/- per week
Failure to provide special tools	From the date of start of work	₹2000/- per day
Failure to provide PPE like high visibility safety ramp jacket, gloves, safety gadgets, work area closure marker, barricading tape etc.	From the date of start of work	₹500/- per day
Safety violation	As it is directly related to aircraft operation, safety violation shall be avoided.	Penalty will be imposed by Dept. of Ops / Safety Manager as per the rules in vogue in addition the safety performance of the contractor will be recorded as per DGCA CAR-I in the completion certificate and any other legal action by any statutory authority for violation of rules.
Noncompliance of serviceability standard as per DGCA CAR, CAT-I/II/III operation for the whole system or part thereof e.g.	i) As it is directly related to aircraft operation, standard shall be maintained	i) Any loss suffered and or penalty imposed on AAI shall be recovered from the contractor's bill including debarment of participation in AAI tender.

<p>i) non availability of control &amp; monitoring by ILCMS,  ii) Redundancy failure of the ILCMS (network, servers, HMIs, Switches)  iii) Communication error in any circuit.  iv) non availability of any sub system for any reason like power failure, lamp fuse, FO malfunction, ASD malfunction, IT or joint failure, shield continuity failure etc. for STB, IHP, NEB Runway edge light, Approach or TCL light etc. impacting operating minima (downgrading category of operation) or closure of any taxiways, stands or runways which increases RoT (Runway Occupancy time) or reduces per hour operation capacity.</p>	<p>round the clock basis.  ii) RETIL failure- immediate  iii) consecutive lamp failure immediate.  iv) PAPI failure – immediate.  v) STB failure – immediate  vi) RGL failure – immediate  vii) NEB failure – immediate.  viii) For other system / sub system / circuit maintenance trigger time is within- 98% availability.</p>	<p>ii) Any other legal action by any statutory authority for violation of rules of the land.  iii) Foreclosure of the contract including black listing and debarment from participation in AAI future tenders.  iv) In addition to above penalty(s) any non availability of a system / sub system / circuit impacting operating minima (downgrading category of operation) or closure of any taxiways, stands or runways which increases RoT (Runway Occupancy time) or reduces per hour operation capacity- Rs. 10,000/- (ten thousand) only per incident per hour or part thereof.</p>
<p>Failure to repair / replace unserviceable spares / equipment viz. ASD / element of CMC item</p>	<p>Within available NOTAM if the failure leads to noncompliance to serviceability standard and within 7 days of failure if serviceability standard is maintained</p>	<p>The cost of repairing / replacement of unserviceable spares / equipment viz. ASD / element plus 20% extra on the cost</p>
<p>Unserviceability of ILCMS / ALCMS</p>	<p>As it is directly related to aircraft operation, utmost care shall be taken to achieve zero break down</p>	<p>Rs. 5 000/- per day from the time of outage.</p>
<p>Unserviceability of CCR</p>		<p>Rs. 2500/- per day from the time of failure if it leads to noncompliance to serviceability standard.</p>

		Rs. 2500/- per day after the 7 <sup>th</sup> day of failure if serviceability standard is maintained .
Unserviceability of fittings	By Watch and Ward, if by watch and ward is not permitted by Apron Control then by next available NOTAM	Rs.500/- per fitting per day after expiry of the NOTAM
Failure to maintain the IR Value of the circuit.	IR value should be maintained as it was handed over and the value of any circuit shall not be less than 50M-ohm at any point of time. Maintenance trigger value is whenever any down trend is observed and falls 10% below the handed over value	For each occurrence Rs.1500/- per circuit per day for value less than 50 M-ohm after the NOTAM was made available.
Absenteeism of a staff without replacement		(₹100 + Daily wage of absent staff) per day
Expiry/uncovered duration of insurance, WC policy		An amount equivalent to twice the applicable insurance premium during the expiry/uncovered period.
Mobile phone with active SIM		₹ 200/- per day per mobile

**NB:**

1. In any case the total penalty at any point of time on account of any or all the categories put together shall exceed 10% of the total contract value, the contract may be terminated including any other action like debarment from participation in AAI tender in future etc. as deemed fit by the competent authority. As this work is regulatory compliance any legal action by any statutory authority shall be dealt as per the rules of the land.

