



**RATE CONTRACT for “Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL”**

Bharat Heavy Electricals Limited  
Electronics Division, Mysore Road, Bangalore – 560026

## **TENDER DOCUMENT**

**RATE CONTRACT FOR “CONDUCTING TOPOGRAPHICAL SURVEY, GEOTECHNICAL INVESTIGATION, BATHYMETRIC SURVEY, LAND DEVELOPMENT AND OTHER ASSOCIATED WORKS FOR SOLAR PV PROJECTS AND FLOATING SOLAR PV PROJECTS (ALL OVER INDIA) FOR BHEL”**

1. Project detail and Location: All over India

**DATE OF INTIMATION: 10.11.2020**

**Part-I – TECHNICAL BID:**

1. Notice Inviting Tender.
2. Technical-cum-commercial bid (to be filled-up by tenderer).
3. Instructions to Tenderer.
4. Condition of Contract.
5. Technical Specification
6. Safety Declaration letter on bidders letter head.
7. Acceptance for condition of contract/specification, Form of Tender.
8. Electronic Fund Transfer (EFT) Form
9. Declaration Regarding MSE (or) Qualifying PPP-MII, Order 2017
10. BHEL General Conditions of Contract (GCC)
11. Unpriced Price Bid

**Part – II - PRICE BID:**

1. Bill of quantities (BOQ) for Rate Contract.

**Note:**

1. Part I: To be submitted in a separate sealed cover.
2. Part II: To be submitted in a separate sealed cover.
3. Earnest Money Deposit: Not Applicable
4. Part-I, Part-II sealed covers should be put in outer envelope and super scribing the Name of work, RFQ number, BHEL address and Name & Address of the Tenderer.

Sh. SAMPANGI C, Sr.Manager (SC&PV- PVSS)  
NEB 5<sup>TH</sup> FLOOR  
Bharat Heavy Electricals Ltd

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)



**RATE CONTRACT for “Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL”**

Electronics Division, Mysore Road, Bangalore – 560026

**NOTICE INVITING TENDER**

1. TENDER No. / RFQ No.: EDN/ PVSS/ SOIL/ TOPO/BATHYME/RATE CONTRACT/02, Dt.: 10-11-2020
2. NAME OF WORK : **RATE CONTRACT FOR “CONDUCTING TOPOGRAPHICAL SURVEY, GEOTECHNICAL INVESTIGATION, BATHYMETRIC SURVEY, LAND DEVELOPMENT AND OTHER ASSOCIATED WORKS FOR SOLAR PV PROJECTS AND FLOATING SOLAR PV PROJECTS (ALL OVER INDIA) FOR BHEL”**
3. EARNEST MONEY DEPOSIT : NOT APPLICABLE
4. SECURITY DEPOSIT : NOT APPLICABLE
5. DURATION OF RATE CONTRACT: 2 YEARS
6. LAST DATE AND TIME FOR : **ON 02.12.2020 BEFORE 01:00 P.M.**  
THE SUBMISSION OF DULY  
FILLED IN TENDER DOCUMENT
7. PLACE OF SUBMISSION/  
ADDRESS TO BE : Sh. SAMPANGI C, Sr. MANAGER /SC&PV (PVSS)  
SUPERSCRIBED ON : 5<sup>TH</sup> FLOOR, N.E.B. BUILDING,  
TENDER ENVELOPE : BHEL-ELECTRONICS DIVISION,  
MYSORE ROAD, BANGALORE-560026  
Ph. No: 080-26998497, 9886604404, 9449869523
8. DATE AND TIME OF : **ON 02-12-2020 AT 01:30 P.M.**  
TECHNICAL BID OPENING
9. DATE AND TIME OF : **WILL BE INTIMATED SEPARATELY**  
PRICE BID OPENING

**NOTE:**

- A. Tenderer shall return the duly filled in Tender document after affixing Signatures and seal on **all pages** of tender document and submit.
- B. Bidders desiring to be present for the opening of Technical Bid / Price Bid, shall depute their representatives with due letter of authorization presented well in advance.
- C. Separate intimation regarding award of work, availability of site to commence the work will be given to successful Rate contract bidder.
- D. Bidders are advised to quote their best prices (% above/below the total estimate +/- (or) at par).
- E. In view of present pandemic situation it is advised to all bidders to mandatorily ensure all precautionary measures as per guidelines issued by State/Central government/District administration to prevent spread of COVID-19 like usage of Personal protective Equipment's and other norms like wearing masks, maintaining social distance and other instructions issued from time to time.

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

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**Bharat Heavy Electricals Limited**  
**TECHNICAL-CUM-COMMERCIAL BID**

(To be filled-up and furnished by Bidders)

**1.1 GENERAL INFORMATION**

Sl No	Detail/Particulars	Remarks by BHEL, if any
1.1.1	<b><u>Name of Company:-</u></b>	
1.1.2	Date of Incorporation/Establishment :- (Please attach Certificate of Incorporation)	
1.1.3	<b><u>Registered Office Address:-</u></b> (All correspondence with BHEL, shall be communicated to this address only)  ➤ Tel No : ➤ Fax No : ➤ Email ID: ➤ Web site :	
1.1.4	<b><u>Head Office Address:-</u></b>  ➤ Tel No : ➤ Fax No : ➤ Email ID: ➤ Web site :	
1.1.5	<b><u>Mailing Address:-</u></b>  ➤ Tel No : ➤ Fax No : ➤ Email ID: ➤ Web site :	
1.1.6	<b><u>Officer to be contacted:-</u></b> Name & Address  ➤ Tel No : ➤ Fax No : ➤ Email ID:	



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(To be filled-up and furnished by Bidders)

SI No	Detail/Particulars	Remarks by BHEL, if any
1.1.7 i	<p><b><u>Branches:-</u></b> Address:-</p> <p>➤ Contact Person: ➤ Tel No : ➤ Fax No : ➤ Email ID :</p>	
ii	<p>Address:-</p> <p>➤ Contact Person: ➤ Tel No : ➤ Fax No : ➤ Email ID :</p>	
iii	<p>Address:-</p> <p>➤ Contact Person: ➤ Tel No : ➤ Fax No : ➤ Email ID :</p>	
1.1.8 i	<p><b><u>Sister Concerns if any:-</u></b> Address:-</p> <p>➤ Contact Person: ➤ Tel No : ➤ Fax No : ➤ Email ID : ➤ Web site :</p>	
ii	<p>Address:-</p> <p>➤ Contact Person: ➤ Tel No : ➤ Fax No : ➤ Email ID : ➤ Web site :</p>	

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(To be filled-up and furnished by Bidders)

**1.2 OWNERSHIP INFORMATION**

1.2.1	TYPE OF COMPANY (please tick "√" <b>any one</b> applicable)	Documents to be submitted	Remarks by BHEL, if any
i	Govt of India Undertaking <input type="checkbox"/>	Supporting documents to be enclosed	
ii	State Govt Undertaking <input type="checkbox"/>	Supporting documents to be enclosed	
iii	Public Limited Company <input type="checkbox"/>	Supporting documents to be enclosed	
iv	Private Limited Company <input type="checkbox"/>	Supporting documents to be enclosed	
v	Co-operative Society <input type="checkbox"/>	Supporting documents to be enclosed	
vi	Partnership Firm <input type="checkbox"/>	Supporting documents to be enclosed	
vii	Proprietorship <input type="checkbox"/>	Supporting documents to be enclosed	
viii	Any Other (specify) <input type="checkbox"/>	Supporting documents to be enclosed	

1.2.2	DIRECTOR/PARTNER/OWNER/PROPRIETOR INFORMATION	Position Held In Company	Remarks by BHEL, if any
i			
ii			
iii			
iv			

**1.2.3 DIRECTORS / PARTNERS, IF RELATED TO ANY BHEL EMPLOYEE.**

NAME :  
 STAFF NO. :  
 DESIGNATION :  
 Unit & DEPARTMENT :  
 RELATIONSHIP :

**1.2.4 IF ANY EX-BHEL PERSONNEL IS EMPLOYED BY THE COMPANY, MENTION HIS / HER DETAILS OF LAST POSTING.**

NAME :  
 STAFF NO. :  
 DESIGNATION :  
 UNIT & DEPARTMENT :  
 DATE OF LEAVING SERVICE :

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**1.3 REGISTRATION PARTICULARS**

Sl No	Description ( PLEASE INDICATE PARTICULARS IN THE SPACE PROVIDED FOR EACH)	Documents to be submitted	Remarks by BHEL, if any
a	INCOME TAX (PERMANENT AC NO):-	Copy of Certificate	
b	GST REGISTRATION	Copy of Certificate	
c	PF Registration	Copy of Certificate	
d	BHEL (any regions/units)	Copy of Certificate	
e	CPWD/Government Organizations / PSU'	Copy of Certificate	
f	Geological Survey Of India/Equivalent	Copy of Certificate	
g	<b>NABL (MANDATORY)</b>	Copy of Certificate	
h	MSE (OR) QUALIFYING PPP-MII, ORDER 2017	Copy of Certificate	
i	Accreditation to ISO / OHSAS	Copy of Certificate	

1.4	MANPOWER, MACHINERIES, TOOLS AND TACKLES	Remarks by BHEL, if any
A	Organisation Strength: (Manpower List to be enclosed)	
B	Machineries, Tools and Tackles: (List to be enclosed)	

1.5	BANKING DETAILS OF COMPANY	Remarks by BHEL, if any
	Information of Bank Account of Company (Bidder to provide as per BHEL format attached)	Duly filled and certified by bank, form to be submitted along with Cancelled cheque

1.6	PQC: RELEVANT WORK EXPERIENCE (in the last 7 years from the date of tender notice) (as per the MW segment) of execution and completion as detailed below,	Remarks by BHEL, if any
A	For Ground Mounted Solar PV Projects (for Segment 1, 2 and 3): Work Experience for "Topographical Survey, Geotechnical Investigation for Ground Mounted Solar PV Projects (or) other infrastructure projects", Experience certificate along with Work Order copy to be enclosed:	
B	For Floating Solar PV Projects (for Segment 1, 2 and 3): Work Experience for "Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects ", Experience certificate along with Work Order copy to be enclosed:	
C	Agency/bidders should have a valid NABL accreditation certificate with adequate validity during the project execution	

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**TECHNICAL-CUM-COMMERCIAL BID**  
 (To be filled-up and furnished by Bidders)

**1.7 FINANCIAL INFORMATION FOR THE PREVIOUS THREE YEARS**

Sl. No	Financial Information	Financial Value in Rupees in Lakhs (Audited)		Remarks by BHEL, if any
		Year	Value in Rupees in lakhs	
i	<b>TURN OVER</b> (Last three Financial Years) (supporting documents to be submitted by Bidder)			
		<b>Average</b>		
ii	Copies of Audited Annual Accounts (Balance Sheet, P&L Account, Cash flow statement, income tax returns) for the last three (3) years to be submitted.			

1.8	BHEL PAYMENT TERMS AND CONDITION	Bidder's Acceptance	Remarks by BHEL, if any
A	a. No Advance payment: b. Payment will be made 45 days after submission of Report and accepted by BHEL Engineer: c. Price variation clause not applicable: d. Rate quoted shall be firm for the entire duration of rate contract period (i.e., 2 years)	Accepted / Not Accepted	
B	Bidder shall be agreeable to make necessary statutory payments as per BHEL EDN terms and conditions	Accepted / Not Accepted	

1.9	PENALTY	Bidder's Acceptance	Remarks by BHEL, if any
A	Penalty as per BHEL General conditions of contract 2019 clause No. 2.7.9 and relevant clauses	Accepted / Not Accepted	

2.	CANCELLATION OF CONTRACT	Bidder's Acceptance	Remarks by BHEL, if any
A	If the bidder fails to perform as per the terms and conditions of NIT / BHEL (including submission of the soil investigation report), BHEL reserves the right to cancel the Rate contract and get the work done from other contractor at the risk and cost of the bidder	Accepted / Not Accepted	

3.	REVERSE AUCTION	Bidder's Acceptance	Remarks by BHEL, if any
A	"For each "MW segment" of work, BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."	Accepted / Not Accepted	

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**Bharat Heavy Electricals Limited**  
Electronics Division, Mysore Road, Bangalore-26

**INSTRUCTIONS TO TENDERER**

**1.0 Preamble**

BHEL-EDN, Bangalore, a UNIT of Bharat Heavy Electricals Limited, a MAHARATNA public sector Enterprise is in the field of setting up grid connected Solar PV plants in various parts of the country as an EPC solution. BHEL-EDN desires to empanel reputed agencies on rate contract basis for "Land development, Topographical Survey, Geotechnical Investigation and Bathymetric Survey works for Solar PV Projects and Floating solar PV Projects (all over India) for BHEL", who have capability to carry out the said works. BHEL shall empanel rate contract based upon MW segments, details as tabulated below in Table-1.

**Table-1:**

<b>Sl. No.</b>	<b>Description</b>	<b>MW Segment</b>
<b>A</b>	<b>Ground Mounted Solar PV Projects</b>	
	Land development, Topographical Survey, Geotechnical Investigation Works.	Segment-1 (Up to 25MW)
		Segment-2 (More than 25MW and up to 75MW)
		Segment-3 (More than 75MW)
<b>B</b>	<b>Floating Solar PV Projects</b>	
	Geotechnical Investigation and Bathymetric Survey works.	Segment-1 (Up to 25MW)
		Segment-2 (More than 25MW and up to 75MW)
		Segment-3 (More than 75MW)

The vendors /Contractors must be a firm or company based in INDIA.

The project size targeted by BHEL could vary from 1MW to 100MW and above and can be anywhere in INDIA. Hence the bidders are required to be aware of various statutory, regulatory requirements of state/center and are required to follow the various stipulations called for during the execution of project. The details of works to be carried out are as per **Attached BOQ for various segments and tentative technical specification of works** subject to minor variation as per the requirement of different projects.

**2.0 Tender Requirements**

2.1 The agency/bidders should have relevant work experience of execution and completion of "Land development, Topographical Survey, Geotechnical Investigation and Bathymetric Survey works for Solar PV Projects and Floating solar PV Projects". The agency/bidders must furnish details about their company particulars regarding the operation, facilities, manpower, tools, instruments, machinery, lab facility, number of projects executed since inception and other experiences with necessary credentials. Completion certificates from the customer certifying the scope of works, value and the time lines awarded for various activities including the work order released by the customer for the projects executed is required to be furnished.

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- 2.2 Agency/bidders should have a valid NABL accreditation certificate with adequate validity during the project execution. The vendor/Contractor should have their own Tools, Plant and machinery preferably, Survey equipment like Total station, Auto level, geotechnical investigation tools and machinery and other facilities and should have capability for mobilizing additional Tools, Plant and machinery at short notice for simultaneous works at various fronts to meet the short schedule of works. The contractor shall have on their roll qualified surveyors, geo technical investigation team, Civil Engineers and supervisors who shall be required to monitor the works carried out by skilled and unskilled labor force. The contractor shall have capacity to arrange sufficient manpower so that the project schedule is not affected in any way as per project requirement in each "MW segment" mentioned in table-1.
- 2.3 The agency/bidders shall furnish the details of manpower and machinery owned by them. A typical activity plan from the zero date to completion of all activities as per the activities defined in the BOQ and in line with "MW segment" as per table-1. Manpower planned to be employed, Micro planning and machinery required to be employed shall be indicated.
- 2.4 The agency/bidders should have adequate financial strength to carry out and complete the assigned works simultaneously in various project sites of BHEL of sizes as per the respective "MW segment" as per table-1, within the stipulated period of time. The vendor shall submit the financial information for the previous 3 years or from the date of commencement of operation whichever is later.
- 2.5 The agency/bidders shall be required to obtain Customer approval for the survey and geotechnical investigation reports. The agency/bidders must have in their possession, necessary soft tools like AUTOCAD, ETC (as may be required) and project monitoring software which are basic minimum requirements along with trained engineers and draftsmen.
- 2.6 The agency/bidders shall also have a team of qualified professionals in Quality and HSE on their roll for overseeing the site works in multiple location at times. Necessary infrastructure set up like laboratory set-up for carrying out the tests of samples collected and field test infrastructure. The site team will coordinate with BHEL team at site and ensure that all the works are certified by the customer meeting the specification requirement. The agency/bidders may furnish their quality plan/standards followed by them for various works including HSE practices/plan.
- 2.7 In view of present pandemic situation, it is advised to all bidders to mandatorily ensure all precautionary measures as per guidelines issued by State/Central government/District administration to prevent spread of COVID-19 like usage of Personal Protective Equipment's and other norms like wearing masks, maintaining social distance and other instructions issued from time to time.
- 2.8 The agency/bidders shall bring out their concurrent commitments on various projects and the status of their resource usage to be indicated.
- 2.9 BHEL will be executing the projects based on customer specifications, tender terms and conditions and time frame. The same will be applicable to the agency/bidders.

