CORRIGENDUM – II
TO
BIDDING DOCUMENTS
FOR

Planning, Design and Construction for Annex and Hostel Buildings for Post Graduate Disciplines at Deben Mahata Government Medical College & Hospital in the State of West Bengal on Turnkey Basis

Bid Reference No.: WBMSCL/NIT- 180/2023 **Dated –18.04.2023**

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Notice Inviting e-Tender (e-NIT)</td><td>3.</td><td>The scope of the Selected Bidder (as defined in the ITB) would be “Planning, Design, and Construction for Annex and Hostel Buildings for Post Graduate Disciplines at Deben Mahata Government Medical College & Hospital in the State of West Bengal on Turnkey Basis” as explained in detail in the Bill of Quantities (“BOQ”), which shall chiefly comprise of the following :
A. Planning, Design and Construction of a G + 9 Annex building
B. Vertical extension of another 5 floors to the existing resident Doctor’s hostel
C. Vertical extension of another 5 floors to the existing intern’s hostel
The other relevant details pertaining to the Project are as follows: -
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Notice Inviting e-Tender (e-NIT)</td><td>8(iii)(c)</td><td>“Minimum Average Annual Turnover of Rs. 78.64 Crores during last 5 (Five) financial years (i.e. 2017-2018, 2018-2019, 2019-2020, 2020- 2021 and 2021-2022), duly certified by the Chartered Accountant with UDIN No.”</td><td>“Minimum Average Annual Turnover of Rs. 23.59 Crores during last 5 (Five) financial years (i.e. 2017-2018, 2018-2019, 2019-2020, 2020- 2021 and 2021-2022), duly certified by the Chartered Accountant with UDIN No.”</td></tr>
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3	23	Section – 2 Instructions to Bidders (ITB)	4.1(c)	*"Minimum Average Annual Turnover of Rs. 78.64 Crores during last 5 (Five) financial years (i.e. 2017-2018, 2018-2019, 2019-2020, 2020-2021 and 2021-2022), duly certified by the Chartered Accountant with UDIN No."*	*"Minimum Average Annual Turnover of Rs. 23.59 Crores during last 5 (Five) financial years (i.e. 2017-2018, 2018-2019, 2019-2020, 2020-2021 and 2021-2022), duly certified by the Chartered Accountant with UDIN No."*
4	53	Section – 2 Instructions to Bidders ("ITB")	39.1	*"Mobilisation Advance not exceeding 10% of the Contract Price may be given, if requested by the Selected Bidder/Contractor in writing within 30 (thirty) days of the issue of Notification of Award. The Employer shall pay the Mobilisation Advance to the Contractor, in the following 2 tranches, upon completion of the following events :-* *(a) First tranche of the Mobilisation Advance equivalent to 5% of the Contract Price shall be paid by the Employer, upon completion of the following events/ activities:* *(i) Construction of labour camp, Contractor's site office and making arrangements for water supply* *(ii) Construction of the Employers' temporary site office at the site.* *(iii) Obtaining a Mobilisation Advance Bank Guarantee from a scheduled bank as per form given in Section - 7 (Contract Forms) aggregating to 5% of the Contract Price, being equivalent to the first tranche of the Mobilization Advance, in favour of the Employer and submission of such Bank Guarantee to the Employer.* *(b) Second tranche of 5% of Mobilisation Advance will be released by the Employer to the Contractor, upon completion of payment by the Employer, of 15% of the total Contract Price and upon the Contractor obtaining a Mobilization Advance Bank Guarantee from a scheduled bank as per form given in Section – 7 (Contract Forms) aggregating to 5% of the Contract Price, being equivalent to the second tranche of the Mobilisation Advance, in favour of the Employer and*	*"Mobilisation Advance not exceeding 10% of the Contract Price may be given, if requested by the Selected Bidder/Contractor in writing within 30 (thirty) days of the issue of Notification of Award. The Employer shall pay the Mobilisation Advance to the Contractor, upon completion of the following events :-* *(i) Construction of labour camp, Contractor's site office and making arrangements for water supply* *(ii) Construction of the Employers' temporary site office at the site.* *(iii) Obtaining a Mobilisation Advance Bank Guarantee from a scheduled bank as per form given in Section - 7 (Contract Forms) for an amount equivalent to the Mobilization Advance, in favour of the Employer and submission of such Bank Guarantee to the Employer.* *The Mobilisation Advance above shall bear simple interest @ 10% per annum. Repayment of the Mobilisation Advance shall commence from payment of the Statement first raised by the Contractor after disbursement of the Mobilisation Advance and shall been entered as a deduction from Interim Payment (@ 10% of the value of all the Statements paid so far + simple interest @ 10% of the total Mobilisation Advance amount). For subsequent Statements raised by the Contractor, Mobilisation Advance shall be deducted from the interim payment @ 10% of the value of such subsequent Statement + simple interest @ 10% of the unadjusted Mobilization Advance. Such deduction of Mobilization Advance shall continue until the total amount of advance has been repaid by the Contractor, provided that the complete recovery of the Mobilisation*

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				submission of such Bank Guarantee to the Employer. *The Mobilisation Advance above shall bear simple interest @ 10% per annum. Repayment of the Mobilisation Advance shall commence from payment of the Statement first raised after disbursement of first tranche of the Mobilisation Advance and shall been entered as a deduction from Interim Payment (@ 10% of the value of all the Statements paid so far + simple interest @ 10% of the total Mobilisation Advance amount). For subsequent Statements raised by the Contractor, Mobilisation Advance shall be deducted from the interim payment @ 10% of the value of such subsequent Statement + simple interest @ 10% of the unadjusted Mobilization Advance. Such deduction of Mobilization Advance shall continue until the total amount of advance has been repaid by the Contractor, provided that the complete recovery of the Mobilisation Advance shall be made before completion of 90% of the Works.* *Recovery of advance at any intermediate stage shall be effected, if necessary, by encashment of part of the Mobilisation Advance Bank Guarantee if the appropriate pro-rata amount of advance is not available from the Works done by the Contractor.* *If the circumstances are considered reasonable by the Employer, the period mentioned for request by the Contractor in writing for grant of Mobilisation Advance may be extended in the discretion of the Employer.* *The said Mobilisation Advance Bank Guarantee for advances shall initially be made for the full amount and valid for the Contract period and be kept renewed from time to time to cover the balance amount and likely period of complete recovery."*	*Advance shall be made before completion of 90% of the Works.* *Recovery of advance at any intermediate stage shall be effected, if necessary, by encashment of part of the Mobilisation Advance Bank Guarantee if the appropriate pro-rata amount of advance is not available from the Works done by the Contractor.* *If the circumstances are considered reasonable by the Employer, the period mentioned for request by the Contractor in writing for grant of Mobilisation Advance may be extended in the discretion of the Employer.* *The said Mobilisation Advance Bank Guarantee for advances shall initially be made for the full amount and valid for the Contract period and be kept renewed from time to time to cover the balance amount and likely period of complete recovery."*

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5	58	Section – 3 Evaluation and Qualification Criteria ("EQC")	1.2.2	*Minimum Average Annual Turnover of INR 78.64 Crores within the last 5 (five) financial years i.e. 2017-2018, 2018-2019, 2019-2020, 2020-2021 and 2021- 2022.*	*Must meet requirement*	*Form FIN-2 of Form – 14*	*Minimum Average Annual Turnover of INR 23.59 Crores within the last 5 (five) financial years i.e. 2017-2018, 2018-2019, 2019-2020, 2020-2021 and 2021- 2022.*	*Must meet requirement*	*Form FIN-2 of Form – 14*
6	70	Section – 4 Bidding Forms ("BDF")	Form 4 Bid Security Bank Guarantee	*"IFS Code: ICIC0001103"*			*"IFS Code: ICIC0001056"*		
7	130	Section-5.5 Scope & Specification of Civil Works	4.B.2	*"Obtaining structural design & drawing, concept architectural design duly approved by the academic institutions as recommended by the Employer or by any structural and architectural firm having a minimum 20 years of experience in respective field and which is empanelled & registered under any metropolitan corporation body in India. This approval from academic institutions / any metropolitan corporation body is required only for intended bidder who does not have their own in-house Structural Design wing. But those who have their exclusive full-fledged in-house Structural Design wing is exempted from obtaining approval from any academic institutions / metropolitan corporation body of India".*			*"Obtaining structural design & drawing, concept architectural design duly approved by the academic institutions as recommended by the Employer or by any structural and architectural firm having a minimum 15 years of experience in respective field and which is empanelled & registered under any metropolitan corporation body in India. This approval from academic institutions / any metropolitan corporation body is required only for intended bidder who does not have their own in-house Structural Design wing. But those who have their exclusive full-fledged in-house Structural Design wing is exempted from obtaining approval from any academic institutions / metropolitan corporation body of India".*		
8	130	Section-5.5 Scope & Specification of Civil Works	4.B.4 (c)	*"All approach concrete roads (upto nearest National Highway/State Highway/Major District Road) along with storm water drainage system, Pathways and landscaping for all the campuses have to be developed. In case of construction of Culvert, IRC*			*"All approach concrete roads (upto nearest National Highway/State Highway/Major District Road) along with storm water drainage system, Pathways and landscaping for all the campuses have to be developed. In case of construction of Culvert, IRC*		

