ANNEXURE-I

TECHNICAL SPECIFICATION OF HIGH MAST LIGHT

01. Supply of 20/30 Meters High Mast system with all accessories including but not restricted to the following.

    a) Mast shaft in two or three sections, hot dip galvanized and suitable for wind velocity as per IS 875 part 3.
    b) Head frame, steel wire rope of min, 6mm dia., double drum winch.
    c) Galvanized Lantern carriage arrangement suitable for 12 nos. Luminaries& its control gear Boxes and Lightning finial.
    d) Integral power tool installed inside base compartment for its operation.

02. Supply of 12 nos. non-integral 2x400 watts High Pressure Metal Halide floodlight lumininaires with two nos. 400 W High Pressure Metal Halide lamps in each luminaire and required control gear boxes suitable for operation on 230V, 50HZ, a.c. supply.

03. Supply of twin dome aviation obstruction light with 2nos LED lamps. Make and details about the aviation obstruction light shall be furnished with the offer.

04. Supply of control panel housing control circuit for the operation of the mast, precision timer for automatic On/Off control and required controls for the power tool motor.

05. WINCH

The winch shall be of completely self sustaining type, without the need for brake shoe, springs or clutches. Driving spindle of the winch shall be locked when not in use. The capacity, operating speed, safe working load, recommended lubrication and serial number of the winch shall be clearly marked on the winch.

The winch drum shall be grooved to ensure perfect seat for stable and tidy rope lay, with no chances of rope slippage. The rope termination in the winch shall be such that distortion is eliminated and at least 5 to 6 turns of rope remains on the drum even when the lantern carriage is fully lowered and rested on the rest pads. If should be possible to operate the winch manually by a suitable handle incase of problem with electrically operated tool.

06. HEAD FRAME

The head frame, which is to be designed as a designed as a unit of the mast, shall be of welded steel construction, galvanized both internally and externally after assembly. The top pulley shall be of appropriate diameter, large enough to accommodate the stainless steel wire rope and the multicore electric cable. The pulley block shall be made of non-corrodible

material, and shall be of die cast Aluminlum Alloy. Pulleys made of synthetic Materials such as Plastic or PVC is not acceptable. Self-lubricating bearings and stainless steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period. The pulley assembly shall be protected by a canopy galvanized internally and externally, close fitting guides and sleeves shall be provided to ensure that the ropes and cables do not get dislodged from their respective positions in the grooves. The head frame shall be provided with guides and stops with PVC buffer for docking the lantern carriage.

07. LANTERN CARRIAGE

A fabricated MS hot dip galvanized lantern carriage shall be provided for mounting of luminary arm assemblies. The diameter of the lantern carriage shall not be less than 1200 mm.

08. **STAINLESS STEEL WIRE ROPES**:

The High Mast shall have an optimally balanced system for raising and lowering of the luminaries. The suspension system shall be of non-corrodible stainless steel of AISI 316 or better grade. The stainless steel wire ropes shall be of suitable size, the central core being of the same material. The overall diameter of the rope shall not be less than 6 mm. Continuous length of stainless steel wire ropes shall be used in the system. There shall be no intermediate joints / terminations, either bolted or any other type, on the wire ropes.

09. **ELECTRICAL SYSTEM, CABLE AND CABLE CONNECTIONS** -

A suitable terminal box shall be provided at the base compartment of the high mast for terminating the incoming cable. The electrical connections from the bottom to the top shall be made by special trailing cable. Size of the cable shall be minimum 5 core 2.5 sq.mm. Copper. At the top there shall be weather proof junction box to terminate the trailing cable. Connections from the top junction box to the individual luminaries shall be made by using 3 core 1.5 sq.mm. Copper flexible PVC cables of reputed make. The system shall have inbuilt facilities for testing the luminaries while in lowered position. Also suitable provision shall be made at the base compartment of the mast to facilitate the operation of internally mounted, electrically operated power tool for raising and lowering of the lantern carriage assembly. The trailing cable of the lantern carriage rings shall be terminated by means of metal clad, multipin plug and socket provided in the base compartment to enable easy disconnection when required.

The fitting and control gear boxes offered should be suitable for outdoor application and properly sealed to prevent rain water entry.

10. Luminaries and Lamps

The luminarie and lamp should be of Philips, Bajaj, GE, Wipro, Crompton Greaves, or any other equivalent make certified by ISI.

11. **POWER TOOL FOR THE WINCH :**

A suitable, high-powered, electricity driven, internally mounted power tool, with manual over ride shall be supplied for the raising and lowering of the lantern carriage for maintenance purposes. The speed of the power tool shall be to suit the system. The power tool shall be single speed, provided with a motor of the required rating. The power tool shall be supplied complete with suitable control. The capacity and speed of the electric motor used in the power tool shall be suitable for the lifting of the design load installed on the lantern carriage. The power tool mounting shall be so designed that it will be not only self supporting but also aligns the power tool perfectly with respect to the winch spindle during the operations. Also, a handle for the manual operation of the winches in case of problems with the electrically operated tool shall be provided.

12. **LIGHTING ARRESTOR :**

One number heavy duty hot dip galvanized lighting spike rod shall be provided for each mast. The lightning spike rod shall be minimum 1.2 M in length and shall be provided at the centre of the head frame. It shall be bolted solidly to the head frame to get a direct conducting path to the earth through the mast.

13. **AVIATION OBSTRUCTION LIGHTS:**

Suitable Aviation Obstruction Lights of reliable design and reputed manufacturer shall be provided on top of each mast.

14. **EARTHING TERMINALS:**

Suitable earth terminals (Minimum 4 Nos) shall be provided at a convenient location on the base of the mast, for lighting and electrical earthing of the mast and Including Earth Links up to each Earth Pits.

15. **CONTROL PANEL:**

Incoming TPN Switch Fuse Unit with HRC fuses or MCCB of suitable current rating, incoming / outgoing terminals and control for the power motor, suitable digital timer of reputed make, with necessary contactors, wiring. for ON/OFF control of the lamps shall be provided in the control panel.

16. **RESTING STOPPERS:**

Necessary arrangements shall be made to rest the lantern carriage on the stoppers in lowering position. The stoppers should be capable of withstanding the mast weight.

NOTE: **QUALITY PLAN HAS TO BE ATTACHED BY THE VENDOR ALONG WITH THEIR OFFER.**