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- 2.10 Vendor/Contractor to furnish all details in BHEL furnished format covering the following details.
- Company profile & organizational information
  - Ownership information
  - Registration particulars
  - Manpower
  - Other particulars.
  - Bank details of the Company
  - Quality Systems
  - Financial Information for the previous 3 years or from the date of commencement operation whichever is later.
  - Resources owned by the company-Formats A), B) and C)
  - Work Experience in civil works in last 7 years or from the date of commencement operation whichever is later, as on the date of opening of EOI.

2.11 All columns are to be filled up in the space provided for. Separate sheets may be attached if the space provided is insufficient or if additional information to be given. Agency/bidders shall submit their bids addressed to Sr. Manager-SC&PV/PVSS, BHEL, Electronics Division, Mysore Road, Bangalore-560026. The last date for receipt of applications in sealed cover is 02/12/2020, 13:00Hrs.

**2.12 Bidders are permitted to Quote for all the segments as mentioned in Table-1 (or) Quote for part segment.**

**3.0 Evaluation of Tender:**

**(A) Technical Evaluation:**

- BHEL-EDN shall evaluate for rate contract tender based upon (a) technical competency, (b) financial soundness and (d) other terms and condition as specified in tender NIT. BHEL shall intimate the technically qualified/shortlisted vendors/contractors.
- BHEL decision on this will be final.
- BHEL at their discretion shall inspect the vendor/contractor works/premises/sites for evaluation.

**(B) Price Bid Evaluation:**

- For each "MW segment" of work, BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://www.bhel.com)) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

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Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

2. BHEL reserves the right for discussion/negotiation with lowest bidder (L1) in each "MW segment" as per table-1 of work to finalize lowest bid value for each "MW segment".
3. BHEL shall empanel 1 (One) bidders, on rate contract basis for each "MW segment" as per table-1.
4. Further award of work shall be as per BHEL policy and guidelines and General Condition of contract.
5. The empanelment for rate contract will be for a period of 2 years for each segment of work as per table-1. During this period the agency/bidders performance will be evaluated on a continuous basis on works executed in BHEL project sites. BHEL reserves the rights to disqualify an agency/bidders based on their adverse performance levels if any during this period. In such case, BHEL may get the work done from bidders empaneled in other segments subject to matching of price of the disqualified bidder.
6. In the event of the L1 vendor of a particular segment found to be getting overloaded with various projects beyond their logical and implementation capacity then the vendor shall inform BHEL regarding the status and accordingly BHEL shall place the work order on L1 rate the segment to other segment L1 vendor subject to matching of L1 price of the segment.
7. This rate contract is not an agreement and is not an offer or invitation to enter into an agreement of any kind with any party by BHEL.

**4.0 General Instruction to Tenderers:**

1. All entries in tender documents should be in one ink (preferably blue ink). Erasing and overwriting is not permitted. All corrections should be duly signed by tenderer concerned.
2. Tenderers shall fill in all the required particulars in the blank space provided for this purpose in the tender documents and also sign in each and every page of the tender document/s attached before submitting tender.
3. In Price bid bidders are advised to quote their best prices.
4. Bidders to submit the unpriced copy of the price schedule for compliance to the terms and quantities indicated in the price schedule along with the technical bid duly stamped according their acceptance. (Mandatory requirement).

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5. The tenderer shall note that, NO Claim for variation of rates, on the ground that existing statutory levies have been increased / decreased or those new statutory levies have come into effect after tender, or on any other ground, will be entertained.
6.
  - (a) During tender process, the rate quoted in the tender shall remain valid for a period of 'THREE MONTHS' from the date of opening tender.
  - (b) Tenderer shall not increase quoted rates, once the tenderer has submitted offers/quotation/price and during execution of contract in case tender is accepted.
  - (c) Successful bidder should execute the work strictly in accordance with Tender schedule quoted rates as accepted by BHEL.
  - (d) The rates quoted shall be inclusive of all taxes (as applicable), excluding GST (GST to be quoted separately in the respective column).
7. Before tendering, the tenderer are advised to be well versed with BHEL Conditions of Contract, instruction to the tenderers, technical specification, schedule of works and all other documents of NIT, which form part of the agreement to be entered into subsequent to award of work. The tenderer should be specially note that it is tenderers responsibility to provide any items which is not specifically mentioned in the specifications and scope, but which is necessary to complete the work and tenderers shall make his own arrangements for the transport of personnel and equipment to the site and for the stay and boarding facilities of their team at site during the course of work. Vendor shall ensure safety of the operating team and personnel at site during the execution of work.
8. The details and quantities of each item of work, contract stipulation time period shall be furnished at the time of actual award of work.
9. In the event of the tender being submitted by a firm the tender must be signed separately and legibly by each partner or member of the firm or in their absence, by the person holding the power of Attorney on behalf of firm concerned. In the later case, a copy of the power of Attorney duly attested by the Gazetted Officer must accompany the tender.
10. The BHARAT HEAVY ELECTRICALS LIMITED reserve the right to reject any or all the tenders received or accept any tender or part thereof without assigning reason thereof.
11. Conditional and Unsigned tenders, tenders which are incomplete or otherwise considered defective, tenders which are not in accordance with the tender conditions laid down by the accepting officer and tenders not submitted in the prescribed forms are liable to be rejected.
12. The Contractors responsibility under this contract shall commence from date of receipt of the order or acceptance of tender.
13. Tenders submitted by speed post or courier service shall be posted with due consideration of any delay in postal delivery. Tenders received after the due date and time of opening tenders are liable to be rejected.

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14. Scope of works of tenderers includes deployment of manpower, equipments etc. to carry out the topographical survey and soil testing & investigation and submission of test reports drawing etc. as per condition of contract, Technical specification and schedule of works. BHEL shall not provide any equipment/ manpower / material for the work.
15. Any covering letter and comments of the tenderer should be submitted along with the offer.
16. Should a tenderer or a contractor has a relative or in the case of firm or company, any of its shareholders relative is employed in Bharat Heavy Electricals Limited, the authority inviting tenders shall be informed of this fact at the time of submission of the tender, failing which tender may be disqualified or if such fact subsequently comes to light.
17. Contractor shall insure all his labourers and material. Any claim by his Employees for damages shall be settled by the Contractor even if action is against BHEL or to reimburse the legal expenses incurred by BHEL.
18. Any action brought in by anybody on BHEL regarding patent, right etc., used by Contractor in execution of work shall be defended by the Contractor and / or reimburse BHEL the cost of the same.
19. Contractor shall produce necessary records, documents; explanation whenever he is called upon to do by any Government Agencies.
20. **EXTRA ITEMS:**  
No extra items of work shall be carried out by the contractor other than those authorized to do so in writing by the Engineer-in-charge. For any such items of work executed as per instructions of Engineer-in-charge, the rates will be fixed on the basis BHEL terms and condition.
21. In case, work is not completed as per the BHEL scope due to any unforeseen reasons, contractor has to complete the job at later stage without any extra charge. No overturn charges shall be paid in case of extension of work schedule.

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**CONDITONS OF CONTRACT**

1. The conditions of contract and other tender documents are complimentary to each other and shall be read in conjunction with each other.
2. **SCOPE OF WORK**  
The scope of work includes for the full, final and entire completion of all Geotechnical Investigation, Topographical survey and Bathymetric survey works as detailed in specifications and bill of quantity, which forms part of this Contract. The scope of work also includes cleaning/removing all debris, refilling of holes etc. as per direction of the Engineer-in-charge.  
The scope of work under this contract shall cover supply of all materials, labour, tools, and plants etc.,
3. **SITE FACILITES**
  - A. **LAND:** The contractor must maintain the areas allotted to him in a neat and clean conditions as required by the Employer. On completion of work, the site shall be cleaned by the contractor of all materials, temporary debris, rubbish plants and equipment's, belonging to the contractor at no extra cost. The site and surroundings shall be handed over in a neat and clean condition. In case of any failure by the contractor, the employer will get inside cleared at risk and cost of the Contractor.
  - B. **POWER AND WATER SUPPLY:** Power and water shall be arranged by the bidder.
4. **MACHINERY:** The Contractor shall at his own expense, supply all tools, plant and equipment (hereinafter referred to as T & P) required for execution of contract, as specified in the tender documents. No. P.O.L. can be supplied by the Employer.
  - a) The whole of the works shall be executed in perfect conformity with the specifications and schedule of works. If contractor perform any works in a manner contrary to the specifications and schedule of works and without reference to the Engineer-in-charge, he shall bear all the costs arising or ensuring there from.
  - b) All technical documents regarding the works are given in the metric system and work should be carried out according to metric system.
5. **SAFETY PRECAUTIONS**  
The contractor shall at times observe the safety code and make necessary action as required in the tender. In default thereof, the employer may get this done departmentally or through other agencies and recover the cost from the contractor.
6. **COMPLETION OF WORK AND MEASUREMENT**
  - a) All work shall be carried out and measured according to scope of work mentioned in Bill of quantity.
  - b) On completion of the work, the Contractor must submit to the Engineer the test reports, topographical drawing etc. as per bill of quantity/ scope of work.

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)



**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

**TECHNICAL SPECIFICATION**

**Site Preparation, Topographical Survey, Soil Investigation and Bathymetric Survey Works**

**1.0 Site Preparation Works**

- 1.1 Works related to site preparation like cutting of trees, removal of roots, shrubs, bushes, grown up vegetation, disposal of debris shall be as per area identified by Engineer in-charge.
- 1.2 Bidder is responsible to obtain any required permissions and approval by local / government authorities.

**2.0 Topographical Surveys**

- 2.1 The contractor shall be responsible for detailed Topographical Survey of the proposed solar project site/s. The work shall be carried out with relevant experience and qualified survey team.
- 2.2 The Topographical survey shall be conducted at minimum 10m x 10m grid, or as directed by the Engineer in-charge, with the help of digital surveying instruments like Total Station.
- 2.3 The Contractor shall carry the Bench Mark from nearest GTS Bench mark or any other established source like Railway station, Permanent PWD/ WRD structure etc. as approved by the Engineer in-charge, by fly-levelling and establish minimum two permanent bench marks (PBM) at site. All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars (RP) at suitable locations and suitable numbers as directed by the Engineer in-charge. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks (PBM) and reference pillars (RP) shall be shown on the survey drawings with proper numbering of the same with complete detail.
- 2.4 While carrying out bench mark to the project site, levels shall also be established on the permanent objects like culverts etc. available along with the route with adequate description about the objects. These levels shall be maintained at site & also mentioned in the survey report to facilitate locating these objects later on.
- 2.5 The survey work shall be carried out in UTM grid system/any other suitable system as directed by Engineer in-charge. The contractor shall also establish the latitudes and longitudes of all the corners of the project site. The width of the adjoining plots and surrounding areas shall also be covered in the survey for correlation with adjoining plots and facilities as directed by Engineer in-charge. The grids for the survey work shall be established in N-S & E-W direction (corresponding to Geographical North or Plant North) as directed by the Engineer in-charge.

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- 2.6 Positions, both in plan and elevation, of all natural and artificial features in the area like waterways, railway tracks, trees, cultivation, houses, fences, pucca and kutcha roads including culverts and crossings, foot tracks, other permanent objects like telephone posts and transmission towers etc. are to be established and subsequently shown on survey maps by means of conventional symbols (preferably symbols of survey of India Maps). All hills and valleys within the area/areas are to be surveyed and plotted on maps by contours. Any unusual condition or formation on the ground, locations of rock outcrops (if visible on the surface) and springs/falls, sand heap/dune, possible aggregate deposits etc. shall also be noted and plotted on contour maps.
- 2.7 The record of measurement of all Reduced Levels (RL) shall be submitted in digital format, (in x, y z coordinate system) along with preliminary contour plan of the site, for Engineer's review before submission of final contour map. The contour interval shall be as required for proper representation of the topography however it shall not be more than 0.5m. The Contractor shall submit survey maps of the site in 1:10,000 scale (or) suitable scale indicating grid lines and contour lines, demarcating all permanent features like roads, railways, waterways, buildings, power lines, natural streams, trees, sand dunes etc. Present use of the site i.e. mining, quarrying, agriculture etc., existing drainage pattern of the site, possibility of water logging and high flood level of the area shall also be captured in the document. The project plot boundary with coordinates of all corner points along with coordinate grid of 50m x 50m interval shall be marked on the contour map.

### **3.0 Geotechnical Investigations**

- 3.1 The contractor shall be responsible for detailed Geotechnical investigations at the proposed solar project site/s for the purpose of foundation design for various buildings, structures, HT lines, MMS etc. and other design/ planning requirements. The investigation work shall be carried out through NABL accredited agency. The contractor shall submit the credentials along with relevant certificates in support thereof for verification/ approval of the Investigation Agency by the Engineer in-charge.
- 3.2 The scope of work includes execution of complete soil exploration including boring and drilling, standard penetration test (SPT), collecting disturbed (DS) and undisturbed samples (UDS), collecting ground water samples, trial pits, electrical resistivity tests (ERT), field & laboratory CBR tests, conducting laboratory tests on collected samples of soil & ground water and preparation and submission of report. SPT shall be carried out in all types of soil deposits and in all rock formations with core recovery up to 20% met within a borehole. SPT test shall be conducted at every 1.5m interval or at change of strata. The starting depth of SPT shall be 0.5m from ground level. UDS shall be collected at every 1.5m interval or at change of strata.
- 3.3 The field investigations shall mainly include drilling of minimum 5m deep boreholes (or) up to 10m (or) as directed by Engineer in-charge, conducting SPT and collecting Disturbed (DS) and Undisturbed samples (UDS), conducting in-situ CBR test for approach road to the plant,

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**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

- internal roads & peripheral road; Trial pits if specified (minimum 2mx2mx2.5m deep) and ERT s. Number and location of bore holes, CBR tests and Trial pits shall be decided as per the project layout, site topography and soil conditions in consultation with the Engineer in-charge. The soil/ rock samples for laboratory investigations shall be collected from each borehole and trial pit in sufficient nos. as directed by Engineer in-charge.
- 3.4 Laboratory tests shall be conducted on DS & UDS samples and ground water samples in required no. & shall include, Soil classification, Grain size analysis including Hydrometer analysis, determination of Bulk and dry density, Specific gravity, Natural moisture content, Atterberg limits, Tri-axial shear tests (UU), Undrained shear test, Consolidation tests, Unconfined compression tests, Free swell index, chemical analysis of soil and water samples to determine the carbonates, sulphates, chlorides, nitrates, pH, Organic matter and any other chemicals harmful to concrete and reinforcement/ steel. Laboratory tests on rock samples shall be carried out for Hardness, Specific Gravity, Unit Weight, Uniaxial Compressive Strength (in-situ & saturated), Slake Durability etc. Laboratory CBR test on soaked samples shall also be conducted on sufficient number of soil samples as directed by Engineer in-charge to ascertain the suitability of soil for sub-grade and requirement of any treatment of subgrade soil as per IRC requirements.
- 3.5 After completion of field and laboratory work, the contractor shall submit a Geotechnical Investigation Report for Engineer's approval. All bore log details and lab test results shall be presented in the report as per provisions of relevant IS/BIS standards indicating BH coordinates, Existing GL, Depth of water table, Method of drilling, liquefaction potential and detailed calculation for liquefaction as per relevant IS/codes, etc. The report shall include a Map showing the locations of various field tests including coordinates, calculations and recommendations for foundation type, safe bearing capacity (SBC) for various Plant buildings (ICR, MCR etc.) and Open installations, Switch Yard structures & Sub-Station (as applicable), Transformer foundation, HT lines (as applicable), MMS foundation etc. corresponding to settlement of 25mm & 40mm.
- 3.6 The report shall include the study for "Liquefaction potential assessment of the ground and suggestions for any ground improvement / mitigation measures" as required.
- 3.7 The report shall also include ground water analysis (water sample collected from bore well) to ascertain its suitability for construction purposes, recommendations for type of cement, grade of concrete & minimum cement content as per prevalent soil characteristics with respect to presence of aggressive chemicals and environment exposure conditions as per relevant IS/BIS specifications.
- 3.8 The Geotechnical investigation report shall also include the calculations for safe pile capacity under direct compression, lateral load and pull out. The report shall include recommendations about type of pile, its depth and dia. to be used.
- 3.9 Suitable recommendation for pile foundation and open foundation shall be furnished in the report for coastal areas and marshy or swelling type soil conforming to relevant IS/BIS codes (or) IBC (International building code), if relevant data/detail not available in IS/BIS codes.

