

**OIL INDIA LIMITED**  
(A Govt. of India Enterprise)  
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**ANNEXURE-I**

**Tender No. : DID3180P07/GC**  
**Tender Date : 01.11.2006**

Item No./ Mat. Code	Material Description	Quantity	UOM
<b>10</b> OC000264	<p>30M HIGH MAST LIGHTING SYSTEM FOR BHOGPARA OCS</p> <p><b><u>ANNEXURE - A</u></b></p> <p>TECHNICAL SPECIFICATIONS OF 30 MTRS. HIGH MAST LIGHTING SYSTEM.</p> <p>1.0 MAST :</p> <p>1.1 The high mast shall be continuously tapered, regular polygonal cross-section, at least 16 sides and 20 Mtrs. high. The mast shall be fabricated from steel plates welded construction in suitable number of sections (not more than 3), telescopically jointed giving a continuous tapered profile and presenting good visual appearances.</p> <p>1.2 Mast sections material shall conform to IS : 226, 1975.</p> <p>1.3 The mast section shall be hot dipped galvanized both inside and outside conforming to IS : 4759-1984, IS : 2629-1985, IS : 2633-1072.</p> <p>1.4 Mast structure shall be designed to withstand wind velocity of 180Km/hr. conforming IS : 875 part VII, 1987.</p> <p>1.5 The base flange shall be provided with gusset and high tensile anchor bolts.</p> <p>1.6 The bottom most section shall accommodate winch electric drive, cable, plug/socket etc. with a proper door opening in order to permit clear access to the above components. The door shall be close fitting, dust proof, vermin proof and weather protected ( IP 54) and shall be provided with suitable locking arrangement.</p> <p>1.7 Mast shall be provided with lightning protection.</p> <p>1.8 Provision for suitable earthing shall be provided.</p> <p>1.9 Twin Aviation lights with flashing arrangement to be provided at the top of the mast fixed to the Lantern carriage. Details of aviation lights : Type : LED Aviation light. Voltage : 230V ac, Single phase, 50Hz, 1600 candela minimum, fitted with integral and adjustable flashing circuit for operation at a frequency of 40 flashes per minute, Colour- Red .</p> <p>2.0 LANTERN CARRIAGE :</p> <p>2.1 The lantern carriage shall be of steel tubular ring type construction designed to accommodate 12 Nos. of HPSV Flood light luminaires with necessary C.G. Box in and radially symmetrical fashion.</p> <p>2.2 The carriage shall have proper arrangement to avoid</p>	4	NO

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	<p>swing and to prevent damage to mast surface or other installed parts during lowering/raising operation of carriage.</p> <p>2.3 The complete lantern carriage assemblies shall be hot dip galvanized after fabrication.</p> <p>2.4 All hardware used shall have necessary corrosion protection.</p> <p>2.5 All lantern carriage shall have provision for fixing additional four nos. of HPSV flood light luminaires.</p> <p>3.0 WINCH ASSEMBLY :</p> <p>3.1 Winch assembly, meant for hoisting of lantern carriage shall be fixed in the base of the mast and shall have provision to operate both manually and electrically. The double drum winch should be suitably designed to handle the total weight of lantern carriage assembly with all fittings and accessories with required factor of safety.</p> <p>3.2 The winch shall be of self sustaining and self-lubricating type with positive locking arrangement. The rope drum is fabricated as per IS-807 and the wire rope is wound/unwound on double drum winch during movement of lantern carriage.</p> <p>3.3 Particular care shall be exercised in all aspects of design, manufacture, testing and installation arrangement of the system to ensure optimum safety under all operating condition to give a minimum 25 years of operating life.</p> <p>3.4 Test certificates shall be provided with each winch stating clearly the capacity, operating speed and recommended lubricant.</p> <p>3.5 The material of construction for top pulley block shall be non-corrosive and preferably made of die cast LM-6 aluminum alloy with self-lubricating bearing. The design shall ensure that the operation of pulley is maintenance free. Pulley should be provided with a weatherproof cover.</p> <p>4.0 WIRE ROPES :</p> <p>4.1 The wire ropes shall be flexible marine grade and non corrosive stainless steel.</p> <p>4.2 A minimum 6 to 8 turn of wire ropes shall be on the drum when the lantern carriage is fully lowered.</p> <p>4.3 The stainless steel wire ropes shall be of minimum 6mm dia, 7 x 19 construction which shall have a factor of safety not less than 5 times the safe working load (SWL) of winch.</p> <p>5.0 WINCH DRIVING POWER TOOL :</p>		

