

Memo No. 213/NKDA/Elect/2019-20

Date: 14-01-2020

NOTICE INVITING e-TENDER

Notice Inviting e-Tender No.07/EE-E/NKDA/2019-20

Percentage rate e-Tender are hereby invited by Executive Engineer (E), New Town Kolkata Development Authority invites quoted rate e-tender from resourceful, reliable, bona-fide manufacturer or authorized dealer or Contractor having experience in similar nature/ Street light & maintenance of work at WBHIDCO/PWD/PHED/WBSEDCL/ Railways /any Govt. and semi Govt. department are requested to submit their offer for the work detailed below.

(Submission of Bid through **online**)

Sl. No	Name of the work	Estimated Amount(Rs.)	Earnest Money(Rs.)	Price of Tender documents	Period of Completion
1	Illumination of Solar Street Light at the Pathway of Green Verge at AA-ID & AA-II New Town	Rs.2,57,14,838=00 (Two Crore Fifty Seven Lakh Fourteen Thousand Eight Hundred and Thirty Eight only.	Earnest money Rs.5,14,297=00 (Rupees Five Lakhs Fourteen Thousand Two Hundred and Ninety-Seven) only to submit through Online payments/RTGS/NEFT from ICICI Bank. In favour of " Newtown Kolkata Development Authority " payable at Kolkata.	NA	A) 120(Hundred Twenty) Days for Supply, Installation, Testing, Commissioning B) Maintenance period 05(Five) years from the date of commission.

1) In the event of e-filling, intending bidder may download the tender documents from the website <http://wbtenders.gov.in> directly with the help of Digital Signature Certificate. All the bidder shall have to submit Earnest Money & necessary earnest money will be deposited by the bidder through the following payment mode as finance dept. order no. 3975-F (Y) dated 28th July 2016 (Annexure-A).

i) Net banking (any of the banks listed to the ICICI bank payment gateway) in case of payment through ICICI payment gateway. **RTGS/NEFT** through bank account in any bank. The EMD shall be deposited in favor of "Newtown Kolkata Development Authority" payable at Kolkata.

2) Both **Technical Bid** and **Financial Bid** are to be submitted concurrently duly digitally signed in the website <http://wbtenders.gov.in>

- 3) Tender documents may be downloaded from website and submission of Technical Bid and Financial Bid will be done as per Time Schedule stated in Sl. No. 14 of this NIeT.
- 4) The **FINANCIAL OFFER** of the prospective qualified tenderer(s) will be considered only if the **TECHNICAL BID** of the tenderer(s) is found qualified by competent authority of New Town Kolkata Development Authority. The decision of the competent authority of New Town Kolkata Development Authority will be final and absolute in this respect. The list of Qualified Bidders will be displayed in the website.

5) **Eligibility criteria Submit the following document for participation in the tender:**

- i. Working Contractors of NKDA/ WBHIDCO/ PWD/ WBSEDCL/ Railways/ any Govt. and Semi Govt. Departments having satisfactorily completed (as prime contractor) during the last 5 years, at least one work of similar nature/Street light & maintenance having magnitude of at least 40% of the quoted amount. Authentic documents in original, from the Engineer-in-charge of the work will have to be submitted in support of the above credential as statutory documents.

Note: In support of credentials bidder must submit work order, BOQ, completion certificate during online tender submission.

OR

Intending tenderer may also produce credential of 02 (two) similar nature/ Street light & maintenance of completed work, each of minimum value of 30% of the estimated amount put to tender during 05(five) years prior to the date of issue of the tender notice.

Note: In support of credentials bidder must submit work order, BOQ, completion certificate during online tender submission.

- ii. The prospective bidders must have registered office & field service set up to provide good after-sale services including necessary repair & maintenance in Kolkata, West Bengal. Proof of address is to be submitted as statutory document.
- iii. The firm must not have been debarred / blacklisted by any Govt. Dept., agency, PSUs / institution / agencies / autonomous organizations. The bidder shall submit a self-certification by an authorized person duly notarized to this effect.
- iv. Pan Card, Income Tax Acknowledgement Receipt for the latest Assessment year, P.T. Deposit Challan for the current year, GST Registration and PF registration Certificate are to be submitted as statutory documents.
- v. Registered Partnership Deed for Partnership Firms only along with Power of Attorney since executed under any Judicial Magistrate/First Class Magistrate is to be submitted. The company shall furnish the Article of Association and Memorandum as non-statutory documents.
- vi. The prospective bidders shall have PF & ESI enlistment. The last Month Challan & ECR copy of PF & ESI shall be furnished for Technical Evaluation.
- vii. The prospective bidders in their full time engagement experienced Electrical Supervisor, having SCC Part of 1,2,3,4,11 or National (Authenticated documents in respect of qualification and Full time Employment through ECR copy of PF & ESI for engagement shall be furnished for Technical Evaluation.) (If Supervisor having above mentioned Part is being Proprietor/Partner/Director of Company then ECR copy may not required).
- viii. The prospective bidders should engage their full time experienced Skilled/Highly Skilled Laboras stated in the schedule of works (Authenticated documents in respect of qualification and Full time Employment through ECR copy of PF & ESI for engagement shall be furnished for Technical Evaluation.) (If the persons having above mentioned Part are being Partner/Director of Company then ECR copy may not required).
- ix. Bidder must submit authorization of OEMs of LED luminaire, Solar Panel and Battery manufacturer, during tender submission online.