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**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

- 3.10 The contractor shall also obtain and study other input data at proposed solar project site for design of the project from metrological department/ local govt. authorities. This shall include data related to Rainfall, Maximum & Minimum ambient Temperature, Humidity, HFL etc.

**4.0 Bathymetric Survey (For floating solar projects):**

- 4.1 For floating solar system, the Contractor shall establish required number of permanent bench marks (PBM) at the bank of the water body as per direction of Engineer in-charge. The work shall also include constructing permanent reference pillars (RP) at suitable locations and suitable numbers as directed by the Engineer in-charge. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use.
- 4.2 The Bathymetric survey shall be conducted at 20m x 20m grid, (or) as found suitable (or) as directed by the Engineer in-charge.
- 4.3 For position fixing, the contractor shall use DGPS or may propose alternative position fixing system that meets with horizontal positional accuracy of + 1 m, provided at least 3 lines of position can be used to determine position. The position fixing system shall be calibrated against a most accurate system or a fixed base line before deployment.
- 4.4 The Bidder shall use Echo-sounder equipment (having depth recording accuracy of 0.10 m) for ascertaining the depth, DGPS and suitable traversing equipment for this work. The Bidder shall clearly indicate the methodology for maintaining the horizontal control/vertical control for the survey in the Technical bid. The desired accuracy for the survey is as under:

Sr. No.	Name of work	Minimum Accuracy
1	Bench Mark	+0.005
2	Horizontal Control	+1m
3	Vertical control	+0.1m

- 4.5 The purpose of the bathymetric survey is also to locate any bed rock outcrops, any obstacles at bed level etc. and to prepare the bed contour plans at specified contour interval with reference to Datum level, collection of data for depth of water (Season wise) and water level variations under wave or similar action, water flow velocity and soil composition of the banks and bottom of the water body, etc. Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed. Topographical Survey levels are to be reduced to Datum, so that the entire cross sections including bank levels will have soundings / levels reduced to Datum. Permanent structures located within this corridor are also required to be indicated in the report.
- 4.6 The Bidder shall mention the equipment and methodology for maintaining the accuracy of horizontal and vertical measurements. The same shall be the basis for certification of Bidder's works. The accuracy actually achieved shall be verified by BHEL and their decision in this and all other respects shall be final.

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

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**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

- 4.7 The Bidder shall prepare chart adopting UTM projections clearly showing (Northing & Easting) and global grids (latitude & longitude) on each chart. The layout (to scale) shall be superimposed on the map of the location, along with permanent benchmarks shown on it.
- 4.8 The Bidder shall demarcate any existing obstructions, rock outcrops, any large size sunken objects etc. along with the bed contours as per the directions of site engineer.
- 4.9 Establishing vertical control (accuracy +0.1m) and establishing bench mark (accuracy + 5 millimeters) at suitable interval.
- 4.10 Transfer of Bench Mark/datum w.r.t. MSL.
- 4.11 Establishing horizontal control and marking selected points on the shore at suitable intervals. (accuracy +1m).
- 4.12 Levels shall also be taken on all traverse stations and on salient points located at random over the area (ground points). Contours are to be interpolated at 0.5m intervals after the above points.
- 4.13 Standard method shall be adopted for transfer of Datum in rivers and Dams for tidal data standard transfer of Datum as per Admiralty Manual shall be adopted if any.
- 4.14 Land survey by using Total Station / equivalent levelling instrument shall be carried out. Spot levels at 20 m x 20 shall be carried out at the banks of the water body. The Reduced Level of the spot levels are to be reduced with respect to Datum. The terminal survey chart shall be prepared at appropriate scale.
- 4.15 On completion of all the field and laboratory works, the contractor shall submit a draft report containing geological information of the region, procedure adopted for investigation, field observations, summarized test data, conclusion and recommendations and only after acceptance of that draft report, final reports shall be made.
- 4.16 The report shall include detailed borelogs, sub-soil sections, field test results, laboratory observations and test results in both tabular as well as graphical forms, practical and theoretical considerations for the interpretation of test results, the supporting calculations for the conclusions drawn etc.
- 4.17 All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) hard copies.
- 4.18 The detailed final report based on field observations, in-situ and laboratory tests shall encompass theoretical as well as practical considerations for foundation of different type of structures envisaged in the area under investigation. The contractor shall acquaint himself about the type of structures, foundation loads and other information required from BHEL.

**NOTE:**

**Please Note that attached Technical Specification is tentative. There may be minor deviation as per Project specific.**

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)



**RATE CONTRACT for “Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL”**

**Safety Declaration in Vendors Letter head**

**Subject: Certification of Work safety by Testing Agency during RATE CONTRACT for Topographical Survey, Geotechnical Investigation, Bathymetric survey work and land development” for Solar Power Plant at site**

This is to certify that, during the execution of the work of RATE CONTRACT for “Conducting Topographical Survey, Geotechnical Investigation, Bathymetric Survey, Land Development and other associated works for Solar PV projects and floating Solar PV projects (All over India) for BHEL”, undertaken by us, we shall be solely responsible for the Safety and health of our team consisting of site engineers, technicians and labour working at the site. Required statutory provisions governing Workmen safety and protection and accident compensation shall be our sole responsibility and entirely covered by us during the course of mobilization and execution of works. All statutory norms and guidelines issued by government and/or any statutory authority for COVID-19 (or) any pandemic situation will be taken care by us.

For and on behalf of  
M/s

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)



**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

BHARAT HEAVY ELECTRICALS LIMITED  
(ELECTRONICS DIVISION)  
MYSORE ROAD- BANGALORE-26

**CONDITIONS OF CONTRACT/ SPECIFICATION/ SCOPE OF WORK**

It is hereby agreed by me/us that the BHEL Conditions of Contract including Specification and Scope subsequent amendments/ additions/deletions to clauses if any, and conditions pertaining the settlement of disputes by Arbitration form an integral part of the tender documents and that the tender submitted by me/ us is subject to the aforesaid BHEL Conditions of Contract/ Specification/Scope for Rate contract which has been read and accepted by me/us.

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)



**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

**FORM OF TENDER**

Having examined the invitation to bid, Instructions to Bidder, conditions of contract, Specifications, tender schedule, and other tender documents for the above work, we the undersigned, offer to construct, erect complete and maintain the whole of the said in conformity with the said bid documents on the terms and conditions and under the provisions set out or called for in the contract documents at the rates listed in the schedule of unit prices or else wherein the contract documents.

We undertake if our bid is accepted, to commence the works from the date of issue of award/handing over the site and to complete and delivery the whole of the works comprised in the contract as per the time schedule agreed to the contract document.

We agree to abide by this bid for the period of three months from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before expiry of the period.

Until and unless a formal intimation /work order, together with your award thereof shall constitute a binding contract between us.

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

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**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

**Electronic Funds Transfer (EFT) OR  
Paylink Direct Credit Form**

Please Fill up the form in **CAPITAL LETTERS** only.  
TYPE OF REQUEST(Tick one): \_\_\_\_\_ CREATE \_\_\_\_\_ CHANGE

BHEL Vendor / Supplier Code: \_\_\_\_\_  
Company Name : \_\_\_\_\_  
Permanent Account Number(PAN): \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_

City: \_\_\_\_\_ PINCODE \_\_\_\_\_ STATE \_\_\_\_\_

Contact Person(s) \_\_\_\_\_  
Telephone No: \_\_\_\_\_  
Fax No: \_\_\_\_\_  
e-mail id: \_\_\_\_\_

1 Bank Name: \_\_\_\_\_  
2 Bank Address: \_\_\_\_\_  
\_\_\_\_\_

3 Bank Telephone No: \_\_\_\_\_  
4 Bank Account No: \_\_\_\_\_  
5 Account Type: Savings/Cash Credit \_\_\_\_\_  
6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank \_\_\_\_\_  
7 Bank swift Code(applicable for EFT only) \_\_\_\_\_  
8 Bank IFSC code(applicable for RTGS) \_\_\_\_\_  
9 Bank IFSC code(applicable for NEFT) \_\_\_\_\_

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date: \_\_\_\_\_

Authorised Signatory: \_\_\_\_\_ Telephone NO. with STD Code \_\_\_\_\_  
Designation: \_\_\_\_\_

Company Seal \_\_\_\_\_

**Bank Certificate**

We certify that \_\_\_\_\_ has an Account No \_\_\_\_\_ with us and we confirm that the bank details given above are correct as per our records.

Date: \_\_\_\_\_ (.....)  
Place: \_\_\_\_\_ Signature \_\_\_\_\_

Please return completed form along with a blank cancelled cheque or photocopy thereof to:  
Bharath Heavy Electricals Ltd,  
Attn:  
Electronics Division, Mysore Road,  
BANGALORE - 560 026  
In case of any Query, please call : 080-26998xxx / 2674xxxx or fax no. 080-2674xxxx

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

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**RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL"**

*(TO BE SUBMITTED IN BIDDER'S LETTER HEAD)*

**DECLARATION REGARDING MSE (OR) QUALIFYING PPP-MIL, ORDER 2017**  
**(WITH SUPPORTING DOCUMENTS)**

**Tender Enquiry No & Date: EDN/ PVSS/ SOIL/ TOPO/BATHYME/RATE CONTRACT/02,**  
**Dt.: 10-11-2020**

**Work Description:** RATE CONTRACT for "Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL".

I/We hereby declare that, I/We.....  
belong to MSE (or) qualifying PPP-MII, order2017 (relevant supporting documents attached).

We also hereby declare that the information provided is correct to the best of my knowledge.

Seal & Signature of Authorized  
Representative /Bidder

Name:  
Designation:  
Date:  
Name of Bidder:

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)



# GENERAL CONDITIONS OF CONTRACT

2019

ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್, ವಿದ್ಯುನ್ಮಾನ ವಿಭಾಗ, ಬೆಂಗಳೂರು  
भारत हेवी इलेक्ट्रिकल्स लिमिटेड, इलेक्ट्रॉनिक्स डिवीज़न, बेंगलुरु  
*Bharat Heavy Electricals Limited, Electronics Division, Bengaluru*

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## **CHAPTER -1**

### **1. GENERAL INSTRUCTION TO TENDERERS**

#### **1.1. DESPATCH INSTRUCTION**

*i) The General Conditions of Contract form part of the Tender specifications. All pages of the tender documents shall be duly signed, stamped and submitted along with the offer in token of complete acceptance thereof. The information furnished shall be complete by itself. The tenderer is required to furnish all the details and other documents as required in the following pages*

*ii) Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. Should the tenderers have any doubt about the meaning of any portion of the Tender Specification or find discrepancies or omissions in the drawings or the tender documents issued are incomplete or shall require clarification on any aspects, the scope of work etc., he shall contact the authority inviting the tender well in time (so as not to affect last date of submission) for clarification before the submission of the tender. Tenderer's request for clarifications shall be with reference to Sections and Clause numbers given in the tender documents. The tender specifications and terms and conditions shall be deemed to have been accepted by the tenderer in the offer. Pre requirements and conditions shall be liable for rejection.*

*iii) Integrity pact (IP): If NIT calls for Integrity Pact, the same shall be duly signed & stamped by the authorised signatory & submitted along with tender document.*

#### **1.2. SUBMISSION OF TENDERS**

*1.2.1 The tenderers must submit their tenders as per instructions in the NIT*

*1.2.2 BHEL takes no responsibility for delay, loss or non-receipt of tenders sent by post/courier. The tenders received after the specified time of their submission are treated as 'Late Tenders' and shall not be considered under any circumstances. Offers received by Fax/Email/Internet shall be considered as per terms of NIT.*

*1.2.3 Tenders shall be opened by authorised Officer of BHEL at his office at the time and date as specified in the NIT, in the presence of such of those tenderers or their authorised representatives who may be present*

*1.2.4 Tenderers whose bids are found techno commercially qualified shall be informed the date and time of opening of the Price Bids and such Tenderers may depute their representatives to witness the opening of the price bids. BHEL's decision in this regard shall be final and binding.*

*1.2.5 Before submission of Offer, the tenderers are advised to inspect the site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour, means of transport and access to Site, accommodation, etc. No claim will be entertained later on the grounds of lack of knowledge of any of these conditions.*

### **1.3. LANGUAGE**

*1.3.1 The tenderer shall quote the rates in English language and international numerals. These rates shall be entered in figures as well as in words. For the purpose of the tenders, the metric system of units shall be used.*

*1.3.2 All entries in the tender shall either be typed or written legibly in ink. Erasing and over-writing is not permitted and may render such tenders liable for rejection. All cancellations and insertions shall be duly attested by the tenderer.*

### **1.4 PRICE DISCREPANCY:**

#### **1.4.1 Conventional (Manual) Price Bid opening:**

*i) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of BHEL there is obvious misplacement of decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly*

*ii) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected;*

*iii) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (i) and (ii) above.*

*iv) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of BHEL, the bid is liable to be ignored.*

*v) In case of lump sum price, if there is any difference between the amount in figures and in words, the amount quoted by the bidder in words shall be taken as correct.*

vi) *In case of omission in quoting any rate for one or more items, the evaluation shall be done considering the highest quoted rate obtained against the respective items by other tenderers for the subject tender. If the tenderer becomes L-1, the notional rates for the omission items shall be the lowest rates quoted for the respective items by the other tenderers against the respective omission items for the subject job and the 'Total quoted price (loaded for omissions)' shall be arrived at. However the overall price remaining the same as quoted originally, the rates for all the items in the 'Total quoted price (loaded for omissions)' shall be reduced item wise in proportion to the ratio of 'Original' total price and the 'Total quoted price (loaded for omissions)'.*

**1.4.2 Reverse Auction:** *In case of Reverse Auction, the successful bidder shall undertake to execute the work as per overall price offered by him during the Reverse Auction process. In case of omission of rates, the procedure shall be as per 'Guidelines for Reverse Auction' enclosed.*

i) *Offers from tenderers who are under suspension (banned) by any Unit/Region/Division of BHEL shall not be considered.*

ii) *Offers from tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India shall not be considered.*

### **1.5. EVALUATION OF BIDS**

i) *Technical Bids submitted by the tenderer will be opened first and evaluated for fulfilling the Pre-Qualification criteria and other conditions in NIT/Tender documents, based on documentary evidences submitted along with the offer, BHEL reserves the right to ask for proofs/documents, clarification in relation to Technical/commercial data during tender evaluation*

ii) *Price Bids of shortlisted bidders shall only be opened either through the conventional price bid opening or through electronic Reverse Auction, at the discretion of BHEL*

iii) *Price Bids of unqualified bidders shall not be opened. Reasons for rejection shall be intimated to the vendor before the opening of Price bid.*

