

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

TENDER DOCUMENT

FOR
**RETRO-FITTING OF LED LUMINAIRES ON
EXISTING HIGH MAST FLOOD LIGHT SYSTEM**

AT

**J.S.C.A. INTERNATIONAL STADIUM AT
DHURWA RANCHI.**



**JHARKHAND STATE CRICKET ASSOCIATION
DHURWA, RANCHI - 834004,
JHARKHAND.**

Email: jscaranchi@gmail.com
Website: <https://www.cricjharkhand.org>

Tender No.: JSCA/RNC/202/36/2023-24

Publication Dated: 24th April, 2023

Last date of submission: 22nd May, 2023

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CONTENTS OF TENDER DOCUMENT

PART-1

TENDER DOCUMENT

S.NO.	DESCRIPTION	SECTION	PAGE NUMBER
1.	Notice Inviting Tender		Page No. 3
2.	Check List		Page No. 4
3.	Instructions to Bidders	Section - 1	Page No. 5 to 8
4.	Eligibility Criteria for Bidders	Section - 2	Page No. 9
5.	Scope of Work of the Bidder & Battery Limit	Section - 3	Page No. 10 to 12
6.	General Conditions of Contract (GCC)	Section - 4	Page No. 13 to 18
7.	Special Conditions of Contract (SCC)	Section - 5	Page No. 19 to 21

TECHNICAL SPECIFICATION

S.NO.	DESCRIPTION		PAGE NUMBER
1.	Technical Specifications		Page No. 22 to 31
2.	Bill of Quantities (Unpriced)		Page No. 32 to 34
3.	Layout drawing of the area		Page No. 35
4.	Drawing of Structural Mast		Page No. 36

ANNEXURES

S.NO.	DESCRIPTION	ANNEXURE	PAGE NUMBER
1.	Form of Confirmation of Participation in Tender & Pre-bid meeting	Annexure -I	Page No. 37
2.	List of Commissioning Spares	Annexure- II	Page No. 38
3.	List of Tools & Tackles	Annexure - III	Page No. 39
4.	Details of Luminaries & Drivers	Annexure -IV	Page No. 40 to 41

PART-2

PRICE SCHEDULE

S.NO.	DESCRIPTION		PAGE NUMBER
1.	Price Schedule		Page No. 42 to 44

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

NOTICE INVITING TENDER (NIT)

Sealed Tenders are invited under two bid systems (Part- I: Technical and Commercial Bid and Part –II: Price Bid) from experienced & eligible Original Equipment Manufacturer (OEM) & Contractors of High Energy, High Efficiency, LED Luminaires based High Mast Flood Light system for Retrofitting on existing High Mast System equipped with Metal Halide/Halogen Lamps.

Tender document can be downloaded from the official website of JSCA, www.cricjharkhand.org.

SCHEDULE TO TENDER

Publication of Tender	24.04.2023
Tender Fee	Rs.20,000/- in the form of Demand draft (Non-refundable) to be submitted along with Techno Commercial Bid payable to Jharkhand State Cricket Association payable at Jamshedpur
Minimum Validity of tender offer	90 (Ninety) Days
Date of Site Visit & Pre-Bid Meeting:	On 08.05.2023; 11.00 AM to 12.30 PM for visit and Pre-bid Meeting at 2.30 PM at Conference Room, First Floor, J.S.C.A. Office, International Cricket Stadium, Dhurwa, Ranchi
Last date and time for submission of Tenders:	22.05.2023 (up to 1500 hrs.)
Date & Time of Opening of Techno Commercial Bid:	22.05.2023 (at 1600 hrs.)
Date & Time of Opening of Price Bid	Will be informed to qualified Bidders through JSCA website/mail after evaluation of Techno commercial bid.
Bid Security Deposit (EMD)	Rs.7,00,000/- (Rupees Seven Lakhs only) to be submitted along with the Bid only in the form of Demand Draft payable to Jharkhand State Cricket Association payable at Jamshedpur.
Duration of Contract	The entire Project shall be completed within a period of 3 (Three) months from the date of issue of LOI.
Performance Security Bank Guarantee	10% of the Contract Price
Performance Guarantee Validity	24 (Twenty-four) months from the date of issue of Performance Guarantee certificate
Bids shall be addressed and sent to	The Chief Executive Officer, Level-2, J.S.C.A. International Stadium Complex, Dhurwa, (Jharkhand) 834 004.

For any update/amendments/corrigendum's please visit association website regularly
www.cricjharkhand.org



Honorary Secretary.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

CHECK LIST

(CONFIRMATION BY BIDDER)

The Tenderer shall fill up the answers to the following questions. The answers are to be given only as "Yes" or "No". No deviation on the clauses listed below shall be considered.

Sl. No.	Question	Yes/ No
1	Demand draft for Tender Fee enclosed	
2	Demand draft for EMD enclosed	
3	All items quoted are as per Schedule of quantities	
4	All applicable taxes, duties & levies are included in the Contract Price	
5	Prices quoted are inclusive of charges towards packing, forwarding, freight, insurance, unloading, storage, etc.	
6	Quoted prices shall remain firm during the tenure of the contract/completion of the work.	
7	Bidder is agreeable to Security Deposit clause of Tender.	
8	Bidder is agreeable to "Liquidated Damages" clause of the Tender.	
9	The Bid is valid for acceptance for a period of 90 days from the date of "Bid Opening".	
10	Copy of PAN is enclosed.	
11	Copy of GST Registration is enclosed	
12	Copy of Registration of Company is enclosed.	
13	Certified copies of Audited Balance Sheets for last 3 years are enclosed.	
14	Original certificate from a Chartered Accountant for Turnover from High Mast Business enclosed.	
15	Power of Attorney or Authority letter from Company Secretary indicating that the signatory to the Tender is authorized for signing is enclosed.	
16	Technical Bid includes complete details about the System covering, High Mast, Luminaires, PLC/control system, etc.	
17.	The bid is based on the design/engineering of the system to provide the required LUX levels and computer print outs are enclosed.	
18.	Form of Confirmation of Submission of tender:	

SIGNATURE OF THE TENDERER

NAME

DESIGNATION

COMPANY SEAL

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

SECTION – 1

INSTRUCTIONS TO BIDDERS

1. The bidder shall bear all costs associated with the preparation and submission of bid and JSCA will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tender process.
2. **VISIT TO THE STADIUM: Site Visit & Pre-Bid Meeting:**
 - A) The Bidder may visit the Project site to study the existing High Mast location, fixing arrangement of Lighting Fixtures on the High Mast, Electrical connections and related Infra-structure, etc. on the date of pre-bid meeting. In the event a bidder wishes to have more time to study the site, the same can be organized a day before or after the pre-bid meeting with the prior intimation to Chief Executive Officer.
 - B) The date of the site visit & pre-bid meeting is indicated in the Invitation to Tender.
 - C) The venue of pre-bid meeting will be Conference Room, First Floor, Office Block, JSCA for interaction and seeking clarifications on the tender conditions, if any from 2.30 pm onwards. Participation in the Pre-Bid Meeting is optional but desirable. Interested Bidders may make a presentation during the pre-bid meeting with prior intimation. A soft copy of the presentation shall also be made available to JSCA. 20 minutes' slot will be allotted to each interested bidder who wish to make a presentation.

The Bidders may seek any clarification regarding the Tender during the meeting. The clarifications will be compiled and sent by e-mail to all the bidders and put on the JSCA web-site.

3. THE TENDER DOCUMENT:-

- A) The Bidder is expected to examine all Instructions, Forms, Terms and Conditions stipulated in the Tender document. Failure to furnish all information specified in the Tender document or submission of a tender not responsive to the Tender document in every respect will be at the Bidder's risk and may result in rejection of his bid.
- B) The Bidder shall not make or cause to be made any alteration, erasure or obliteration to the text of the Tender document.

4. PREPARATION OF BIDS:-

- A) The Bidder shall, on or before the date given in the Notice Inviting Tender, submit his bid in sealed envelopes clearly marked with the name of the Tender.
- B) One copy of the Tender document and Addenda, if any, thereto with each page signed and stamped shall be annexed to acknowledge the acceptance of the same.
- C) All the pages of the bid must be serially numbered and duly signed and sealed by the Authorized signatory giving detail of the page numbers in the index of the bid.
- D) The bidder must submit an undertaking in non-judicial stamp paper (Rs. 100/-) duly notarized that they have not been blacklisted and no case is pending with the police or in court of law against their name.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

5. SUBMISSION OF BIDS

- A) The bidder shall submit their offer in three separate envelopes to the following address:
The Chief Executive Officer,
Jharkhand State Cricket Association,
Dhurwa,
Ranchi - 834004, Jharkhand
- B) The sealed cover of Bid must consist of the following documents:-

Part -1:- Techno-commercial Bid

- (a) Envelop No. 1: Tender Fee & EMD
- (b) Envelop No. 2: Techno Commercial Bid comprising of Sections - 1 to 6, Annexures - I to IV and Eligibility Criteria along with unpriced copy of Price Bid.

Part -2 :- Price Bid

- (c) Envelope No. 3: Price Bid as per the prescribed format in original

The three envelopes shall be placed in a 4th Envelope and sealed and super scribed as
“Tender for Design, Engineering, Manufacture, Testing, Packing, Transportation, supply, unloading, storage, erection, Testing & Commissioning of LED based Luminaires High Mast Illumination System for Oval Ground at J.S.C.A. International Stadium, Dhurwa, Ranchi”

Note - Conditional bids/offers will be summarily rejected.

6. BID SECURITY / EMD (Non-Interest Bearing):

- A) The contractor shall deposit Bid Security for an amount of Rs.7,00,000/- (Rupees Seven Lakhs only) by a Bank Draft only, issued by a Nationalized Bank in favour of the Jharkhand State Cricket Association, payable at Jamshedpur along with the Tender document. Bid Security of the successful tenderer shall form of Performance Guarantee. Bid securities of the unsuccessful bidders will be returned to them within 30 days from the date of award of contract. Any Tender not accompanied by Bid Security shall be rejected.
- B) Bid security of the successful bidder may be adjusted against the Performance Security. And for remaining amount of Performance Security separate BG/DD shall be collected from the successful bidder.
- C) Bid Security shall be forfeited if the bidder withdraws his bid during the period of Tender validity.
- D) Bid Security shall be forfeited if the successful bidder refuses or neglects to execute the Contract or fails to furnish the required Performance Security within the time frame specified by JSCA.

7. VALIDITY OF TENDER:

The tender must remain valid and open for acceptance for a period of 90 (Ninety) days from the date of opening of Technical Bid.

