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

| **Item**  **No.** | **Task/Activity Description** | **Inspection/Test** | | | | | **HP/ WP/ AP/ IP/ TP/ SCP** | **Responsibility**  Site Engineer  Principal’s Representative  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 | Check for correct documentation | Prior to commencing any activity | Ensure that all employees and subcontractors are using the latest and complete set of drawings | IFC Drawings | Verify | Drawings | **HP\*** | Site Engineer |  |  |  |  | |
| 1.2 | Implementation of all measures and controls | Prior to commencing any activity | All necessary measures and controls are being implemented, that is PSP, EMP, TMP, SWMS & WP. | PSP, EMP, TMP, JSEA, SWMS, WP | Verify | Site and Office Inspection | **HP\*** | Site Engineer / Site Supervisor |  |  |  |  | |
| 1.3 | Definition of the work Area & Survey check | Prior to commencing any activity | Work area has been cleared and surveyed (marked on site). Limits of excavation clearly defined as per For Construction drawings prior to trenching and install. | IFC Drawings  12554937-E014 to E028 | Verify | This ITP Signed & Sub-contractor ITC | SCP | Site Engineer / Site Supervisor |  |  |  |  | |
| 1.4 | Plug & Socket | Prior to commencing any activity | The Contractor must supply a sample representative constructed plug and socket connection to the Contract  Administrator upon request. The Contractor shall advise The Contract Administrator when the first assembly is to be installed in the field and shall be implemented as a witness point for the Contract Administrator. | Appendix K- Technical Specifications)  3.11.4 | Verify | This ITP Signed & Sub-contractor ITC | WP | Site Engineer / Site Supervisor/Principal’s Representative |  |  |  |  | |
| **2.0** | **Material / Equipment Approvals** | | | | | | | | | | | | |
| 2.1 | Cable Condition verification | Prior to commencing any activities | Upon delivery of the cable drums, they must be visually inspected for damage incurred during transport or storage.  The seal on the inner and outer cable end must be examined and the condition of armouring, serving or sheath inspected for damage, corrosion or leakage of impregnating oil. Any damage discovered must be reported to the  Contract Administrator. | Appendix K- Technical Specifications  3.11.1 | Visual Inspection | This Signed ITP | IP | Site Supervisor |  |  |  |  | |
| 2.2 | Cabling Record | Each lot | Measure and record the insulation resistance of each primary cable drum prior to installation.  The cable drum identification (drum number, date, time, etc) and any unique markings for each cable run must be included as “As Constructed” information on the drawings and in the Operation and Maintenance Manuals. | Appendix K- Technical Specifications)  3.11.2 | Test/  Record | This ITP signed | IP | Site Engineer/Site Supervisor |  |  |  |  | |
| 2.3 | Primary Cable | Prior to Start | New Primary cabling shall comply with the requirements of the FAA advisory circular 150/5345-7 and ICAO Aerodrome design manual part 5.   * 6mm2 cable with polyethylene jacket and copper tape screen * Rated for 5000V * 7 Strands | - Appendix K- Technical Specifications)  2.6.1 | Aconex | Datasheet | **HP\*** | Site Engineer |  |  |  |  | |
| 2.4 | Primary connectors | Prior to Start | Primary connector kits shall be in full compliance with the latest edition of FAA AC 150/5345-26. Field attached primary cable plug and sockets must be utilised to connect primary cables and to attach primary cables to SITs.  The plug and socket arrangement consists of a moulded thermoplastic rubber housing, filled with insulating  silicone to fill any voids, and fitted with a cable gland for improved sealing.  The primary plug and socket connectors must consist of FAA type L-823, Type 1 Class B specification AC  150/5345-26D plug Style 3 and receptacle Style 10, suitable for use with the shielded primary cable type. The  primary cable connectors include the use of silicone compounds to provide watertight seal and ensure electrical  insulation.  Connectors must be EFLA KDL series for screened cable, or approved equivalent. Connectors must be equipped  with compression glands at their cable ends, and snap-on locking ring to secure the plug and sockets together. | Appendix K- Technical Specifications)  3.11.4 &  2.6.4 | Verify | Datasheet | **HP\*** | Site Engineer |  |  |  |  | |
| 2.5 | Secondary Cable | Prior to Start | New Secondary cabling shall comply with the requirements of the Department of Transport YSVE4005 issue 2, V5-2842 and ICAO Aerodrome Design Manual Part 5   * 6mm2 Cable with black nylon jacket. * Rated for 600V * 56 strands | - | Aconex | Datasheet | **HP\*** | Site Engineer |  |  |  |  | |