### **1.6. DATA TO BE ENCLOSED**

*The following information in full shall be furnished by the tenderer. Non-submission of this information may lead to rejection of the offer.*

i) *INCOME TAX PERMANENT ACCOUNT NUMBER, GSTIN, SAC, HSN Certified copies of PAN, GSTIN shall be furnished along with tender. The names, addresses and contact information of the Directors/Partners shall be furnished along with the offer.*

ii) *An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor.*

*iii) IN CASE OF INDIVIDUAL TENDERER:*

*His / her full name, address, PAN, GSTIN and place & nature of business to be furnished.*

*iv) IN CASE OF PARTNERSHIP FIRM*

*The names of all the partners and their addresses, a copy of the partnership deed/instrument of partnership shall be enclosed.*

*v) IN CASE OF COMPANIES:*

*Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished). Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.*

**1.7. AUTHORISATION AND ATTESTATION**

*Tenders shall be signed by a person duly authorised/empowered to do so. An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor shall be submitted along with the tenders*

**1.8. EARNEST MONEY DEPOSIT**

*1.8.1 Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.*

*The EMD may be accepted only in the following forms:*

- (i) Electronic Fund Transfer credited in BHEL account (before tender opening)*
- (ii) Banker's cheque/ Pay order/ Demand draft, in favor of BHEL (along with offer) In case total EMD amount is more than Rs 20 Lakh, the amount in excess of Rs 20 lakh maybe accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at-least six months.*
- (iii) Through SBI collect (before tender opening)*
- (iv) No other form of EMD remittance shall be acceptable to BHEL*

*1.8.2 EMD by the bidder will be forfeited as per Tender Documents if*

- i) After opening the tender and within the offer validity period, the tenderer revokes his/her tender or makes any modification in his tender which is not acceptable to BHEL.*
- ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract.*
- iii) EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged in derailing the tender process by unlawful means*

*1.8.3 EMD shall not carry any interest.*

*1.8.4 In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after acceptance of award by successful tenderer.*

*1.8.5 EMD of successful tenderer will be converted as part of Security Deposit*

### **1.9. SECURITY DEPOSIT**

*The total amount of Security Deposit will be 5% of the contract value (including all applicable taxes) EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.*

#### **1.9.1 Modes of Security deposit:**

*The balance amount to make up the required Security Deposit of 5% of the contract value may be accepted in the following forms:*

- i) Cash (as permissible under the extant Income Tax Act)*
- ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL*
- iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL*
- iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL)*
- v) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL) (Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)*
- vi) 50% of the required Security Deposit, including the EMD, should be paid before start of the work. Balance of the Security Deposit can be collected by deducting 10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected. If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor. Security Deposit shall be released to the Contractor upon fulfilment of contractual obligations as per terms of the contract.*

*1.9.2 The Security Deposit shall not carry any interest.*

*1.9.3 The validity of Bank Guarantees towards Security Deposit shall be initially up to the completion period as stipulated in the Letter of Intent/Award ( plus maintenance period if applicable), and 03 months claim period. The same shall be kept valid by proper renewal till the acceptance of Final Bills of the Contractor, by BHEL*

*1.9.4 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.*

### **1.10. REFUND OF SECURITY DEPOSIT**

*50% of the security deposit may be refunded on completion of the work after payment of the final bill and the balance 50% of the security deposit is refunded only after the expiry of the maintenance period from date of completion of work as stipulated in the contract concerned.*

#### **1.10.1 DEFECTS LIABILITY PERIOD:**

*The contractor shall be responsible to make good and remedy at his own expenses within such period as may be stipulated by the Engineer-in-charge, any defect which may develop or may be noticed before the expiry of the maintenance period of six months or as stipulated in NIT hereto from the certified date of completion and intimation of which has been sent to the contractor within seven days of the expiry of the said period by a letter sent by hand delivery or by registered post or Email. If contractor fails to attend to the above, defect will be rectified at contractor's risk & cost and same will be deducted from the security deposit/payable amounts available with BHEL.*

### **1.11. BANK GUARANTEES**

*Where ever Bank Guarantees are to be furnished/submitted by the contractor, the following shall be complied with*

- i) Bank Guarantees shall be from Scheduled Banks / Public Financial Institutions as defined in the Companies Act.*
- ii) The Bank Guarantees shall be as per prescribed BHEL formats.*
- iii) It is the responsibility of the bidder to get the Bank Guarantees revalidated/extended for the required period (subject to a minimum period of six months), as per the advice of BHEL. BHEL shall not be liable for issue of any reminders regarding expiry of the Bank Guarantees.*
- iv) In case extension/further extensions of any Bank Guarantees are not required, the bidders shall ensure that the same is explicitly endorsed by BHEL*
- v) In case the Bank Guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same by informing the concerned Bank in writing, without any advance notice/communication to the concerned bidder.*
- vi) Bidders to note that any corrections to Bank Guarantees shall be done by the issuing Bank, only through an amendment in an appropriate non judicial stamp paper.*
- vii) The Original Bank Guarantee shall be sent directly by the Bank to BHEL under Registered Post (Acknowledgement Due).*

### **1.12. VALIDITY OF OFFER**

*The rates in the Tender shall be kept open for acceptance for a minimum period of Ninety (90) DAYS from latest due date of offer submission (including extension, if any). In case BHEL calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the tenderers.*

### **1.13 EXECUTION OF CONTRACT AGREEMENT**

*The successful tenderer's responsibility under this contract commences from the date of issue of the Letter of Intent by BHEL. The Tenderer shall submit an unqualified acceptance to the Letter of Intent/Award within the period stipulated therein.*

*The successful tenderer shall be required to execute an agreement in the prescribed form, with BHEL, within fifteen days (15 days) after the acceptance of the Letter of Intent/Award, and in any case before releasing the first running bill. The contract agreement shall be signed by a person duly authorized/empowered by the tenderer. The expenses for preparation of agreement document shall be borne by Tenderer.*

### **1.14. REJECTION OF TENDER AND OTHER CONDITIONS**

*1.14.1 The acceptance of tender will rest with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever:-*

- a. To reject any or all of the tenders.*
- b. To split up the work amongst two or more tenderers as per NIT*
- c. To award the work in part if specified in NIT*
- d. In case of either of the contingencies stated in (b) and (c) above, the time for completion as stipulated in the tender shall be applicable.*

*1.14.2 Conditional tenders, unsolicited tenders, tenders which are incomplete or not in the form specified or defective or have been materially altered or not in accordance with the tender conditions, specifications etc., are liable to be rejected.*

*1.14.3 Tenders are liable to be rejected in case of unsatisfactory performance of the tenderer with BHEL, or tenderer under suspension (hold/banning /delisted ) by any unit / region / division of BHEL or tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India. BHEL reserves the right to reject a bidder in case it is observed that they are overloaded and may not be in a position to execute this job. The decision of BHEL will be final in this regard.*

1.14.4 If a tenderer who is a proprietor expires after the submission of his tender or after the acceptance of his tender, BHEL may at their discretion, cancel such tender. If a partner of a firm expires after the submission of tender or after the acceptance of the tender, BHEL may then cancel such tender at their discretion, unless the firm retains its character.

1.14.5 BHEL will not be bound by any Power of Attorney granted by changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognize such power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.

1.14.6 If the tenderer deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract if awarded and forfeit the Earnest Money/Security Deposit/any other money due.

1.14.7 Canvassing in any form in connection with the tenders submitted by the Tenderer shall make his offer liable to rejection.

1.14.8 In case the Proprietor, Partner or Director of the Company/Firm submitting the Tender, has any relative or relation employed in BHEL, the authority inviting the Tender shall be informed, along with the Offer. Failing to do so, BHEL may, at its sole discretion, reject the tender or cancel the contract and forfeit the Earnest Money/Security Deposit.

1.14.9 The successful tenderer should not sub-contract part or complete work detailed in the tender specification undertaken by him without written permission of BHEL's Construction Manager/Site Incharge. The tenderer is solely responsible to BHEL for the work awarded to him.

1.14.10 The Tender submitted by a techno commercially qualified tenderer shall become the property of BHEL who shall be under no obligation to return the same to the bidder. However unopened price bids and late tenders shall be returned to the bidders after finalization of contract.

1.14.11 Unsolicited discount received after the due date and time of Bid Submission shall not be considered for evaluation. However, if the party who has submitted the unsolicited discount/rebate becomes the L-I party, then the awarded price i.e contract value shall be worked out after considering the discount so offered.

1.14.12 BHEL shall not be liable for any expenses incurred by the bidder in the preparation of the tender irrespective of whether the tender is accepted or not.

### **1.15 BHEL Fraud Prevention Policy :**

*The bidder along with its associate/ collaborators/sub-contractors/ Sub-Vendors/ Consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice. Fraud prevention policy and list of Nodal officers shall be hosted on BHEL website, vendor portals of Units/Regions Internet.*

## **CHAPTER-2**

*2.1 DEFINITION: The following terms shall have the meaning hereby assigned to them except where the context otherwise requires*

*i) BHEL shall mean Bharat Heavy Electricals Limited, a company registered under Companies Act 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110 049, or its Authorised Officers or its Site Engineers or other employees authorised to deal with any matters with which these persons are concerned on its behalf.*

*ii) “EXECUTIVE DIRECTOR” or ‘GROUP GENERAL MANAGER’ or “GENERAL MANAGER (Incharge)” or “GENERAL MANAGER” shall mean the Officer in Electronics Division, Mysore road, Bengaluru-560026*

*iii) “COMPETENT AUTHORITY” shall mean Executive Director or Group General Manager or General Manager (In-charge) or General Manager or BHEL Officers who are empowered to act on behalf of the Executive Director or General Manager (In-charge) or General Manager of BHEL.*

*iv) “ENGINEER” or “ENGINEER IN CHARGE” shall mean an Officer of BHEL as may be duly appointed and authorized by BHEL to act as “Engineer” on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents. The term also includes ‘CONSTRUCTION MANAGER’ or ‘SITE INCHARGE’ as well as Officers*

*v) “SITE” shall mean the places or place at which the plants/equipment are to be erected and services are to be performed as per the specification of this Tender.*

*vi) “CLIENT OF BHEL” or “CUSTOMER” shall mean the project authorities with whom BHEL has entered into a contract for supply of equipment or provision of services.*

*vii) “CONTRACTOR” shall mean the successful Bidder/Tenderer who is awarded the Contract and shall include the Contractor’s successors, heirs, executors, administrators and permitted assigns.*

viii) “CONTRACT” or “CONTRACT DOCUMENT” shall mean and include the Work Order, Contract Agreement, the accepted appendices of Rates, Schedules, Quantities if any, General Conditions of Contract, Special Conditions of Contract, Instructions to the Tenderers, Drawings, Technical Specifications, the Special Specifications if any, the Tender documents, subsequent amendments mutually agreed upon and the Letter of Intent/Acceptance issued by BHEL. Any conditions or terms stipulated by the contractor in the tender documents or subsequent letters shall not form part of the contract unless, specifically accepted in writing by BHEL in the Letter of Intent/Award and incorporated in the agreement.

ix) “GENERAL CONDITIONS OF CONTRACT” shall mean the ‘Instructions to Tenderers’ and ‘General Conditions of Contract’ pertaining to the work for which above tenders have been called for.

x) “TENDER SPECIFICATION” or “TENDER” or “TENDER DOCUMENTS” shall mean General Conditions, Common Conditions, Special Conditions, Price Bid, Rate Schedule, Technical Specifications, Appendices, Annexures, Corrigendum’s, Amendments, Forms, procedures, Site information, etc and drawings/documents pertaining to the work for which the tenderers are required to submit their offers. Individual specification number will be assigned to each Tender Specification.

xi) “LETTER OF INTENT” shall mean the intimation by a Post/Fax/email to the tenderer that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all terms and conditions of the contract are applicable from this date.

xii) “COMPLETION TIME” shall mean the period by ‘date/month’ specified in the ‘Letter of Intent/Award’ or date mutually agreed upon for handing over of the intended scope of work, the erected equipment/plant which are found acceptable by the Engineer, being of required standard and conforming to the specifications of the Contract.

xiii) “PLANT” shall mean and connote the entire assembly of the plant and equipment’s covered by the contract.

xiv) “EQUIPMENT” shall mean equipment, machineries, materials, structural, electrical and other components of the plant covered by the contract.

xv) “TESTS” shall mean and include such test or tests to be carried out on the part of the contractor as are prescribed in the contract or considered necessary by BHEL, in order to ascertain the quality, workmanship, performance and efficiency of the contractor or part thereof.

xvi) “APPROVED”, “DIRECTED” or “INSTRUCTED” shall mean approved, directed or instructed by BHEL.

xvii) *“WORK or CONTRACT WORK” shall mean and include supply of all categories of labour, specified consumables, tools and tackles and Plants required for complete and satisfactory site transportation, handling, stacking, storing, erecting, testing and commissioning of the equipment’s to the entire satisfaction of BHEL.*

xviii) *“SINGULAR AND PLURALS ETC” words carrying singular number shall also include plural and vice versa, where the context so requires. Words imparting the masculine Gender shall be taken to include the feminine Gender and words imparting persons shall include any Company or Associations or Body of Individuals, whether incorporated or not.*

xix) *“HEADING” – The heading in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken as instructions thereof or of the contract.*

xx) *“MONTH” shall mean calendar month unless otherwise specified in the Tender.*

xxi) *Day’ or ‘Days’ unless herein otherwise expressly defined shall mean calendar day or days of twenty four (24) hours each. A week shall mean continuous period of seven (7) days.*

xxii) *“COMMISSIONING” shall mean the synchronization testing and achieving functional operation of the Equipment with associated system after all initial adjustments, trials, cleaning, re-assembly required at site if any, have been completed and Equipment with associated system is ready for taking into service.*

xxiii) *“WRITING” shall include any manuscript type written or hand written or printed statement or electronically transmitted messages, under the signature or seal or transmittal of BHEL.*

xxiv) *“TEMPORARY WORK” shall mean all temporary works for every kind required in or for the execution, completion, maintenance of the work.*

xxv) *‘CONTRACT PRICE’ or ‘CONTRACT VALUE’ shall mean the sum including applicable taxes mentioned in the LOI/LOA/Contract Agreement subject to such additions thereto or deductions there from as may be made under provisions hereinafter contained*

xxvi) *“COMMENCEMENT DATE” or “START DATE” shall mean the commencement/start of work at Site as per terms defined in the Tender*

xxvii) *“SHORT CLOSING” or “FORE CLOSING” of Contract shall mean the premature closing of Contract, for reasons not attributable to the contractor and mutually agreed between BHEL and the contractor*

xxviii) *“TERMINATION” of Contract shall mean the pre mature closing of contract due to reasons as mentioned in the contract*

## **2.2 LAW GOVERNING THE CONTRACT AND COURT JURISDICTION**

*The contract shall be governed by the Law for the time being in force in the Republic of India. The Civil Court having original Civil Jurisdiction at Bengaluru, shall alone have exclusive jurisdiction in regard to all claims in respect of the Contract. No other Civil Court shall have jurisdiction in case of any dispute, under this contract*

## **2.3 ISSUE OF NOTICE**

*2.3.1 Service of notice on contractor: Any notice to be given to the Contractor under the terms of the contract shall be served by sending the same by Registered Post / Speed Post / FAX / Email to or leaving the same at the Contractor's last known address of the principal place of business (or in the event of the contractor being a company, to or at its Registered Office). In case of change of address, the notice shall be served at changed address as notified in writing by the Contractor to BHEL. Such posting or leaving of the notice shall be deemed to be good service of such notice and the time mentioned to the condition for doing any act after notice shall be reckoned from the date so mentioned in such notice.*

*2.3.2 Service of notice on BHEL Any notice to be given to BHEL in-charge under the terms of the Contract shall be served by sending the same by post or Email or leaving the same at BHEL address or changed address as notified in writing by BHEL to the Contractor.*