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				Class 70R/Class A/Class AA loading & other IRC Codes has to be followed as per approval of the Employer. Ministry of Road Transport Highways (MoRTH) Specification has to be followed for connection of Road with National Highway. In other instances respective authorities has to be contacted."	*Class 70R/Class A/Class AA loading & other IRC Codes has to be followed as per approval of the Employer. Ministry of Road Transport Highways (MoRTH) Specification has to be followed for connection of Road with National Highway. In other instances respective authorities has to be contacted. Landscaping shall be required to be carried out over an area equivalent to approximately thrice the built up area of ground floor of structures to be constructed subject to availability of land."*
9	135	Section-5.5 Scope & Specification of Civil Works	12.1 (2nd Paragraph)	*"• The employer reserves the right to conduct third party design validation by their 3rd party assessor and the successful bidder shall provide all data in soft and hard copy and carry out all modifications that may be suggested by the party so appointed. An authorized representative of the bidder will assist at the time of checking of structural design & drawings by 3rd party assessor for necessary clarification and for providing required data and statements to them."*	*"• The Employer shall provide the existing design based structural stability certificate of the existing structures which are available with the Employer, where vertical extension is required to be done to the bidders, if requested. The employer reserves the right to conduct third party design validation by their 3rd party assessor and the successful bidder shall provide all data in soft and hard copy and carry out all modifications that may be suggested by the party so appointed. An authorized representative of the bidder will assist at the time of checking of structural design & drawings by 3rd party assessor for necessary clarification and for providing required data and statements to them."*
10	229	Section-5.6 Scope & Specification of Electrical Works	7.15A	*After Clause 7.15, the following clause has been added*	*"7.15A Specification of External High Mast Light* *a) 16 mtrs. height polygonal shape continuously tapared made from high tensile steel conforming to BSEN 10025 grade S355, having dimensions and thickness --- bottom A/F 410 mm, Top A/F 150mm plate thickness 4/3 mm, PCD 490 mm High Mast complete with base compartment with water proof door (consisting 3Ph power tool motor, mechanical torque limiter, double drum winch with 2 nos. 6 mm appropriate length SS wire rope, winch gear box, wire rope clamps & bobbin arrangement, removable handle for manual operation, plug & socket, PVC board, MCB box etc.), Mast header assemble fabricated from ERW steel*

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					pipe with cable entry provision fitted with three-six pulley system which can accommodate wire ropes and electrical cables as per the requirements, to be provide single spike lightning final, aviation light fixing arrangement and all arrangement for fixing of luminaries. *b) Foundation blots as per manufacturer specification and as direction by EIC for above pole along with nuts, washer, anchor plate and common template.* *c) LED type single dome aviation obstruction light (Bajaj/ approved make as direction by EIC.* *d) SITC highly efficient LED Flood light with lens made of pressure die cast aluminium housing, extruded aluminium heat sink & enclosed with toughened glass. IP66 200 Watt Make – Halonix (HLFLD-ML10-200-CWL)/Philips/Havells approved by / as direction by EIC.* *e) Foundation with M20 grade concrete considering safe soil bearing capacity at site as 10 T /sq mtr. at 2 mtr. Depth with all materials. Foundation design & drawing to be approved from EIC.* *f) Outdoor type stand mounted feeder piller box with timer made from 14 SWG MS sheet and 40mmx40mmx 5mm angle iron frame as required consisting with 1 no 32A FP MCB as incomer, 1 no. analog time switch, 1 no 25 amp TP contractor for lighting power supply and 2 nos. 9 amp TP contactor for power tool control and raise- lower push button, 60 Amp grade backlit/FRP connector 12 ways & neutral bar incl. internal connections and paintings.(size of piller box 900mmx450mmx 300mm with one side door opening)* *g) 3" dia. 1.5 Mtr. Long heavy gauge G.I. Pipe*

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					(minipole) having 9" X 9" X 1/2" M.S. sole plate welded with drilled hole at bottom of the pole to be installed on roof of building with S.F. earthing bolts, nuts washers. *h) Erection of Single GI Mini Tubular Pole of length as given below with/without sole plate & Cap etc. in CC foundation above roof surface after necessary cheaping roof (Proportion and dimension indicated below), having CC (6:3:1) muffing of size 450x450x600 mm above base block including 19mm plaster with 3 mm thick neat cemented finish and GI earth bolt after making drilled holes etc. on pole & carriage of pole upto 1.6 Km from Store to work-site including filling up the excavated earth pit with shifted soil and ramming properly incl. S&F of 200mmX150mmX100mm mm GI loop box in C.C foundation.* *i) Supply & fixing of single arm header assembly made with 100mm dia. GI pipe Jacket of 30cm long with 1.5 mtr. long 40mm dia. GI pipe bracket duly welded with top cap at an angle of 110 degree with the vertical incl. 12 mm dia. full threaded through nuts-bolts and 3 nos. supporting nut-bolts etc. including necessary painting as per direction of EIC.* *j) Connection, termination and commissioning of entire High Mast system with suitable sized cable, separate outdoor type electrical panel nearby and other accessories required for commissioning the entire system."*
11	252	Section-5.6 Scope & Specification of Electrical Works	10	***Digital Amplifier:*** • *Input Voltage: 24 VDC* • *Maximum DC Current: 10Amps* • *Maximum Watts: 125/250Watt* • *Operates on 220V, A.C supply.* • *Battery backup with built in charging.* • *Low battery visual warning with audible tone.* • *DC Output indication.*	*DELETED*

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				PA Ceiling Speaker: • *Flush mount 15cm dynamic cone speaker.* • *Three field selectable power taps.* • *ABS plastic grill with metal punched net.* • *Easy to install with spring catch mount.* • *Connectors with screw for hooking up the wires tightly.* • *Protective dust cover at rear.* • *The white color of the grill has been selected to be obtrusive in virtually all* • *interiors.* • *Power: 10W* • *Toppings 100V line: 1.5W / 3W / 6W* • *Sound Pressure Level : 92dB (1W,1M),Frequency : 60-15000Hz* • *Material: ABS Plastic.* • *Dimensions: ø160 mm, H 70 mm.* ***PA Wall Speaker:*** • *Model Description* • *Wall mounted with cone speaker for announcement and paging.* • *Attractive, stylish ABS white plastic box.* • *The specially designed slim speaker is obtrusive in all interiors.* • *Equipped with the transformer to provide 100v line.* • *Ideal for office cabin, work stations, classrooms, shops, malls etc.* • *Optional Volume control.* • *Music Power : 10W* • *Impedance : 100V line* • *Tapping's : 1.5, 3W, 6W* • *Dynamic Cone Speaker : 1 X 12.5 CM* • *Frequency : 60 - 15000Hz* • *SPL@(1W/1M) : 90 dB* • *Dimensions : (135 H X 190 L X 120D) mm* ***PA Horn Speaker:*** • *PA Horn has been provided with 100V line*	