| 2.6 | Secondary cable connectors | Each lot | Connection of the existing secondary cable to the new SIT must be by FAA type L-823:  – Secondary cable: Type 2 Class A plug Style 1 and receptacle  • Style 8 (elevated lights)  • Style 7 (other)  The secondary lead must be not less than 4 mm  2 copper twin conductor and must be insulated for not less than 600 Volts AC and have a length of not less than 1 metre. The secondary lead must be compatible and suitable for connection in the field to the secondary circuits using hexagonal crimp links and overlapping heat shrink sleeve style joints. Details of required compression sleeves must be provided prior to installation.  Provide details prior to installation of the type and construction of the proposed secondary cable joint. The details must fully describe the joint construction and its electrical characteristics. Certified test certificates detailing the electrical characteristics of the completed joint must accompany the joint details. | Appendix K- Technical Specifications)  cl.3.12.4 & 2.6.4 | Visual inspection | This ITP signed & Sub-contractor ITC | **HP** | Site Engineer / Foreman |  |  |  |  | |
| 2.7 | Conduit cleaning | Prior to start | Provide clear written details of the proposed cleaning method and equipment to be utilised to the Contract Administrator for approval prior to commencing the works. | Appendix K- Technical Specifications)  cl 3.12.2 | Verify | This ITP signed / Aconex Reference of Cleaning Methodology | **HP** | Site Engineer |  |  |  |  | |
| **3.0** | **Cable Installation** | | | | | | | | | | | | |
| 3.1 | Cable Route | Each Lot | Cabling route installed as per path shown in construction drawings. | IFC Drawings | Verify | This ITP signed | **HP\*** | Site Engineer |  |  |  |  | |
| 3.2 | Secondary cable slots | Each lot | Cable slots should not be sawn until the laying of the secondary cables is in readiness to proceed and the slots must be filled and sealed immediately after the laying of the cables. Slots must be the shortest direct routes when sawn in flexible pavement. | Appendix K- Technical Specifications)  cl.3.12.1 | Verify | This ITP Signed | **HP\*** | Site Engineer / Site Supervisor |  |  |  |  | |
| 3.3 | Cabling in existing conduits | Each lot | Where new cabling is installed in existing conduit, prior to the installation of the cable, conduits shall be thoroughly cleaned to remove dirt, debris and grout that may exist within the conduits.  Inspection of ducts following cleaning of duct banks prior to installation of new pits | Appendix K- Technical Specifications)  cl.3.12.2 & 3.10.2 | Verify | This ITP signed / Aconex Reference of Cleaning Methodology | **WP** | Site Engineer / Foreman / /Principal’s Representative |  |  |  |  | |
| 3.4 | Primary Cabling Connections / Joints | Each Lot | PVC insulated yellow-green lugged flexible copper cable must be used for continuity of the screened primary cable. Plug and socket connections must be connected with the earth cable terminals aligned as per the manufacturer’s instructions.  Refer to detail on the drawings for configuration and method of installation.  Joints for primary cables must be suitable and must maintain the insulation and dielectric properties of the primary cable when installed in any location within the airfield lighting system. The joint must be waterproof and must allow the jointed cable to be installed within the SIT pits without causing damage or  undue strain on the joint, as per the specification. | Appendix K- Technical Specifications)  cl.3.11.4 | Verify | This ITP Signed & Sub-contractor ITC | **IP** | Site Engineer / Site Supervisor |  |  |  |  | |
| 3.5 | Secondary Cabling connections | Each Lot | Joints in secondary twin core cabling and for the connection of secondary cable to secondary plug/ socket leads must be of the compression link type. The compression links must be staggered hence reducing the overall diameter of the joint and each link insulated using a length of heat shrink material. The inner sleeve must be lined with a material that will, homogeneously bond to the cable insulation. A further heat shrink tube lined with a material that will homogeneously bond to the cable and inner heat shrink sleeves must be fitted over the initial layer. |  | Verify | This ITP Signed & Sub-contractor ITC | **IP** | Site Engineer/ Site Supervisor |  |  |  |  | |
| 3.6 | Elevated Lights | Each Lot | The secondary cable must be retained so that being dislodged from its mounting the secondary cable plug socket connection will be disconnected with the socket retained within the mounting base thus presenting no bare secondary conductor. | Appendix K- Technical Specifications)  cl.3.12.3 | Verify | This ITP Signed | **HP\*** | Site Engineer / Site Supervisor |  |  |  |  | |