## **2.4 USE OF LAND**

*No land belonging to BHEL or their Customer under temporary possession of BHEL shall be occupied by the contractor without written permission of BHEL.*

### **2.4.1 STORES AND MATERIALS:**

*The contractor shall, at his own expense, supply all stores and materials required for the contract, other than those which may be provided by BHEL at the rates detailed therein subject to their availability at the place of issue indicated therein. All stores and materials to be supplied by the Contractor shall be of the best kind as described in the Specifications and the Contractor shall, if required by the Engineer –in- charge furnish him with proof to his satisfaction that the store and materials so comply with the specifications.*

*The contractor shall, at his own expense and without delay, supply samples of stores and materials proposed to be used in the execution of the work for the approval of the Engineer-in charge, who may reject all stores and materials not corresponding either in quality or character to the approved samples.*

*In the case of stores provided by BHEL, the Contractor shall bear the cost of loading, transporting to site, unloading, storing under cover as required, assembling & jointing the several parts together as necessary and incorporating & fixing these stores & materials in the work, including all preparatory work of whatever description that may be required, and closing, preparing, loading and returning empty cases or containers to the place of issue without any extra charges.*

*Contractor is responsible for safe & secure storage of above material.*

#### **2.4.2 PATENT RIGHTS:**

*The contractor shall fully indemnify BHEL, or the agent, servant, or employee of BHEL, against any action, claim or proceeding relating to infringement or the use of any patent or design or any alleged patent or design rights, and shall pay any royalties which may be payable in respect of any article/ or part thereof included in the contract.*

*In the event of any claims being made or action brought against BHEL, or any agent, or servant or employee of BHEL., in respect of any of the matters aforesaid, the contractor shall not apply when such increment has taken place in complying with the specific directions issued by the BHEL but the contractor shall pay any royalties payable in respect of any such use.*

#### **2.4.3 WATER :**

*The contractor shall allow in his tender and provide at his cost all water required for the work or his employees on the work, together with all pipes and fittings or other means that may be necessary or required to ensure a proper and ample supply of water for all purpose connected with the work.*

*In the event of a provision existing in the Tender documents for supply of water on payment by BHEL, water will be supplied from the BHEL supply System, or other sources at any points fixed by the Site Engineer/ Engineer-in-charge on the site of work. The contractor shall make necessary arrangement for lifting, pumping, carrying or conveying the water as required at his own cost. The levy of water charges to be borne by the Contractor in such case shall be specifically mentioned in the Tender documents.*

#### **2.4.4 TEMPORARY WORKSHOPS, STORES ETC :**

*The Contractor shall, during the progress of the work provide, erect and maintain at his own expense all necessary temporary workshops, store, offices, toilets etc., required for the proper and efficient execution of the work. The planning, siting and erection of these building shall have the approval of the Engineer-in-charge and the Contractor shall at all times keep them in a clean and sanitized condition to the entire satisfaction of the Engineer-in-charge.*

*On completion of the work all such temporary buildings shall be cleared and the site restored to its original state in a clean and tidy condition to the entire satisfaction of the Engineer-in-charge.*

### **2.5 COMMENCEMENT OF WORK**

*2.5.1 Time is essence of contract and is specified in the tender document or in each individual work order.*

*2.5.2 The contractor shall commence the work within seven(07) days from LOI/work order or as intimated by BHEL and shall proceed with the same with due expedition without delay.*

2.5.3 If the contractor fails to start the work within stipulated time as per LOI or as intimated by BHEL, then BHEL at its sole discretion will have the right to cancel the contract. The Earnest Money and/or Security Deposit with BHEL will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.

2.5.4 All the work shall be carried out under the direction and to the satisfaction of BHEL.

## **2.6 MEASUREMENT OF WORK AND MODE OF PAYMENT:**

2.6.1 All payments due to the contractors shall be made by electronic mode only, unless otherwise found operationally difficult.

2.6.2 For progress running bill payments: - The Contractor shall present detailed measurement sheets in triplicate, duly indicating all relevant details based on technical documents and connected drawings for work done during the month/period under various categories in line with terms of payment as per contract. The basis of arriving at the quantities, weights shall be relevant documents and drawings released by BHEL. These measurement sheets shall be prepared jointly with BHEL Engineers and signed by both the parties.

2.6.3 These measurement sheets will be checked by BHEL Engineer and quantities and percentage eligible for payment under various groups shall be decided by BHEL Engineer. The abstract of quantities and percentage so arrived at based on the terms of payment shall be entered in Measurement Book and signed by both the parties.

2.6.4 Based on the above quantities, contractor shall prepare the bills in prescribed format and work out the financial value. These will be entered in Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the contractor.

2.6.5 All recoveries due from the contractor for the month/period shall be effected in full from the corresponding running bills unless specific approval from the competent authorities is obtained to the contrary.

2.6.6 Measurement shall be restricted to that portion of work for which it is required to ascertain the financial liability of BHEL under this contract.

2.6.7 The measurement shall be taken jointly by persons duly authorized on the part of BHEL and by the Contractor.

2.6.8 The Contractor shall bear the expenditure involved if any, in making the measurements and testing of materials to be used/used in the work. The contractor shall, without extra charges, provide all the assistance with appliances and other things necessary for measurement.

2.6.9 If at any time due to any reason whatsoever, it becomes necessary to re-measure the work done in full or in part, the expenses towards such re measurements shall be borne by the contractor unless such re measurements are warranted solely for reasons not attributable to contractor.

2.6.10 Passing of bills covered by such measurements does not amount to acceptance of the completion of the work measured. Any left out work has to be completed, if pointed out at a later date by BHEL.

2.6.11 Final measurement bill shall be prepared in the final bill format prescribed for the purpose based on the certificate issued by BHEL Engineer that entire works as stipulated in tender specification has been completed in all respects to the entire satisfaction of BHEL. Contractor shall give unqualified "No Claim" Certificate. All the tools and tackles loaned to him should be returned in satisfactory condition to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Books and signed by both parties to the contract. The Final Bill shall be prepared and paid within a reasonable time after completion of work.

## **2.7 RIGHTS OF BHEL**

BHEL reserves the following rights in respect of this contract during the original contract period or its extensions if any, as per the provisions of the contract, without entitling the contractor for any compensation.

2.7.1 To withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of work and get it done through other agencies to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion due to other emergent reasons/ BHEL's obligation to its customer.

2.7.2 To terminate the contract or get any part of the work done through other agency or deploy BHEL's own/hired/otherwise arranged resources , at the risk and cost of the contractor after due notice of a period of two weeks by BHEL, in the event of:-

- i) Contractor's continued poor progress
- ii) Withdrawal from or abandonment of the work before completion of the work
- iii) Contractor's inability to progress the work for completion as stipulated in the contract
- iv) Poor quality of work
- v) Corrupt act of Contractor
- vi) Insolvency of the Contractor

vii) *Persistent disregard to the instructions of BHEL*

viii) *Assignment, transfer, sub-letting of contract without BHEL's written permission*

ix) *Non fulfillment of any contractual obligations / non-compliance of statutory requirements*

x) *In the opinion of BHEL, the contractor is overloaded and is not in a position to execute the job as per required schedule*

*2.7.3 To meet the expenses including BHEL overheads of 35% & Liquidated damage/penalties arising out of "Risk & Cost" as explained above under Sl.No. 2.7.2. BHEL shall recover the amount from any money due from Contractor, from any money due to the Contractor including Security Deposit or by forfeiting any T&P or material of the contractor under this contract or any other contract of BHEL or by any other means or any combination thereof*

*2.7.4 To terminate the contract or to restrict the quantum of work and pay for the portion of work executed in case BHEL's contract with their customer are terminated for any reason, as per mutual agreement.*

*2.7.5 To effect recovery from any amounts due to the contractor under this or any other contract or in any other form, the moneys BHEL is statutorily forced to pay to anybody, due to contractor's failure to fulfill any of his obligations. BHEL shall levy overheads of 35% on all such payments.*

*2.7.6 While every endeavor will be made by BHEL to this end, they cannot guarantee uninterrupted work due to conditions beyond their control. The Contractor will not be normally entitled for any compensation/extra payment on this account unless otherwise specified elsewhere in the contract.*

*2.7.7 In case the execution of works comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than two months, due to reasons not attributable to the contractor and other than Force Majeure conditions, BHEL may consider permitting the contractor to demobilize forthwith and re mobilize at an agreed future date. Cost of such demobilization/remobilization shall be mutually agreed. ORC (Over run Charges) in such cases shall not be applicable for the period between the period of demobilization and re mobilisation. The duration of contract/time extension shall accordingly get modified suitably. In case of any conflict, BHEL decision in this regard shall be final and binding on the contractor.*

*2.7.8 In the unforeseen event of inordinate delay in receipt of materials, drawings, fronts, etc, due to which inordinate discontinuity of work is anticipated, BHEL at its discretion may consider contractor's request to short close the contract, provided that the balance works are minor vis a vis the scope of work envisaged as per the contract. At the point of requesting for*

*short closure, contractor shall establish that he has completed all works possible of completion and he is not able to proceed with the balance works due to constraints beyond his control. In such a case, the estimated value of the unexecuted portion of work as mutually agreed, shall however be reduced from the final contract value-*

### **2.7.9 LIQUIDATED DAMAGES/PENALTY**

#### **COMPENSATION FOR DELAY:**

*If the contractor fails to maintain the required progress in terms of condition 2.10 or to complete the work and clear the site on or before the contracted or extended the period of completion, he shall, without prejudice to any other right or remedy of the BHEL on account of such breach, pay as agreed compensation an amount calculated as stipulated below*

*For unfinished anticipated value of work where finished portion is fit for use*

*Rate of compensation as follows:*

- *Completion period (as originally stipulated) not exceeding 6 months. ....@ 1 percent per week*
- *Completion period (as originally stipulated) Exceeding 6 months and not exceeding 2 years...@ 0.5 percent per week*
- *Completion period (as originally stipulated) exceeding 2 years..... @ 0.25 percent per week*

*Provided always that the total amount of compensation for delay to be paid under condition shall not exceed the under noted percentage of the anticipated contract value*

- *Completion period (as originally stipulated) not exceeding 6 months. ....@ 10 percent of anticipated value of work*
- *Completion period (as originally stipulated) Exceeding 6 months and not exceeding 2 years...@ 7.5 percent of anticipated value of work*
- *Completion period (as originally stipulated) Exceeding 2 years.....@ 5 percent of anticipated value of work*

*The amount of compensation may be adjusted or set off against any sum payable to the Contractor under this or any other contract with the BHEL.*

**2.7.10 POST TECHNICAL AUDIT OF WORK AND BILLS:** *BHEL reserve the right to carry out a post-payment audit and technical examination of the work and final bill including all supporting vouchers, abstract etc., and to enforce recovery of any sums becoming due as a result thereof in the manner provided in the proceeding sub-paragraph's provided however that no such recovery shall be enforced after three years of passing the final bill*

## **2.8 RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS ETC.**

*The following are the responsibilities of the contractor in respect of observance of local laws, employment of personnel, payment of taxes etc. The subcontractor shall fully indemnify BHEL against any claims of whatsoever nature arising due to the failure of the contractor in discharging any of his responsibilities hereunder:*

*2.8.1 The contractor at all times during the continuance of this contract shall, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals and religious and other customs.*

*2.8.2 The contractor shall comply with all applicable State and Central Laws, Statutory Rules, Maternity act, Regulations etc. such as contract labour(R&A) Act 1970, Minimum wage Act 1948, Payment of wages Act 1936,ESI Act 1948, EPF Act 1952, Employees' compensation Act 1923, Provision of Companies Act 1948 & rules thereof, The interstate Migrant Workmen 1979, The Karnataka Factories Rules 1969, Payment of Bonus Act 1965, Payment of Gratuity Act 1972. Child labour Prohibition act 1986, Karnataka Minimum Wage Act , Prevention of sexual harassment at work place Act 2013, Guidelines/notification related to Safai Karamchari Act , Equal Remuneration Act 1976, The company's instructions as issued from time to time in regard to working hours, wages, leaves, holidays etc. for labour as may be enacted by the Government during the tenure of the Contract and having force or jurisdiction at Site. The Contractor shall also give to the local Governing Body, Police and other relevant Authorities all such notices as may be required by the Law.*

*The contractor shall produce the following registers and forms:*

- Form XIII- Register of work men employed by contractor(Rule 75)*
- Form XIV- Employment Card issued by contractor( Rule 76)*
- Form XVI- Muster Roll ( Rule 78(1) (a)(i))*
- Form XVII- Register of Wages ( Rule 78(1) (a)(i))*
- Form XVIII- Register of wages cum Muster Roll( in case of weekly payment)*
- Form XIX- Wage slip ( Rule 78(b))*
- Form XX- Register of deduction for damages Or Loss Rule 78(1) (a)(ii)*
- Form XXI- Register of files Rule 78(1) (a)(ii)*
- Form XXII- Register of Advance Rule 78(1) (a)(ii))*
- Form XXIII- Register of Overtime Rule 78(1) (a)(iii))*
- Form XXIV- Return to be sent by the contractor to the Licensing officer (Rule 82(1))*

*2.8.3 The contractor shall obtain independent License under the Contract Labour (Regulations and Abolition Act)as required from the concerned Authorities based on the certificate (Form-V) issued by the Principal Employer/Customer*

2.8.4 The contractor shall pay all taxes, fees, license charges, deposits, duties, tolls, royalties, commission or other charges which may be levied on account of his operations in executing the contract.

2.8.5 While BHEL would pay the inspection fees and Registration fees of Boiler & explosive/Electrical Inspectorate, all other arrangements for site visits periodically by the Inspectorate to site, Inspection certificate etc. will have to be made by contractor. However, BHEL will not make any payment to the Inspectorate in connection with contractor's Welders/Electricians qualification tests etc.

2.8.6 Contractor shall be responsible for provision of Health and Sanitary arrangements (more particularly described in Contract Labour Regulation & Abolition Act), Safety precautions etc. as may be required for safe and satisfactory execution of contract.

2.8.7 The contractor shall be responsible for proper accommodation including adequate medical facilities for personnel employed by him.

2.8.8 The contractor shall be responsible for the proper behavior and observance of all regulations by the staff employed by him.

2.8.9 The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused, it is responsibility of the contractor to make good the losses or compensate for the same.

2.8.10 All the properties/equipment/components of BHEL/their Client loaned with or without deposit to the contractor in connection with the contract shall remain properties of BHEL/their Client.

2.8.11 The contractor shall use such properties for the purpose of execution of this contract. All such properties/equipment/components shall be deemed to be in good condition when received by the contractor unless he notifies within 48 hours to the contrary. The contractor shall return them in good condition as and when required by BHEL/their Client. In case of non-return, loss, damage, repairs etc, the cost thereof as may be fixed by BHEL Engineer will be recovered from the contractor

2.8.12 Any delay in completion of works/or non-achievement of periodical targets due to the reasons attributable to the contractor, the same may have to be compensated by the contractor either by increasing manpower and resources or by working extra hours and/or by working more than one shift. All these are to be carried out by the contractor at no extra cost.

2.8.13 The contractor shall arrange, coordinate his work in such a manner as to cause no hindrance to other agencies working in the same premises.

2.8.14 All safety rules and codes applied by the Client/BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards, slings etc. or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer with a view to prevent pilferage, accidents, fire hazards. Due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of Clerical staff, watch and ward, store keepers to take care of equipment/materials and construction tools and tackles shall be posted at site by the contractor till the completion of work under this contract. The contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per prescribed standards and practices. Contractor has to ensure the implementation of Health, Safety and Environment (HSE) requirements as per directions given by BHEL/Customer. The contractor has to assist in HSE audit by BHEL/Customer and submit compliance Report. The contractor has to generate and submit record/reports as per HSE plan/activities as per instruction of BHEL/Customer. All tools, plant and equipment brought to the site shall become the property of BHEL and shall not be removed from the site without the prior written approval from BHEL. When the work is finally completed or the Contractor is determined for reasons other than the defaults of the contract, he shall forthwith remove from the site all tools, plants, equipment etc., (other than those as may have been provided by BHEL) and upon such removal, the same shall revert in, and become the property of the contractor.