8. LATE AND DELAYED TENDERS:

- A) Bids must be received in the JSCA office at the address specified above not later than the date and time stipulated in the NIT. Bids received after due date and time will not be considered.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

B) JSCA may, at its discretion, extend the deadline for submission of bids.

9. **RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS:-**

- A) JSCA is not bound to accept the lowest bid or any bid and may at any time by giving notice in writing to the bidders terminate the tendering process.
- B) JSCA may terminate the contract, if it is found that the contractor is black listed on previous occasions by any Government Body/Institutions/Local Bodies / Municipalities/Public Sector Undertakings, Corporate House etc.
- C) JSCA may also terminate the contract in the event the successful bidder fails to furnish the Performance Security or fails to execute the agreement.
- D) Price bids of only the techno commercial bid qualified bidders will be opened for evaluation.

10. **PERFORMANCE SECURITY (PS) (Non-Interest Bearing):**

The successful bidder shall be required to furnish a Performance Security (PS) in the form of Bank Guarantee (BG) from a Nationalized Bank in the format prescribed by JSCA within 15 days of receipt of 'Letter of Intent' from JSCA for an amount equal to 10% of the Total contract price [including taxes & Duties] less EMD of Rs.7,00,000/- already deposited along with tender.

The Performance Security shall remain valid for a period of twenty-four (24) months beyond the date of issue of Performance Guarantee Certificate.

11. Failure of the successful bidder to comply with the requirements of above clauses shall constitute sufficient grounds for the annulment of the award and forfeiture of Bid Security.

12. **LANGUAGE:-**

The Tender shall be submitted in English Language. Any document, catalogue in any other language must be accompanied with an English translation, duly certified to be true.

13. **PRICE:-**

A) The tenderer shall quote for all the works/items indicated in the tender.

B) Escalation/ Price Variation

The prices quoted by the bidder shall be firm and binding during the entire duration of the contract and extension thereof.

No claim on account of any price variation/ escalation on whatsoever grounds shall be entertained at any stage of works. All rates as per Bill of Quantities (BOQ) quoted by contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works.

14. **CAPACITY OF THE TENDERER:-**

A) Technical Capacity

The Tenderer shall satisfy the Employer that he possesses the necessary technical experience and qualification and that he has at his disposal suitable modern facilities and Staff to ensure that he can undertake the work to the best of quality and workmanship.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

15. **CONFIDENTIALITY:-**

Tenderer shall note that all data/drawings/specifications enclosed with Tender documents are confidential. Tenderer shall keep all data/drawings/specifications in strict confidence and shall not copy or pass on any tender papers, etc. to any third party. Tenderer shall return the tender document along with the Tender.

16. **NOTICE ON BEHALF OF THE EMPLOYER:**

Notice and Certificate on behalf of the Employer in connection with the Contract may be given by duly authorized officers of the Employer.

17. **APPLICABLE LAWS AND JURISDICTION:**

- A) The Contract shall be construed and governed in accordance with the Indian Laws.
- B) The courts at Ranchi shall have the exclusive jurisdiction to try all disputes, if any, arising out of this Contract between the parties.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

SECTION – 2

ELIGIBILITY CRITERIA FOR BIDDERS

1. The bidder must be a legally valid entity either in the form of a Public Limited/Private Limited company established under the Companies Act/Registered Partnership Firm/Proprietorship Firm registered under relevant Act and an Original Equipment Manufacturer [OEM] of High Energy, High Efficiency, LED based Luminaires complete with drivers and established turnkey contractor engaged in executing High Mast based Flood light systems for International Stadiums in India.
2. The Bidder must be registered with EPFO, ESIC, and Tax Authorities as Income Tax and Goods and Service Tax (GST) for which the bidder has to submit necessary documents such as EPF, ESI Registration, PAN, TAN, and GST Registration Certificates etc.
3. The Bidder must have experience, in his own name, of having executed High Mast [60 meter high or more] based Illumination systems for Stadiums hosting Cricket events or National Hockey, or Football for at least three stadiums during last ten (10) years out of which at least one High Mast Illumination System shall be based on High Power, High Efficiency, LED based luminaires (**which are proposed for this tender**) for National Stadiums, having hosted Day-Night matches approved by ICC/BCCI, and which must be operational for a period of at least 1 (one) year as on 31-03-2023.
4. The value of such work successfully carried out should be at least : one single work order of more than or equal to **Rs.7.50 Crore (Rupees Seven Crores Fifty Lakhs only), or two orders of Rs.4.75 crores (Rupees Four Crores Seventy Five Lakhs only) or three orders of Rs.3.8 Crores (Rupees Three Crores Eighty Lakhs only)**, during last five years. Photo copies of LOI/orders and completion certificate are required to be submitted along with the bids as documentary evidence.
5. The Bidder should have an average turnover of Rs.4.00 crores (Rupees Four Crores only) during last three financial years i.e. till 31.03.2022. The bidder shall submit audited and certified copies of Balance sheet with the bid.
6. The bidder shall have adequate number of qualified, trained and experienced Engineers/Managers, who have Designed, Engineered and executed the High Mast Illumination System for Sports Stadium/Cricket Stadium for its clients.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

SECTION – 3

SCOPE OF WORK AND SERVICES OF THE BIDDER AND THE BATTERY LIMITS

1.0 GENERAL:-

The intent of the award of this work is to replace the existing 480 numbers of Metal Halide Flood Light Fixtures, 24 numbers of Halogen Flood Light Fixtures and 12 number Aviation Obstruction Light Fixtures mounted on the 6 numbers of masts located in the premises of International Cricket Stadium, Dhurwa, Ranchi by High Energy, High Efficiency LED based Luminaires on existing Masts with minimum changes to (essential) mounting Structures at Top. The Ignitor/Starter Panels [30 numbers of control gear racks] for the Metal Halide Lamps located in the Electrical Rooms on ground floor near the Masts are likewise to be replaced with Driver Panels for the new LED fixtures. The Ignitor/starters are connected to luminaires by single 3 core 4 sq.mm. copper conductor unarmoured cables. The Ignitors/starters, individually, receive power from the Main Distribution Board located in the same Electrical Room. The bidders shall use these cables for connecting the LED Luminaires proposed to be mounted on the Masts to Driver Panels if located in the Electrical Rooms. In that case the driver Panels shall replace the Ignitor/Starter Panel. In case the Drivers are mounted on the Luminaires or at the top of the mast, the cables from Main Distribution Board to Luminaire shall be joined using Terminal strips mounted inside a Cubicle, which shall be erected in place of Ignitor/starter Panels.

2.0 DESCRIPTION OF EXISTING SYSTEM:-

2.1 The main ground flood lighting system has been provided with 6 numbers of 65 m tall, Valmont make High Masts.

- ❖ Mast is designed as per CP# & TR7.
- ❖ Shaft material is ASTM A572 GR65 and is Galvanized as per ASTM A123.
- ❖ Shaft is secured by 24 numbers of M48x1500, 6.8 Gr Anchor Bolts.
- ❖ Design wind speed is 44m/s.
- ❖ Loading at the foot of the pole (OLF=1.0)
- ❖ Bending moment = 4247 KN.m
- ❖ Shear Force = 97.0 KN
- ❖ Axial Force = 220.6 KN
- ❖ Height including head frame is 65 meters.

The luminaries on the mast are mounted on five numbers of 100x100 mm galvanized steel box section, 6290 mm in length.

Each Mast houses 80 numbers of Philips make Arena Vision MVF403 flood lights with 2 kW Metal Halide lamps luminous flux of 2,00,000 lumen and Colour temperature of 5600 deg K, 4 numbers of Emergency Lights of 1 kW Halogen Lamps and two nos. of aviation obstruction light.

A man rider is provided for movement of personnel only. For movement of materials, the contractor shall use electrical hoist of required capacity. This will form part of tools and tackles under Annexure-IV.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- 2.2 The Power supply to the metal halide Luminaires is only from DG sets located in the sub-station. The power supply from the LT switch board is brought to 6 numbers of Distribution Boards, one for each mast. These distribution Boards are located in Electrical Rooms located at ground floor near the Masts. Power from this Board is then supplied to control gear (starter) panels (4 numbers) for the luminaires. 3 core 4 sq.mm un armored copper cable is used for connecting starter at the ground to the Luminaire at the top of Mast. Power supply for Halogen and aviation obstruction lamps is made available from a different source (JBVNL supply) at the same Electrical room.

3.0 SCOPE OF WORK:-

This Tender Specification covers entire scope of work of

Dismantling of metal halide luminaires and associated brackets, cables, starter panels , Halogen Lamps, Aviation Obstruction Lights, etc. Buy back of the dismantled items, packing and transporting out of customer's premises,

And

Undertake study of Mast and Top Structure with reference to the Luminaires & Brackets, Drivers, etc. proposed to be supplied by the bidder with reference to dead weight and wind loads, etc. and shall Guarantee its adequacy and safety as per the applicable Design Standards/norms. The main mast shall not be replaced. The scope of supply shall include Design, manufacture and supply of Top structure in the scope of the bidder, if his design so warrants.

And

Design, Engineering, Manufacture, Testing, Packing, Supply, Transportation, unloading, storage, erection, Testing & Commissioning, performance guarantee tests and post commissioning warranty services for a period of 2 years and 5 years of Comprehensive Annual Maintenance Services thereafter, for the Retrofitted Illumination system with LED Luminaires, 24 numbers of LED based Luminaires for Emergency Lights and 12 nos. of Aviation Obstruction Lights, on turnkey basis for the Main Ground at J.S.C.A. International Stadium, Dhurwa, Ranchi.