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<tr><td></td><td></td><td></td><td></td><td colspan="4">• Matching Transformer with multiple taps easily selectable by changing the rotary switch at the rear of the sealed assembly. This is indoor/outdoor applications.
• Input Power :15W(RMS) 24W(Max)
• Taps : 2.5W, 5W, 7.5W, 10W, 12.5W, 15W
• Impedance : 100V Line
• Frequency Response : 275 - 7000 Hz
• Type : ABS Plastic
• Size : 205 ø (271 L)
• SPL @1Khz : 106dB</td><td colspan="4"></td></tr>
<tr><td rowspan="4">12</td><td rowspan="4">259</td><td rowspan="4">Section-5.6 Scope & Specification of Electrical Works</td><td rowspan="4">13.1.1</td><td>Sl. No.</td><td>Building</td><td>Minimum quantity of lift shall be installed</td><td>Provision</td><td>Sl. No.</td><td>Building</td><td>Minimum quantity of lift shall be installed</td><td>Provision</td></tr>
<tr><td>1</td><td>Annex Building/ Academic Building (for • Rampurhat Govt. Medical College & Hospital) • Deben Mahato Govt. Medical College & Hospital • Diamond HArbour Govt. Medical College • Raiganj Govt. Medical College & Hospital) • Raiganj Govt. Medical College & Hospital)</td><td>4 (four) nos. bed cum passenger lift (20 or 16 passenger capacity)/ As per requirement approved by EIC.</td><td></td><td>1.</td><td>Annex Building/Academic Building for Deben Mahata Govt. Medical College & Hospital</td><td>4 (four) nos. bed cum passenger lift (20 passenger capacity)/ As per requirement approved by EIC.</td><td>New Lifts shall be installed and commissioned.</td></tr>
<tr><td>2</td><td>Resident Doctor’s Hostel (for • Rampurhat</td><td>2 (two) no. passenger lift (08</td><td>Vertically extended or New as</td><td>2.</td><td>Resident Doctor’s Hostel for Deben Mahata Govt. Medical College & Hospital</td><td>2 (two) no. passenger lift (08 passenger capacity)/ As per requirement approved by EIC.</td><td>Vertical extension of 01 (one) existing lift and Installation of 01 (one) new lift.</td></tr>
<tr><td colspan="4"></td><td>3.</td><td>Intern’s Hostel</td><td>2 (two) no.</td><td>Vertical</td></tr>
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					Govt. Medical College & Hospital) • Deben Mahato Govt. Medical College & Hospital • Diamond HArbour Govt. Medical College • Raiganj Govt. Medical College & Hospital) • Raiganj Govt. Medical College & Hospital)Raiganj Govt. Medical College & Hospital	*passenger capacity)/ As per requirement approved by EIC.*	*per the site condition.*		*for Deben Mahata Govt. Medical College & Hospital*	*passenger lift (08 passenger capacity)/ As per requirement approved by EIC.*	*extension of 01 (one) existing lift and Installation of 01 (one) new lift.*
				3	*Intern's Hostel (for • Rampurhat Govt. Medical College & Hospital) • Deben Mahato Govt. Medical College & Hospital • Diamond HArbour Govt. Medical College • Raiganj Govt. Medical College & Hospital) • Raiganj Govt. Medical College & Hospital)*	*2 (two) no. passenger lift (08 passenger capacity)/ As per requirement approved by EIC.*	*Vertically extended or New as per the site condition.*				

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13	264	Section-5.6 Scope & Specification of Electrical Works	II. SPECIFICATION FOR ELECTRICAL AND MECHANICAL ENGINEERING SERVICES: *15. SPECIFICATION OF SOLAR SYSTEM*	*"15. SPECIFICATION OF SOLAR SYSTEM: Deliverable of 2×50 KWp Grid Connected Roof Top Solar PV Power Plant: A. Outline of the scheme of the project: • The array capacity of the proposed grid connected PV Power plants shall be 2x 50kWp for the entire campus. • The PV array shall be installed on the available space of the Roof of the Building. • The power plant shall be connected with grid with five numbers grid tie string inverters each of capacity 10 KVA, 3Ø 415 V 50Hz AC. • The inverters shall be installed in a suitable kiosk(s) with proper security protection close to the Array Terminal Box with arrangement of proper shed. • Outputs of the grid tie string inverter shall be terminated to an Inverter Combiner Panel to be located close to the inverters. • The output of the Inverter Combiner Panel shall be terminated and connected with supply mains through Grid interfacing Panel • An Export Import Energy Meter to be installed nearer to the Grid interfacing Panel before connected to the mains to measure the energy produce from the PV Power Plant A.8 The SPV power plant to be installed should be Robust, Economic, Efficient and Time tested. B. Solar PV Modules: The Cell of the Modules shall be poly crystalline. The capacity shall be consider as per declared capacity in the published technical brochures of the proposed PV Module Manufacturer. Minimum number of PV Modules: Sl No: PV Module capacity type No of PV Cell 1 240 Wp/250 Wp 60 Nos. 2 290 Wp / 300 Wp 72 Nos. The PV modules must qualify the relevant IEC 61215 or IS 14286 and IEC 61730.The proposed PV Module must have the Test Certificate issued from accredited test laboratories of MNRE Government of India under JNNSM Programme. The test certificates issued from IEC accredited laboratories shall also be acceptable. Proposed PV Module must be manufactured in India. Each PV module used in this solar power project must use an RF identification tag. The information must be*	*DELETED*

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				mentioned in the RFID used on each module as per guideline of MNRE Government of India (This can be inside or outside the laminate, but must be able to withstand harsh environmental condition Manufacturer of proposed PV modules must have the ISO 9001:2008 or ISO 14001 Certification for their manufacturing unit for their said manufacturing item. Desired specification of the PV Module shall include but not limited to the following: Sl No Item Description 1.0 Certification i) IEC 61215 or IS 14286 ii) IEC 61730 1.1 Test certificate issuing authority. NABL/ IEC Accredited Testing Laboratories or MNRE accredited test centers. 2.0 PV Cell 2.1 Type poly crystalline 2.2 Size 156mmX156mm 3.0 PV Module 3.1 Rating at STC i)240 Wp/ 250Wp, 60 cells (without any negative tolerance) ii)290 Wp / 300Wp, 72 cells (without any negative tolerance) 3.2 Efficiency minimum14% 3.3 Fill factor Minimum 70% 3.4 Withstanding voltage 1000V DC 3.5 Glass 3.5.1 Thickness 3.2 mm (minimum) 3.5.2 Type High transmission, low iron, tampered & textured glass with anti reflective coating. 3.6 PV Module Junction Box 3.6.1 Protection level IP 65 or above 3.7 Bypass Diode 3.7.1 System Voltage (Vsys) 1000 V dc 3.7.2 Number 3 numbers 3.8 Module Frame 3.8.1 Type Anodized aluminum frame C. PV Array Desired specification of the PV Array shall include but not limited to the following: Sl No Item Description 1.0 Nominal Capacity 1x50 KWp 2.0 PV Module interconnection connector MC-4 / Tyco 3.0 PV Module interconnection cable and array cable PV 1-F standard /NEC standard "USE-2 or RHW-2" type (double insulated) 4.0 PV array String Voltage Compatible with the MPPT Channel of the inverter 5.0 Number of Parallel String against each MPPT Channel 02 Nos (Maximum) D. Array Structure i) The solar PV system capacity minimum 100 KWp have to install at shadow free multiple locations as per availability of free roof top space of the buildings. ii)	

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				PV Array structures shall be of Mild Steel with combination of either of I, C , L sections MS flat as per structure design requirement. The structure should be capable of withstanding a wind load of 150 km/hr after grouting & installation. iii) Weight of the Metallic part of PV Array structure excluding nuts and bolt must be minimum same as the Weight of the total PV Module. iv) Structural shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. v) The array structure shall be made of hot dip galvanized MS structure of minimum galvanizing thickness 70 to 80 micron vi) Structures shall be supplied complete with all members to be compatible for allowing easy installation. vii) The module mounting structure shall have to be designed and fabricated with optimum tilting angle considering the site conditions. viii) The structure shall be designed for simple mechanical and electrical installation. It shall support SPV modules at a given orientation, absorb and transfer the mechanical loads to the ground. ix) All fasteners for supporting conduits , nut & bolts shall be made with stainless steel , very good quality stainless steel except foundation bolts and the nuts and bolts to be used for connection of earthing strip with module mounting structure which will be of MS (GI Coated) x) Supporting structures including module Mounting structure shall have to be adequately protected against all climatic condition. The array structure shall support SPV modules at a given orientation and absorb and transfer the mechanical loads to the columns properly. xi) The structures shall be designed for simple mechanical and electrical installation. There shall be no requirement of welding or complex machinery at the installation site. Required civil work or support platform is absolutely essential to install the structures, detailed engineering drawings and instructions for civil and other works shall got	