2.8.15 The contractor will be directly responsible for payment of wages to his workmen on specified date of respective month declared as per applicable Labour Act. A pay roll sheet giving all the payments given to the workers and duly signed by the contractor's representative should be furnished to BHEL site for record purpose.

2.8.16 In case of any class of work for which there is no such specification as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.

2.8.17 Also, no idle charges will be admissible in the event of any stoppage caused in the work resulting in contractor's labour and Tools & Plants being rendered idle due to any reason at any time.

2.8.18 The contractor shall take all reasonable care to protect the materials and work till such time the plant/equipment has been taken over by BHEL or their Client whichever is earlier.

2.8.19 The contractor shall not stop the work or abandon the site for whatsoever reason of dispute, excepting force majeure conditions. All such problems/disputes shall be separately discussed and settled without affecting the progress of work. Such stoppage or abandonment shall be treated as breach of contract and dealt with accordingly

2.8.20 The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices, etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor. If the work is executed in Factory premises, no hutment will be allowed.

2.8.21 The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/ or as per the instructions of the Engineer.

2.8.22 The Contractor to note that some of BHEL's T&Ps/MMDs may not be insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL. In case the damage / loss is due to carelessness/ negligence on the part of the contractor, the Contractor is liable to get them repair/ replaced immediately and in case of his failure to do so within a reasonable time, BHEL will reserve the right to recover the loss from the contractor.

2.8.23 The contractor shall provide all watchmen necessary, for the protection of the site, the work, the materials, the tools , plant, equipment and anything else lying on the site during the progress of the work. He shall solely be responsible for and shall take all reasonable and proper steps for protecting, securing , lighting and watching all places on or about the work and the site which may be dangerous to any person whom so ever.

2.8.24 **SITE DRAINAGE:** All water that may accumulate on the site during the process of the work, or in trenches and excavations shall be removed to the entire satisfaction of the Engineer-in-charge and at Contractors expense.

2.8.25 **INSPECTION OF THE WORK:** BHEL Officers concerned with the Contract shall have power at any time to inspect and examine any part of the work and the contractor shall give such facilities as may be required to given for such inspection and examination.

2.8.26 In case the contractor is required to undertake any work outside the scope of this contract, the rates payable shall be those mutually agreed upon if the item rates are not mentioned in existing contract

- i. For any item of wok required to be carried out after the contract has been awarded and which is not covered by Contractors Schedule but is covered by C.P.W.D. schedule of rates the rate payable for such a fresh item will be derived from updated C.P.W.D. schedule of rates by the method of proportion as follows:

- ii. *Rate as per estimated updated C.P.W.D DSR and loading tender excess (plus or minus) on pro-rata basis for nearest analogous items. For other items rate as per estimated C.P.W.D DSR and loading tender excess(plus or minus)*
- iii. *If rates are not available in C.P.W.D. DSR, deviated item rates will be derived from market rate with 15% profit and overheads.*

## **2.9 PROGRESS MONITORING, MONTHLY REVIEW AND PERFORMANCE EVALUATION**

*2.9.1 A detailed plan/programme for completion of the contractual scope of work as per the time schedule given in the contract shall be jointly agreed between BHEL and Contractor, before commencement of work . The above programme shall be supported by month wise deployment of resources viz Manpower, T&P, Consumables, etc. Progress will be reviewed periodically (Daily/Weekly/Monthly) vis a vis this jointly agreed programme. The Contractor shall submit periodical progress reports (Daily/Weekly/Monthly) and other reports/information including manpower, consumables, T&P mobilization etc as desired by BHEL.*

*2.9.2 Monthly progress review between BHEL and Contractor shall be based on the agreed programme as above, availability of inputs/fronts etc, and constraints if any, as per prescribed formats. Manpower, T&P and consumable reports as per prescribed formats shall be submitted by contractor every month. Release of RA Bills shall be contingent upon certification by BHEL Site Engineer of the availability of the above prescribed formats duly filled in and signed.*

*2.9.3 The burden of proof that the causes leading to any shortfall is not due to any reasons attributable to the contractor is on the contractor himself. The monthly progress review shall record shortfalls attributable to (i) Contractor, (ii) Force Majeure Conditions, and (iii) BHEL*

## **2.10 TIME OF COMPLETION**

*2.10.1 Time is essence of the contract. The time schedule shall be as prescribed in the Contract. The time for completion shall be reckoned from the date of commencement of work at Site as certified by BHEL Engineers*

*2.10.2 The entire work shall be completed by the contractor within the time schedule or within such extended periods of time as may be allowed by BHEL under clause 2.11*

## **2.11 EXTENSION OF TIME FOR COMPLETION**

*2.11.1 If the completion of work as detailed in the scope of work gets delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the Contract.*

2.11.2 Based on the monthly reviews jointly signed, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.

2.11.3 However if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.

2.11.4 A joint programme shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources (with weightages) to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done every month of the 'Time extension' period in the same manner as is done for the regular contract period.

2.11.5 During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program

2.11.6 At the end of total work completion as certified by BHEL Engineer, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/levied for the portion of time extensions attributable to contractor and recoverable from the dues payable to the contractor.

## **2.12 OVERRUN COMPENSATION (THIS CLAUSE IS NOT APPLICABLE IN BHEL FACTORY & TOWNSHIP PREMISES)**

2.12.1 Over Run Compensation (ORC) is payable by way of rate revisions for periods beyond original, contract period subject to the following terms and conditions.

2.12.2 Rates shall be increased by 10% for the first twelve months of one or more extensions beyond original contract period. For the next twelve months of further extensions if any, rates shall be increased as above by 10% over the previous twelve months, and similarly for each subsequent twelve months extension.

*2.12.3 Should there be any 'Time extension' for reasons attributable only to the contractor, then the work shall be executed by the contractor at the rates applicable for the period the work was planned*

*2.12.4 Payment of ORC shall be regulated as follows:*

*i) Contractor is entitled to Over Run Compensation (ORC) only for the portion of backlog attributable to BHEL.*

*ii) 50% of the compensation is allocated for deployment of resources agreed as per the joint programme drawn vide 2.11.4. Payment shall however be based on the actual deployment of resources for the month as certified by BHEL, as per weightages assigned therein*

*iii) 50% of the compensation, is allocated for achieving of planned progress agreed as per the joint programme drawn vide 2.11.4. Payment shall be on pro rata basis for actual achieved quantities*

*iv) Total Over Run Compensation shall be limited to 10% of the executed contract value as certified in Final Bill. For this purpose executed contract value excludes PVC, ORC, Supplementary/Additional Items and Extra Works done on Man-day rate basis*

*2.12.5 Contractor shall not be entitled for any Over Run Compensation (ORC) for the portion of backlog attributable to the contractor. Such works shall be executed at the rates applicable for the period the work was planned*

### **2.13 QUANTITY VARIATION**

***2.13.1 The quoted rates shall remain firm irrespective of any variations in the individual quantities.***

### **2.14 EXTRA WORKS**

*2.14.1 All rectifications/modifications, revamping, and reworks required for any reasons not attributable to the contractor, or needed due to any change in deviation from drawings and design of equipment, operation/maintenance requirements, mismatching, or due to damages in transit, storage and erection/commissioning, and other allied works which are not very specifically indicated in the drawings, but are found essential for satisfactory completion of the work, will be considered as extra works.*

*2.14.2 Extra works arising on account of the contractor's fault, irrespective of time consumed in rectification of the damage/loss, will have to be carried out by the contractor free of cost. Under such circumstances, any material and consumable required for this purpose will also have to be arranged by the contractor at his cost.*

2.14.3 All the extra work should be carried out by a separately identifiable gang, without affecting routine activities. Daily log sheets in the pro-forma prescribed by BHEL should be maintained and shall be signed by the contractor's representative and BHEL engineer. No claim for extra work will be considered/entertained in the absence of the said supporting documents i.e. daily log sheets. Signing of log sheets by BHEL engineer does not necessarily mean the acceptance of such works as extra works.

2.14.4 BHEL retains the right to award or not to award any of the major repair/rework/modification/rectification/fabrication works to the contractor, at their discretion without assigning any reason for the same

2.14.5 After eligibility of extra works is established and finally accepted by BHEL engineer/designer, payment will be released on competent authority's approval at the following rate.

**MAN-HOUR RATE FOR ELIGIBLE EXTRA WORKS:** Single composite average labour man-hour rate, including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, consumables for carrying out any major rework/repairs/rectification/modification/fabrication as certified by site as may arise during the course of erection, testing, commissioning or extra works arising out of transit, storage and erection damages, payment, if found due will be as per applicable minimum wage act

2.14.6 The above composite labour man hour rate towards extra works shall remain firm and not subject to any variation during execution of the work. PVC will not be applicable for extra works. Rate revision, Over Run Charges/compensation etc will not be applicable due to extra works.

2.14.7 Extra Works for Civil Packages shall be regulated as follows

i) Rates for Extra Works arising due to (1) non availability of BOQ (Rate Schedule), OR (2) change in Specifications of materials/works (3) rectification/modification/dismantling & re erecting etc due to no fault of Contractor, shall be in the order of the following:

a) Item rates are to be derived from similar nature of items in the BOQ (Rate Schedule) with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities.

b) As per applicable updated CPWD-DSR (or latest edition) with applicable escalation derived; Notification issued by the office of CPWD for 'Cost Index' in that Region where the project is being executed,

c) Item rates are to be worked out on the basis of prevailing market rates mutually agreed between BHEL and Contractor, plus 15% towards Contractor's overheads and profit.

*ii) PVC and ORC will not applicable be for (i) above.*

## **2.15 SUPPLEMENTARY ITEMS**

### **2.15.1 For NON Civil Works**

*Supplementary items are items/works required for completion of entire work but not specified in the scope of work. Subject to certification of such items/works as supplementary items by BHEL Engineer, rates shall be derived on the basis of any one of the following on mutual agreement:*

*i) Based on percentage breakup/rates indicated for similar/nearby items*

*ii) In case (i) above does not exist, then BHEL/site may derive the percentage breakup/rates to suit the type of work*

### **2.15.2 For Civil Works**

*i) Rates for Supplementary Works/Additional Works arising out due to additions/alterations in the original scope of works as per contract subject to certification of BHEL Engineer shall be worked out as under:*

*a) Item rates which are available in existing BOQ (Rate Schedule) shall be operated with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities*

*b) Items of works which are not available in existing BOQ shall be operated as an 'Extra Works' and rate shall be derived as per clause no 2.14*

*ii) Execution of Supplementary Works/Additional Works through the Contractor shall be at the sole discretion of BHEL, and shall be considered as part of executed contract value for the purpose of Quantity Variation as per clause 2.13*

*iii) BHEL Engineer's decision regarding fixing the rate as above is final and binding on the contractor.*

*iv) PVC and ORC will not be applicable for (i) above.*

## **2.16 STRIKES & LOCKOUT**

*2.16.1 The contractor will be fully responsible for all disputes and other issues connected with his labour/employee. In the event of the contractor's labour/employee resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of 15 days, BHEL shall have the right to get the work executed through any other*

*agencies and the cost so incurred by BHEL along with Overhead charges of 35% shall be deducted from the Contractor's bills along with overhead of 35%*

*2.16.2 For all purposes whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL*

## **2.17 FORCE MAJEURE**

*The following shall amount to Force Majeure:-*

*2.17.1 Acts of God, act of any Government, War, Sabotage, Riots, Strike, Civil commotion, Police action, Revolution, Flood, Fire, Cyclones, Earth quake and Epidemic and other similar causes over which the contractor has no control.*

*2.17.2 If the contractor suffers delay in the due execution of the contractual obligation due to delays caused by force majeure as defined above, the agreed time of completion of the job covered by this contract or the obligations of the contractor shall be extended by a period of time equal to period of delay, provided that on the occurrence of any such contingency, the contractor immediately reports to BHEL in writing the causes of delay and the contractor shall not be eligible for any compensation.*

## **2.18 ARBITRATION & RECONCILIATION**

*2.18.1 In case amicable settlement is not reached in the event of any dispute or difference arising out of the execution of the Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision by the Contractor in any manner touching upon the Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred to the sole arbitration of the arbitrator appointed by BHEL/In charge.*

*The award of the Arbitrator shall be binding upon the parties to the dispute Subject as aforesaid, the provisions of Arbitration and Reconciliation Act 1996 (India) or statutory modifications or reenactments thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. The venue of the arbitration shall be the place from which the contract is issued or such other place as the Arbitrator at his discretion may determine*

*2.18.2 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:*

*In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred to by either party to the arbitration of one of the arbitrators in the department of public enterprises. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties hereto finally and conclusively.*

*2.18.3 The cost of arbitration shall be borne equally by the parties.*

*2.18.4 Work under the contract shall be continued during the arbitration proceedings*

## **2.19 PAYMENTS**

*Payments to Contractors are made in any one of the following forms*

### *2.19.1 Running Account Bills (RA Bills)*

*i) These are for interim payments when the contracts are in progress. The bills for such interim payments are to be prepared by Contractor in prescribed formats (RA Bill forms).*

*ii) Payments shall be made according to the extent of work done as per measurements taken up to the end of the calendar month and in line with the terms of payments described in the Tender documents along with relevant statutory documents applicable for the work.*

*iii) Recoveries on account of electricity, water, statutory deductions, etc are made as per terms of contract*

*iv) Full rates for the work done shall be allowed only if the quantum of work has been done as per the specifications stipulated in the contract. If the work is not executed as per the stipulated specifications, BHEL may ask the contractor to re do the work according to the required specifications, without any extra cost. However, where this is not considered necessary 'OR' where the part work is done due to factors like non-availability of material to be supplied by BHEL 'OR' non availability of fronts 'OR' non availability of drawings, fraction payment against full rate, as is considered reasonable, may be allowed with due regard for the work remaining to be done. BHEL decision in this regard will be final and binding on the contractor.*

v) In order to facilitate part payment, BHEL Site Engineer at his discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work

#### **2.19.2 Final Bill**

*Final Bill* is used for final payment on closing of Running Account for works or for single payment after completion of works. *Final Bill* shall be submitted as per prescribed format after completion of works as per scope and upon material reconciliation, along with the following.

i) *No Claim Certificate* by contractor

ii) *Clearance certificates* where ever applicable viz *Clearance Certificates* from Customer, various *Statutory Authorities* like Labour department, PF Authorities, Commercial Tax Department, etc

iii) *Indemnity bond* as per prescribed format BHEL shall settle the final bills after deducting all liabilities of Contractor to BHEL

#### **2.20 PERFORMANCE GUARANTEE FOR WORKMANSHIP**

2.20.1 Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of as mentioned in the contract/NIT from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the Contractor's risk and cost, without prejudice to any other rights and recover the same from the balance security deposit.

2.20.2 BHEL shall release the balance security deposit subject to the following

i) Contractor has submitted *Final Bill*

ii) *Guarantee period* as per contract has expired

iii) Contractor has furnished *No Claim Certificate* in specified format

iv) BHEL Site Engineer/Construction Manager has furnished the *No Demand Certificate* in specified format

v) Contractor has carried out the works required to be carried out by him during the period of Guarantee and all expenses incurred by BHEL on carrying out such works is included for adjustment from the Guarantee money refundable.

## **2.21 CLOSING OF CONTRACTS**

The Contract shall be considered completed and closed upon completion of all contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of Contract, BHEL shall issue a completion certificate as per standard format, based on specific request of Contractor.

## **2.22 REVERSE AUCTION/PRICE BID OPENING:**

- BHEL reserves the right to go for reverse auction at any point of time before opening of Price Bid.
- Bids with non-acceptance of reverse auction will be liable for rejection.
- Opening of Price Bid at discretion of BHEL.
- BHEL shall be at liberty to cancel the tender at any time, before ordering, without assigning any reason.