3.1 The scope of services and supplies shall also cover the following:

- a. Inspection of the existing High Mast Flood light system with reference to Location, equipment, Health of Structures and Electrical Distribution Boards, Starter Panels, cables from Starter panels to Luminaires, Earthing system, Lightning Protection System, etc. with the intent to re-use maximum of existing equipment and estimation of equipment/cables etc. which have to be replaced and bought back by the contractor.
- ❖ The following shall be dismantled, bought back (on as is where is basis) and carried away by the contractor:
 - i. Existing Starter Panels [30 numbers]
 - ii. Complete Existing Metal Halide based Luminaires [480] along with brackets.
 - iii. Halogen based Luminaires [24 numbers]
 - iv. Aviation obstruction Lights.
 - v. Structural Members which are required to be changed by the bidder.
 - vi. Connecting cables between the Distribution Board/starter panels and Luminaires, if these can't be used.
- ❖ Refurbishing of existing Lightning protection system for the Flood Lighting complete system, if required.
- ❖ Refurbishing of Earthing systems [power and electronics] for the complete Flood Light system, if required.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- ❖ Undertake civil work required for the installation of equipment and laying of cables.
- b. Carry out Liaison work and obtaining all necessary clearances from statutory bodies, Electrical Inspectorate, etc. for the Project.
- c. All necessary clearances/no objection certificates from all required Authorities shall be arranged by the Contractor.
- d. Familiarize the JSCA staff with the salient features of the system and Impart Training to JSCA staff in operation, troubleshooting & basic maintenance of the system supplied.
- e. The scope of work shall also include any other services, material or works which are not specifically included in the tender document/specification but which are essential for the completion of the Project. The bidder shall quote separately and clearly for any such additional items/services/works. In absence of any such details in the quotation by the bidder, all such items/services/works shall be deemed to have been included in the quoted price of the bidder and Bidder shall carry out all these services/works/items at no extra cost to JSCA.
- f. Carry out Comprehensive Annual Maintenance work for the system supplied for a period of 5 years after the expiry of free warranty maintenance period of 2 years. The Bidders to note that while arriving at the Lowest Bidder [L1], the prices quoted for the Annual Maintenance for 5 years shall also be added to the prices quoted for the project. AMC shall include keeping the system in perfect working condition always and posting of Technicians during any event including International/IPL Cricket matches. Numbers of technicians/electricians to be posted for any event shall be informed by J.S.C.A. and paid separately under relevant item.

3.3 Battery Limits

The power supply for the High Mast System for the Main Ground shall be made available at the outgoing 240V, 20 Ampere MCBs of the existing Distribution Boards located in Electrical Rooms near the High Masts.

The scope of work of the present contractor shall begin from the terminals of the Outgoing Circuit Breakers of the existing Distribution Board, which shall be refurbished for reuse. In case 20 A, outgoing breakers are not suitable, same shall be replaced by the Bidder.

3.4 Exclusion from the Scope of the Contractor (Successful bidder)

There are no exclusions from the scope of work & Services of the Contractor for the subject Project. The bidders may please note that tenders with exclusions may be summarily rejected.

3.5 Employers Responsibilities

- 3.5.1 The Employer will provide the site for construction of civil works, if any and erection testing & commissioning of High Masts, Luminaries, Electrical System, and all associated works.
- 3.5.2 The Employer will provide free of cost construction power supply at one point near each high mast. It will be the responsibility of the contractor to draw power from this point.
- 3.5.3 The Employer will be making the applications required for the various statutory approvals required for the Project and pay the associated fees. The contractor shall carry out all the liaison work and obtain the approvals according to the requirement of the Project.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
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SECTION - 4

GENERAL CONDITIONS OF CONTRACT (GCC)

1.0 DEFINITIONS:-

EMPLOYER:	Jharkhand State Cricket Association [JSCA], Jamshedpur
CONTRACTOR:	Successful Bidder/Tenderer
PERFORMANCE GUARANTEE CERTIFICATE:	The Certificate is to be issued by EMPLOYER (during the maintenance period of 24 months) on completion of Performance Guarantee Tests as specified in the agreement between EMPLOYER & Contractor.

2.0 TAXES & DUTIES

All duties, levies and taxes, including Goods & Service Tax [GST], etc. as applicable shall be payable by the contractor. The contractor shall submit to the employer necessary documentary proof of deposit of GST, ESI, EPF, etc. to the concerned department from time to time as and when required. JSCA shall be making deductions of Income tax from the bills as per the requirement of the Income Tax laws.

3.0 TIME SCHEDULE - COMPLETION PERIOD:

- A) **The Project shall be commissioned within 3 (three) months of date of issue of LOI/ work order by the Employer.**
- B) Time is essence of the Contract. The agreed schedule of completion shall be firm and binding.
- C) The contractor shall be required to take up the whole work assigned to it in an orderly and sequential manner. The Bar Chart furnished by the bidder shall form part of the contract.

4.0 TERMS OF PAYMENT:

Subject to any deductions, which EMPLOYER may be authorized to make under the Contract, the Contract Price shall be payable as follows:

- A) Ten (10) % of the total contract price after signing of Contract and against submission of Bank Guarantee of equal amount valid for Contract period or extension, if any.
- B) Eighty (70%) of Item no. A.1 of B.O.Q. for Price contracted for Design calculations confirming adequacy of the Mast and Top structure for the proposed Luminaires to be installed by the Contractor duly vetted by a competent organization, like IIT or a Design & Engineering firm approved by the Employer shall be payable on receipt of the report and accepted by JSCA.
- C) Seventy (70) % of Item nos. B.1 to 9 of B.O.Q. the Price contracted for supply of materials and equipment on receipt of equipment shall be payable against submission of following complete and correct documents to the EMPLOYER, Ranchi after receipt of items at Site Stores of the EMPLOYER.
- D) Seventy (70%) of Item nos. C.1 & 2 of B.O.Q. the Price contracted for dismantling and disposal of all existing materials being Bought back by the contractor on completion of Dismantling and carting away from the Premises of JSCA.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- E) Seventy (70%) of Item nos. D.1 of B.O.Q. the Price contracted for Erection/installation including connecting up of all the equipment and completion of the same and accepted by JSCA.
- F) Ten (10%) of the Total Contract Price on Testing and commissioning of complete system including Aiming of the High Mast Luminaires. Balance payment, if any, till commissioning, shall also be paid along with this payment.
- G) 10% of the total contract price on successful achievement of Performance Guarantee parameters and issuance of Performance Guarantee Certificate.
- H) Payments for AMC and Operation of the system during events shall be paid quarterly against Invoices raised by Contractor as per the agreement with JSCA,
- I) All Bank Guarantees shall be in Employers Performa.
- J) The prices shall be in Indian Rupees and shall remain firm and binding during the contract period.
- K) All payments to the CONTRACTOR shall be made by Account Payee Cheque/RTGS and all Bank charges shall be borne by the CONTRACTOR.
- L) EMPLOYER shall deduct Taxes at source as per the prevailing statutes from the payments to be made to the CONTRACTOR. EMPLOYER shall deposit amounts thus deducted with the concerned authorities and issue necessary certificates to the CONTRACTOR to this effect.

5.0 SECURITY DEPOSIT:

The contractor will furnish a Security Deposit in form of a Bank Guarantee for a value of 10% of the Contract Price in favour of the EMPLOYER in the prescribed Performa within two (2) weeks from the receipt of order along with acceptance of order, The Security deposit shall remain valid for a period of 24 months beyond scheduled completion period. In case there is delay in completion of the work for any reason whatsoever, the Bank Guarantee shall be extended by the contractor by the said period without demur.

6.0 LIQUIDATED DAMAGES:

6.1 Liquidated damages for delay in execution

The Contractor shall pay liquidated damages to the employer at the rate of one percent of Total Contracted Price per week (or part thereof) for the period that the completion date is later (delayed) than the scheduled completion date. The total amount of liquidated damages shall not exceed 10 percent of the contract price. Payments of liquidated damages shall not affect the contractor's other responsibilities.

6.2 Liquidated damages for shortfall in Illumination (lux) level

The Contractor shall pay liquidated damages to the employer at the rate of one percent of Total Contract Price for every one percent (or part thereof) of shortfall in LUX [illumination level] of the guaranteed levels. The total amount of liquidated damages shall not exceed 10 percent of the contract price.

6.3 Total Liability due to Liquidated Damages

The total liability of Contractor under Liquidated damages under the contract shall be limited to 15% of the Total Contract Value.

6.4 EMPLOYER may recover the Liquidated damages Payable by the contractor from any amount due to him or which may subsequently become due to him under this or any other contract.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

7.0 PACKING AND PROTECTIVE PAINTING:

The Contractor shall include and provide for securely protecting and packing the equipment in accordance with the best practices so as to protect from damage during transit from point of manufacture till arrival at site under conditions which may involve multiple handling, transport by ship rail and road, re-shipment, Storage, exposure to heat, moisture, rain etc. and possibility of pilferage. The Packing standard will have to be approved by EMPLOYER. EMPLOYER may check the packing before dispatch and may ask for modifications to the extent considered necessary to be carried out in the packing and the Contractor shall carry out the same free of charge.

8.0 FORCE MAJEURE:

- 8.1 Should at any time during the continuance of the Contract, the performance in whole or in part of any obligations by either party under this Contract be held up for any reasons of any war, hostility, , act of foreign enemy, civil commotion, Sabotage, fires, floods, earthquakes, explosions, epidemics, cyclones, quarantine restrictions, Governmental regulations, law & order and other proclamation, etc., (hereinafter referred to as "Events") then, provided notice of happening of any such eventuality is given by either party to the other within 10 days from the date of occurrence thereof neither party shall by reason of such eventuality, be entitled to terminate this Contract, nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance or delay in performance and the work under this contract shall be resumed as soon as practicable after such eventuality has come to an end or ceased to exist.
- 8.2 Should one or both the parties be prevented from fulfilling their contractual obligations by a State of force majeure, lasting continuously for a period of at least 2 months, the two parties should consult each other regarding the further implementation of the Contract with the provision that if, no mutually satisfactory arrangement is arrived at within a period of 1month from the expiry of 2 months referred to above, the Contract shall be deemed to have expired at the end of the aforesaid 2 months. Such expiry of the Contract will not relieve the parties from the obligations to reach agreement regarding winding up and financial settlement of the Contract.
- 8.3 The above mentioned force majeure conditions/ clause shall also apply in the works of sub-contractors/ suppliers of the contractor.

9.0 TERMINATION, SUSPENSION AND FORECLOSURE:

- 9.1 EMPLOYER may at any time on breach of this order by the Contractor give him, a written notice of such breach. If the Contractor does not remedy that breach within a period of 30 days after receiving such notice, then EMPLOYER may terminate this order at any time thereafter stating therein the date of termination. The Contractor shall be liable to refund any money which he is obliged to do so under the order.