- x. Bidder must have submitted the relevant document as mention in Technical Specification.
 - xi. The Executive Engineer (Electrical), NKDA shall award the contract to the successful bidder whose bid shall be qualified after evaluation in terms of the responsiveness and lowest rate determined on the basis price bids.
 - xii. The bidder is to submit documents as asked in the tender. Submission of unnecessary documents leads to disqualification of the offer.
 - xiii. **Joint Ventures/MOU will not be allowed.**
 - xiv. Also as per order of Finance Department, GOWB Vide no. 4600-F(Y) dated on 18.07.2018 an additional performance security amount 10% of tendered amount will have to submit in the form of bank Guarantee from any scheduled bank before issuance of the work order (no increase in scope of work of projects during execution phase).
- 6) All materials are to be procured and supplied at site of work by the tenderer / firm at his / their own cost from approved reputed dealer / manufacturer. Departmental materials will not be issued under any circumstances unless any such provision is made and accepted latter by both the parties. Department unless otherwise stated means New Town Kolkata Development Authority. The prospective applicant shall be capable to establish Field Testing Laboratory equipped with requisite Instruments and Technical Staff complete in itself to carry out all necessary Tests for such project.
- 7) Mobilization advance, time / cost overrun and consequent cost escalation for any material labour etc. and secured advance will not be allowed.
- 8) The offer shall remain valid for 6 (Six) Month from the date of opening of the tender.
- 9) On-going payments for work may be allowed to the executing agency as per existing rules and availability of fund. Subject to deduction of security deposit, progressive payment may be made against the completed or partly completed item of works. Such interim payments, shall be made as running account bill(s), however, shall not construed to mean that the respective items / components have finally been approved and accepted by NKDA and the contractor shall not be absolved of his responsibility to set right any deficiency of such paid items / components at his/ their own cost, for rectifying all defects which are subsequently being noted or found.
- 10) No claim for interest or compensation will be entertained in respect to any money or balance of payment which may be due or alleged to be due to the contractor owing to any dispute between the contractor and NKDA or in respect to any delay in making payment of progressive or final bill of the work, to the contractor.
 Payment for the works done by the contractor will be based on recorded and accepted measurement put for payment to be invariably made by putting signature (with seal) of the contractor (or his/ their authorized representative). The contractor or his / their authorized representatives are advised to take measurements jointly with the officials of NKDA. In case of failure of his/their part either to take measurement jointly and /or acceptance of the recorded measurement, within a reasonable time, measurement taken by the department shall be considered as final for making payment. Similar acceptance is also essential for level records and survey data, field books etc.
- 11) **Idle labour, idle rent and hire charges etc.:**
 No claim of any category and type, on this ground shall be entertained. The contractor and NKDA shall make every effort that such situation does not arise.
- 12) **Testing and Testing Equipment:** Testing of materials, to be used in work and the quality of finished work on quality control aspect, is to be undertaken by the contractor at own cost, with facilities provided at site and / or through approved (by NKDA) Test Houses / Laboratories. All materials and workmanship shall be in accordance with the specifications laid down in the contract and also as per P.W.D. (Schedule) and IS Codes. The Engineer-in-Charge reserves the right to test, examine and measure the material /

workmanship direct at the place of manufacture, fabrication or at the site of works or any suitable place. The contractor shall provide such assistance, instrument machine, labour and materials as the Engineer-in-Charge may require for examining, measuring and testing the works and quality, weight or quantity of materials used and shall supply samples for testing as may be selected and required by the Engineer-in-Charge without any extra cost. Beside this, he/they will carry out tests from outside Laboratory as per instruction of Engineer-in-Charge. The cost of all such tests would be borne by the agency.

Should the Executive Engineer or his representative consider it necessary to satisfy himself / themselves as to quality of work, the contractor shall offer sample of work done as necessary, pull down reasonable part of the work required for inspection and testing. The contractor shall bear the cost of pulling down and shall make good the same at own cost and to the full satisfaction of E-I-C without any claim for payment

13) **Security Deposit:**

Retention money towards performance Security shall be deducted from the running account bill of the tenderer as per prevailing order. No interest will be paid on the money retained for Security Deposit. The security deposit for the entire work (Including the original work and 05years operation and maintenance) i.e 10% of the total value of the work will be released after 05(five) years completion of the successful maintenance of the solar pathway Light.

14) **Date and Time Schedule:**

Sl. No.	Particulars	Date & Time
1	Date of uploading of N.I.T. & other Documents (online) (Publishing Date)	14 -01-2020
2	Documents download start date (Online)	14-01-2020 from 03:00P.M.
3	Documents download end date (Online)	04-02-2020 upto 03:00 P.M
4	Date of Pre-Bid meeting	22-01-2020 at 02:00PM
5	Bid submission start date (Online)	14-01-2020 from 03:00P.M.
6	Bid submission closing date (Online)	04-02-2020 at 3:00 P.M
7	Bid opening date for Technical Proposals (Online)	06-02-2020 at 03:00 P.M.
8	Last Date of uploading list for Technically Qualified Bidder(online)	Will be intimated in due course.
9	Date for opening of Financial Proposal (Online).	Will be intimated in due course.