## **2.23 SUSPENSION OF BUSINESS DEALINGS**

BHEL reserves the right to take action against Contractors who either fail to perform or Tenderers/Contractor who indulge in malpractices, by suspending business dealings with them in line with BHEL guidelines issued from time to time.

## **2.24 OTHER ISSUES**

2.24.1 Value of Non judicial Stamp Paper for Bank Guarantees and for Contract Agreement shall be not less than Rs 200/- unless otherwise required under relevant statutes.

2.24.2 In case of any conflict between the General Conditions of Contract and Special Conditions of Contract, provisions contained in the Special Conditions of Contract shall prevail.

2.24.3 Unless otherwise specified in NIT, offers from consortium /JVs shall not be considered.

2.24.4 BHEL may not insist for signing of Contract Agreements in respect of low value and short time period contracts



**RATE CONTRACT for “Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL”**

EDN/ PVSS/ SOIL/ TOPO/BATHYME/RATE CONTRACT/02,  
Dt.: 10-11-2020

# UN-PRICED PRICE BID

**RATE CONTRACT FOR “CONDUCTING TOPOGRAPHICAL SURVEY, GEOTECHNICAL INVESTIGATION, BATHYMETRIC SURVEY, LAND DEVELOPMENT AND OTHER ASSOCIATED WORKS FOR SOLAR PV PROJECTS AND FLOATING SOLAR PV PROJECTS (ALL OVER INDIA) FOR BHEL”**

NAME OF BIDDER:  
(AFFIX SEAL & SIGNATURE ON ALL PAGES OF PRICE BID)

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)

<b>UNPRICED PRICE BID (UP TO 25MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>LAND DEVELOPMENT</b>				
1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees & saplings of girth up to 30cm measured at a height of 1m above ground level & removal of rubbish up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge.	SQ.M.	2225850	2.8	6232380.00
2	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 30cm girth upto and including 60 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1600	800000.00
3	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 60cm girth upto and including 120 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1680	840000.00
<b>B</b>	<b>TOPOGRAPHICAL SURVEY AND GEOTECHNICAL INVESTIGATION WORKS</b>				
4	Topographical survey (UTM Grid System) shall have to be done of the proposed site at suitable grid interval(10M×10M or as directed by Engineer In-Charge) by total station equipment.The Contractor shall carry the Bench Mark from nearest GTS Bench Mark, or any other establish source like Railway station etc. as approved by the Employer, by fly-levelling and establish two permanent bench marks (PBM) at site.All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars at suitable locations as approved by the Employer. While carrying bench mark to project site level shall be established at least on one object like culvert etc along the route in every one km. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks and reference pillars shall be shown on the survey drawings. All necessary levels as entered in the field book have to be submitted along with precontour layout of the total site. Based on the above survey work a general layout drawing with clear demarcation showing boundary pillars, location of control room, array yard, approach road drainage, existing electrical Tower/ poles, and other structures detailing with elevation along with Bore hole detailing & other test locations with Co ordinates, Establishing(Setting out) the TBM points (min 15 pillars as per IRC025 page no 03 with painting) on plant area / periphery and over permanent structure like culverts etc.Two sets of drawings (Contour 0.5M)and survey reports (Scale: 1:10000) along with all relevant documents to be submitted in hard copy. Soft copy of the drawings in ACAD latest version, Survey details also shall be made available in CDs with GPS points of the key points as instructed by BHEL	ACRES	1100	2800	3080000.00
5	Mobilisation of necessary equipment, men & materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc.	LS	20	200000	4000000.00

<b>UNPRICED PRICE BID (UP TO 25MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
6(a)	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter below ground level in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	500	820	410000.00
6(b)	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.S	340	88	29920.00
6(c)	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	100	4160	416000.00
6(d)	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	60	240	14400.00
7(a)	Collection of undisturbed samples from bore holes are required	EACH	400	112	44800.00
7(b)	Collection of disturbed samples from bore holes are required	EACH	400	72	28800.00
8	Conducting electrical Resistivity Test(ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	300	3760	1128000.00
9	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
9(a)	Atterberg limits	EACH	660	48	31680.00
9(b)	Dry and Bulk Density	EACH	660	48	31680.00
9(c)	Moisture Content	EACH	660	48	31680.00
9(d)	Sieve analysis including Hydrometer analysis	EACH	660	48	31680.00
9(e)	Specific Gravity and Void ratio	EACH	660	48	31680.00
9(f)	Direct Shear Test or Triaxial Test as applicable	EACH	660	96	63360.00
9(g)	CBR Test & consolidation	EACH	100	96	9600.00
9(h)	Shrinkage Limit Test	EACH	660	48	31680.00
9(i)	Swell pressure test	EACH	660	48	31680.00
9(j)	Unconfined Compressive strength	EACH	660	96	63360.00
10	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
10(a)	Determination of RQD / Slake durability test	EACH	140	80	11200.00
10(b)	UCC test ( in-situ & saturated)	EACH	140	80	11200.00
10(c)	Specific gravity test & Hardness	EACH	140	80	11200.00
10(d)	Water absorbtion test & Unit Weight	EACH	140	80	11200.00
11	Preparation and submission of draft report in two copies and final report in five hard copies and two soft copies in CD's after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results and suitable recommendation regarding type of foundation etc all complete as per specification etc.	LS	20	20000	400000.00
12	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	20	1280	25600.00

<b>UNPRICED PRICE BID (UP TO 25MW)</b> <b>(A. Ground Mounted Solar PV Projects - Segment-1)</b> <b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
13	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	20	1440	28800.00
14	Trail Pit Excavation (approximate size of 2x2x2.5M) and backfilling, compaction as directed by Engineer in-charge. Relevant test to be done as per above item no. 9 & 10 and observations to be recorded in the geotechnical investigation report with relevant photographs.	NO.S	80	3360	268800.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>18150380.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>UNPRICED PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>LAND DEVELOPMENT</b>				
1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees & saplings of girth up to 30cm measured at a height of 1m above ground level & removal of rubbish up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge.	SQ.M.	6171675	2.4	14812020.00
2	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 30cm girth upto and including 60 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1520	760000.00
3	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 60cm girth upto and including 120 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1600	800000.00
<b>B</b>	<b>TOPOGRAPHICAL SURVEY AND GEOTECHNICAL INVESTIGATION WORKS</b>				
4	Topographical survey (UTM Grid System) shall have to be done of the proposed site at suitable grid interval(10M×10M or as directed by Engineer In-Charge) by total station equipment.The Contractor shall carry the Bench Mark from nearest GTS Bench Mark, or any other establish source like Railway station etc. as approved by the Employer, by fly-levelling and establish two permanent bench marks (PBM) at site.All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars at suitable locations as approved by the Employer. While carrying bench mark to project site level shall be established at least on one object like culvert etc along the route in every one km. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks and reference pillars shall be shown on the survey drawings. All necessary levels as entered in the field book have to be submitted along with precontour layout of the total site. Based on the above survey work a general layout drawing with clear demarcation showing boundary pillars, location of control room, array yard, approach road drainage, existing electrical Tower/ poles, and other structures detailing with elevation along with Bore hole detailing & other test locations with Co ordinates, Establishing(Setting out) the TBM points (min 15 pillars as per IRC025 page no 03 with painting) on plant area / periphery and over permanent structure like culverts etc.Two sets of drawings (Contour 0.5M)and survey reports (Scale: 1:10000) along with all relevant documents to be submitted in hard copy. Soft copy of the drawings in ACAD latest version, Survey details also shall be made available in CDs with GPS points of the key points as instructed by BHEL	ACRES	3050	2400	7320000.00
5	Mobilisation of necessary equipment, men & materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc.	LS	10	200000	2000000.00

<b>UNPRICED PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
6(a)	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; perfoming standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	690	800	552000.00
6(b)	Perfoming standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.S	460	76	34960.00
6(c)	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	100	4080	408000.00
6(d)	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	70	200	14000.00
7(a)	Collection of undisturbed samples from bore holes are required	EACH	530	96	50880.00
7(b)	Collection of disturbed samples from bore holes are required	EACH	530	56	29680.00
8	Conducting electrical Resistivity Test(ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	400	3680	1472000.00
9	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
9(a)	Atterberg limits	EACH	920	44	40480.00
9(b)	Dry and Bulk Density	EACH	920	44	40480.00
9(c)	Moisture Content	EACH	920	44	40480.00
9(d)	Sieve analysis including Hydrometer analysis	EACH	920	44	40480.00
9(e)	Specific Gravity and Void ratio	EACH	920	44	40480.00
9(f)	Direct Shear Test or Triaxial Test as applicable	EACH	920	88	80960.00
9(g)	CBR Test & consolidation	EACH	200	88	17600.00
9(h)	Shrinkage Limit Test	EACH	920	44	40480.00
9(i)	Swell pressure test	EACH	920	44	40480.00
9(j)	Unconfined Compressive strength	EACH	920	88	80960.00
10	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
10(a)	Determination of RQD / Slake durability test	EACH	130	80	10400.00
10(b)	UCC test ( in-situ & saturated)	EACH	130	80	10400.00
10(c)	Specific gravity test & Hardness	EACH	130	80	10400.00
10(d)	Water absorbtion test & Unit Weight	EACH	130	80	10400.00
11	Preparation and submission of draft report in two copies and final report in five hard copies and two soft copies in CD's after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results and suitable recommendation regarding type of foundation etc all complete as per specification etc.	LS	10	20000	200000.00
12	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10	1280	12800.00

<b>UNPRICED PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
13	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10	1440	14400.00
14	Trail Pit Excavation (approximate size of 2x2x2.5M) and backfilling, compaction as directed by Engineer in-charge. Relevant test to be done as per above item no. 9 & 10 and observations to be recorded in the geotechnical investigation report with relevant photographs.	NO.S	60	3280	196800.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>29182020.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

**UNPRICED PRICE BID (MORE THAN 75MW)****(A. Ground Mounted Solar PV Projects - Segment-3)****"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>LAND DEVELOPMENT</b>				
1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees & saplings of girth up to 30cm measured at a height of 1m above ground level & removal of rubbish up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge.	SQ.M.	6677308	2	13354616.00
2	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 30cm girth upto and including 60 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1440	720000.00
3	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 60cm girth upto and including 120 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1520	760000.00
<b>B</b>	<b>TOPOGRAPHICAL SURVEY AND GEOTECHNICAL INVESTIGATION WORKS</b>				
4	Topographical survey (UTM Grid System) shall have to be done of the proposed site at suitable grid interval(10M×10M or as directed by Engineer In-Charge) by total station equipment. The Contractor shall carry the Bench Mark from nearest GTS Bench Mark, or any other establish source like Railway station etc. as approved by the Employer, by fly-levelling and establish two permanent bench marks (PBM) at site. All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars at suitable locations as approved by the Employer. While carrying bench mark to project site level shall be established at least on one object like culvert etc along the route in every one km. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks and reference pillars shall be shown on the survey drawings. All necessary levels as entered in the field book have to be submitted along with precontour layout of the total site. Based on the above survey work a general layout drawing with clear demarcation showing boundary pillars, location of control room, array yard, approach road drainage, existing electrical Tower/ poles, and other structures detailing with elevation along with Bore hole detailing & other test locations with Co ordinates, Establishing (Setting out) the TBM points (min 15 pillars as per IRC025 page no 03 with painting) on plant area / periphery and over permanent structure like culverts etc. Two sets of drawings (Contour 0.5M) and survey reports (Scale: 1:10000) along with all relevant documents to be submitted in hard copy. Soft copy of the drawings in ACAD latest version, Survey details also shall be made available in CDs with GPS points of the key points as instructed by BHEL	ACRES	5000	2000	10000000.00
5	Mobilisation of necessary equipment, men & materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc.	LS	10	200000	2000000.00

**UNPRICED PRICE BID (MORE THAN 75MW)**

**(A. Ground Mounted Solar PV Projects - Segment-3)**

**"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
6(a)	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling,cleaning,providing casing pipes as required or as directed; perfoming standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	2500	780	1950000.00
6(b)	Perfoming standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.'S	1670	60	100200.00
6(c)	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	200	3200	640000.00
6(d)	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory.Location shall be identified and shown by BHEL prior to commencement.	EACH	130	160	20800.00
7(a)	Collection of undisturbed samples from bore holes are required	EACH	1800	80	144000.00
7(b)	Collection of disturbed samples from bore holes are required	EACH	1800	40	72000.00
8	Conducting electrical Resistivity Test(ERT) at various locations complete as per specification,drawings and as directed by the engineer- In-charge.	EACH	700	2800	1960000.00
9	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
9(a)	Atterberg limits	EACH	3330	40	133200.00
9(b)	Dry and Bulk Density	EACH	3330	40	133200.00
9(c)	Moisture Content	EACH	3330	40	133200.00
9(d)	Sieve analysis including Hydrometer analysis	EACH	3330	40	133200.00
9(e)	Specific Gravity and Void ratio	EACH	3330	40	133200.00
9(f)	Direct Shear Test or Triaxial Test as applicable	EACH	3330	80	266400.00
9(g)	CBR Test & consolidation	EACH	300	80	24000.00
9(h)	Shrinkage Limit Test	EACH	3330	40	133200.00
9(i)	Swell pressure test	EACH	3330	40	133200.00
9(j)	Unconfined Compressive strength	EACH	3330	80	266400.00
10	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
10(a)	Determination of RQD / Slake durability test	EACH	270	80	21600.00
10(b)	UCC test ( in-situ & saturated)	EACH	270	80	21600.00
10(c)	Specific gravity test & Hardness	EACH	270	80	21600.00
10(d)	Water absorbtion test & Unit Weight	EACH	270	80	21600.00
11	Preparation and submission of draft report in two copies and final report in five hard copies and two soft copies in CD's after the approval of draft report including all field records,laboratory test results,graphs,analysis of test results and suitable recommendation regarding type of foundation etc all complete as per specification etc.	LS	10	20000	200000.00
12	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic,sulphates,Chlorides,PHvalues,suspended matter,acids,alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10	1280	12800.00

**UNPRICED PRICE BID (MORE THAN 75MW)****(A. Ground Mounted Solar PV Projects - Segment-3)****"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
13	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10	1440	14400.00
14	Trail Pit Excavation (approximate size of 2x2x2.5M) and backfilling, compaction as directed by Engineer in-charge. Relevant test to be done as per above item no. 9 & 10 and observations to be recorded in the geotechnical investigation report with relevant photographs.	NO.S	80	3200	256000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>33780416.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>UNPRICED PRICE BID (UP TO 25MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>GEOTECHNICAL INVESTIGATION AT LAND FOR PCU/TRANSFORMER STATION</b>				
1.a	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter/5 meter (as per location) below ground level in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement.	RUNNING METER	150.00	800	120000.00
1.b	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/5 Meter as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.S	120.00	76	9120.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	60.00	4080	244800.00
1.d	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	40.00	200	8000.00
2. a	Collection of undisturbed samples from bore holes are required	EACH	160.00	96	15360.00
2.b	Collection of disturbed samples from bore holes are required	EACH	160.00	56	8960.00
3	Conducting electrical Resistivity Test (ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	20.00	3680	73600.00
4	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification.				
a	Atterberg limits	EACH	240.00	44	10560.00
b	Dry and Bulk Density	EACH	240.00	44	10560.00
c	Moisture Content	EACH	240.00	44	10560.00
d	Sieve analysis including Hydrometer analysis	EACH	240.00	44	10560.00
e	Specific Gravity and Void ratio	EACH	240.00	44	10560.00
f	Direct Shear Test or Triaxial Test as applicable	EACH	240.00	88	21120.00
g	CBR Test & consolidation	EACH	280.00	88	24640.00
h	Shrinkage Limit Test	EACH	240.00	44	10560.00
i	Swell pressure test	EACH	240.00	44	10560.00
j	Unconfined Compressive strength	EACH	240.00	88	21120.00
5	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
a	Determination of RQD / Slake durability test	EACH	80.00	44	3520.00
b	UCC test ( in-situ & saturated)	EACH	80.00	44	3520.00
c	Specific gravity test & Hardness	EACH	80.00	44	3520.00
d	Water absorption test & Unit Weight	EACH	80.00	44	3520.00
6	Chemical Analysis -water As per IS456. Scope to cover organic, inorganic, sulphates, chlorides, PH value, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1280	12800.00
7	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1440	14400.00
<b>B</b>	<b>GEOTECHNICAL INVESTIGATION IN WATER BODY</b>				