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				approved from the competent authority before carried out at the site. xii) The Specification of the MS sections, flats must be as per IS 808 xiii) The supplier shall specify installation details of the PV modules and the support structures with appropriate diagrams and drawings. E. PV Array Junction Box (AJB) Array Junction Box (AJB) shall have to be used for termination of string prior connecting array with each inverter. There shall be two Arrays Junction Box incase, the inverter is located elsewhere away from PV Array. The minimum number of PV Array Junction Box shall be five (05) numbers. The desired specification of the PV Array Junction Box and accessories shall include but not limited to the following: Sl No Item Description Desired Data 1.0 Enclosure 1.1 Degree of Protection IP65 with UV Protected 1.2 Material Polycarbonate. 1.3 Withstanding voltage 1000V DC 1.4 Withstanding Temperature 100 0C 1.5 Accessories mounting arrangement DIN Rail 1.6 Number of Strings entry As may be required 1.7 Approved Make Hensel/ Spelsberg /ABB /Ensto or or equivalent make (as per acceptability of authority) 2.0 Cable Entry and Exit 2.1 Position Bottom at cable entry and exit 2.2 Cable Entry and Exit connector type MC 4 Connector (PV Array String cable) 2.3 Cable gland Earthing cable entry 3.0 Surge Protecting Device (SPD) 3.1 Type DC 3.2 Approved Make OBO Betterman / Dehn / Citel /ABB or equivalent make (as per acceptability of authority) 3.3 Protection class Type B+C 3.4 Number of set As may be required as per string Design 3.5 System Voltage Matched with System Voltage 1000 V DC 4.0 Fuse with fuse holder 4.1 Position Positive and negative terminal for each series string 4.2 Type Glass fuse, for PV Use only 4.3 Rating Current: Minimum 1.25 times the rated short circuit current of the string Voltage: Minimum 1000 V DC 5.0 Earthing Provision Terminal blocks will have to be provided for Earthing 6.0 Terminals, lugs and bus bar Tinned	

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				copper F. Grid Connected Inverter The inverters shall be of string inverter. The proposed 2x 50 KWp grid connected solar PV power plant shall be connected with grid. As such, the inverters shall be compatible to operate with existing utility supply. The PV system shall comprise of ten (10) numbers of grid tie inverters each of nominal capacity 10 KVA. Desired specification of each 10 KVA inverter shall include but not limited to the following: Sl. No. Operating Parameter Desired specification 1.0 Type Grid connected String Inverter 2.0 Usage Specially used for PV system 3.0 Standards 3.1 Efficiency Measurement IEC 61683/ Equivalent BIS Std. 3.2 Environmental testing IEC 60068-2 (1,2,14,30) / Equivalent BIS Std. 3.3 Interfacing with utility grid IEC 61727 3.4 Islanding Prevention Measurement IEC 62116 3.5 Type Test certificate issuing authority (for item no 3.1 , 3.2,3.3 and 3.4) NABL/ IEC Accredited Testing Laboratories or MNRE approved test centers. 4.0 Input (DC) 4.1 PV array connectivity capacity 12 KWp (minimum) 4.2 MPPT Voltage range Compatible with the array voltage 4.3 Number of MPPT Channel 2 nos (Minimum) 5.0 Output (AC) 5.1 Nominal AC Power output 10 KVA 5.2 Number of Grid Ph 3Ø 5.3 Adjustable AC voltage range Programmable as per grid condition 360V455V 5.4 Frequency range 47-53 Hz 5.5 AC wave form Sine wave 5.6 THD Less than 3% 5.7 Switching High frequency transformer / transformer less 6.0 General Electrical data 6.1 Efficiency (Maximum) 95 % 6.2 Sleep mode consumption Less than 5 W 7.0 Protection 7.1 DC Side 1. Reverse-polarity protection 2. Reverse current to PV array protection, over voltage, Under voltage protection 3. Over current 7.2 AC side 1. DC inject protection to grid less than1% 2. Over voltage and Under voltage 3. Over current 4. Over and under grid frequency protection, 5. Anti Islanding protection 7.3 Isolation Switch PV array Isolation switch (DC) 7.4 Ground fault detection device (RCD) which can detect	

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				changes in ground current. Rating shall be as suitable for inverter To be provided for transformer less inverter. 8.0 Display 8.1 Display type LCD Display 8.2 Display parameter 8.2.1 DC Voltage Current Power 8.2.2 On grid connected mode Line status Grid voltage Grid frequency Export Power Cumulative Export Energy 9.0 Interface (Communication protocol) Suitable port must be provided in the inverter for i) On site upgrade of Software, ii) On site dumping data from the memory, iii) Web based remote monitoring system 10.0 Web monitoring Matched with the monitoring and data logging system 11.0 Mechanical Data 11.1 Protection Class IP 65 or higher 11.2 Operating ambient temperature 0 0C to 600C 11.3 Cooling Natural / forced cooling G. Web enable on line data logger and Remote Monitoring Unit: Web enable data logging system may be an integrated part of the inverter or a separate unit. The data logging system includes MPPT wise PV array monitoring system also. The data Logger should have the provision of recording the data of solar insulation, PV cell temperature and ambient temperature and associated electrical parameters at different stages to study performance of system as well as to study status of the system at a particular instant. The data logger should have required transducer to monitor and record the required system data. The data logger should be provided with an insulation sensor and a module temperature sensor, ambient temperature sensor matched with the system. The data logger shall have reliable battery backup and data storage capacity (minimum two days data) to record all sorts of data simultaneously round the clock. Web based Remote Monitoring system must be compatible with data logger. The system shall be provided with GSM Modem with required SIM card. The modem must be compatible to GSM and /or GPRS system. The other required accessories, hardware and compatible software shall have to be provided as an integrated	

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				part of the system to monitor the real time data (maximum 20 minutes delay) through web server. The Data logger shall continuously send data to the server. The system can be monitored from anywhere through internet without installing any special software. The server shall not be provided by authority or end user. The price of the remote monitoring system includes all the rental and other costs of the SIM cards, IP address for a period of five (05) years. The Web based monitoring system should have the provision of graphical representation of the data shall include but not limited to the following: Sl. No. Operating Parameter Desired specification 1.0 Input data PV Power PV Energy 2.0 Meteorological data Insolation Module Temperature Ambient Temperature 3.0 Output data 3.1 Inverter Export Power Export energy All data shall be recorded chronologically date wise. The data file should be MS Excel/XML/or any readable form compatible and should have the facility of easy download. H. Inverter Combiner Panel Each of the output of the five (05) Nos Inverters shall be terminated in a Combiner Panel through 32A 415V 4 pole MCB at the in incoming side (Inverter side). The outgoing side (Grid side) shall be connected through a 125A 415V 50 kA TPN MCCB and a 150A 415 V 4 pole Load Break Switch. The set of AC surge suppressor (SPD) shall be connected at the outgoing bus. The Grid Sync Panel shall be outdoor type having double door metal enclosure with a front. The protection level Grid Sync Panel must be IP 54. All the equipments and meter display can only be accessed after opening of front doors. The front door must have locking arrangement. Desired specification of Grid Sink Panel shall include but not limited to the following: Sl. No. Parameter Desired Specification 1 In coming MCB (Inverters side) 1.1 Approved make ABB / L & T / Schneider / Siemens/Havell'sorequivalent make (as per acceptability of authority) 1.2 Number 06 (one)	