15) **Earnest Money:**

- a) Earnest money of Rs.5,14,297.00 (**Rupees Five Lakhs Fourteen Thousand Two Hundred and Ninetyseven**) only to submit in the form of ICICI Bank online/ RTGS/NEFT from scheduled Bank, In favor of “**Newtown Kolkata Development Authority**” payable at Kolkata balance amount covering 2% of the quoted amount to be submitted in bank draft / pay order at the time of making agreement by the successful tenderer.
- b) Earnest Money for the successful tenderer will be retained and converted as Initial Security deposit. The Balance security deposit @ 8% will be deducted from on-going bills to cover 10% of the total value of work done.
- c) The security deposit for the original work of the successful tenderer will be refunded after defect liability period as stipulated in relevant clause of the tender document.

16) The tenderers are bound by the terms & conditions of WBF 2911(ii) along with specification, notice for calling Tenders, Special terms & condition, Information to Bidders, Schedule of works etc, which forms a part and parcel of this contract.

17) Income Tax, GST & PF will be deducted as per Govt. orders issued from time to time and would be applicable on the date of making payment of the bills. Building & other construction workers cess @ 1.0% will be deducted from progressive bills in pursuance with G.O. no. 599A/ 4M – 28 / 06 dated 27/09/2006.

- 18) The Bidder, at his own responsibility and risk is encouraged to visit and examine the sites of works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for the work as mentioned in the Notice Inviting Tender, before submitting offer with full satisfaction. The cost of visiting the site shall be at his own expenses.
- 19) The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the Department. New Town Kolkata Development Authority reserves the right to accept or reject any offer without assigning any reason whatsoever and is not liable for any reimbursement of any cost that might have been incurred by any Tenderer at any stage of Bidding.
- 20) Prospective applicants are advised to note carefully the eligibility criteria before tendering the bids.
- 21) **Conditional / Incomplete tender will not be accepted under any circumstances.**
- 22) **The intending tenderers are required to quote the rate *online*.**
- 23) Contractor shall have to comply with the provisions of (a) the contract labour (Regulation Abolition) Act. 1970 (b) Apprentice Act. 1961 and (c) minimum wages Act. 1948 of the notification thereof or any other laws relating thereto and the rules made and order issued there under from time to time.
- 24) During scrutiny, if it comes to the notice of the tender inviting authority that the credential or any other paper found incorrect / manufactured / fabricated, that bidder would not be allowed to participate in the tender and that application will be rejected without any prejudice.
- 25) If there be any objection regarding prequalification of any Agency the same should be lodged online to Chief Engineer, New Town Kolkata Development Authority within 2 (two) days from the date of publication of list of qualified agencies and beyond the said time schedule no objection will be entertained.
- 26) Before issuance of WORK ORDER, the Tender Inviting Authority may verify the credential and other documents of the lowest tenderer in original, if found necessary. After verification if it is found that the documents submitted by the lowest tenderer is either manufactured or false in that case work order will not be issued in favour of the said Tenderer under any circumstances and his/their offer will be treated as cancelled.
- 27) If any discrepancy arises between two similar clauses on different notification, the clause superseding others will be solely as per the discretion of the Tender inviting authority.
- 28) The successful Tenderer whose tender is accepted shall make formal agreement in WBF 2911 (ii) along with bid documents in triplicate, within 7 (seven) days from the date of issue of work order by Executive Engineer, New Town Kolkata Development Authority on payment of usual charges which is non-refundable under any circumstances and submit the same duly signed by him/them to this office. If the contractor fails to perform the formalities within the specified period the Tender is liable to be cancelled and the Earnest Money will be forfeited as per relevant clauses under memorandum of WBF 2911(ii).
- 29) **Qualification criteria:**
The tender inviting and Accepting Authority will determine the eligibility of each bidder. The bidders shall have to meet all the minimum criteria as stipulated in relevant clauses of this NIeT.
The eligibility of a bidder will be ascertained on the basis of the document(s) submitted in support of the minimum criteria. If any document submitted by a bidder is either manufactured or false, in such cases the eligibility of the bidder / tenderer will be rejected at any stage without any prejudice to take any penal action against him/them as may be deemed fit by the Tender Accepting Authority.
- 30) **No. price preference and other concession will be allowed as per order no 8648 – F(T) dated 12.10.2012.**