In addition to above, the Employer, without prejudice to any other rights or remedies it may possess, may terminate the Contract forthwith in the following circumstance by giving a notice of Termination and its reasons therefore to the Contractor-

- a. If the Contractor becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, a receiver is appointed over any part of its undertaking or assets, or if the Contractor suffers analogous action in consequence of debt.
- b. If the Contractor becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, a receiver is appointed over any part of its undertaking or assets, or if the Contractor suffers analogous action in consequence of debt.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- c. If the Contractor assigns or transfers the Contract or any of its right or interest in violation of the provisions of the agreement.
 - d. If the Contractor has
 - i. abandoned or repudiated the Contract
 - ii. without any reason failed to commence work promptly as per stipulation in this Tender Document.
 - iii. fails to execute the work in accordance with the Contract or persistently neglects to carry out its obligations under the Contract, hereof,
- 9.2 The Contractor shall stop the performance of the ordered work from the effective date of termination and hand over all the drawings, documents, plant, equipment, supplies, material etc. including transfer of all the rights of work to EMPLOYER. No consequential damages shall be payable by EMPLOYER to the Contractor in the event of termination.
- 9.3 EMPLOYER may suspend the work in whole or in part at any time by giving Contractor notice in writing of such effect stating the nature, the date and the anticipated duration of such suspension.
- 9.4 On receiving the notice of suspension as per contract, the Contractor shall stop all such work, which EMPLOYER has directed to be suspended with immediate effect. The Contractor shall continue to perform other work in terms of the order which EMPLOYER has not suspended. Contractor shall protect and secure the suspended work in so far as is necessary in the opinion of EMPLOYER's site engineer.
- 9.5 The EMPLOYER may at any time cancel the suspension notice for all or any part of suspended work by giving written notice to the Contractor specifying the part of work to be resumed and the effective date of suspension withdrawal. The Contractor shall resume the suspended work as expeditiously as possible after receipt of such notice.
- 9.6 In the event of suspension of work, EMPLOYER will not be liable to pay to the Contractor for any damage or loss or idle labour caused by such period of suspension of work. EMPLOYER shall not be liable to Contractor for any payment towards watch and ward and any other expenditure.
- 9.7 The Work Order shall be terminated, if due to any unforeseen circumstances which may lead to the foreclosure of the project for reasons such as resource crunch, non-availability of funds, and for other administrative resource etc. EMPLOYER shall, however, give 60 days prior written notice to the contractor of the effective date of termination. Contractor will be compensated only for the quantum of work/services they have rendered till effective date of foreclosure. Any other claims like compensation for loss of profit, compensation for loss of reputation etc. or any other consequential damages claimed by the Contractor will not be admissible and given by the EMPLOYER.

10.0 CONCILIATION & ARBITRATION:

- 10.1. Any dispute, question, claim or difference arising out of or concerning this contract between the parties relating to this contract shall be resolved through mutual discussions by the parties and parties shall make all endeavors to settle this matter amicably.
- 10.2 Conciliation: - In case an amicable settlement is not possible, parties shall take recourse to the Conciliation proceedings to resolve such dispute.
- 10.3 However, if the disputes are not resolved even by Conciliation, then these shall be referred to Arbitration by a sole arbitrator to be appointed by mutual written consent of both the Parties and the arbitration shall be conducted in accordance with the provisions of The Arbitration and Conciliation Act 1996 including any statutory modification or re-enactment thereof, and for the time being in force.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

10.4 The Venue of Arbitration proceedings shall be Ranchi.

11.0 NEGLIGENCE, DEFAULT AND RISK PURCHASE:

- 11.1. If the Contractor fails to execute the work with due diligence or expedition or shall refuse or neglect to comply with any order given to him in writing by the EMPLOYER in Contract, EMPLOYER may give notice in writing to the Contractor calling upon him to make good the failure, neglect or contravention within such time as may be deemed reasonable and in default of the compliance with the said notice, EMPLOYER without prejudice to its rights under the Contract, may rescind or cancel the Contract holding the Contractor liable for the damages that EMPLOYER may sustain in this regard.
- 11.2 Should the Contractor fail to comply with such notice within a reasonable period from the date of serving thereof, EMPLOYER shall have the option and shall be at liberty to take the work wholly or in part out of the Contractor's scope and may complete the work envisaged in the Contract themselves or may re-contract to any other person or persons to execute the same or any part thereof and provide other materials, tools, tackle or labour for the purpose of completing the work or any part thereof at the Contractors risk and cost. This shall be without prejudice to EMPLOYER'S rights under other clauses of this Contract,
- 11.3 EMPLOYER shall have the right to recover all expenses, costs and charges incurred in completion of the work by deducting any money due or which may become due to the Contractor or by revoking the Bank Guarantees.
- 11.4 If the cost of executing the work as foresaid exceeds the balance due to the Contractor and the Contractor fails to make good the deficit, any property of the Contractor as may not have been used up in the completion of the works, may be sold by EMPLOYER and the proceeds applied towards the payment of such differences. Any outstanding balance existing after crediting the proceeds of such sale shall be paid by EMPLOYER to the Contractor when all expenses, costs and charges incurred in the completion of the work are paid by the Contractor.
- 11.5. If the Contractor performs any work in a manner contrary to the Contract, without the approval of EMPLOYER, the Contractor shall bear all the costs arising there from and shall be responsible for all losses to EMPLOYER arising there from.

12.0 GUARANTEE & WARRANTY:

All equipment shall be guaranteed for a period of 24 months from the date of taking over the installation by the JSCA against unsatisfactory performance and /or break down due to defective design, workmanship or material. The equipment or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-charge. In case it is felt by the JSCA they can replace/repair at the risk and cost of the contractor. The decision of the JSCA in this regard shall be final.

The LED Luminaires shall be guaranteed for a period of 5 years from the date of taking over the installation by the JSCA against unsatisfactory performance and /or failure due to defective design, workmanship or material. The Luminaires shall be replaced free of cost. No repair of Luminaire shall be accepted.

13.0 INDEMNITY:

The Contractor shall at all times indemnify the JSCA, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the JSCA shall not be responsible for any accident or damage Incurred or claims arising there from during the period of erection, construction and putting Into operation the equipment and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible, The successful tenderer shall also

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer due to the above.

14.0 INSURANCE AND STORAGE:

- 14.1. All consignments shall be duly insured up to the destination from source to site at the cost of the supplier. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.
- 14.2. The Contractor shall be required to take a Comprehensive Insurance Policy to
- i. cover loss against loss or damages to plant and machinery,
 - ii. Insurance required under Workmen's compensation Act, 1923 &
 - iii. Third Party Liabilities,

The Contractor shall bear the cost of all above policies.

15.0 CORRESPONDENCE:

All correspondences shall be made in duplicate to the following address: -

The Chief Executive Officer
Jharkhand State Cricket Association
International Cricket Stadium Complex
H.E.C. Campus, Dhurwa,
Ranchi 834004, Jharkhand.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

SECTION – 5

SPECIAL CONDITIONS OF CONTRACT (SCC)

1. The Contractor shall ensure best quality work in a planned and time bound manner. Any sub-standard material used and work beyond set out tolerance limits shall be summarily rejected by the Engineer-in-Charge.
2. The work shall be carried out in the manner complying in all respects with the requirements of relevant bye laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-Charge and nothing extra shall be paid on this account.
3. The Contractor shall dispose off unserviceable materials at a place outside campus as directed by Engineer-in-Charge.
4. Existing drains, pipes, cables, overhead wires, sewer lines, water lines and other services encountered in the course of the execution of the work shall be protected against the damage by the Contractor at his own expense. The Contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operations of such services.
5. The Contractor shall execute his work in such manner that no damage is made to the existing structure or any property of JSCA.
6. The Contractor shall be responsible to arrange at his own cost all necessary tools, plants & machinery and all other materials/consumables etc. required for execution of the work as per the contract.
7. No assistance of any kind shall be made available by JSCA for the purchase of equipment, plants, machinery, consumables, material of any kind or any other items required for execution of the work.
8. Samples, brand, and other specifications of all materials required for execution of the work shall be got approved from the Engineer-in-Charge.
9. The Contractor shall take all precautions not to disclose, divulge and / or disseminate to any third party any confidential information, proprietary information regarding JSCA (including but not limited to the Assignment instructions, Schedules and other subsequent Arrangements). The obligation is not limited to any scope and the Contractor shall be held responsible in case of breach of the confidentiality of information regarding JSCA.
10. If the Contractor receives enquiries from Press/Media/Radio / Television or other bodies / persons, the same shall be referred by the Contractor to JSCA immediately on receipt of such queries.
11. The contractor shall ensure the compliance of the Contract Labour (Regulation and Abolition) Act 1971 and all other Labour Laws including EPF and ESI compliance
12. The Contractor's Site-in-charge and all its employees (including those of its sub-contractor, if any) will be competent to carry out the work assigned to them, maintain decorum and behave in appropriate manner.
13. JSCA may by notice to the Contractor object to any person employed by the Contractor in the execution of the Contract who in reasonable opinion of JSCA, may behave inappropriately, may be incompetent or negligent, or may commit a serious breach of the Site rules & regulations. The Contractor on receipt of such notice shall remove such person (s) from the Campus of JSCA. If any representative or person employed by the Contractor is removed in accordance of the Notice of JSCA, the Contractor shall promptly appoint a replacement.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

14. INDEMNIFICATION:

The Contractor shall indemnify and hold harmless the Employer and its employees from and against any and all law suits, actions or administrative proceedings, claims, demands, losses, damages, costs and expenses of whatever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property, arising out of the negligence

15. INSURANCE:

The Contractor shall take necessary & adequate Insurance to cover Third Party Liability, Automobile Liability, and any other Liabilities, required for the work assigned to the Contractor. The Insurance shall be for the entire period of the Contract. The contractor shall be responsible for all the death, disablement, injury to his persons whether employed permanently on company's role or on contract basis which may arise out of or during the course of their duties.

16. SUBCONTRACTING:

16.1 The Contractor shall normally will not be allowed to sub-contract either in full or part, work contracted by him.

16.2 However, in exceptional circumstances, the Contractor may be allowed to engage a sub-contractor with the written prior Approval of JSCA (The Employer).

16.3 Such approval, by the Employer for any of the Sub-Contractor(s) shall not relieve the Contractor from any of its obligations, duties or responsibilities under the Contract.

17. STORAGE AND CUSTODY OF MATERIALS:

The space for storage of the material shall be provided by the JSCA. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the JSCA.

18. CARE OF THE BUILDINGS/STRUCTURE:

Care shall be taken by the contractor while handling and installing the various equipment and components of the work to avoid damage to the buildings/structures. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.

19. POWER SUPPLY:

Electric service connection of 415 V, 3 phase, 4 wire, 50 Hz, AC supply shall be provided by JSCA for carrying out the site work and installation purpose free of charge. However, no fabrication work shall be allowed at site.

20. WATER SUPPLY:

Water supply shall be made available by the JSCA at one point near the periphery of the ground. The contractor shall make own arrangements to take the water further as per his requirement.

21. COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS:

- a. All work shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- (i) Factories Act
 - (ii) Indian Electricity Rules
 - (iii) IS, & BS Standards as applicable
 - (iv) Workmen's compensation Act
 - (v) Statutory norms prescribed by National, State & Local Bodies.
- b. After completion of the installation, the same shall be offered for inspection by the Electrical Inspector Jharkhand State. The contractor will extend all help including test facilities to the Electrical Inspector. The observations of Electrical Inspector will be attended by the contractor. The installation will be commissioned only after getting clearance from Electrical Inspector.
- c. The Contractor shall arrange for compliance with statutory provision of safety regulations and JSCA requirements of safety requirement would make the tenderer liable for penalty as decided by J.S.C.A. In addition, the JSCA will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

22. ERECTION TOOLS:

No tools and tackles either for unloading or for shifting the equipment for installation purposes would be made available by the JSCA. The Contractor shall make his own arrangement for all these facilities.

23. TRAINING:

The scope of works includes on job technical training of two persons at site. Nothing extra shall be payable on this account.

24. INTERPRETING SPECIFICATIONS:

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

- a) Schedule of quantities (B.O.Q.)
- b) Technical specifications
- c) Drawings (if any)
- d) Relevant IS or other international code is case IS code is not available.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

TECHNICAL SPECIFICATIONS

1.0 GENERAL

The intent of the award of this work is to replace the existing 480 numbers of Metal Halide Flood Light Fixtures, 24 numbers of Halogen Flood Light Fixtures and 12 number Aviation Obstruction Light Fixtures mounted on the 6 numbers of masts located in the premises of International Cricket Stadium, Dhurwa, Ranchi by High Energy, High Efficiency LED based Luminaires on existing Masts with minimum changes to (essential) mounting Structures at Top. The Ignitor/Starter Panels [30 numbers of control gear racks] for the Metal Halide Lamps located in the Electrical Rooms on ground floor near the Masts are likewise to be replaced with Driver Panels for the new LED fixtures. The Ignitor/starters are connected to luminaires by single 3 core 4 sq.mm. copper conductor unarmoured cables. The Ignitors/starters, individually, receive power from the Main Distribution Board located in the same Electrical Room. The bidders shall use these cables for connecting the LED Luminaires proposed to be mounted on the Masts to Driver Panels if located in the Electrical Rooms. In that case the driver Panels shall replace the Ignitor/Starter Panel. In case the Drivers are mounted on the Luminaires or at the top of the mast, The cables from Main Distribution Board to Luminaire shall be joined using Terminal strips mounted inside a Cubicle, which shall be erected in place of Ignitor/starter Panels.

The approx. cable length from Main Distribution Board in Electrical Room at ground floor to bottom of the mast is as under:

Mast No. 1	35 m
Mast No. 2	75 m
Mast No. 3	45 m
Mast No. 4	45 m
Mast No. 5	70 m
Mast No. 6	40 m

In case, the Bidder proposes to have more than 80 Luminaires per Mast, additional new cables will need to be laid from Main Power Distribution Board to Luminaires. For estimation purposes, above lengths plus the height of Mast plus top structure has to be taken into consideration.

2.0 SCOPE OF SERVICES AND SUPPLIES

This Technical Specification covers entire scope of services and supplies for design, engineering, manufacture, testing, packing, loading, transportation, storage at site, unpacking, erection, testing and commissioning, performance guarantee tests and post commissioning warranty services for a period of 2 years for the complete high mast Illumination system on turnkey basis for Main Cricket Ground at the International Cricket Stadium at Dhurwa, Ranchi after dismantling existing equipment.

2.1 The scope of services and supplies covers the following:

- i. Checking of the structural suitability of the Mast and Top structures mounting the Luminaires on the mast/structure for the new dead weight and wind loads (including Gales) due to the Lighting Fixtures (including the drivers, if mounted on the fixture/top structure). Vetting of design calculations and drawings by reputed Independent organization (IITs, etc) or Approved Design Organisation.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- ii. Design, manufacture, supply, erection and testing of Top Mounting structures, if required as per item 2.1.i. above.
- iii. Carry out Lighting design for flood light system to meet the criteria as per ICC and other applicable standards considering Maintenance factor, Glare, etc.
- iv. Design, manufacture, testing, packing, supply, erection, testing and commissioning of High Power, High Efficiency LED based luminaires as per relevant ICC standards, Indians Standards and specifications. The number of luminaires shall be as determined by Lighting design undertaken by the bidder.
- v. Design, manufacture, testing supply, erection testing and commissioning of Drivers either installed in panels erected in Electrical Rooms at ground or integral with Luminaires.
- vi. Manufacture, testing, packing, supply, unloading and laying of all cables required, connecting up, testing including aiming of individual luminaire to achieve desired Lux levels in Pitch/wicket, Infield & outfield and commissioning.
- vii. Dismantling of Luminaires (Metal Halide, Halogen and Aviation Obstruction Lights) from the High Mast along with mounting Brackets etc., packing and carting away from the site under "Buy Back" scheme.
- viii. Disconnection of cables at the Luminaire ends, Ignitor/Starter panel ends, marking and proper bunching of the same for reuse.
- ix. Dismantling of Ignitor/Starter panels located in Electrical Rooms at ground floor and carting away from the site under "Buy Back" scheme.
- x. General Refurbishing of Power Distribution Boards for High Mast Flood Light System.
- xi. Refurbishing of Lightning protection system for the Illumination system under supply.
- xii. Refurbishing of Earthing system for the Illumination system under supply.
- xiii. Design, manufacture, testing, supply, erection, testing and commissioning of latest models of aviation obstruction Lights as per relevant Indians Standards and specifications.
- xiv. Carry out Liaison work and obtaining all necessary clearances from statutory bodies, Electrical Inspectorate, etc. for the Project.
- xv. The scope of work shall also include any other services, material or works which are not specifically included in the tender document/specification but which are essential for the completion of the Project. The bidder shall quote separately and clearly for any such additional items/services/works. In absence of any such details in the quotation by the bidder, all such items/services/works shall be deemed to be included in the quoted price of the bidder and Bidder shall carry out all these services/works/items at no extra cost to JSCA.
- xvi. Carry out Annual Maintenance work for the system supplied for a period of 5 years after the expiry of warranty maintenance period of 2 years. The Bidders to note that while arriving at the Lowest Bidder [L1], the prices quoted for the Annual Maintenance for 5 years shall also be added to the prices quoted for the project.
- xvii. Provide Technical Assistance in operation of the Flood Light System during events (matches) as and when called upon to do so by JSCA.

3.0. GENERAL

The equipment to be supplied against this specification shall be new and best of its kind. The equipment/system supplied shall be suitable for satisfactory operations under the conditions specified below:

Maximum ambient temperature	45 degree C
Minimum ambient temperature	0 degree C

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

Relative Humidity	90%
Maximum Annual rainfall/snow fall [cms]	as per published data of Meteorological Department
Wind zone [as per IS:875]	2
Isoceraunic level [days/year]	50
Seismic Hazard [as per IS-1893 (Part- 1): 2002],	Zone-II

Ranchi's climate varies from moderately hot and humid tropical to cold.

4.0 **STANDARDS**

The equipment supplied under this specification shall conform to the applicable Indian Standards. Where Indian Standards are not available these shall conform to applicable International Standards British/American/Japanese]. The latest revisions of these standards shall be applicable. The applicable Guidelines for Illumination systems for stadiums shall also be followed.

Some of the applicable standards are listed below.

- 1/ CIE Guidelines for Illumination.
- 2/ ICC Guidelines for stadiums
- 3/ CIE 83-1989 Design of Illumination
- 4/ CIE 169-2005 Design Guidelines for televised events
- 5/ CIE 67:1986 Guideline for photometric specification and measurement
- 6/ CIE 112:1994 Glare evaluation system
- 7/ BBSSE 4N3 6100 025/100027 Material and Specifications for Mast sections
- 8/ IS 2062 Specifications for accessories.
- 9/ BIS 7280/5135/is 9595/4353 Welding using MIG process
- 10/ BS729/ISO 1461 Galvanizing
- 11/ BS 8004 Guide lines for foundation.
- 12/ ILE Technical Report-7 Design of High Mast.
- 13/ IS 875 Wind speed and loading.
- 14/ IS 5986 2002 Material code for High Strength Steel
- 15/ IS 800-2002 General Guidelines for Steel Design
- 16/ IS 6533 – 1989 Wind analysis
- 17/ IS 1904 – 1986 Code for foundation design
- 18/ IS11233 – 1985 Code for foundation design for Towers
- 19/ IS 456 – 2000 Code for concrete design
- 20/ IS 1367 – 1967 Code for HD bolts
- 21/ IEC 60439-1/is 8623 Low voltage switchgear assemblies
- 22/ IEC 60529/IS2147 Degree of protection of enclosures
- 23/ IEC 60947/IS:13947 Low voltage switchgear & Control gear
- 24/ AS 3439/1 Internal Arc Tests
- 25/ IEC 898 for MCBs
- 26/ IEC 947 & IS 13947 for Switches
- 27/ IS: 5831 – 1984 for PVC Cables
- 28/ IS: 8130 – 1984 for conductors for cables
- 29/ IS 3975 for mild steel wires, armouring, etc.
- 30/ IS 10462 – 1983 Dimensions of protective covers for cables.

5.0 **TECHNICAL SPECIFICATION FOR ILLUMINATION OF THE MAIN GROUND**

5.1 Introduction

The International Stadium at Dhurwa, Ranchi is fully developed entity with a Main Cricket Stadium, club House, swimming pool, offices, sub-station with captive D-G sets, Academy Building, Racquet Building, coffee shop, etc.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

The proposed Illumination system is for the retro-fitting of Main Ground.

5.2 Main Criteria

Main criteria for the design shall be to provide best lighting for players and spectators and camera personnel for live telecast (HDTV) of International level games in accordance with ICC/BCCI norms and standards.

The lighting system shall provide uniformity and consistency in accordance with ICC/applicable standards for the International and national level tournaments.

5.3 Design Of Luminaires

The bidder shall assess and confirm total number of Luminaires required for illumination of the ground in conformity with the applicable standards at Tender stage itself. The bidder shall clearly specify the type, make and number of luminaires in the bid document. In the event additional luminaires are required based on the field trials/Performance Guarantee Tests during the execution of the contract, the same shall be provided by the contractor without any extra cost to JSCA.

5.4 Specifications

The Illumination of the ground shall be of high quality providing comfort to the players, Umpires and the spectators. The illumination shall be suitable for HDTV telecast in terms of quality and level of Illumination on the ground.