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				number. 01(one) number against each inverter and one number spare. 1.3 Type 4 pole 1.4 Rating 415V, 32 Amps, 10 kA 2 Outgoing MCCB (Grid Side) 2.1 Approved Make ABB / L&T / Siemens/ Schneider or equivalent (as per acceptability of authority) 2.2 Type 4 pole 2.3 Rating 125A 415VAC 50kA 3 Surge protection device 3.1 Position Outgoing side (Grid side) 3.2 Approved Make OBO Betterman / Dehn / Citel /ABB or equivalent make(as per acceptability of authority) 3.3 Usage as declare by Manufacturer For AC use only 3.4 Protection class Type B+C 3.5 Number of set 01 Set 3.6 Rating 600 V 100 kA (minimum) 4 AC load break switch 4.1 Make ABB / L&T / Siemens/ Schnider /Havell's or equivalent make (as per acceptability of authority) 4.2 Rating 150A 415 V TPN 4.3 Operating facility Handle with Padlock. 5 Indicator Incoming side and outgoing side (R,Y,B) 6 Metering Arrangement 6.1 Instantaneous Measuring parameter i. Voltage, ii. currentiii. Frequency 6.2 CT/ PT Make KAPPA/ SERVO/AE/ KALPA or equivalent make (as per acceptability of authority). 6.3 Type of meter Electronics 6.4 Display type of meter LED/LCD 6.5 Display of the meter From outside without opening of front cover 6.6 Meter Make L&T / Siemens/ Schneider/ Secure or equivalent (as per acceptability of authority) 7 Bus Bar 7.1 Material Copper 7.2 Type TPN 7.3 Rating 200 A 7.4 Position Incoming and Out Going Bus 8 Earthing Provision Terminal Blocks will have to be provided for Earthing 9 Mechanical 9.1 Type Metallic, double door, Outdoor Type 9.2 Protection level IP 54 (minimum) 9.3 Housing Floor Mounted/ Wall Mounted 9.4 Enclosed Double Door Metal Enclosure dust and vermin proof 9.5 Cable Entry Top/Bottom (as per approval) 9.6 Glands Position At cable entry and exit 9.7 Cooling Natural/ forced I. Kiosk (for installation of Array Junction Box, Inverter, Grid Sync Panel): (i) All the Array Junction Boxes, Inverters and Grid Sync Panel shall be installed at the same place and at the rare side of the	

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				PV Array in a suitable location in a Kiosk. (ii) The kiosk of must be of a suitable design, covered with a door and locking arrangement with good air circulation. The Kiosk must have security arrangement against theft, manhandling etc. Above the kiosk there should have a suitable shade. (iii) The equipment / structure of the equipment fixed on the array structure then suitable insulation must be provided between Array structure and the equipment and equipment structure. (iv) The minimum clearance of the lower edge of the equipments from the developed ground level should be 1m. (v) The kiosk of must be of a suitable design covered with a cage with door and locking arrangement for protection and to prevent mishandling. (vi) The cable laid in the kiosk through cable tray with front cover. (vii)The Kiosk structure must have sufficient strength to bare the load of the equipments. J. Grid interfacing LT Panel Output of each of the two Inverter combiner panel shall be terminated to a Grid Interfacing LT Panel. The Inverter Combiner Panel shall be outdoor type Poly Carbonate of protection level IP 65. All the equipments and meter display can only be accessed after opening of front doors. The front door must have locking arrangement. Desired specification of each Grid interfacing LT Panel shall include but not limited to the following: Sl. No. Parameter Desired Specification 1.0 MCCB (Grid Side) 1.1 Number 02 (two) numbers. 01(one) number to be used + 01 Number spare 1.2 Approved Make ABB / L&T / Siemens/ Schneider or equivalent (as per acceptability of authority) 1.3 Type 4 pole with handle 1.4 Rating 125A 415VAC 50 kA 2.0 Surge protection device 2.1 Position Outgoing side (Grid side) 2.2 Approved Make OBO Betterman / Dehn / Citel /ABB or equivalent make (as per acceptability of authority) 2.3 Usage as declare by Manufacturer For AC use only 2.4 Protection class Type B+C 2.5 Number of set 01 Set 2.6 Rating 600 V 100 kA (minimum) 3.0 Metering	

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				Arrangement 3.1 Instantaneous Measuring parameter i. Voltage, ii. current iii. frequency iv. Power 3.2 CT/ PT Make KAPPA/ SERVO/AE/ KALPA or equivalent make (as per acceptability of authority). 3.3 Type of meter Electronics 3.4 Display type of meter LED/LCD 3.5 Display of the meter From outside without opening of front cover 3.6 Meter Make L&T / Siemens/ Schneider/ Secure or equivalent (as per acceptability of authority) 4.0 Earthing Provision Terminal Blocks will have to be provided for Earthing 5.0 Enclosure 5.1 Degree of Protection IP65 with UV Protected 5.2 Material Polycarbonate. 5.3 Withstanding voltage 1000V DC 5.4 Withstanding Temperature 100 0C 5.5 Number of Strings entry As may be required 5.6 Approved Make Hensel/ Spelsberg /ABB /Ensto oror equivalent make (as per acceptability of authority) 5.7 Cable Entry Bottom K. Export Import Energy Meter: One number 3 Ø 4 wire 415V AC 3X(20A-100A) whole current Export Import Energy Meter of L&T / Genus or Equivalent per acceptability of authority.The Meter to be supplied must be tested from any of the NABL/ BIS Accredited Testing-Calibration Laboratories. The export Import Energy meter shall be installed at the separate housing within an enclosure. The Export Import Energy meter shall be installed at a suitable location before Point of Common Coupling (PCC) with grid side. L. Cables & Wirings : The Specification of wiring material of PV Power plant shall include but not limited to the following: Sl. No. Item Description A DC Cable 1.1 Conductor Tinned annealed stranded flexible copper according to IEC 60228 class 5 1.2 Standard PV-1F / 2 PfG 1169/08.2007 / VDE Standard E PV 01:2008-02 /Equivalent 1.3 Make LAPP/Top Solar/Nexans/ Schneider or equivalent (as per acceptability of authority) B AC Cable 2.1 Rated Voltage 1.1kV 2.2 Construction 2.2.1 Type Armored or unarmored as per requirement 2.2.2 Conductor Stranded flexible copper 2.2.3 Insulation PVC Sl No Item Description 2.2.4	

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				Standard IS : 1554 -1 2.3 Make RR Cable/ Polycab/LAPP/ Havell'sor equivalent (as per acceptability of authority) C PVC Conduit tees, bends etc (Hard & flexible) 3.0 Standard ASTM D 1785 u PVC 3.1 Ambient Temperature 0 0C to 50 0C 3.2 Type UV stabilized , temperatures, Shock proof chemical resistant 3.3 Make Oriplast /Supreme D GI Pipe 4.0 Make TATA (i) All the Array Junction Boxes, Inverters Inverter Combiner Panel shall be installed at the rare side of the PV Array in suitable locations in Kiosks. Grid Inter facing panel also to be put in a Kiosk (ii) The panels must be installed in suitable kiosks protected from theft and mishandling with sheds so that rain water and direct sun exposure can be avoided. (iii) The kiosks of must be of a suitable design, covered with a door and locking arrangement with good air circulation. The Kiosks must have security arrangement against theft, manhandling etc. (iv) The kiosks must have suitable sheds so that rain water and direct sun exposure can be avoided. (v) The equipment / structure of the equipment fixed on the array structure then suitable insulation must be provided between Array structure and the equipment and equipment structure. (vi) The minimum clearance of the lower edge of the equipments from the developed ground level should be 1m. (vii) The kiosk of must be of a suitable design covered with a cage with door and locking arrangement for protection and to prevent mishandling. (viii) The cable laid in the kiosk through cable tray with front cover. (ix) The Kiosk structure must have sufficient strength to bare the load of the equipments. M. System, Equipment, Array structure Earthing: i. Equipment grounding (Earthing) shall connect all non-current carrying metal receptacles, electrical boxes, appliance frames, chassis and PV panel mounting structures in one long run. The grounding wire should not be switched, fused or interrupted. ii. Array Structure must be earthed with GI Strip iii. The complete earthing system shall	