- 31) Agencies are required to give a work programme preferably in the form of a bar-chart and to approve it by the EIC (Engineer-in-Charge) before commencement of work and if progress of work abruptly differs from the given work program, the undersigned may terminate the work order at any point of time.
- 32) Unless otherwise stipulated, all the works are to be done as per general conditions and general specifications of the latest edition of 'PWD (Electrical)/(W.B) Schedule
- 33) In case of any inadvertent typographical mistake in the specific price schedule of rates, the same will be treated to be so corrected as to confirm with the prevailing relevant schedule of rates and/or technically sanctioned estimate.
- 34) Intending tenderer should note that he will have to work simultaneously with other contractors already entrusted with other work or with contractors to be entrusted with other work in future in the same site. The contractor will have to work in close co-operation and harmony with all the contractors engaged in the project. Any claim for idle labour, for any reason whatsoever, will not be entertained under any circumstances.
- 35) NKDA will not be held responsible for making payment against any anticipated profit and/or compensation for any losses or price escalation whatsoever for the works as stated in the annexure of this NIT. Rates should be quoted accordingly.
- 36) The address as furnished by the contractor shall be deemed as the postal address of this office. Any notice or instruction to be given to the contractor under the terms of contract shall be deemed to have been served if it has been delivered to his authorized agent (on the strength of authorization) or representative or sent by registered letter to his official address as furnished.
- 37) Arbitration clause of WBF 2911(ii) stands deleted. Any dispute related to the contract will have to be settled in Calcutta High Court.
- 38) Any Corrigendum, notification in connection to this NIT will be published in the official website of New Town Kolkata Development Authority (www.nkdamar.org) as well as <https://wbtenders.gov.in>. The applicants are requested to please follow the websites for such notifications, corrigendum etc.
- 39) **Scope of work:**
- i. Sites survey and submission of complete drawing of Green verge Pathway also marking the location of solar light pole for approval by NKDA.
 - ii. Supply, Installation, Testing, Commissioning with Five years comprehensive maintenance of Green verge pathway Solar Lighting at Different locations of New Town, AA-ID and AA-II.
 - iii. Supply of the complete systems, including all necessary components, sub-components, spares, tools, tackles etc. as per technical specifications given in this document including packing, forwarding, safe storage, handling, commissioning, trial and performance testing and handing over, insurance coverage, operation & maintenance with 5 years warranty including CMC.
 - iv. In case of supply of any defective material or substandard material, the materials will be rejected & it will be the responsibility of the supplier for taking back & replacing the rejected materials at their own cost. In case of non-lifting of such rejected materials within a reasonable time offered by the office it will have the right to suitably dispose of the same and forfeit the amount.
 - v. Execution of Comprehensive Maintenance Contract (CMC) of the complete system for five years warranty period. The date of commencement of CMC shall be reckoned from the date of commissioning of the system.

- vi. During the warranty period, MNRE/ NKGSCCL/State Agencies/ Users reserve the right to cross check the performance of the systems with the minimum performance levels.
- vii. Since timely execution of works is of paramount importance, requests for extension of time shall not be ordinarily entertained.
- viii. Corresponding warranty certificate from OEMs must also be submitted. During the maintenance period, the bidder has to provide the maintenance, replacement of all defective LED luminaries, Solar panel, Battery and other equipment's related to LED fittings of all types installed.
- ix. The bidder must also provide a detailed operation and maintenance manual specific to the installed systems.
- x. The bidder should have maintenance extra 5% fittings of total supply in his/her own stock. In case of any failure, they can replace the fittings within 1 days from the date of failure by the bidder own cost.
- xi. The bidder shall furnish a brief write up backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the manufacture and supply of the systems, equipment's within the specified time of completion after meeting all their commitments.
- xii. **COMPREHENSIVE MAINTENANCE CONTRACT (CMC):**
 - a) Each street light system must be guaranteed against any manufacturing / Design/ Installation defects for a minimum period of 5 years.
 - b) The scope of CMC must cover supply of spare parts (including wherever necessary) / services during the contract in force. Order shall be placed on bidders who agree to offer such CMC. The CMC charges quoted by the bidder must be realistic in view of actual rendering of after sale services. Payment will be effected depending upon the functionality of the system duly certified by the concerned Authorized officials of NKDA.
 - c) During the CMC period NKDA will have all the rights to cross check the performance of the Solar Street Light.
- xiii. **INSPECTION:**
All tests and inspections shall be made at the place of delivery. Officers authorized by NKDA shall be entitled at all reasonable time to inspect and supervise and test during erection and commissioning. Such inspection will not relieve the executing firm of their obligation in the contract.

40) **Schedule of Work:**

Sl	Description of Work/Item(S)	Quantity	Unit	Rate(Rs.)	Amount(Rs.)
1	Supply, delivery, installation, Testing & Commissioning with 05 (Five) Years Comprehensive maintenance of Green Verge Pathway Solar Lighting at Different Locations of Action Area -ID and Action Area -II at New Town, Kolkata as specified in tender.	656	Nos.	32666.21	21429033.76
1.1	Sites survey and submission of complete drawing of Green verge Pathway also marking the location of solar light pole for approval by NKDA.				
1.2	Each street light system must be guaranteed against any manufacturing / Design/ Installation defects for a minimum period of 5 years.				
2	Operation & Comprehensive maintenance of the Solar Street	656	Nos.	6533.238	4285804.13

	Lighting for 5 (Five) Years. (Cost of Maintenance should be 20% of item No.1 and the Amount will be released yearly five equal installments. *T&C)				
2.1	Execution of Comprehensive Maintenance Contract (CMC) of the complete system for five years warranty period. The date of commencement of CMC shall be reckoned from the date of commissioning of the system.				
2.2	The scope of CMC must cover supply of spare parts (including wherever necessary) / services during the contract in force. Order shall be placed on bidders who agree to offer such CMC. The CMC charges quoted by the bidder must be realistic in view of actual rendering of after sale services. Payment will be effected depending upon the functionality of the system duly certified by the concerned Authorized officials of NKDA.				
Total					25714837.89
Rounded off					25714838.00

- 41) **The tender document consists of:**
- i) Technical Specifications.
 - ii) WBF2911.
 - iii) Area of Solar Light installation.


