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	Electrical Method Statement For Street Lighting & Telephone Infra Works	Revision No.: 0	Date: 01 Mar 2017	Document Ref: MS-E020-01

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1.0 OBJECTIVE OF PROCEDURE

This procedure provides installation for street lighting pole and telephone infrastructure, quality control and safety plan pertaining to the project implementation requirement to suit customer need.

2.0 SCOPE OF WORKS

The method of installation is in accordance/compliance to latest IEC, IEE, MS and local authority standards.

3.0 TOOLS AND EQUIPMENT TO BE USED

ITEM	DESCRIPTION
1	Backhoe, Skylift, Cable Lump
2	Screwdriver, Wrench, Cable Lug Crimping Tool
3	Insulation Tester and Multi-Meter

4.0 SAFETY & ENVIRONMENTAL PROGRAMME

- All installation works are to be carried out in accordance with the Project Safety Plan, Owner Safety Procedures and statutory regulations.
- All necessary personal protective equipment will be provided and worn by workers at all time.
- All the tools and equipments used at site must be compliance to safety requirement.
- The site of all work activities will be kept in clean and tidy manner.

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5.0 WORK METHOD STATEMENT

a. PREPARATORY WORKS

- Determine the scope of work from project specifications and drawings.
- Ensure shop drawings are prepared, reviewed and verified to be in compliance with project specifications. Submit and obtain customer / M & E Consultant approval.
- Ensure the selection of materials and equipment and accessories are in accordance with project specification.
- Submit materials and equipment details, samples and / or catalogues for customer / M & E Consultant approval as per contractual requirement.
- Arrange materials and equipment inspection and testing with customer / M & E Consultant as per contractual requirements.

b. INSTALLATION OF STREET LIGHTING

- All street lighting works involving existing roads are to be carried out during the night or when there is minimal traffic as permitted by the governing authority.
- Cable
 - All cables are to use 1 x 4C 16mmsq XLPE/SWA/PVC. The cables are laid underground from pole to pole inside the road median.
 - Based on the approved shop drawing, the distance between pole to pole are 30 meter in which 1.5 meter to 2 meter spare cable must be provided for each termination.
 - Insulation testing shall be carried out to detect cable fault.
 - Sand and bricks are laid above and along the cable for protection (refer to Appendix A.1).
 - 50mm G.I pipe are used for underground cable at road crossing (refer to Appendix A.2).
- Street Lighting Plinth
 - The proposed plinth must obtain approval from the Civil & Structure (C&S) consultant.

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- The existing road are to be hacked for the installation of the J-Bolt (refer to Appendix B.1).
- All formworks (using plywood) are to be installed according to the size of the plinth.
- 4" PVC pipe must be prepared inside the formwork for cable entry (refer to Appendix B.2).
- Ready mixed concrete using Grade 20 is to be poured inside the formwork and allow at least two days for curing.

- Street Lighting Pole
 - 3 x 2.5mmsq PVC cable are to be used for all internal wiring inside the street lighting pole.
 - 6A/6kA single phase MCB are to be used to protect the street lighting lantern from overcurrent.
 - Insulation testing shall be carried out to detect cable fault.
 - The street lantern must be installed and terminated with the cables before placing the pole at plinth.
 - Backhoe is to be used for the earthworks to allow the installation of street lighting pole.
 - Before installation, suitable ropes are to be used and tighten to the pole securely. The backhoe will place the pole with care and properly position it in line to the J-Bolt plinth for bolting up.
 - It is necessary to use lock nuts to tighten the pole together with the plinth.

- Street Lighting Feeder Pillar
 - Prior to delivery of street lighting feeder pillar to site, the following observation must be carry out:
 - The location of the street lighting feeder pillar must be approved by the customer / M & E consultant.
 - The street lighting feeder pillar base must be prepared before the delivery of the feeder pillar (refer to Appendix C).
 - Transportation route, area for unloading and traffic flow control must be studied before delivery.
 - Use suitable bolt and nut to tighten the feed pillar to its base inorder to prevent it from being stolen.

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- Safety in all aspects must be the first priority in regards to the position and operation of the feeder pillar.

c. INSTALLATION OF TELEPHONE INFRASTRUCTURE

○ Telephone Manhole

- All telephone manholes are to use approved JC9C precast manholes (refer to Appendix D)
- The location of JC9C manhole must obtain approval from customer / M & E Consultant.
- Transportation route, area for unloading and traffic flow control must be studied before delivery.
- Backhoe is used for all earthworks in the installation of JC9C manholes. The road shall be used as level benchmarks in which the backhoe will dig the hole of the same width and depth as required for the installation of the precast manhole.
- Steel lumps are to be used to fasten unto the JC9C hooks of the precast manhole securely.
- The backhoe is to place the JC9C precast manhole with much care and position it inside hole.
- The backhoe will then backfill with earth on the sides of JC9C precast manhole and allow only the manhole cover to be exposed.

○ Telephone Ducting

- All telephone ducting are to use 100mm TELEKOM & SIRIM approved PVC pipes.
- 100mm G.I pipes are to be used for road crossing.
- The telephone ducting routing must obtain approval from customer / M & E Consultant.
- Backhoe is used for all earthworks in the installation of telephone ducting. Using the JC9C service manhole as the level benchmark, the backhoe will dig the routing for the telephone ducting.
- The telephone ducting will be installed or connected together from one JC9C manhole to another JC9C manhole as per approved plan.
- All the telephone ducting is to be encased in sand for protection.

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- The backhoe will backfill with earth over the telephone ducting after all works completed (refer to Appendix E).

d. RECOMMENDED PROCEDURE BEFORE ENERGIZATION (STREET LIGHTING)

- This procedure generally follows the routine tests for street lighting before energization as detailed below:
 - Ensure all cable terminations and other connections are securely tighten.
 - Clean the feeder pillar to ensure it is free of dust, dirt, waste material, etc.
 - Ensure that the incoming and outgoing cables are properly insulation-tested.
 - Visually inspect for clearance distance, damaged parts and general completeness of the installation.
 - After turning all switches “ON” and disconnecting electronic components, verify the insulation resistance using the insulation tester. The insulation resistance between all live conductors connected to the frame should not be less than 1M Ω .

6.0 SITE TEST (TELEPHONE INFRASTRUCTURE)

- The site test shall be normally carried out by SYARIKAT TELEKOM MALAYSIA BERHAD (STMB) using a device called the Main Drill.
- The 75mm rod is pushed into the telephone ducting together with the draw ropes to ensure the ducting has clearances.
- A nylon block is pulled through the telephone ducting.
- The test shall be carried out between manholes.
- The ducts shall be tested individually for blockages.

End