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				be electrically connected to provide return to earth from all equipment independent of mechanical connection. iv. The equipment grounding wire shall be connected to one grounding electrode per PV power plant. v. Test point shall be provided for each earth pit. vi. An earth bus and a test point shall be provided inside control room. vii. Earthing system design should be as per the standard practices. viii. The Earthing pit must be of Chemical gel type with Chem-Rod as grounding rod. ix. The Code of Practice Earthing shall be IS 3043:1987 x. Necessary provision shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance. xi. Minimum six (06) numbers of earth pit. Earthing Pit Cover Needs to be provided xii. Earth Grid must be made by inter connection of earth pit through GI Strip. The size of the GI earth strip must be minimum 25X3 mm. The thickness of the galvanization should be as per the relevant standard. N. Lightning Protection (i) The Code of Practice of lightning protection system shall be IS 2309: 1987 (ii) Suitable number of Lightning Protection Unit comprises of GI Air Terminal with G.I. pipe of suitable height for mounting the terminal & adaptor must be provided to cover the complete PV Array yard. (iii) Minimum four (04) numbers lightning arrestor must be provided (iv) Earth pit used for lightning arrestor shall be separate from the system/equipment earthing. (v) Chemical gel type of earthing must be used for earth pit. (vi) The two pits shall be interconnected at a suitable location outside the of the building by a earth bus with test jumper. (vii) Lightning arrestors shall be interconnected connected and earthed to the lightning protection system through the GI strip (viii) The size of the GI earth strip used for Lightning Protection system must be minimum 50X5 mm. (ix) Minimum five (05) numbers of earth pit for lightning arrestor. (x) The number of air terminal must be such so that it can cover the total PV array. O. Signage: Safety Signage:	

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				Safety Signage must be provided mentioning the level and type of voltage and symbols as per IE Rule at different position as may be required. P. Provision for Module Cleaning Module Cleaning: Necessary arrangement and equipment is to be provided to facilitate easy cleaning of the PV Modules Q. Fire Buckets and Fire Bucket Holding stand Fire Bucket of minimum quantity eight (08) numbers and Fire Bucket Stand of minimum quantity two (02) shall be provided at Array field. Each fire Bucket holding stand (Triangular type) shall have the arrangement to hold four (04) numbers of fire buckets. The Fire Bucket stand must be as per IS 2546. The stand shall be installed at the rare side of the PV Array. The minimum technical specification is a follows: Bis Specification IS 2546 Fire Bucket Capacity 10 Litres Fire Bucket Body Material Galvanized Mild Steel Sheet Body Thickness 1 mm R. Spares ,Tools and Measuring Instruments: The minimum number and different type of spares, tools and measuring instruments must be supplied under this project within the contract value. Also any special tools, spares, measuring instruments if required as may be shall be provided by the contractor. Special Terms and Condition A. Field Proven Inverter The propose string inverter must be field proven in Indian atmosphere. The string inverter of the proposed manufacturer must be used in any project of minimum capacity 2X50 KWp. Also there must be a good maintenance setup of the proposed inverter manufacturer with having sufficient numbers of qualified service engineers (Degree/ Diploma engineers) and well equipped set up with instruments, tools and tackles at anywhere in West Bengal. The maintenance setup of the proposed inverter manufacturer may be inspected by authority, if required. B. Equipment and Material Equipment and material shall comply with description, rating, type and size as detailed in this specification. Equipment and materials furnished shall be complete and	

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				operative in all respect. All accessories, which are necessary for safe and satisfactory installation and operation of the equipment, shall be furnished. All parts shall be made accurately to standard gauges so as to facilitate replacement and repair. All corresponding parts of similar equipment shall be interchangeable. Contractor shall carefully check the available space and the environmental conditions for installation of all equipments available at site and shall design the system accordingly. C. Mode of Execution The PV power plant shall be procured as a complete package. The entire work shall have to be executed on turnkey basis. Any minor item(s) not included in the schedule or specification but required for completion of the work shall have to be carried out/supplied without any extra cost. While submitting the offer the bidder shall consider cost of those items and may indicate separately as additional deliverable items. D. Materials and Workmanship Qualified, experienced people should be deployed to install the PV Power Plant. All materials shall be of the best quality and workmanship capable of satisfactory operation under the operating and prevailing climatic conditions of respective. Unless otherwise specified, they shall conform in all respect to the latest edition of the relevant code and standards. The project must be supervised by a qualified Structural Engineer/ Engineering firm and Electrical /Electronics Engineer so that the work shall be as per drawing and related IS/IEC Code. The work shall be performed confirming safety precaution of all level of worker execute the project. The name and the qualification of the project engineers must be submitted to authority after placement of order. The qualification of the supervising engineers must be minimum degree or diploma in respective stream. E. Testing and Inspection Material Inspection will be carried out after submission of all test reports /certificates and after completion of the manufacturing work, against	

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				formal intimation from the contractor. The contractor shall, give notice of any material being ready for testing and the authority, if desired, shall attend at the contractor's premises and may proceed with the routine tests. The material shall have to be dispatched at site after inspection and clearance from the purchaser. The inspection setup and instruments must be provided by the contractor within the contract value. F. Commissioning After the erection and testing of the equipment/works as per above, commissioning of the plant and works shall be carried out and here the term "Commissioning" shall mean the activities of functional testing of the complete system after erection and testing, including tuning or adjustment of the equipment for optimum performance and demonstrating to the Purchaser that the equipment performance meets the requirements of the specifications. G. Insurance: Execution Insurance: It is desired that the contractor shall arrange for insurance coverage for the equipment, accessories, materials etc. to be delivered at site up to handing over of the complete installation. As such the bidder shall include the cost of such insurance in their price bid. Insurance after commissioning of PV Power Plant: Insurance against Fire, natural calamitiesshall be arranged by the Contractor for entireperiod of contract (i.e. three years from the date ofhandover of the power plant)." H. Comprehensive Warrantee and Maintenance The Contractor must ensure that the goods supplied under the contract are new, unused and of most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The warrantee period of the complete PV Systems will be 36 (Thirty six) calendar months from the date of handover. The Contractor shall remain liable to replace any defective parts that may develop in the plant of his own manufacture or that of his sub-contractors under the conditions provided for by the	

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				contract under proper use, and arising solely from faulty design, materials or workmanship, provided always that such defective parts as are not, repairable at site and are not essential in the meantime to the maintenance in commercial use of the plant are promptly returned to the contractor's works at the expense of the contractor unless otherwise arranged. The maintenance includes Routine, Preventive, Breakdown & Capital Maintenance the details are as follows but not limited: Routine, Preventive, Breakdown & Capital Maintenance: Routine and preventive maintenance: Routine and preventive maintenance shall include cleaning of PV Module on regular basis, checks and maintenance activities such as tightening of all electrical connections, daily, weekly, fortnightly, monthly, quarterly, half yearly, and yearly basis which are required to be carried out on all the components of the power plant to minimize breakdowns and to ensure smooth and trouble free running of the power plant. The supplier shall be responsible to carry out routine and preventive maintenance and replacement of each and every component / equipment of the power plant and he shall provide all labour, material, consumables etc. for routine and preventive maintenance at his own cost. Breakdown maintenance: Breakdown maintenance shall mean the maintenance activity including repairs and replacement of any component or equipment of the power plant which is not covered by routine and preventive maintenance and which is required to be carried out as a result of sudden failure/breakdown of that particular component or equipment while the plant is running. The supplier shall be responsible to carry out breakdown maintenance of each and every component of the power plant and he shall provide the required manpower, materials, consumables, components or equipment etc. for breakdown maintenance at his own cost irrespective of the reasons of the breakdown/failure Capital	

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				maintenance: Capital Maintenance shall mean the major overhaul of any component or equipment of the power plant which is not covered by routine, preventive and breakdown maintenance which may become necessary on account of excessive wear & tear, aging, which needs repair/replacement. The capital maintenance of power plant and all civil structures shall normally be planned to be carried out on an annual basis. For this purpose a joint inspection by the supplier and purchaser shall be carried out of all the major components of the power plant, about two months in advance of the annual maintenance period, in order to ascertain as to which components of the power plant require capital maintenance. In this regard the decision of the purchaser will be final and binding. However, if the condition of any plant and component warrants its capital maintenance at any other time, a joint inspection of the purchaser and supplier shall be carried out immediately on occurrence of such situation and capital maintenance shall be carried out by arranging the shutdown of the plant/part of the plant, if required, in consultation with concerned authorities. The decision of the purchaser shall be final and binding. Capital maintenance also includes replacement of defective lights fans under the project supplied by the contractor. The capital maintenance includes painting, of mechanical structure, civil structure. The contractor shall under take necessary maintenance/troubleshooting work of the Solar PV Power Systems. Down time shall not be more than 72 working hours from time of occurrence. Adequate measures should be taken for prevention of wear and tear of the machines. Solar PV Power System is to be designed to operate with a minimum of maintenance. The scope of Support Service provides preventive maintenance as & when necessary within the contract period and break down maintenance in the event of malfunctions, which prevent the operation of the power system or part of it within the stipulated	