Executive Engineer (E)
New Town Kolkata Development Authority

Memo No. 213/NKDA/Elect/2019-20

Date: 14-01-2020

Copy forwarded for information to:-

- i) The Chief Executive Officer, New Town Kolkata Development Authority.
- ii) The Chief Executive Officer, New Town Kolkata Green Smart City Corporation Ltd.
- iii) The Chief Engineer, New Town Kolkata Development Authority.
- iv) The Finance Officer, New Town Kolkata Development Authority.
- v) The Assistant Engineer (E), New Town Kolkata Development Authority.
- vi) P.A to the Chairman, New Town Kolkata Development Authority.
- vii) Office copy of NKDA.
- viii) Official Website of New Town Kolkata Development Authority (www.nkdamar.org)

Executive Engineer (E)
New Town Kolkata Development Authority

TECHNICAL SPECIFICATIONS

12 W WHITE-LED BASED SOLAR STREET LIGHTING SYSTEM

Sr. No	Components	Specification for Solar street light fitting
1.	PV module	75 Wp under STC
2.	Battery	Minimum 12.8V, 30 AH capacity Lithium Ferro Phosphate battery.
3.	Light Source	<p>White Light Emitting Diode (W-LED)</p> <p>12 Watt, W-LED luminaire, dispersed beam, soothing to eyes with the use of proper optics and diffuser.</p> <p>LED Chip should be compliance to IES: LM-80 (Approved Method for Measuring Lumen Maintenance of LED Light Sources and LED lumen depreciation time to L70). Test report for same should be submitted.</p>
4.	Light Out put	<p>The luminaire must use high efficacy W-LED with minimum 135 lumens per watt (and UV free). [A certificate to be submitted by the System supplier to the Test Lab during certification]</p> <p>For single light level:</p> <p>Minimum 24 Lux when measured at a point 4 meters below the light. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher light output will be preferred.</p> <p>For Multiple Light levels:</p> <p>The luminaire should have two levels of light to take care of different lighting needs during the night. Minimum 24 Lux when measured at a point 4 meters below the light (at "High" illumination level). The illumination should be uniform without dark bands or abrupt variations. Minimum 12 Lux at lower illumination level. (Higher light output will be preferred)</p> <p>The luminaire shall be tested for Electrical, Photometry and Color parameters as per IES LM-79:2008 or IS: 16106:2012 for following performance parameters like:</p> <ol style="list-style-type: none"> 1) Total luminous flux: $\geq 1500\text{lm}$. 2) Luminous efficacy (i.e. system efficacy): $\geq 125\text{lm/W}$. 3) Color Temperature: Between 5500 K to 6500K.

TECHNICAL SPECIFICATIONS

		<p>4) CRI ≥ 70</p> <p>5) Luminous intensity distribution should follow the batwing patterns in polar curves.</p> <p>6) Require validation report using .ies file, which is generated during luminous intensity distribution test and using maintenance factor 0.9 and Luminaire shall be at least 4.5 m above the ground level, Road width max.5m and Pole span 12m. The average illuminance level and uniformity should comply with requirement as per IS 1944, wherever applicable.</p> <p>7) The luminaire should be tested for all type tests as per IS 10322 Part 5 Sect 3 or IEC 60598-2-3 standards.</p>
5	Mounting of light	<p>Pole height 5 m above the ground level. Luminaire shall be at least 4.5 m above the ground level.</p> <p>Foundation details of the 5 meter octagonal pole are attached sheet ,Base plate-200X200X12mm, Thickness : 3 mm, top dia-70 mm & bottom dia 130mm, Hot dip Galvanizing I minimum 80 mm</p>
6	Electronics Efficiency	Overall total Efficiency of the Electronics should be Minimum 90%
7	Duty Cycle	<p>Dusk to dawn:</p> <p>First 4 Hours full light (Min. 24 Lux), rest of the time at lower light (50%, Min. 12 Lux) level.</p> <p>(Higher light output will be preferred)</p>
8	Autonomy	3 days or Minimum 36 operating hours per permissible discharge with fully charged Lithium-Ferro Phosphate Battery.
9	Ingress Protection – IP	Optical and Control gear compartment - IP 65 / IP 66
10	Impact resistance of casing	\geq IK 08
11	Radiated Emission Test	As per CISPR-15
12	ESD (Electro Static Discharge) and Radiated susceptibility test	As per IEC 61547

TECHNICAL SPECIFICATIONS

TECHNICAL DETAILS:

PV MODULE

- i. Indigenously manufactured PV module should be used.
- ii. The PV module should have crystalline silicon solar cells and must have a certificate of testing conforming to IEC 61215 Edition II / BIS 14286 from an NABL or IECQ accredited Laboratory.
- iii. The power output of the module under STC should be a minimum of 75Wp.
- iv. The module efficiency should not be less than 14%.
- v. The terminal box on the module should have a provision for opening it for replacing the cable, if required.
- vi. There should be a Name Plate fixed inside the module which will give:
 - a. Name of the Manufacturer or Distinctive Logo.
 - b. Model Number
 - c. Serial Number
 - d. Year of manufacture
- vii. A distinctive serial number starting with NSM will be engraved on the frame of the module or screen printed on the tedlar sheet of the module.

