|  |  |  |  |
| --- | --- | --- | --- |
| Lot No: | Lot Details: | Lot size/Quantity: | Date: |

| **Item**  **No.** | **Task/Activity Description** | **Inspection/Test** | | | | | **HP/ WP/ AP/ IP/ TP/ SCP** | **Responsibility**  FH Engineer  Principal’s Representative  Subcontractor  Surveyor  Foreman | **Checked by:** | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Frequency** | **Acceptance Criteria** | **Reference Documents** | **Inspection/ Test Method** | **Record of conformity** | **Subcontractor** | **Principal’s Rep.** | **FH** | **Date** | |
| **1.0** | **Preliminary Works** | | | | | | | | | | | | |
| 1.1 | Functional Description | Prior to Start | Prior to final AGLCS programming, the Contractor shall produce a complete detailed Functional Description of the  AGLCS detailing the proposed modifications to the existing AGLCS control logic and software, display screens, control equipment and method of implementation.  The Contractor shall make allowance for a minimum of three (3) weeks for the review of the submitted Functional  Description and on-going consultation with Melbourne Airport operational personnel (including Airservices  Australia) to ensure all required functionality and operational modes are understood and feedback incorporated. | Appendix K- Technical Specifications)  5.3.2 | Verify | Aconex Submission Reference | **HP** | FH Engineer / AGLCS Subcontractor / **Principal’s Representative** |  |  |  |  | |
| 1.2 | Equipment Inventory | Prior to Start | Provide an inventory of all control and processing equipment required to complete the works. The inventory shall include details of the product code, description, and quantity.  Include equipment types and quantities supplied as Principal Supplied Items in the inventory.  The inventory shall be submitted at the time of the Functional Description submission | Appendix K- Technical Specifications)  5.3.4 | Verify | Aconex Submission Reference | **HP** | FH Engineer / AGLCS Subcontractor / **Principal’s Representative** |  |  |  |  | |
| 1.3 | Final AGLCS Display Graphic Design | Prior to Start | A draft graphic display will come from AGLCS Simulator that will be prepared to the requirements that are set out by Airservices. | Appendix K  HP | Verify | Aconex Submission Reference | **HP** | FH Engineer / AGLCS Subcontractor /  **Principal’s Representative** |  |  |  |  | |
| 1.4 | Confirmation of INTAS Interfacing | Prior to Start | Prior to final AGLCS programming and site installation, the Contractor shall obtain written advice from Airservices  Australia confirming the suitability of the configuration of the modified interface between the modified AGLCS and  Airservices Australia’s INTAS (as proposed by the Contractor).  Any subsequent changes to the Contractor’s proposed interface configuration, as may be required during software or hardware development, shall be verified by Airservices Australia with supporting written confirmation obtained by the Contractor and submitted to the Contract Administrator. | Appendix K- Technical Specifications)  5.3.5 | Verify | Aconex Submission Reference | **HP** | FH Engineer / AGLCS Subcontractor /  **Principal’s Representative** |  |  |  |  | |
| 1.5 | Interim Works during Construction | Prior to Start | The Contractor shall coordinate any interruption to or modification of the existing AGLCS with the ATC operational personnel (Airservices Australia) and the Contract Administrator.  The Contractor shall provide two (2) weeks’ notice to Airservices Australia and the Contract Administrator prior to the commencement of any interruption to or modification of the existing operational AGLCS. Provide full written details of the date, time, expected duration, configuration and available control modes during interim periods of limited control (i.e. where facilities cannot be controlled from the ATC Tower or SCADA terminals). | Appendix K- Technical Specifications)  5.3.6 | Verify | Aconex Submission Reference | **AP** | FH Engineer / AGLCS Subcontractor / **Principal’s Representative** |  |  |  |  | |
| 1.6 | Site Acceptance Testing and Post Installation Modifications | Prior to Start | In commissioning the AGLCS, the Contractor shall observe the operation of all systems and shall tune operation for optimum performance.  During the commissioning phase, the Contractor shall make all necessary  modifications to control circuits, the PLC program, and the SCADA configuration as a result of tuning of the  AGLCS to meet these Specification requirements. | Appendix K- Technical Specifications)  5.3.7 | Verify | Aconex Submission Reference | **IP** | FH Engineer / AGLCS Subcontractor |  |  |  |  | |
| **2.0** | **Testing & Commissioning** | | | | | | | | | | | | |
| 2.1 | Constant Current Regulators | Each Lot | The lights must be powered from field series circuit primary cabling for airfield lighting.  Electricity supply for the runway lighting series circuits will be supplied and from CCRs located in the ALER and tested as per the criteria listed below:  – Line Current (Maximum): 6.6 A  – Line Voltage (Nominal); 1,135 V (on basis of 7.5 kVA CCR)  – Phase: Single  – Frequency: 50Hz  The waveform and characteristics of the output of the Constant Current Regulators must be considered and all equipment must be suitable for operation with modern phase controlled thyristor Constant Current Regulators. | Appendix K- Technical Specifications)  3.3 | Verify | Commission-ing Checklist / Test Report | **TP** | FH Engineer / AGL Subcontractor |  |  |  |  | |
| 2.2 | Commissioning Plan | Prior to commission | Contactor must submit a detailed commissioning plan summarising all aspects of commissioning the AGL system.  The contractor must give Contract Administrator 2 weeks’ notice of the date of Commissioning. This date must be updated and confirmed on a weekly interval from the date of notice being submitted. | Appendix K- Technical Specifications)  6.4 | Verify | Aconex Submission Reference | **HP** | FH Engineer / AGL Subcontractor / **Principal’s Representative** |  |  |  |  | |