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<tr><td></td><td></td><td></td><td></td><td>time period & free replacement of spares required for maintenance. Party will provide the A list of Spare parts & measuring instruments are The contractor will submit warrantee certificates of the work & spare parts and materials at the time of submission of completion report. If any defect is found within the warrantee period, contractor will be liable to repair or replace the same at his own cost and risk, within three (72 hours) days from the date of complaint lodged by the authority or by the user himself. I. End Users Training The Contractor shall arrange for training at site for the end users. The duration of training shall be minimum five days. The contractor shall provide training materials at least seven days before commencement of training programme. The training shall be the part of contract and no extra cost shall be provided for organizing the training programme. J. Handing Over The work shall be taken over by authority upon successful completion of all tasks to be performed at site(s) on equipment supplied, installed, erected, commissioned AND RUN SUCCESSFULLY FOR CONSECUTIVE 60 DAYS AT A STRETCH by the contractor in accordance with provision of this order. During handing over complete project work, the contractor shall submit the followings for considering final payment. i. All As-Built Drawings & Design ii. ii. Detailed Engineering Document with detailed specification, schematic drawing, and test results, manuals for all deliverable major items, Operation, Maintenance & Safety Instruction Manual and other information about the project iii. Certificate issued by the structural & civil engineer/firm having engineer with minimum LBS/ESE/EBA License for structural design of PV Array. iv. Bill of material v. Inventory of spares at projects site vi. Completion certificate as per prescribed format provided by authority.”</td><td></td></tr>
<tr><td>14</td><td>360</td><td>Section 5.8 Payment</td><td>44</td><td><table><tr><th>Sl.</th><th>Activity/ Milestone</th><th>% of Project</th><th>% of Project</th></tr></table></td><td><table><tr><th>Sl.</th><th>Activity/ Milestone</th><th>% of Project</th><th>% of Project</th></tr></table></td></tr>
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		Schedule		<table><tr><td></td><td></td><td>*Cost for Annex Building*</td><td>*Cost for Hostel Block*</td></tr><tr><td>*44*</td><td>*On completion of SITC of Solar Power System complete in all respect.*</td><td>*0.75%*</td><td>-</td></tr></table>	<table><tr><td></td><td></td><td>*Cost for Annex Building*</td><td>*Cost for Hostel Block*</td></tr><tr><td>*44*</td><td>*On completion of SITC of 2(two) nos. External High Mast Light complete in all respect.*</td><td>*0.75%*</td><td>-</td></tr></table>
15	374	Section – 6 General Conditions of Contract ("GCC")	4.4	*"Mobilisation Advance not exceeding 10% of the Contract Price may be given by the Employer at its sole discretion, if requested by the Contractor in writing within 30 (thirty) days of the issue of Notification of Award. The Employer may decide to pay the Mobilisation Advance to the Contractor, in the following 2 tranches, upon completion of the following events :-* *(a) First tranche of the Mobilisation Advance equivalent to 5% of the Contract Price shall be paid by the Employer, upon completion of the following events/ activities:* *(i) Construction of labour camp, Contractor's site office and making arrangements for water supply* *(ii) Construction of the Employers' temporary site office at the Site* *(iii) Obtaining a Mobilisation Advance Bank Guarantee from a scheduled bank as per form given in Section - 7 (Contract Forms) aggregating to 5% of the Contract Price, being equivalent to the first tranche of the Mobilization Advance, in favour of the Employer and submission of such Bank Guarantee to the Employer.* *(b) Second tranche of 5% of Mobilisation Advance will be released by the Employer to the Contractor, upon completion of payment by the Employer, of 15% of the total Contract Price and upon the Contractor obtaining a Mobilisation Advance Bank Guarantee from a scheduled bank as per the form given in Section – 7 (Contract Forms) aggregating to 5% of the*	*"Mobilisation Advance not exceeding 10% of the Contract Price may be given, if requested by the Selected Bidder/Contractor in writing within 30 (thirty) days of the issue of Notification of Award. The Employer shall pay the Mobilisation Advance to the Contractor, upon completion of the following events :-* *(i) Construction of labour camp, Contractor's site office and making arrangements for water supply* *(ii) Construction of the Employers' temporary site office at the site.* *(iii) Obtaining a Mobilisation Advance Bank Guarantee from a scheduled bank as per form given in Section - 7 (Contract Forms) for an amount equivalent to the Mobilization Advance, in favour of the Employer and submission of such Bank Guarantee to the Employer.* *The Mobilisation Advance above shall bear simple interest @ 10% per annum. Repayment of the Mobilisation Advance shall commence from payment of the Statement first raised by the Contractor after disbursement of the Mobilisation Advance and shall been entered as a deduction from Interim Payment (@ 10% of the value of all the Statements paid so far + simple interest @ 10% of the total Mobilisation Advance amount). For subsequent Statements raised by the Contractor, Mobilisation Advance shall be deducted from the interim payment @ 10% of the value of such subsequent Statement + simple interest @ 10% of the unadjusted Mobilization Advance. Such deduction of Mobilization Advance shall continue until the total amount of advance has been repaid by the Contractor,*

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				Contract Price, being equivalent to the second tranche of the Mobilization Advance, in favour of the Employer and submission of such Bank Guarantee to the Employer. *The Mobilisation Advance above shall bear simple interest @ 10% per annum. Repayment of the Mobilisation Advance shall commence from payment of the Statement first raised by the Contractor after disbursement of first tranche of the Mobilisation Advance and shall be entered as a deduction from Interim Payment (@ 10% of the value of all the Statements paid so far + simple interest @ 10% of the total Mobilisation Advance amount). For subsequent Statements, Mobilisation Advance shall be deducted from the Interim Payment @ 10% of the value of such subsequent Statement + simple interest @ 10% of the unadjusted Mobilisation Advance. Such deduction of Mobilisation Advance shall continue until the total amount of advance loan has been repaid by the contractor, provided that the complete recovery of the Mobilisation Advance shall be made before completion of 90% of the Works.* *Recovery of advance at any intermediate stage shall be effected, if necessary, by partial encashment of Bank Guarantee if the appropriate pro-rata amount of advance is not available from the Works done by the Contractor.* *If the circumstances are considered reasonable by the Employer, the period mentioned for request by the Contractor in writing for grant of Mobilisation Advance may be extended at the discretion of the Employer.* *The said Bank Guarantee for Mobilisation Advance shall initially be made for the full amount and valid for the Contract period and be kept renewed from time to time to cover the balance amount and likely period of complete recovery."*	*provided that the complete recovery of the Mobilisation Advance shall be made before completion of 90% of the Works.* *Recovery of advance at any intermediate stage shall be effected, if necessary, by encashment of part of the Mobilisation Advance Bank Guarantee if the appropriate pro-rata amount of advance is not available from the Works done by the Contractor.* *If the circumstances are considered reasonable by the Employer, the period mentioned for request by the Contractor in writing for grant of Mobilisation Advance may be extended in the discretion of the Employer.* *The said Mobilisation Advance Bank Guarantee for advances shall initially be made for the full amount and valid for the Contract period and be kept renewed from time to time to cover the balance amount and likely period of complete recovery."*
16	384	Section – 6 General	4.24	*"The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and*	*"The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and*