| 3.7 | Cable pulling | Each Lot | When drawing cable into conduits only chalk type or other approved lubricants not injurious to PVC sheathing may be used. Petroleum based substances such as grease or oil are not permitted. | Appendix K- Technical Specifications)  cl.3.11.1 | Verify | Datasheet | **IP** | Site Engineer |  |  |  |  | |
| 3.8 | Cable slot sealing |  | Cable slots must be sealed with open cell backing rod and a Bitumen  modified, moisture curing, polyurethane sealant (DOWSIL 890-SL within flexible pavement or approved  equivalent).  Where secondary cables are installed in existing rigid pavement (concrete) areas the existing slot sealant must be completely removed, cleaned and the new secondary cables installed in the slot. The slot must then be sealed with DOWSIL 888 | Appendix K- Technical Specifications)  cl.3.12.2 | Verify | This ITP Signed | **HP\*** | Site Engineer |  |  |  |  | |
| 3.9 | Series Isolation Transformers (SIT) | Prior to Start | The SIT earthing connector must be bonded to the local earth electrode. Refer to detail on the drawings for configuration and method of installation.  SITs for lights must be housed in pits, fixed to removable trays, as detailed on the Drawings | Appendix K- Technical Specifications)  cl.3.13 | Verify | Datasheet  This ITP signed & Sub-contractor ITC | **IP** | Site Engineer |  |  |  |  | |
| 3.10 | Sit Ratings | Prior to start | New Principal supplied SITs must be installed for the new and modified lighting systems as per Table 3 in Appendix K- Technical Specifications)  cl.3.13.1 | Appendix K- Technical Specifications)  cl.3.13.1 | Verify | Datasheet  This ITP signed | **IP** | Site Engineer |  |  |  |  | |
| 3.11 | Labelling and Tagging | Each lot | All new airfield lighting primary cabling supplying the AGL must be identified and clearly labelled as detailed on the  drawings and in the specification  Every cable end shall be provided with a means of identification showing the designation, number and cross-sectional area of cores and rated voltage of the cable. | Appendix J- IFC Drawings  Appendix K- Technical Specifications)  cl.3.11.5 | Verify | This ITP Signed | **HP\*** |  |  |  |  |  | |
| **4.0** | **General Works** | | | | | | | | | | | | |
| 4.1 | Existing cabling | Each Lot | Slot routes must be planned and coordinated to ensure that existing operational secondary cables are not crossed and cut during the slotting process.  If the position of a new light is such that it is not possible to avoid existing secondary cables then the advice of the Contract Administrator must be sought prior to proceeding. | Appendix K- Technical Specifications)  3.12.2 | Verify | This ITP Signed | **IP** | Site Engineer / Site Supervisor |  |  |  |  | |
| **5.0** | **Post Construction** | | | | | | | | | | | | |
| 5.1 | Airfield lighting primary cable insulation and circuit resistance testing | Each Lot | The procedure to be followed when conducting the electrical tests on the primary circuits follows the procedures outlined in the ICAO Aerodrome Design Manual Part 5 Second Edition 2017 Section 15.9. The procedure is summarised in project specification Appendix K- Technical Specifications) section 6.3.2  In addition to insulation resistance tests, all circuits must be tested for circuit continuity and the circuit resistance recorded at the same intervals as the insulation resistance measurement is undertaken.  The Contractor must ensure that the insulation resistance value achieved on completion of Works is not less than that measured prior to commencement.  Circuit continuity and the circuit impedance tests must be cond  from the ALER, a monthly check on its performance (insulation) must be maintained and all readings recorded.  Airfield lighting primary cable insulation and circuit resistance testing to be completed for all New and Existing Primary Circuits connected to this Airfield Lighting System at the time of Commissioning as 1 test per circuit. | Appendix K- Technical Specifications)  6.3.2 &6.7 | Verify | Commission-ing Checklist / Test Report | **TP** | FH Engineer / AGL Subcontractor |  |  |  |  | |
| 5.2 | As-built Documentation | Prior to Practical Completion | Submission of as built report showing cabling route submitted to the Principal’s Representative prior to practical completion. | Appendix K- Technical Specifications)  Section 6 | Verify | As-built Submission Reference on Aconex | **SCP** | Site 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:**

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| **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 |  |  | |

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| **Notes** |  |  |  |  |