| 2.3 | Mobile photometric testing | Prior to Practical Completion | As part of the commissioning phase, the Contractor must liaise the Principal to arrange for photometric testing of the runway’s lighting systems utilising the Principal’s MALMS system.  The Principal will arrange updates to the associated system data / software files and perform the testing.  The Contractor must provide the Principal with any required information to enable updating of the system data / software files, e.g., survey data capturing installed light locations, light configurations (colours, orientations, etc.), in a format requested by the Principal.  The contractor to arrange for Principal (via Contract Administrator) to undertake mobile photometric testing (3 weeks) prior to commencing commissioning | Appendix K- Technical Specifications)  6.4.1 | Verify | Aconex | **HP** | FH Engineer / AGL Subcontractor / **Principal’s Representative** |  |  |  |  | |
| 2.4 | Acceptance testing | Prior to Practical Completion | Contractor to submit test results from acceptance testing, prior to the award of Practical Completion | Appendix K- Technical Specifications)  6.5 | Verify | Aconex | **HP** | FH Engineer / AGL Subcontractor / **Principal’s Representative** |  |  |  |  | |
| 2.5 | CASA flight test and ground check | Prior to Practical Completion | After completion of all works under the Contract as detailed in CASA AC 139-04(0) Commissioning of Aerodrome lighting systems, certification of the new airfield lighting must be carried out  This requirement must include a flight test by a pilot who has the appropriate letter of competence issued by CASA.  The contractor to arrange the time for the flight test with the Contract Administrator and pay all costs. | Appendix K- Technical Specifications)  6.6 | Verify | Aconex | **HP** | FH Engineer / AGL Subcontractor / **Principal’s Representative** |  |  |  |  | |
| **3.0** | **Post Construction Submissions** | | | | | | | | | | | | |
| 3.1 | AGL Maintenance Manuals | Prior to Practical Completion | The Contractor must prepare and deliver to the Contract Administrator the following documents:  – Operation and Maintenance Manuals - Two volume set  • Airfield Lighting Fieldworks  • Control System  – Airfield Lighting and Control System As-Constructed drawings - Copies of drawings. | Appendix K- Technical Specifications)  7.1 to 7.5 | Verify | Maintenance Plan Submission Reference | **IP** | FH Engineer / AGL Subcontractor |  |  |  |  | |
| 3.2 | AGL Components List & Spare Parts | Prior to Practical Completion | Provide operational spares for equipment supplied under this Contract. All spare equipment must be to the same conditions, specifications and test requirements as contained within the documents. The minimum quantities to be supplied for minimal spares holdings must be as per Table 2.1 “ Minimum Spares Quantity Provided by Project” in Appendix K- Technical Specifications)  2.9.  The Contractor must supply a schedule of spares provided for each equipment type detailing part numbers, description, per unit cost and quantity with reference to their associated equipment type (e.g. runway elevated light, inset light, etc.), correlated with the quantity installed during the project. | Appendix K- Technical Specifications)  2.9 | Verify | Component List Submission Reference | **IP** | FH Engineer / AGL Subcontractor |  |  |  |  | |
| 3.3 | AGL Training | Prior to Practical Completion | AGL Contractor to training with all the necessary equipment, manuals, videos and notes using trained and experienced staff.  Training for the operation and maintenance of the CCRs and AGLCS must also be provided by the CCR manufacturer and AGLCS Contractor (if applicable) respectively.  Prior to final inspection and after all commissioning tests have been completed, the operation of each of the systems is to be demonstrated to not less than two (2) persons nominated by the Contract Administrator. | Appendix K- Technical Specifications)  6.8 & 6.9 | Verify | Training Plan Submission Reference | **IP** | FH Engineer / AGL Subcontractor |  |  |  |  | |
| 3.4 | Certificate of Electrical Safety | Prior to Practical Completion | Submission of a certificate of electrical safety for all new electrical systems installed in the project | Appendix K- Technical Specifications)  1.7.3 | Verify | Certificate of Electrical Safety | **IP** | FH Engineer / AGL Subcontractor |  |  |  |  | |
| 3.5 | Handover Documentation | Prior to Practical Completion | Submission of all quality assurance documentation including as builts and schedules to the project manager.  Information provided shall include:   * Circuit details including cable route, loading, Quantity per conduit, origin & destination. * Number of series transformers and location of joints. * Equipment and materials used. * Testing and commissioning values for all modified or new equipment. | Appendix K- Technical Specifications)  Section 6 | Verify | Submission Reference | **HP\*** | FH Engineer |  |  |  |  | |
| **Final Inspection** The signature below verifies that this ITP has been completed in accordance with the Fulton Hogan’s Quality system Procedures and verifies lot compliance with specifications.  **Print Name: Position: Signature: Date: / /** | | | | | | | | | | | | |

**Legend:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **HP** | Hold Point | Work shall not proceed past the HP until released by the Principal’s Representative | **IP** | Inspection point | Formal Inspection to be done and recorded |
| **HP\*** | Fulton Hogan Hold Point | Work shall not proceed past the HP\* until released by Fulton Hogan | **TP** | Test Point | Product compliance test to be undertaken and recorded/reported |
| **WP** | Witness Point | An inspection which must be witnessed by the Principal’s Representative | **SCP** | Survey conformance point | A qualified surveyor to check product/section/structure and report |
| **AP** | Approval Point | Written or verbal approval given by the Principal’s Representative |  |  | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Notes** |  |  |  |  |