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		Conditions of Contract ("GCC")		*to limit damage and nuisance to people and property resulting from pollution, noise and other results of its operations. The Contractor shall maintain ecological balance by preventing deforestation, water pollution and defacing of natural landscape. The Contractor shall so conduct its construction operations as to prevent any avoidable destruction, scarring or defacing of natural surrounding in the vicinity of work. In respect of ecological balance, the Contractor shall observe the following instructions for which no extra payments will be made:* *(a) Where destruction, scarring, damage or defacing may occur as a result of operations relating to Permanent or Temporary Works, the same shall be repaired, replanted or otherwise corrected at Contractor's expense. All work areas shall be smoothened and graded in a manner to conform to natural appearance of the landscape as directed by the Employer's Representative.* *(b) All trees and shrubbery, which are not specifically required to be cleared or removed for construction purposes, shall be preserved and shall be protected from any damage that may be caused by Contractor's construction operations and equipment or by their employees/ workers. The removal of trees or shrubs will be permitted only after prior approval of the Employer's Representative. Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, excavating, dumping, chemical damage or other operation and the Contractor shall adequately protect such trees by use of protective barriers or other methods approved by the Employer's Representative. Trees shall not be used for anchorage. The Contractor shall be responsible for injuries to trees and shrubs caused by its operations and its employees/ workers. The terms "injury" shall include, without limitation, bruising, scarring, tearing and breaking of roots, trunks or branches. All injured trees and shrubs shall*	*to limit damage and nuisance to people and property resulting from pollution, noise and other results of its operations. The Contractor shall maintain ecological balance by preventing deforestation, water pollution and defacing of natural landscape. The Contractor shall so conduct its construction operations as to prevent any avoidable destruction, scarring or defacing of natural surrounding in the vicinity of work. In respect of ecological balance, the Contractor shall observe the following instructions for which no extra payments will be made:* *(a) Where destruction, scarring, damage or defacing may occur as a result of operations relating to Permanent or Temporary Works, the same shall be repaired, replanted or otherwise corrected at Contractor's expense. All work areas shall be smoothened and graded in a manner to conform to natural appearance of the landscape as directed by the Employer's Representative.* *(b) All trees and shrubbery, which are not specifically required to be cleared or removed for construction purposes, shall be preserved and shall be protected from any damage that may be caused by Contractor's construction operations and equipment or by their employees/ workers. The removal of trees or shrubs will be permitted only after prior approval of the Employer's Representative. Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, excavating, dumping, chemical damage or other operation and the Contractor shall adequately protect such trees by use of protective barriers or other methods approved by the Employer's Representative. Trees shall not be used for anchorage. The Contractor shall be responsible for injuries to trees and shrubs caused by its operations and its employees/ workers. The terms "injury" shall include, without limitation, bruising, scarring, tearing and breaking of roots, trunks or branches. All injured trees and shrubs shall be restored as nearly*

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				be restored as nearly practicable, without delay, to their original condition at the Contractor's expense. *(c) Where trees have to be necessarily cut for progressing Temporary or Permanent Works, the Contractor shall arrange for compensatory afforestation as may be required by Environmental Rules and Regulations.* *(d) In the conduct of construction activities and operation of equipment, the Contractor shall utilise such practicable methods and devices as are reasonably available to control, prevent and otherwise minimize air/ noise pollution.* *(e) Excessive emission of dust into the atmosphere will not be permitted during manufacture, handling and storage of concrete aggregates/ fly ash / earth/ building materials and the Contractor shall use such methods and equipment as are necessary for collection and disposal or prevention of dust during these operations. The Contractor's method of storing and handling cement shall also include means of eliminating atmospheric discharge of dust. Equipment and vehicles that give objectionable emission of exhaust gases shall not be operated. Burning of materials resulting from cleaning of trees, branches, combustible construction materials and rubbish may be permitted only when atmospheric conditions for burning are considered favourable.* *(f) Special care must be exercised in ensuring that the labour housed in labour camp within the Site area do not indulge in any activity like drinking alcohol, taking drugs, etc, and other activities that may affect the ecological balance such as cutting of shrubs for fuel, creating open air nuisance etc.* *The Contractor shall not cut or destroy any tree in the campus to the maximum extent possible. In case any tree is to be cut he shall obtain prior permission from the competent authority under the relevant laws and shall plant equal number of saplings or adhere to the requirements of the prevailing Environmental laws /*	*practicable, without delay, to their original condition at the Contractor's expense. (c) Where trees have to be necessarily cut for progressing Temporary or Permanent Works, the Contractor shall arrange for compensatory afforestation as may be required by Environmental Rules and Regulations.* *(d) In the conduct of construction activities and operation of equipment, the Contractor shall utilise such practicable methods and devices as are reasonably available to control, prevent and otherwise minimize air/ noise pollution.* *(e) Excessive emission of dust into the atmosphere will not be permitted during manufacture, handling and storage of concrete aggregates/ fly ash / earth/ building materials and the Contractor shall use such methods and equipment as are necessary for collection and disposal or prevention of dust during these operations. The Contractor's method of storing and handling cement shall also include means of eliminating atmospheric discharge of dust. Equipment and vehicles that give objectionable emission of exhaust gases shall not be operated. Burning of materials resulting from cleaning of trees, branches, combustible construction materials and rubbish may be permitted only when atmospheric conditions for burning are considered favourable.* *(f) Special care must be exercised in ensuring that the labour housed in labour camp within the Site area do not indulge in any activity like drinking alcohol, taking drugs, etc, and other activities that may affect the ecological balance such as cutting of shrubs for fuel, creating open air nuisance etc.* *The Contractor shall not cut or destroy any tree in the campus to the maximum extent possible. In case any tree is to be cut he shall obtain prior permission from the competent authority under the relevant laws and shall plant equal number of saplings or adhere to the requirements of the prevailing Environmental laws / terms of the permission, whichever is more stringent.*

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				terms of the permission, whichever is more stringent. The Employer may assist the Contractor in obtaining such permission, including signing necessary documents. The Contractor shall use all means to minimize the effluents from its construction work and transportation activity or any other activity in the course of the execution of the Works. *The Contractor shall take necessary steps for installation of grid connected roof-top solar photovoltaic systems of 50 KW capacity as per "Alo Shree" programme of the Government of West Bengal, in all the buildings forming part of the Project, to make the Project self-sustaining in utilization of power.* *The Contractor shall also make necessary provisions to ensure that the buildings constructed do fall under the category of Green buildings as per the applicable rules in the State of West Bengal and that the buildings are energy efficient as far as possible."*	*The Employer may assist the Contractor in obtaining such permission, including signing necessary documents. The Contractor shall use all means to minimize the effluents from its construction work and transportation activity or any other activity in the course of the execution of the Works.* *The Contractor shall also make necessary provisions to ensure that the buildings constructed do fall under the category of Green buildings as per the applicable rules in the State of West Bengal and that the buildings are energy efficient as far as possible."*
17	412	Section – 6 General Conditions of Contract ("GCC")	14.5	*"Except as otherwise stated in Sub-Clause 2.4 [Employer's Claims], the Employer shall pay to the Contractor:* *(a) the first tranche of Mobilisation Advance within 30 (thirty) days after the date of delivery of possession of the Site subject to Commencement of Works at the Site including setting up of site office etc. both for Contractor and the Employer* *(b) the amount which is due in respect of each Statement, other than the Final Statement, within 15 (fifteen) working days after receiving the Statement and supporting documents; and* *(c) the final amount due, within 60 (sixty) working days after receiving the Final Statement and written discharge in accordance with Sub-Clause 14.9 [Application for Final Payment] and Sub-Clause 14.11 [Discharge].* *Payment of the amount due in INR shall be made into any bank account, nominated by the Contractor."*	*"Except as otherwise stated in Sub-Clause 2.4 [Employer's Claims], the Employer shall pay to the Contractor:* *(a) the Mobilisation Advance within 30 (thirty) days after the date of delivery of possession of the Site subject to Commencement of Works at the Site including setting up of site office etc. both for Contractor and the Employer* *(b) the amount which is due in respect of each Statement, other than the Final Statement, within 15 (fifteen) working days after receiving the Statement and supporting documents; and* *(c) the final amount due, within 60 (sixty) working days after receiving the Final Statement and written discharge in accordance with Sub-Clause 14.9 [Application for Final Payment] and Sub-Clause 14.11 [Discharge].* *Payment of the amount due in INR shall be made into any bank account, nominated by the Contractor."*

20/07/21

General Manager, WBMSCL