Following are the requirements of various levels of Illumination required for different kind of matches.

Games	Ill. Area	Horizontal			Vertical		
		Eh	U2	U1	Ev	U2	U1
Inter National	Pitch	3000	0.8	0.6	2500	0.7	0.6
	Infield	2500	0.7	0.6	2000	0.6	0.5
	Outfield	2000	0.5	0.4	1500	0.5	0.4
National	Pitch	1500	0.7	0.6			
	Infield	1000	0.6	0.5			
	Outfield	700	0.5	0.4			

Where

Eh Horizontal Illumination in Lux
Ev Vertical Illumination in Lux
U2 Minimum /Average Illuminance
U1 Minimum/Maximum Illuminance

CRI		>90
Colour Temperature		>5500 K
Glare		<40%

The illumination shall be suitable for live HDTV telecast and proper care shall be taken to avoid pollution.

Same colour temperature shall be used throughout and shall be >5500-degree K. Illuminance in camera direction:

Illumination levels in vertical direction of the main pitch, infield and outfield shall be as per the applicable standards for HDTV Telecast. In case these levels are higher than the levels indicated above [refer table], these shall prevail and used for illumination design.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

Maintenance factor for the Illumination system during the lighting design shall be considered as 0.8. Flicker free lighting arrangement particularly in slow motion broadcast needed and conformity to the same shall be submitted.

The system shall be designed to deliver the Lux levels specified for International matches. If Lux level specified for National Level matches can be achieved without Electronic/DMX controller, the same shall be provided.

Tenderer shall furnish computer print outs for International and National level games on a grid of 5x5 m showing calculations of vertical and horizontal illumination levels along with other parameters as specified in Technical specifications of the enquiry in accordance with CIE-169-2005 recommendations.

5.5 FLOOD LIGHTS [LUMINAIRES WITH LEDs]

5.5.1 GENERAL

Sports Flood light luminaires mounted on the High Masts shall be of Heavy Duty type suitable for continuous operation in the severe climatic conditions with enclosure class of IP66. These shall be of proven design with installations being in operation for 1 year or more. These shall be powered by high efficiency, high power LED lamps. The lens shall be of suitable material that withstands the ambient conditions without any deterioration. The luminaires and control gear shall be of same approved make.

The Luminaires shall be selected in such a way that they can be mounted on the existing frame on the top of the Mast without modification or with minimum modifications. In any case, the Mast should be able to take the dead weight and wind load of the new Luminaires.

5.5.2 FEATURES

- a) The luminaires shall be heavy duty that can withstand harsh environmental conditions and provide high volumes of luminous flux.
- b) The body of Flood light luminaire shall be made of Die cast Aluminium.
- c) The Enclosure shall be IP 66 class.
- d) LEDs shall be assembled on a thermally efficient MCPCB (metal core printed circuit board) with robust interconnection provided by the high reliability solder joints. These creep resistant solder joints shall maintain excellent shear strength and allows them to survive a great number of thermal cycles even under high CTE mismatch conditions. The LED board shall be attached to an aluminum heat sink which is mounted to the die cast luminaire housing. Heavy duty fan units may be provided for forced air cooling.
- e) The LED driver unit shall operate on voltage input from 120 to 277 VAC or 347 to 480 VAC rated for both application line to line or line to neutral.
- f) A built-in power factor mechanism shall be provided to maintain a high power factor of minimum 0.9 while suppressing the harmonic current within the 20% maximum THD limit.
- g) The on-board thermal protection module shall automatically reduce the LED drive current to prevent overheating when the system temperature hits the upper limit.
- h) The driver shall be designed to protect against damage resulting from electrical shorts and overloaded circuits. The driver shall have standard built-in surge protection of 2.5kV (min).

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- i) An integrated 10kV/10kA surge protector shall be provided to protect luminaire against common (line-to-ground) and differential (line-to-line) mode surges.
- j) The driver unit shall have an enclosure class of IP66, if mounted on or near the luminaire. If driver unit is mounted in a cubicle in Electrical room, the cubicle shall have suitable class of protection and forced ventilation, if required.
- k) There shall be complete separation of the driver compartment from LEDs to prevent LED thermal impact that can compromise driver's service life.
- l) Electrical connection of the luminaire shall be done using a suitable terminal block connector.
- m) Configuration where Driver unit of the Flood Light is housed at ground level in Electrical Room shall also be considered on merit.
- n) The Luminaire shall have Aiming Device/Mechanism to focus the light to specific areas in the ground, like Pitch, infield and outfield so as to attain the Lux levels specified for each area while maintaining the other parameters of the Lights. A clamping arrangement to keep the luminaire in final position shall be an integral feature.
- o) A bird guard against birds and similar intruders shall be provided.

5.5.3 LEDS

The LEDs based lamp shall be made of high energy, high efficiency LEDs assembled on metal core printed circuit board securely fixed in an Aluminum Die Cast casing with a polycarbonate/similar lens cover to provide highly focused light to the ground.

The following detail shall be furnished in the given format in Annexure - IV to this tender.

- a) Make, country of manufacture & model of the luminaire.
- b) Lumens output of lamp
- c) Lumen Depreciation
- d) Supply Voltage
- e) Lamp Voltage
- f) Colour Temperature (Tk)
- g) Colour rendering index (Ra)
- h) Glare
- i) Weight of flood light fitting
- j) Weight of complete luminaire.
- k) Details of driver unit.
- l) Weight of Driver unit.
- m) Detailed catalogue of Luminaire
- n) Type of Cooling
- o) Lumen Depreciation.

In the event more than one type of luminaire is used, details of all such luminaire shall be provided. However, only one make of the luminaire shall be supplied.

5.5.4 LIGHT CONTROLS

The present Flood Lighting system in use is switched on from Electrical Room one by one from the group of Luminaires controlled from a module on Distribution Board.

A sheet steel clad wall mounted, Control Cabinet shall be designed, engineered and supplied for installation in each Electrical Room for switching ON/OFF the Flood Lights. It shall also be possible to select the LUX level for International/National level matches, if feasible without DMX controllers.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

Separate ON/OFF switches shall be provided for 4 number Emergency Flood Lights of each mast.

The Luminaires /Drivers supplied shall be DMX control ready with an upgradation of the system in future.

5.5.5 CABLE TERMINATION CUBICLE/DRIVER RACKS

Since the Ignitor/starter Panels are being phased out, the cables to Power Distribution Board on one end and to Luminaire on the other end need to be joined at the starter Rack location.

To achieve the same, Cable Termination Cubicle with 20 numbers of Bakelite strip based Terminals suitable for 25 Ampere, 6 ways suitable for terminating 4 sq.mm. copper cable having an eye lug shall be mounted inside the cubicle. The terminals shall be such that the connections do not become loose.

Suitable arrangements shall be made inside the cubicle for neatly arranging the cables and clamping them.

The cubicle shall be of 2000x1000x600 mm size with lockable double flap doors on front and back. The cubicle sheet steel clad, free standing, floor mounting, with base channel of 150x75x75 mm. The removable gland plate shall have provisions for 40 numbers of 3 core 4 sq.mm. Copper cables from the bottom. The cubicle shall be painted as per standard procedure applicable to manufacture of Electrical LT Switchgear Boards. The final coat of the paint shall be silver gray.

Neoprene gaskets shall be used for all doors and coverings to give adequate protection. The protection class shall be at least IP41.

In case, the Drivers are housed in a rack/cubicle, the same applications shall apply except to meet the cooling requirement of the drivers.

5.5.6 CABLING

ELECTRICAL CABLES to Luminaires/Aviation Obstruction Lights.

Any new Electrical cables from the switchgear/control gear to Driver panels at ground level and to each of the LED fixture shall be annealed copper conductor, unarmored XLPE, FRLS cables of requisite number of cores and size. The minimum conductor size shall not be less than 2.5 sq.mm.

Presently 3 core 4 sq.mm copper cables are provided between Ignitor/Starter panels at ground floor electrical rooms and luminaires. The tenderer shall examine the reuse of these cables for LED luminaires/Drivers being offered by them as replacement.

The cables used shall be in accordance with best engineering practice and conforming to relevant Indian Standards,

Runs of wires shall be neatly bunched and suitably supported and clamped. The wiring shall be coded and labeled with approved ferrules for identification at both ends of the wires.

5.5.7 AVIATION OBSTRUCTION LIGHTS:

Aviation Obstruction Lights shall be provided on top of each mast. Separate switches shall be provided for switching these lights ON.

Photo sensor(s) shall be mounted on the Main Electrical Room roof top or some other suitable location, which will be used to switch on an auxiliary contactor. The contacts of these contactors will in turn switch ON the Aviation Lighting Luminaires mounted on the top of the four Masts.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

A control cabinet shall be provided on the outer wall of each Electrical Room for Manually switching ON/OFF these Aviation Obstruction Lights, when the Photo sensor switches are not working. The control cabinet shall be weather proof and housed in another IP54 enclosure with lockable door.

6.0 PERFORMANCE GUARANTEE TESTS

The Contractor, on completion of the retro-fitting work and commissioning of the system shall perform the following tests:

- 6.1 Run the complete system for a continuous period of 10 hours successfully. In the event the test is not completed without any fault, the contractor shall repeat the test.
- 6.2 Measure the lux level on the ground at pitch, infield area and outfield as per ICC standards and specifications for **International Matches** using pre calibrated Light meters and establish that lighting levels have been achieved. In case, the lighting levels are not met, the contractor shall augment the system by adding additional Luminaires and carry out the test again.
- 6.3 The Lux measurement shall be carried out with the emergency Flood lights switched OFF.
- 6.4 In the event the lux levels are not met even after the augmentation, Liquidated damages as stipulated in the contract, shall be levied.

7.0 TOOLS & TACKLES AND SPARES:

- 7.1. After completion of installation & commissioning of the system, necessary tools & tackles are to be provided free of cost by the bidder/contractor for maintenance purpose. List of tools and tackles to be supplied by the bidder/contractor shall be indicated in the Tender. The same along with specifications and make shall be submitted for approval by JSCA/ owner during the execution of the Project.
- 7.2. A list of requisite spares for Flood Light System shall be listed in the Tender Document, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the site itself for the entire period of warranty and Operation & Maintenance which upon its use shall be replenished by the bidder/contractor without any additional cost to JSCA.