2. Any time calculation shall be done after making the NOTAM or Watch and Ward made available to the contractor by AAI.

## **18. MATERIALS**

- i) The materials / spares required to be supplied by the contractor shall be made available at site with sufficient quantities from date of the start of the work and be kept replenishing as and when required basis based on the previous experience of usage and failure probability / time of use etc. to ensure timely maintenance and documents to be submitted to AAI for information.
- ii) All materials supplied by the contractor shall be new whose performance have tested and tried by time in the use of airport applications or the specific usage as required & shall confirm to applicable Indian standards and/ or International standards and/ or DGCA CAR and/ or ICAO and/ or FAA standards as specified. All the materials shall be compatible to the existing system at NSCBI Airport, Kolkata and wherever required by AAI the compatibility testing shall be done by the contractor from the OEMs / Government Laboratories as applicable without any cost implication to AAI.
- iii) If any spare parts, equipment required for operational exigencies but cannot be provided by AAI, the same shall be arranged by the agency and the agency shall be reimbursed the cost of the same on submission of the valid tax invoice + contractor's overhead and profit of 15%.
- iv) Any material taken out for the purpose of repair / rectification / replacement from the building or work premises shall have necessary permission from the EIC and security personnel / competent authority in the form of a Gate pass.

## **19. Dismantled materials: -**

- i) The dismantled materials shall be duly handed over to Engineer in charge or his authorized representative and necessary endorsement shall be obtained in both material issue register and also the dismantled material register.

## **20. TOOLS AND PLANTS:**

Following General Tools and Special Tools along with valid certification wherever applicable shall be provided by the contractor for successfully carrying out the work without any cost implication to AAI. At the end of

the contract, the contractor can take back the same. The tools indicated below are not exhaustive, in addition to these if any other tools are required, the same shall be provided by the contractor without any cost implication to AAI.

(i) General Tools to each on duty AGL Technician along with tool bag:

- Crimping tool - 1 No.
- Cutting pliers - 1 No.
- Screw Drivers - 02 Nos.
- Wire strippers - 1 No.
- Knife -1 No
- Cutter -1 no
- Allen Key -1 set
- T spanner - 1no
- Spanner - 3 nos
- HT Line Testers - 1 No.
- Test Lamps with holder - 1 No.
- Junior hack saw - 1 no
- L ratchet - 1no

(ii) General Tools for handing over from shift to Shift

- Electric drilling machine - 02 Nos.
- Blower - 02 Nos.
- Box Spanner Set complete with socket accessories, ratchet-02 sets
- Double end spanner set (set of 12) - 02 sets
- Ring spanner set (set of 12) - 02 sets
- Screw Spanners of different sizes - 02 sets
- Hammers of different sizes. - 04 sets
- Screw Driver set of different sizes - 02 sets
- Files ( flat, half round, round etc.) - 1 set
- Crimping tools (different sizes). - 02 sets
- Nose pliers - 02 sets
- Punch / Chisel - 02 Nos.
- Chisel – big - 01 no
- True RMS meter - 04 nos
- LCR Meter -02 nos
- Multi-meter (VAO Meter) - 03 Nos.
- Megger 500 V - 02 Nos.
- Torque wrench - 02 nos
- Megger 2500 V - 02 Nos.

- Earth Tester - 02 Nos.
- Clip-on-meter - 03 Nos.
- Lux Meter - 02 Nos
- Hydrometer - 02 Nos.
- Metal Grass Sword - 4 nos.
- Bush cutter - 4 nos.
- Rechargeable torch light - 4 Nos.
- Rechargeable lantern light - 06 nos.
- Cordless battery powered electric torque wrench- 04 nos.
- Hand water pump - 04 sets
- Hand air pump - 02 nos
- Fixture lifter - 04 nos
- Box lifter ( with on/ off switch) - 02 nos
- Tap drill - 2 nos
- Portable air inflater pump - 1 no
- Screw valves for fittings pressure Testing - 02 nos
- Hand held Metal embossing tools ( dymo) - 02 nos