BATTERY

- i. Minimum 12.8V, 30 AH capacity Lithium Ferro Phosphate Battery.
- ii. Battery pack should have proper 'Battery management System' (BMS) for cell balancing, over charge and over temperature protection.
- iii. Battery should conform to the latest BIS/ International standards.

LIGHT SOURCE

- i. The light source will be a white LED type.
- ii. The colour temperature of white LED used in the system should be in the range of 5500°K–6500°K.
- iii. W-LEDs should not emit ultraviolet light.
- iv. The light output from the white LED light source should be constant throughout the duty cycle.
- v. The lamps should be housed in an assembly suitable for outdoor use.
- vi. The temperature of heat sink should not increase more than 20°C above ambient temperature during the dusk to dawn operation.

ELECTRONICS

- i. The total electronic efficiency should be at least 90%.

TECHNICAL SPECIFICATIONS

- ii. Charge controller should be MPPT type.
- iii. Electronics should operate at an appropriate voltage suitable for proper charging of the battery.
- iv. No Load current consumption should be less than 20mA.
- v. The PV module itself should be used to sense the ambient light level for switching ON and OFF the lamp.
- vi. The PCB containing the electronics should be capable of solder free installation and replacement.
- vii. Necessary lengths of wires/cables, switches suitable for DC use and fuses should be provided.

ELECTRONIC PROTECTIONS

- i. Adequate protection is to be incorporated under “No Load” conditions e.g. when the lamp is removed and the system is switched ‘ON’.
- ii. The system should have protection against battery overcharge and deep discharge conditions.
- iii. The System should have protection against short circuit conditions.
- iv. Protection for reverse flow of current through the PV module(s) should be provided.
- v. Adequate protection should be provided against battery reverse polarity.
- vi. Load reconnect should be provided at 80% of the battery capacity status.

MECHANICAL COMPONENTS

- I. A corrosion resistant metallic frame structure should be fixed on the pole to hold the SPV module.
- II. The frame structure should have provision so that the module can be oriented at the suitable tilt angle.
- III. Pole should be Hot dip galvanized pipe as per IS1161 & IS4736 i.e. Class B.
- IV. Pole height 5 m above the ground level. Luminaire shall be at least 4.5 m above the ground level. Foundation details of the 5 meter octagonal pole are attached sheet, Base plate-200X200X12mm, Thickness : 3 mm, top dia-70 mm & bottom dia 130mm, Hot dip Galvanizing I minimum 80 mm
- V. The pole should have the provision to hold the luminaire.
- VI. The battery shall be either included in the luminaire enclosure, which should be water proof (IP 65) and corrosion resistant or outside the luminaire enclosure in a vented, acid proof and corrosion resistant, hot dip galvanized metallic box (IP 65) with anti-theft locking arrangement for outdoor use.

INDICATORS

- The system should have two indicators, green and red.
- The green indicator should indicate the charging under progress and should glow only when the charging is taking place. It should stop glowing when the battery is fully charged.

TECHNICAL SPECIFICATIONS

- Red indicator should indicate the battery “Load Cut Off” condition.

QUALITY AND WARRANTY

- i. The street lighting system (including the battery) will be warranted for a period of five years from the date of supply.
- ii. The PV module(s) will be warranted for a minimum period of 25 years from the date of supply. The PV modules must be warranted for their output peak watt capacity, which should not be less than 90% at the end of Ten (10) years and 80% at the end of Twenty five (25) years.
- iii. The Warranty Card to be supplied with the system must contain the details of the system.

OPERATION and MAINTENANCE MANUAL

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the Solar Street Lighting System. The following minimum details must be provided in the Manual:

- Basic principles of Photovoltaic.
- A small write-up (with a block diagram) on Solar Street Lighting System - its components, PV module, battery, electronics and luminaire and expected performance.
- Type, Model number, Voltage & capacity of the battery, used in the system.
- The make, model number, country of origin and technical characteristics (including IESNA LM-80 report) of W-LEDs used in the lighting system.
- About Charging and Significance of indicators.
- Clear instructions about erection of pole and mounting of PV module (s) and lamp housing assembly on the pole.
- Clear instructions on regular maintenance and troubleshooting of the Solar Street Lighting System.
- DO's and DONT's.
- Name and address of the contact person for repair and maintenance, in case of non-functionality of the solar street lighting system.