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	<p>5.1 The winch drive unit shall be squirrel cage, reversible induction motor with following characteristic :</p> <p>a) 415VAC, 3 phase, 50Hz.  b) Class B insulation.  c) Weather resistant.  d) IP 55 protection.</p> <p>5.2 The capacity of the electric motor used in power tool shall be compatible to handle the design load of lantern carriage.</p> <p>5.3 The power tool shall be housed at the base of the mast.</p> <p>5.4 For safety reasons and final precision docking of lantern carriage ring, the power tool must have provision to operate manually by using external crank device without removing the drive motor from the winch unit.</p> <p>6.0 CONTROL PANEL ( FEEDER PILLAR BOX ) :</p> <p>6.1 A feeder pillar box made of 14SWG CRCA sheet metal, self supporting, floor mounted, dust, vermin and weather proof for outdoor use shall be supplied for locally / automatically switching ON /OFF of luminaries.The control panel comprises the following.</p> <p>6.1.1 63 Amps. TPN fuse switch unit as incomer along with Fuses.  Make : Havells/ Alstom/Siemens.</p> <p>6.1.2 32 Amps. TPN switch fuse unit as isolator for motor along with Fuses.  Make : Havells/ Alstom /Siemens.</p> <p>6.1.3 3 nos. 32 Amps,TPN MCB with RCD, Sensitivity: 300mA ,with overload and short circuit protection with equal distribution of loads.  Make :MDS/Havells/Merlin Gerin</p> <p>6.1.4 32 Amps triple pole AC 3 duty power contactor with 230V operating coil. Make : Siemens / Telemecanique.</p> <p>6.1.5 M.C. Voltmeter, 96mm X 96mm, AE make. Range : 0-600V.</p> <p>6.1.6 Start-Stop push button for locally switching ON/OFF the luminaries. 1 set.</p> <p>6.1.7 NS 4 type fuse carrier and base for control circuit along with Fuses.</p> <p>6.1.8 Automatic light switch with electronic timer of double dial.  Make : GIC/MDS</p> <p>6.1.9 Suitable MCB for switching ON/OFF the motor and 2 Nos. of suitable contactor for forward and reversing operation.</p> <p>6.1.10 Detachable gland plate and copper brought out terminals for incoming and out going cable connection.</p> <p>6.1.11 Feeder pillar-box to be painted with 2 coats of primer followed by 2 coats of epoxy gray paint.</p> <p>6.1.12 Push button for raising and lowering the mobile part shall operate on "Dead man" principle i.e. action shall cease as soon as the button is released.</p> <p>6.1.13 Feeder pillar should be located within 5 Mtrs. radial</p>		

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	<p>distances from high mast.</p> <p>6.1.14 The dimensions of the feeder pillar shall be limited to 1800mm (H) x 500mm (W) x 300mm(B)</p> <p>6.1.15 A single line diagram along with dimensional details for Feeder pillar shall be submitted along with the offer.</p> <p>6.1.16 The components in the feeder pillars shall be so arranged to have adequate space for maintenance jobs.</p> <p>6.1.17 The lowest point of the feeder pillar shall be at a height of one meter(approx) from the ground level.</p> <p>7.0 LUMINAIRES :</p> <p>7.1 12 Nos. of non-integral type flood light luminaries similar to SNT 001 of Phillips make with 2 X 400 W HPSV tubular lamps or equivalent complete with separate Aluminium alloy/ LM6 control gear box with all accessories and individual fuse for each and every light fitting.</p> <p>7.2 Luminaires used in the high mast shall be of make indicated vide Sl. No. 5 of Standardized item list viz. PHILIPS/ BAJAJ/CROMPTON GREAVES.</p> <p>8.0 EARTHING :</p> <p>The mast shall be provided with lightning protection system comprising of a earthing system as follows.</p> <p>a) 2 Nos. 50mm dia, 3 Mtrs. long G.I. pipe , along with interconnection.</p> <p>b) 35mm X 6mm G.I. straps of suitable length for interconnection of stud at Mast.</p> <p>9.0 TOOL BOX :</p> <p>9.1 A tool box of sheet steel containing a set of general and special purpose tools are to be supplied along with each high mast.</p> <p>10.0 SITE CONDITION :</p> <p>The equipment and the materials to be supplied and installed by the vendor shall be suitable for the continuous and trouble free operation under the following site conditions.:</p> <p>Temperature : Max.:40 degree C. Min. 5 degree C</p> <p>Relative Humidity : 90%.</p> <p>Seismic condition : Refer civil structural specification.</p> <p>Earth quake prone Zone : Zone IV/V. Earthquake protection should be considered during design calculation of foundation.</p> <p>Atmosphere : Extremely rainy during summer.</p>		