(iii) Special Tools: -

- Total Station( Auto pointing, reflector less, electronic) - 01 no
- Portable DG 1-phase 10 KVA (with fuel and maintenance) – 1 Set.
- Portable DG 1-phase 2.5 KVA (with fuel and maintenance) – 1 Set
- Demolition / Jack hammer - 01 Set.
- Welding machine - 2 Set.
- Power saw (hand held) - 01 no.
- Mini vacuum cleaner for cleaning inset fittings - 02 sets
- Vacuum Cleaner (Big size) - 01 Nos.
- Handheld underground cable detector- 1 No
- Digital Torque wrench - 02 nos.
- Diesel operated water pump - 02 sets
- Duct Rod - 1no

**21. PPE Kit:**

Following PPE Kit shall be provided by the contractor without any cost implication to AAI.

- To each engaged manpower

- Head held torch light - 01 No.
  - Safety Gloves - 02 pairs.
  - Gumboots - 01 pair.
- To be kept at maintenance vehicle / CCR hall
  - Safety helmet - 10 nos.
  - Earthing stick - 02 nos.
  - Goggles for welding works - 02 sets.
  - First-Aid kit (01 each for two vehicles, 01 at CCR and 01 at airside store) - 04 sets.

## **22. Sundry Materials and Consumables:**

Following sundry materials and consumables shall be provided by the contractor and cost of which shall be included in the quoted rate.

- HT Tape
- PVC tape
- Gaskets
- Paints for number writing etc.
- Colin
- Nuts, bolts, stud-nut, screw etc.
- helicoils
- Lugs
- Different chemicals:
  - Lock tight
  - Cable cleaning agent for jointing
  - Silicon foam
  - Contact cleaner (WD 40)
  - Acrylic lacquer
  - CaCo3 powder for Lumiclean machine
  - m-seal
  - GP-2 compound
  - Netomortar
  - POL for special tools.
- Day and Night Markers– Runway closure marker cloth, PVC Cone, Flags etc.
- Cotton waste, cleaning cloth
- RED / Yellow clothes

- Emery paper
- Petroleum gel
- Kerosene, AP-3 grease, Machine oil, gear oil/ lubricant etc.
- Safety cordoning off tape, men at work boards and barricading materials etc.
- Brush, broom, detergent, etc.
- Aluminum cable tags
- Lump sum sand, cement and aggregate for minor work at IT boxes.

### **23. AAI Equipment:**

Following Equipment will be handed over by AAI to the contractor for daily use and day to day maintenance for carrying this maintenance contract and the same shall be handed over back to AAI at the completion of the contract in good working condition:

- Caliber Inset photometric testing Equipment with all its accessories.
- Beam snap, Dark Room Lab
- Lumiclean

### **24. Log book / Register / Stationery:**

- Preventive maintenance, Daily maintenance
- Fault register, IR register, Earth resistance register, ASD status register
- LOTO logbook, HOTO register, Coordination record
- Pilot / DGCA Compliance record
- Fog, LVP, Pre-monsoon, Post-monsoon reports
- PAPI register, Angle setting register
- Nut tightening register
- A4 sheets, Files, Pen, Pencil, Scale, Sharpner, Eraser, Marker etc.

### **25. LABOUR**

- i) The contractor can engage the manpower either from the direct employees of the contractor or from the labour vendors/ HR companies. If the manpower is hired, the overall responsibility still rests with the contractor. The contractor shall submit a certification of bearing this responsibility to AAI and all other requirement documents e.g. engagement letters, training

reports and competency certificates etc. issued by the contractor as required by AAI, BCAS and DGCA as applicable.

ii) The contractor can also hire special equipment and transport vehicles. If the special equipment / transport vehicle is hired, the overall responsibility still rests with the contractor. The contractor shall submit a certification of bearing this responsibility to AAI. The contractor shall also submit all other requirement documents e.g. copies of agreement between the contractor and the vendor and any subsequent agreements till the owners of the vehicles etc., if applicable, as required by AAI, BCAS and DGCA as applicable.

iii) No Labour camps will be allowed in the operational area. One Maintenance Room will be provided for day and night operation and the same shall be vacated once work is completed failing which applicable AAI commercial rate shall be charged to the agency for the delay period of vacation from the CCR Room / AGL Maintenance Room.

iv) The contractor shall intimate his PF account code no. allotted by regional PF commissioner and ESI (if applicable) registration no. allotted by ESI Corporation before commencement of work for reimbursement of PF and ESI.

v) All labor wages to be paid through bank account (by NEFT/RTGS/IMPS only) of the deployed workers. Bank statement of workers will be considered only as proof of transaction of wages.

vi) The contractor shall fully comply with all the provisions of up to date statutory act/rule/instruction/guidelines of Govt. of India regarding labour engagement & payment.