TECHNICAL SPECIFICATIONS

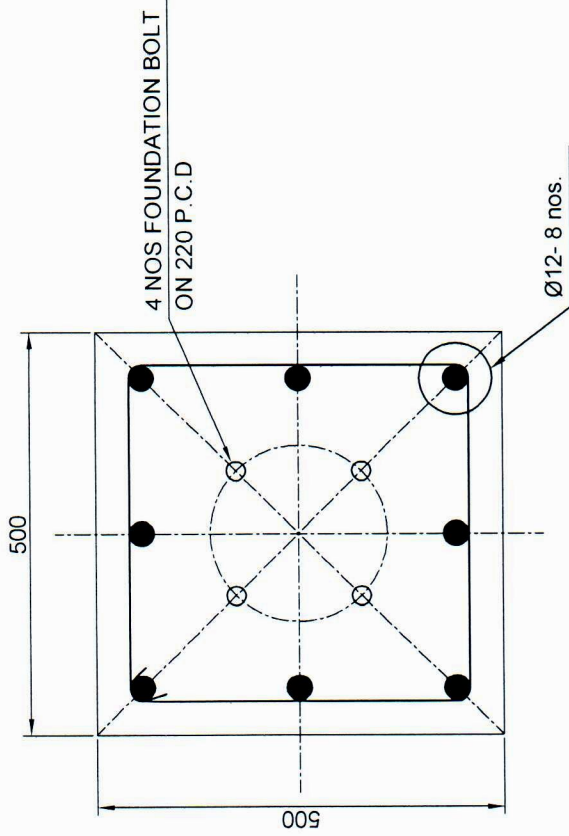
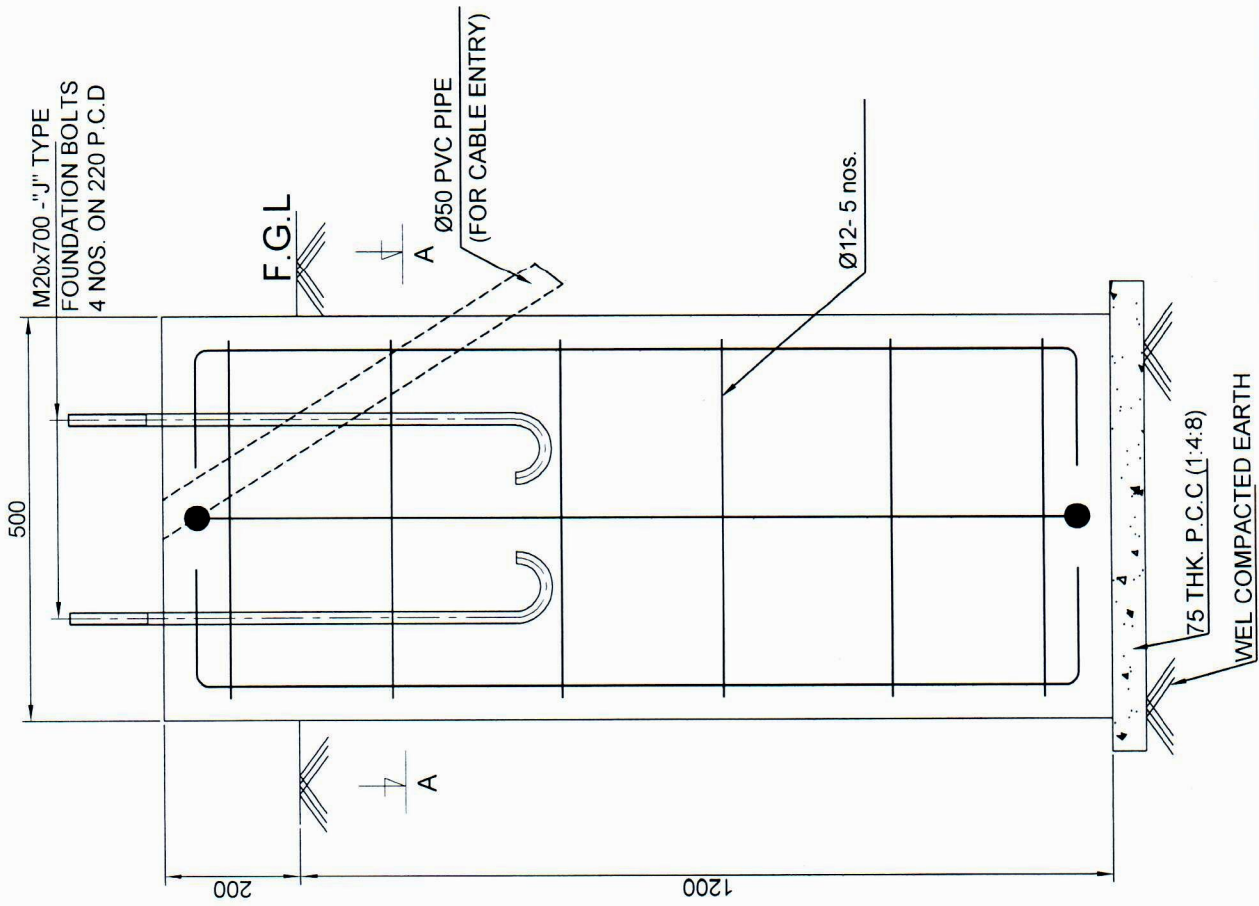
List of BIS standards applicable for components of Solar PV Applications