8.0 DRAWINGS & MANUALS TO BE FURNISHED ALONG WITH THE BID:

- 8.1. Layout drawing indicating the fixing arrangement of the Luminaires on the mounting structure including the augmentation of the structure, if required.
- 8.2. Location of the Drivers
- 8.3. Connection scheme of the Luminaires and drivers, and drivers and power supply board of the employer.
- 8.4. Lighting Design along with data sheets/computer printouts with indication of the guaranteed LUX level across the ground.
- 8.5. The complete Bill of Materials for the High Mast Luminaires and drivers with detailed Technical Specifications, catalogues, make, model, country of origin, etc.
- 8.6. Bar Chart, giving activity wise schedule for completion of the Project.

9.0 DRAWINGS/DOCUMENTS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT

The Contractor shall furnish in three sets, the following drawings on Award/Letter of Intent and obtain approval from JSCA:

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

- a. Final Lighting Design along with data sheets/computer printouts with indication of the guaranteed LUX level across the ground.
- b. Final drawings submitted with the Tender after incorporating supplier's/other information.
- c. Other drawings considered necessary for the Project.
- d. Operation & Maintenance Manual for the complete system.
- e. As Built drawings – 2 hard copies and one set of soft copy.

10.0 SAFETY MEASURES:

The contractor/bidder shall take entire responsibility for safety of the installation and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines, safety guidelines for high masts, etc.

11.0 REPLACEMENT DURING WARRANTY PERIOD

- 11.1 The Luminaires & Drivers shall be supplied with a warranty period of 7 years. In case of failure of Luminaires & Drivers during warranty period, the contractor shall replace the Luminaires which have failed without any price implication to Employer. Replacement shall mean dismantling from its working position, transportation to stores and installation of new Luminaire and/or the Driver unit without any cost to Employer.
- 11.2 All equipment shall be supplied with a warranty period of 7 years. The equipment which fails during the warranty period shall be replaced by the Contractor without any price implication to Employer.

12.0 INSPECTION OF EQUIPMENT

- 12.1 JSCA may inspect & witness the tests for the critical equipment at the manufacturer's works prior to dispatch to site. Contractor shall make all arrangements and facilitate witnessing of the Tests at their works by the JSCA/Inspector appointed by owner.
- 12.2. Items shall be dispatched only after receipt of dispatch instruction and dispatch clearance from EMPLOYER. Dispatch clearance will be issued to the contractor after inspection and acceptance of the equipment is over. Consignment dispatched without receipt of dispatch clearance from EMPLOYER may be liable to non-acceptance.
- 12.3. List of Preferred Makes of equipment and materials.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

LIST OF PREFERRED MAKES OF EQUIPMENT AND MATERIALS

S.No.	Equipment Description	Approved Makes
1.	Automation system/PLC unit/SCADA	ABB, SCHNEIDER, SEIMENS, PHILIPS,
2.	Uninterruptible Power Supply [UPS]	TATA LIBERT [EMERSON]/HIREL/APC
3.	Moulded Case Circuit Breakers [MCCB]	Siemens, L & T, Schneider
4.	Miniature Circuit Breakers	L&T, ABB, GE; Siemens
5.	Indicating Lamps	LT, VAISHNAV, KAYCEE, BCH
6.	Switches, Push buttons	BCH, L&T, KAYCEE
7.	Control Switches/ Selector Switches	Kaycee, Kappa, ABB, Alstom, L&T, GE Siemens
8.	Luminaires LED based	Abacus, Bajaj, Crompton Greaves, GE, Osram, Philips, Lighting Technology
9.	5/15 A switch socket outlet	Anchor, Havells, Roma
10.	Copper conductor XLPE, FRLS Cable	FINOLEX, HAVELLS, KEI
11.	Al Conductor, PVC Power cables	UNIVERSAL, POLYCAB, FORTGLOSTER, CCI, NICCO, KEI
12.	PVC Control Cables	UNIVERSAL, POLYCAB, FORTGLOSTER, CCI, NICCO, FINOLEX

Notes-

1. **The bidder shall submit Type Test copies of LED Luminaires and Drivers for the models proposed for use in JSCA. The names indicated above are provisional.**
2. The Bidder may indicate the makes of equipment/materials not covered above but proposed for the Project in their Technical Bid along with detailed catalogues, specifications & references.

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

High Mast mounted, High Power, High Efficiency, LED based Illumination System for Main Ground, at International Cricket Stadium at Dhurwa, Ranchi, Jharkhand.

BILL OF QUANTITIES (UN-PRICED) - Do Not Fill Price

S.N	DESCRIPTION OF ITEM	UNIT	QTY	RATE		AMOUNT
				In Figure	In Words	
1.	2.	3.	4.	5.	6.	
[A]	SUBMISSION OF DESIGN CALCULATIONS					
1.	Submission of design calculation including vetting by IIT/approved design organization for structural safety of mast and top structure supporting the proposed flood light.	L.S.	Lot			
ADD GST						
TOTAL OF [A]						
[B]	SERVICES AND SUPPLIES FOR THE PROJECT					
1.	Supply of requisite numbers of high efficiency LED based luminaires of approved make to be installed on each of six high masts to achieve required level of illumination in Main ground complete with all required accessories (but excluding drivers which shall be paid separately under relevant item).	Sets	6			
2	Do for Emergency light (4 nos. each mast).	Nos.	24			
3. (a)	Supply of Drivers one for each luminary installed either in Rack/cubicle in Electrical Room or on/near the Luminaire for above luminaires for Main ground illumination along with connecting cable with connectors between Luminaire and Driver for items as per 1 above.	Sets	6			
3 (b)	Do for emergency light under Item no. 2 above.	Nos.	24			
4	Supply of Low intensity neon helix type aviation obstruction luminaires with lamps and accessories to be mounted on high masts (2 on each Mast) along with photo sensitive switch.	Nos.	12			
5.	Supply of Floor mounting sheet metal clad termination cubicle as per specification	Nos.	6			

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

6.	Supply of Local Control Cabinet for switching on (i). Main flood light (ii). Emergency lights (iii). Aviation lights	No.	6			
7'	Supply of 1.1 kV grade Copper Conductor XLPE/FRLS Insulated, armoured /unarmoured cables as per design requirement. IS Specifications sizes	L.S.	Lot			
8.	Supply of Recommended Commissioning spares [As per the list furnished by the Bidder as per Annexure-III]. Unused spares shall become the property of the EMPLOYER.	Set	one			
9.	Supply of Tools and tackles [As per the list recommended by the Bidder as per Annexure-IV]	Set	one			
ADD GST						
TOTAL OF [B]						
[C]	DISMANTLING OF EQUIPMENT & CABLES					
1.	Disconnecting, dismantling, packing and carting away of MH Luminaires (480 nos.) Halogen Luminaires (24 nos.) Aviation Lights (12 nos.) on six high masts	L.S.	Lot			
2.	Disconnecting, dismantling and carting away of Ignitor/Starter panels and other equipment obtained from item B (1).	L.S.	Lot			
ADD GST						
TOTAL OF [C]						
[D]	ERECTION, TESTING AND COMMISSIONING					
1.	Erection, testing and commissioning of items 1 to seven included under (A) above.	L.S.	Lot			
ADD GST						
TOTAL OF [D]						
[E]	ANNUAL MAINTENANCE					
1	Comprehensive Annual Maintenance of the complete system supplied for six masts which shall include routine, preventive and break down maintenance including replacement of defective equipments for a period of 5 years (after completion of 2 years of Guarantee period) including free.					
(i).	First (1 st) Year – (after completion of 2 years of Guarantee period).	L.S.	Lot			

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

(ii).	Second (2 nd) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
(iii).	Third (3 rd) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
(iv).	Fourth (4 th) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
(v).	Fifth (5 th) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
ADD GST						
TOTAL OF [E]						
[F]	OPERATION OF SYSTEM SUPPLIED					
1.	Supply of manpower for operation of flood lights during event/match.	Nos.	50			
ADD GST						
TOTAL OF [F]						
[G]	TOTAL PURCHASE PRICE TO JSCA [A]+ [B] + [C]+ [D]+ [E]+ [F]					
[H]	BUY BACK PRICE [As is where is basis]					
1.	Metal Halide Lamps & Luminaire	Nos	480			
2.	Ignitors racks with ignitors etc.	Nos.	30			
3	Halogen Lamps & Luminaires	Nos.	24			
4.	Aviation Obstruction lamps/fittings	Nos.	12			
ADD GST						
TOTAL OF [H]						
[I]	Net Price [I]= [G] - [H] TO JSCA					

The net price indicated under item [I] above shall form the basis of determining the L1 price for award of the contract and all payments to the contractor shall be towards this price.

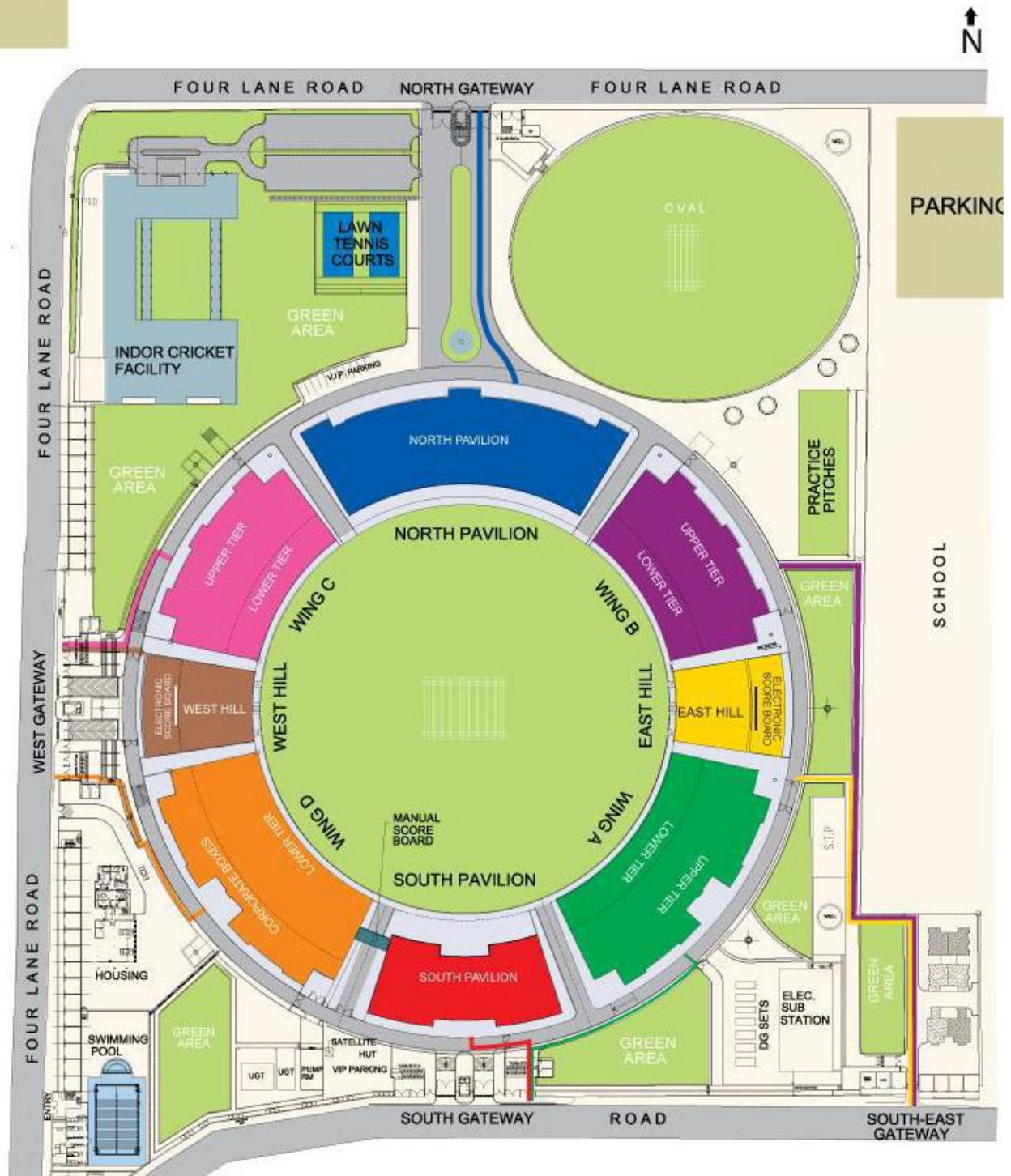
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V.I.P. PARKING