## **26. Misconduct**

i) The contractor shall be responsible for involvement of staff appointed by him for any items missing from the system originally provided and such proven cases of thefts/pilferage by their employees are to be determined by any court of Law.

ii) AAI will give necessary directions to security agency to ensure vigil on the working staff. The contractor shall be held responsible for any action/misdeeds, in terms of theft/pilferage or any other misdeed or any other undesirable activities by any of their staff engaged in Airport Complex. AAI shall furnish copy of FIR lodged with police for all such case for taking immediate action to dispense with the services of such individual involved. This will be without prejudice to any other liability on the part of the contractor, arising out of court directions/claims

etc. on account of such misdeeds. Any loss suffered by AAI on account of misconduct by the workers of the firm shall be recovered from contractor's bill

- iii) The contractor shall comply with all applicable laws, Ordinance, rules & Regulations in respect of this contract and shall pay at his own cost all charges in connection therewith.
- iv) ) The Contractor shall be responsible for the recruitment, retainment and retrenchment of the employee of their establishment and for settlement of dispute arising out of the terms and conditions of services of the personnel.
- vii) The staff engaged by the contractor shall have no claim for any temporary or permanent employment in AAI.
- viii) Necessary safety measures shall be taken care of by the contractor for the on duty personnel engaged by him. AAI shall not be held responsible for any such accident arising from compromising safety measures / negligence.
- ix) The job entrusted under this contract is an essential service for providing uninterrupted safe aircraft operations. The contractor has to ensure that the services are not disturbed either due to absenteeism or due to willful act of his staff. Maximum care and precautions shall be taken to avoid any system break down. In case workforce deployed by the contractor resort to any kind of industrial action the contractor shall arrange to deploy alternate work force of sufficient strength and competence to run the installations.
- x) AAI reserves the right to immediately step in and carryout a part or whole of the work entrusted under this contract in case of any default or unsatisfactory performance by the contractor without resorting to the formalities of issuing notices, etc. for rescinding the contract and the contractor would have no claim for compensation in such cases.

## **27. Communication Methodology**

- i) The agency shall submit its escalation matrix with name, designation, mobile and email ids to the highest authority at the starting of the contract.

- ii) The Agency shall authorize the Senior Engineer to take day to day instructions from AAI and carry out the work, liason with other agencies etc.
- iii) The agency shall provide minimum 03 nos. smart mobile phone (01 for ATC Tower, 01 for CCR hall and 01 for field) with active SIMs, valid data/internet connectivity and voice pack to the site in charge / authorized representative for official use during the contract period, nothing extra will be paid on this account. It shall have made a Maintenance group using suitable app for real time communications and updating current status of any complaint etc.
- iv) From AAI side: ASE ( AGL Shift Engineer) of AAI is the first point of contact, if not resolved then the authorized representative of the Engineer-in-Charge (EIC), if not resolved then the EIC may be contacted by the agency.

## **28. HANDING OVER / CERTIFIED DATE OF COMPLETION**

The system shall be taken over for operation and maintenance 'As is Where is' basis. On the day of taking over the agency and AAI will jointly inspect the installations and make a defects list existing on date under the joint signatures by both AAI and agency. AAI shall take necessary steps for rectification of the listed defects.

In same way during handing over the installation back to AAI, the installation will be inspected jointly and defect list, if any, shall be prepared under joint signature of AAI and the contractor. The Contractor shall take all the steps to repair the defects within time as specified by AAI failing which AAI shall get it repaired and the cost shall be recovered from the contractor and suitable action as deemed fit as per the agreement will also be initiated.

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