Sl. No. (1)	Product (2)	Indian Standard Number (3)	Title of Indian Standard (4)
1.	Crystalline Silicon Terrestrial Photovoltaic (PV) modules (Si waferbased)	IS 14286	Crystalline Silicon Terrestrial Photovoltaic (PV) modules - Design Qualification And Type Approval
2.	Thin Film Terrestrial Photovoltaic (PV) Modules (a-Si, CiGs and CdTe)	IS 16077	Thin-Film Terrestrial Photovoltaic (PV) Modules - Design Qualification and Type Approval
3.	PV Module (Si wafer and Thin film)	IS/ IEC 61730 (Part 1) IS/ IEC 61730 (Part 2)	Photovoltaic (PV) Module Safety Qualification Part 1 Requirements for Construction Photovoltaic (PV) Module Safety Qualification Part 2 Requirements for Testing
4.	Power converters for use in photovoltaic power system	IS 16221 (Part 1) IS 16221 (Part 2)	Safety of Power Converters for use in Photovoltaic Power Systems Part1- General Requirements Safety of Power Converters for Use in Photovoltaic Power Systems Part2- Particular Requirements for Inverters
5.	Storage batteries	IS 16270 IS 16046	Secondary Cells and Batteries for Solar Photovoltaic Application General- Requirements and Methods of Test Standard for Lithium Ferro phosphate battery
6.	LED Lights & Luminaires	IS16101 IS16102 IS16103 IS16107	General Lighting - LEDs and LED modules – Terms and Definitions Self-Ballasted LED Lamps for General Lighting Services Led Modules for General Lighting Luminaires Performance


Executive Engineer (E)

New Town Kolkata Development Authority

Page 6 of 6



SECTION: A-A

NOTES:-

1. ALL DIMENSIONS ARE IN mm.
2. GRADE OF STEEL REINFORCEMENT (FOR R.C.C.) - FE 510
3. CLEAR COVER REINFORCEMENT-50MM
4. ASSUMED S.B.C-10T/SQ.MTR(MINIMUM)

DESCRIPTION: FDN. OF 5 Mtr. SOLAR POLE

CLIENT: -

DRAWING NO. -

DRAWN BY -

CHECKED BY -

REV.	REMARKS.	DATE	BY

PO	DATE:	SCALE	N.T.S.
-	03.01.20	-	-

Area of Solar Light installation:

SI NO.	Address Of The Green Pathway	No of Street Light
1	Green Verge of AA-II Block at Street No-656,693,695 & 701 at AA-IIC.	656
2	Green Verge of AA-II Block at Street No-636,659,642&653 at AA-IIC.	
3	Green Verge of AA-II Block at Street No-648,657,659&653 at AA-IIC.	
4	Green Verge of AA-II Block at Street No-648,657,659&653 at AA-IIC.	
5	Green Verge of AA-II Block at Street No-664,666,658&699 at AA-IIC.	
6	Green Verge of AA-II Block at Street No-665,646&671 at AA-IIC.	
7	Green Verge of AA-II Block at Street No-579,508,571&510 at AA-IIB.	
8	Green Verge of AA-II Block at Street No-579,508,571 & 510 at AA-IIB.	
9	Green Verge of AA-II Block at Street No-547,540&535 at AA-IIB.	
10	Green Verge of AA-II Block at Street No-553,536, 543 &504 at AA-IIB.	
11	Green Verge of AA-II Block at Street No-677,621,592& 578 at AA-IIB.	
12	Green Verge of AA-II Block at Street No-565,569& 571 at AA-IIB.	
13	Green Verge of AA-II Block at Street No-562,551,544& 564 at AA-IIB.	
14	Green Verge of AA-II Block at Street No-604,639,627 at AA-IIB.	
15	Green Verge of AA-II Block at Street No-611,602,620 at AA-IIB.	
16	Green Verge of AA-II Block at Street No-509,552,521 at AA-IIB.	
17	Green Verge of AA-II Block at Street No-513,528,532 at AA-IID.	
18	Green Verge of AA-II Block at Street No-745,751,737,739 & 733 at AA-IID.	
19	Green Verge of AA-I Block at Street No-350,342,348 at AA-ID.	
20	Green Verge of AA-I Block at Street No-346,308,310,312,314,340,344 at AA-ID.	
21	Green Verge of AA-I Block at Street No-285,283,281,279,291,289,287 at AA-ID.	
22	Green Verge of AA-I Block at Street No- 277,275,273,271,269,297,295,293 at AA-ID.	
23	Green Verge of AA-I Block at Street No- 316,318,320,322,324,328,332,336 at AA-ID.	
24	Green Verge of AA-I Block at Street No- 324,356,354,352,316,338,334,330 at AA-ID.	
25	Other area of New Town AA-I & II	


Executive Engineer (E)
New Town Kolkata Development Authority

NleT-07/EE-E/NKDA/2019-20

Memo No-213/NKDA/Elect/2019-20

Date:14-01-2020