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ANNEXURE - I

CONFIRMATION OF PARTICIPATION

(To be sent by Email to: jscaranchi@gmail.com)

TO BE SUBMITTED BEFORE PRE-BID MEETING

Ref. No.

Date

The Honorary Secretary
Jharkhand State Cricket Association
International Cricket Stadium Complex
Dhurwa, Ranchi – 834004.

Sub: Confirmation for participation in Tendering process.

Dear Sir,

We acknowledge with thanks the receipt of above Tender No. Dated _____
for Design, Engineering, Manufacture, Testing, Packing, Transportation, unloading, storage, erection,
Testing & Commissioning of LED based Luminaires High Mast Supply System for International
Stadium, Dhurwa, Ranchi.

We confirm that we shall be participating in the subject Tender, participate in pre-bid meeting and
submit the Tender by due date.

SIGNATURE OF THE TENDERER

NAME

DESIGNATION

COMPANY SEAL

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

ANNEXURE – II

LIST OF RECOMMENDED COMMISSIONING SPARES (UNPRICED)

(REF. ITEM NO. A-8 OF B.O.Q.)

S.N.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT

C.O. to Item no. A.8

SIGNATURE OF THE TENDERER

NAME

DESIGNATION

COMPANY SEAL

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

ANNEXURE - III

LIST OF TOOLS & TACKLES (UNPRICED)

(REF. ITEM NO. A-9 OF B.O.Q.)

S.N.	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT

C.O. to Item no. A.9

SIGNATURE OF THE TENDERER

NAME _____

DESIGNATION

COMPANY SEAL

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

ANNEXURE – IV

DETAILS OF LUMINARIES AND DRIVERS

TO BE FURNISHED BY THE BIDDER

SL.NO.	DESCRIPTION	SPECIFICATION	AS OFFERED BY BIDDER	NOTES
1.	Software for Lighting design for Cricket Ground available with Bidder, Yes/No	Proven for Cricket Stadium Lighting for ICC matches		Bidder should own or have legal access to required software.
2.	Maintenance factor for system design used	80 %		
3.	Total Number of Luminaires proposed as per design.			
4.	Make and model number of LED Flood Light Fixture			Indicate and enclose the Data Sheets giving complete specifications.
5.	Country & City of manufacture			
6.	Year of first production of Fixture and introduction in market			Indicate the year
7.	Period (in years) of Guaranteed supplies of spare Luminaires and undertaking repair services by OEM supplier	10 years or more		
8.	Lumen output of single Luminaire, Lumen			
9.	Lumen Depreciation	L70 or better		
10.	Type of connection, plug in/fixed.			
11.	Power requirement of each Luminaire, watt			
12.	Enclosure class of the Luminaire.	IP66 or better		

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

13.	Type of cooling of the Fixture, natural or fan cooled.	Natural cooling preferred		
14.	Luminaire has facility for Aiming the light to pitch, etc. , Yes or no.	Essential		
15.	Colour Temperature	>5700 K		
16.	CRI	>=90%		
17.	Flicker			
18.	Glare	<40%		
19.	Supply Voltage	415V 3- Phase		
20.	Voltage of Luminaire (LED)	As per Bidders specs.		
21.	Weight of Luminaire			
22.	Weight of the mounting Bracket			
23.	Dimensions of the Luminaire			
24.	Driver a. Inbuilt with Luminaire b. Mounted separately near the Luminaire. c. Mounted in Cubicle in Electrical Room			Indicate a, b or c as applicable
25.	Make and model number of Driver .			Indicate and enclose the Data Sheets giving complete specifications
26.	Country & City of manufacture of Driver			
27.	Driver weight			
28.	Driver Enclosure class.	IP66 or better		
29.	Type of cooling			
30.	Details of Bracket	Galvanized steel / aluminum alloy		
31.	Cable specifications for connecting with power source and Luminaire			

NOTE: USE SEPARATE SHEETS, WHERE EVER REQUIRED.

SIGNATURE OF THE TENDERER WITH COMPANY SEAL

NAME

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
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PART – 2

PRICE SCHEDULE

(TO BE SUBMITTED IN A SEPARATE ENVELOPE)

High Mast mounted, High Power, High Efficiency, LED based Illumination System for Main Ground, at International Cricket Stadium at Dhurwa, Ranchi, Jharkhand.

BILL OF QUANTITIES (PRICED)

S.N	DESCRIPTION OF ITEM	UNIT	QTY.	RATE		AMOUNT
				In Figure	In Words	
1.	2.	3.	4.	5.	6.	
[A]	SUBMISSION OF DESIGN CALCULATIONS					
1.	Submission of design calculation including vetting by IIT/approved design organization for structural safety of mast and top structure supporting the proposed flood light.	L.S.	Lot			
ADD GST						
TOTAL OF [A]						
[B]	SERVICES AND SUPPLIES FOR THE PROJECT					
1.	Supply of requisite numbers of high efficiency LED based luminaires of approved make to be installed on each of six high masts to achieve required level of illumination in Main ground complete with all required accessories (but excluding drivers which shall be paid separately under relevant item).	Sets	6			
2	Do for Emergency light (4 nos. each mast).	Nos.	24			
3. (a)	Supply of Drivers one for each luminary installed either in Rack/cubicle in Electrical Room or on/near the Luminaire for above luminaires for Main ground illumination along with connecting cable with connectors between Luminaire and Driver for items as per 1 above.	Sets	6			
3 (b)	Do for emergency light under Item no. 2 above.	Nos.	24			
4	Supply of Low intensity neon helix type aviation obstruction luminaires with lamps and accessories to be mounted on high masts (2 on each Mast) along with photo sensitive switch.	Nos.	12			

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

5.	Supply of Floor mounting sheet metal clad termination cubicle as per specification	Nos.	6			
6.	Supply of Local Control Cabinet for switching on (i). Main flood light (ii). Emergency lights (iii). Aviation lights	No.	6			
7'	Supply of 1.1 kV grade Copper Conductor XLPE/FRLS Insulated, armoured /unarmoured cables as per design requirement. IS Specifications sizes	L.S.	Lot			
8.	Supply of Recommended Commissioning spares [As per the list furnished by the Bidder as per Annexure-III]. Unused spares shall become the property of the EMPLOYER.	Set	one			
9.	Supply of Tools and tackles [As per the list recommended by the Bidder as per Annexure-IV]	Set	one			
ADD GST						
TOTAL OF [B]						
[C]	DISMANTLING OF EQUIPMENT & CABLES					
1.	Disconnecting, dismantling, packing and carting away of MH Luminaires (480 nos.) Halogen Luminaires (24 nos.) Aviation Lights (12 nos.) on six high masts	L.S.	Lot			
2.	Disconnecting, dismantling and carting away of Ignitor/Starter panels and other equipment obtained from item B (1).	L.S.	Lot			
ADD GST						
TOTAL OF [C]						
[D]	ERECTION, TESTING AND COMMISSIONING					
1.	Erection, testing and commissioning of items 1 to seven included under (A) above.	L.S.	Lot			
ADD GST						
TOTAL OF [D]						
[E]	ANNUAL MAINTENANCE					
1	Comprehensive Annual Maintenance of the complete system supplied for six masts which shall include routine, preventive and break down maintenance including replacement of defective equipments for a period of 5 years (after completion of 2 years of Guarantee period) including free.					

JHARKHAND STATE CRICKET ASSOCIATION

INTERNATIONAL STADIUM COMPLEX,
H.E.C. CAMPUS, DHURWA, RANCHI- 834004.

(i).	First (1 st) Year – (after completion of 2 years of Guarantee period).	L.S.	Lot			
(ii).	Second (2 nd) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
(iii).	Third (3 rd) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
(iv).	Fourth (4 th) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
(v).	Fifth (5 th) Year - (after completion of 2 years of Guarantee period).	L.S.	Lot			
ADD GST						
TOTAL OF [E]						
[F]	OPERATION OF SYSTEM SUPPLIED					
1.	Supply of manpower for operation of flood lights during event/match.	Nos.	50			
ADD GST						
TOTAL OF [F]						
[G]	TOTAL PURCHASE PRICE TO JSCA [A]+ [B] + [C]+ [D]+ [E]+ [F]					
[H]	BUY BACK PRICE					
	[As is where is basis]					
1.	Metal Halide Lamps & Luminaire	Nos	480			
2.	Ignitors racks with ignitors etc.	Nos.	30			
3	Halogen Lamps & Luminaires	Nos.	24			
4.	Aviation Obstruction lamps/fittings	Nos.	12			
ADD GST						
TOTAL OF [H]						
[I]	Net Price [I]= [G] - [H] TO JSCA					

The net price indicated under item [I] above shall form the basis of determining the L1 price for award of the contract and all payments to the contractor shall be towards this price.

SIGNATURE OF THE TENDERER

NAME

COMPANY SEAL