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	<p>11.0 GENERAL CONDITIONS :</p> <p>11.1 The Civil jobs of the foundation of the high mast and grouting of the feeder pillar shall be done by the party after approval of foundation drawing by OIL. All the materials for foundation shall be supplied by the party including metallic items like bolts, anchor plate, steel template etc.</p> <p>11.2 All necessary arrangements for erection of mast are to be made by the party including supply of all safety appliances and tools to workmen.</p> <p>11.3 Transportation of men and materials to the site will be party's responsibility and M/s. Oil India Limited will not provide any transport for transferring of man and materials to the site.</p> <p>11.4 The persons who are authorized to carry out electrical works should have Electrical Supervising License and Work Permit as per I.E. rule.</p> <p>11.5 For installation, testing and commissioning of mast, party should have Electrical License valid for Assam.</p> <p>11.6 The party should submit detailed schedule of programme of work within 15 days from the award of order.</p> <p>11.7 The whole work should be completed within 3(three) months from the date of site clearance to the entire satisfaction of Engineer-in-charge of Oil India Limited.</p> <p>11.8 The party will be responsible for their tools, tackle and materials at site till the masts are finally handed over to Oil India Limited.</p> <p>11.9 The party will take all safety measures during the execution of the work. Oil India Limited will not compensate to the party in any way for any loss of man and material.</p> <p>11.10 If due to improper execution of the work or due to negligence on the part of the party's workmen, OIL's property is damaged, the party will compensate for the loss.</p> <p>11.11 The party will submit six sets of operation and maintenance instruction manual and on sight drawings of all the components of mast.</p> <p>11.12 All the works shall be carried out as per relevant codes, practices rules and regulations. The workmanship will be of very high standard.</p> <p>11.13 Party shall make own arrangement for boarding and lodging of their working personnel.</p> <p>11.14 The work shall be carried out under direct supervision of the party. The party shall submit monthly progress of work to the Engineer-in-charge in writing.</p> <p>11.15 After completion of job, supplier shall carry out the measurement of achieved illumination level and shall furnish the test report.</p> <p>11.16 Any deviation shall be clearly spelt out along with the offer.</p>		

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	<p>11.17 Party has to submit the documents/Test reports Vide Note no. 3(vii) of the indent before supply of materials or during the time of inspection .</p> <p>12.0 BID EVALUATION / REJECTION CRITER</p> <p>12.1 Bidders not submitting the following documents along with their quotations will not be considered for evaluation :</p> <p>i) Filled in Data Sheet in <b>Annexure B.</b></p> <p>ii) Details of RCC foundation.</p> <p>iii) Design calculation for RCC foundation.</p> <p>iv) Design calculation for High mast.</p> <p>v) Quality Assurance Plan of manufacturer for high mast and shaft.</p> <p>vi) Catalogue of High Mast and Luminaries.</p> <p>vii) Feeder pillar details with single line diagram.</p> <p>*****</p>		

- Special Notes** :
- 1) Supply, Erection, testing and commissioning including Civil foundation jobs of the high mast to be done by the party at BHOGPARA OCS.
  - 2) The party shall quote as per specification given in **ANNEXURE - A.**
  - 3) The quotations along with the following documents should be submitted to us for technical scrutiny:
    - i) Details of RCC foundations,
    - ii) Design calculations of foundation,
    - iii) Design calculations of High Mast,
    - iv) Catalogue of high mast and luminaries.
    - v) Feeder Pillar Details
    - vi) Filled in Data Sheet as per **Annexure-B.**
    - vii) Test certificates of steel plate, anchor bolts, wire rope, drum winch.
    - viii) Quality Assurance Plan of manufacturer for high mast shaft and accessories .
  - 4) High mast and accessories with fittings will be inspected by OIL's Engineers at the premises of supplier/manufacturer before dispatch.
  - 5) The party should submit the documents related to back up services, guarantee and supply of spares from OEM or Original Equipment Supplier.
  - 6) Payment Terms- 70% the value of the order against supply of items and balance 30% payment after successful installation, testing and commissioning of all high masts.
  - 7) Party to quote separately for Radio graphic Tests of the high mast.
  - 8) High mast should be designed to have maintenance free life of 25 years and should be guaranteed for a period of 25 years against any manufacturing/design defects.
  - 9) Zone-V Earthquake protection to be considered during design calculation of foundation.

**Make : Philips / Bajaj / Sigma / Crompton Greaves**

- 10) To evaluate the inter-se ranking of the offers, Assam Entry Tax on purchase value will be loaded as per prevailing Government of Assam Guidelines as applicable on bid closing date. Bidders may check this with the appropriate authority while submitting their bids.