<b>UNPRICED PRICE BID (UP TO 25MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1.a	Location and making 150 mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter from the reservoir bottom in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including hesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5 m interval down to required depth below reservoir bottom (starting depth 1 m from reservoir bottom) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	240.00	1680	403200.00
1.b.	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below reservoir bottom and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.S	170.00	180	30600.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below reservoir bottom using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	50.00	3280	164000.00
1.d	Performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	40.00	220	8800.00
2.a.	Collection of undisturbed samples from bore holes are required	EACH	210.00	256	53760.00
2.b	Collection of disturbed samples from bore holes are required	EACH	210.00	88	18480.00
3	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification and applicable standrad				
3.a.	Atterberg limits Liquid limit & plastic limit as per IS-2720 – part V	EACH	340.00	48	16320.00
3.b.	Dry and Bulk Density	EACH	340.00	48	16320.00
3.c	Moisture Content	EACH	340.00	48	16320.00
3.d	Sieve analysis including Hydrometer analysis as per IS-2720-Part-IV	EACH	340.00	48	16320.00
3.e	Specific Gravity and Void ratio as per IS-2720	EACH	340.00	48	16320.00
3.f	Direct Shear Test or Triaxial Test as applicable as per IS-2720-Part XI	EACH	340.00	88	29920.00
3.g	Shrinkage Limit Test	EACH	340.00	48	16320.00
3.h	Swell pressure test	EACH	340.00	48	16320.00
3.i	Unconfined Compressive strength	EACH	340.00	88	29920.00
4	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
4.a.	Determination of RQD / Slake durability test	EACH	80.00	176	14080.00
4.b.	UCC test ( in-situ & saturated)	EACH	80.00	176	14080.00
4.c.	Specific gravity test & Hardness	EACH	80.00	176	14080.00
4.d.	Water absorbtion test & Unit Weight	EACH	80.00	176	14080.00
5	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1280	12800.00
6	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1440	14400.00
<b>C</b>	<b>BATHYMETRIC SURVEY</b>				
1	Conducting Bathymetric Survey of given area including Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed as per tender specification	ACRES	700.00	4800	3360000.00
<b>D</b>	<b>PREPARATION AND SUBMISSION OF DOCUMENTS AND REPORTS &amp; EQUIPMENT MOBILISATION CHARGES</b>				

<p align="center"><b>UNPRICED PRICE BID (UP TO 25MW)</b>  <b>(B. Floating Solar PV Projects - Segment-1)</b>  <b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b></p>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1	Mobilization of all necessary survey instruments, materials, tools, equipment, survey boat, necessary engineering supervision and technical personnel, skilled and unskilled labours, arranging water for drilling etc as required to carry out all Geotechnical Investigation and Bathymetric Survey works and demobilisation of the same after completion of work	LS	10.00	260000	2600000.00
2	Preparation and submission of documents and reports after completion of work as per tender specification. All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) colour hard copies of appropriate size after approval of the report by End Customer.	LS	10.00	32000	320000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>7878360.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>UNPRICED PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>GEOTECHNICAL INVESTIGATION AT LAND FOR PCU/TRANSFORMER STATION</b>				
1.a	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter/5 meter (as per location) below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement.	RUNNING METER	110.00	768	84480.00
1.b	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/5 Meter as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.'S	88.00	408	35904.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	44.00	2440	107360.00
1.d	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	30.00	240	7200.00
2. a	Collection of undisturbed samples from bore holes are required	EACH	118.00	160	18880.00
2.b	Collection of disturbed samples from bore holes are required	EACH	118.00	120	14160.00
3	Conducting electrical Resistivity Test (ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	20.00	3200	64000.00
4	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification.				
a	Atterberg limits	EACH	176.00	240	42240.00
b	Dry and Bulk Density	EACH	176.00	2400	422400.00
c	Moisture Content	EACH	176.00	240	42240.00
d	Sieve analysis including Hydrometer analysis	EACH	176.00	240	42240.00
e	Specific Gravity and Void ratio	EACH	176.00	240	42240.00
f	Direct Shear Test or Triaxial Test as applicable	EACH	176.00	240	42240.00
g	CBR Test & consolidation	EACH	56.00	2000	112000.00
h	Shrinkage Limit Test	EACH	176.00	240	42240.00
i	Swell pressure test	EACH	176.00	240	42240.00
j	Unconfined Compressive strength	EACH	176.00	240	42240.00
5	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
a	Determination of RQD / Slake durability test	EACH	60.00	320	19200.00
b	UCC test ( in-situ & saturated)	EACH	60.00	320	19200.00
c	Specific gravity test & Hardness	EACH	60.00	320	19200.00
d	Water absorption test & Unit Weight	EACH	60.00	320	19200.00
6	Chemical Analysis -water As per IS456. Scope to cover organic, inorganic, sulphates, chlorides, PH value, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
7	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
<b>B</b>	<b>GEOTECHNICAL INVESTIGATION IN WATER BODY</b>				

<b>UNPRICED PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1.a	Location and making 150 mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter from the reservoir bottom in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including hesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5 m interval down to required depth below reservoir bottom (starting depth 1 m from reservoir bottom) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	140.00	800	112000.00
1.b.	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below reservoir bottom and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.'S	98.00	408	39984.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below reservoir bottom using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	28.00	2440	68320.00
1.d	Performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	20.00	240	4800.00
2.a.	Collection of undisturbed samples from bore holes are required	EACH	118.00	160	18880.00
2.b	Collection of disturbed samples from bore holes are required	EACH	118.00	120	14160.00
3	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification and applicable standrad				0.00
3.a.	Atterberg limits Liquid limit & plastic limit as per IS-2720 – part V	EACH	196.00	240	47040.00
3.b.	Dry and Bulk Density	EACH	196.00	2400	470400.00
3.c	Moisture Content	EACH	196.00	240	47040.00
3.d	Sieve analysis including Hydrometer analysis as per IS-2720-Part-IV	EACH	196.00	240	47040.00
3.e	Specific Gravity and Void ratio as per IS-2720	EACH	196.00	360	70560.00
3.f	Direct Shear Test or Triaxial Test as applicable as per IS-2720-Part XI	EACH	196.00	2000	392000.00
3.g	Shrinkage Limit Test	EACH	196.00	240	47040.00
3.h	Swell pressure test	EACH	196.00	240	47040.00
3.i	Unconfined Compressive strength	EACH	196.00	240	47040.00
4	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
4.a.	Determination of RQD / Slake durability test	EACH	40.00	320	12800.00
4.b.	UCC test ( in-situ & saturated)	EACH	40.00	320	12800.00
4.c.	Specific gravity test & Hardness	EACH	40.00	320	12800.00
4.d.	Water absorbtion test & Unit Weight	EACH	40.00	320	12800.00
5	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
6	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
<b>C</b>	<b>BATHYMETRIC SURVEY</b>				
1	Conducting Bathymetric Survey of given area including Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed as per tender specification	ACRES	700.00	552	386400.00
<b>D</b>	<b>PREPARATION AND SUBMISSION OF DOCUMENTS AND REPORTS &amp; EQUIPMENT MOBILISATION CHARGES</b>				

<b>UNPRICED PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1	Mobilization of all necessary survey instruments, materials, tools, equipment, survey boat, necessary engineering supervision and technical personnel, skilled and unskilled labours, arranging water for drilling etc as required to carry out all Geotechnical Investigation and Bathymetric Survey works and demobilisation of the same after completion of work	LS	2.00	600000	1200000.00
2	Preparation and submission of documents and reports after completion of work as per tender specification. All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) colour hard copies of appropriate size after approval of the report by End Customer.	LS	2.00	100000	200000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>4611248.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

**UNPRICED PRICE BID (MORE THAN 75MW)**

**(B. Floating Solar PV Projects - Segment-3)**

**"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>GEOTECHNICAL INVESTIGATION AT LAND FOR PCU/TRANSFORMER STATION</b>				
1.a	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter/5 meter (as per location) below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling,cleaing,providing casing pipes as required or as directed; perfoming standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement.	RUNNING METER	315.00	768	241920.00
1.b	Perfoming standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/5 Meter as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO:S	252.00	408	102816.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	126.00	2440	307440.00
1.d	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory.Location shall be identified and shown by BHEL prior to commencement.	EACH	84.00	240	20160.00
2. a	Collection of undisturbed samples from bore holes are required	EACH	336.00	160	53760.00
2.b	Collection of disturbed samples from bore holes are required	EACH	336.00	120	40320.00
3	Conducting electrical Resistivity Test (ERT) at various locations complete as per specification,drawings and as directed by the engineer- In-charge.	EACH	60.00	3200	192000.00
4	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
a	Atterberg limits	EACH	504.00	240	120960.00
b	Dry and Bulk Density	EACH	504.00	2400	1209600.00
c	Moisture Content	EACH	504.00	240	120960.00
d	Sieve analysis including Hydrometer analysis	EACH	504.00	240	120960.00
e	Specific Gravity and Void ratio	EACH	504.00	240	120960.00
f	Direct Shear Test or Triaxial Test as applicable	EACH	504.00	240	120960.00
g	CBR Test & consolidation	EACH	84.00	2000	168000.00
h	Shrinkage Limit Test	EACH	504.00	240	120960.00
i	Swell pressure test	EACH	504.00	240	120960.00
j	Unconfined Compressive strength	EACH	504.00	240	120960.00
5	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
a	Determination of RQD / Slake durability test	EACH	168.00	320	53760.00
b	UCC test ( in-situ & saturated)	EACH	168.00	320	53760.00
c	Specific gravity test & Hardness	EACH	168.00	320	53760.00
d	Water absorbtion test & Unit Weight	EACH	168.00	320	53760.00
6	Chemical Analysis -water As per IS456. Scope to cover organic, inorganic, sulphates, chlorides, PH value, suspended matter, acids, alkalis etc. to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
7	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
<b>B</b>	<b>GEOTECHNICAL INVESTIGATION IN WATER BODY</b>				

**UNPRICED PRICE BID (MORE THAN 75MW)**

**(B. Floating Solar PV Projects - Segment-3)**

**"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1.a	Location and making 150 mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter from the reservoir bottom in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including hesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5 m interval down to required depth below reservoir bottom (starting depth 1 m from reservoir bottom) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	420.00	800	336000.00
1.b.	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below reservoir bottom and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.S	294.00	408	119952.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below reservoir bottom using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	84.00	2440	204960.00
1.d	Performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	57.00	240	13680.00
2.a.	Collection of undisturbed samples from bore holes are required	EACH	351.00	160	56160.00
2.b	Collection of disturbed samples from bore holes are required	EACH	351.00	120	42120.00
3	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification and applicable standrad				
3.a.	Atterberg limits Liquid limit & plastic limit as per IS-2720 – part V	EACH	588.00	240	141120.00
3.b.	Dry and Bulk Density	EACH	588.00	2400	1411200.00
3.c	Moisture Content	EACH	588.00	240	141120.00
3.d	Sieve analysis including Hydrometer analysis as per IS-2720-Part-IV	EACH	588.00	240	141120.00
3.e	Specific Gravity and Void ratio as per IS-2720	EACH	588.00	360	211680.00
3.f	Direct Shear Test or Triaxial Test as applicable as per IS-2720-Part XI	EACH	588.00	2000	1176000.00
3.g	Shrinkage Limit Test	EACH	588.00	240	141120.00
3.h	Swell pressure test	EACH	588.00	240	141120.00
3.i	Unconfined Compressive strength	EACH	588.00	240	141120.00
4	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
4.a.	Determination of RQD / Slake durability test	EACH	114.00	320	36480.00
4.b.	UCC test ( in-situ & saturated)	EACH	114.00	320	36480.00
4.c.	Specific gravity test & Hardness	EACH	114.00	320	36480.00
4.d.	Water absorbtion test & Unit Weight	EACH	114.00	320	36480.00
5	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
6	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
<b>C</b>	<b>BATHYMETRIC SURVEY</b>				
1	Conducting Bathymetric Survey of given area including Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed as per tender specification	ACRES	2100.00	552	1159200.00
<b>D</b>	<b>PREPARATION AND SUBMISSION OF DOCUMENTS AND REPORTS &amp; EQUIPMENT MOBILISATION CHARGES</b>				

**UNPRICED PRICE BID (MORE THAN 75MW)****(B. Floating Solar PV Projects - Segment-3)****"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1	Mobilization of all necessary survey instruments, materials, tools, equipment, survey boat, necessary engineering supervision and technical personnel, skilled and unskilled labours, arranging water for drilling etc as required to carry out all Geotechnical Investigation and Bathymetric Survey works and demobilisation of the same after completion of work	LS	3.00	600000	1800000.00
2	Preparation and submission of documents and reports after completion of work as per tender specification. All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) colour hard copies of appropriate size after approval of the report by End Customer.	LS	3.00	100000	300000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>11371128.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					<b>XXXXX</b>
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					



**RATE CONTRACT for “Conducting Topographical survey, Geotechnical Investigation, Bathymetric survey, Land Development and Other associated works for Solar PV Projects and Floating Solar PV Projects (All over India) for BHEL”**

EDN/ PVSS/ SOIL/ TOPO/BATHYME/RATE CONTRACT/02,  
Dt.: 10-11-2020

# PRICE BID

**RATE CONTRACT FOR “CONDUCTING TOPOGRAPHICAL SURVEY, GEOTECHNICAL INVESTIGATION, BATHYMETRIC SURVEY, LAND DEVELOPMENT AND OTHER ASSOCIATED WORKS FOR SOLAR PV PROJECTS AND FLOATING SOLAR PV PROJECTS (ALL OVER INDIA) FOR BHEL”**

NAME OF BIDDER:  
(AFFIX SEAL & SIGNATURE ON ALL PAGES OF PRICE BID)

Mowleeswaran Natesan,  
Dy. Manager-Civil, BHEL-EDN

CONTRACTOR (SIGN & SEAL)

<b>PRICE BID (UP TO 25MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>LAND DEVELOPMENT</b>				
1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees & saplings of girth up to 30cm measured at a height of 1m above ground level & removal of rubbish up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge.	SQ.M.	2225850	2.8	6232380.00
2	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 30cm girth upto and including 60 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1600	800000.00
3	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 60cm girth upto and including 120 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1680	840000.00
<b>B</b>	<b>TOPOGRAPHICAL SURVEY AND GEOTECHNICAL INVESTIGATION WORKS</b>				
4	Topographical survey (UTM Grid System) shall have to be done of the proposed site at suitable grid interval(10M×10M or as directed by Engineer In-Charge) by total station equipment.The Contractor shall carry the Bench Mark from nearest GTS Bench Mark, or any other establish source like Railway station etc. as approved by the Employer, by fly-levelling and establish two permanent bench marks (PBM) at site.All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars at suitable locations as approved by the Employer. While carrying bench mark to project site level shall be established at least on one object like culvert etc along the route in every one km. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks and reference pillars shall be shown on the survey drawings. All necessary levels as entered in the field book have to be submitted along with precontour layout of the total site. Based on the above survey work a general layout drawing with clear demarcation showing boundary pillars, location of control room, array yard, approach road drainage, existing electrical Tower/ poles, and other structures detailing with elevation along with Bore hole detailing & other test locations with Co ordinates, Establishing(Setting out) the TBM points (min 15 pillars as per IRC025 page no 03 with painting) on plant area / periphery and over permanent structure like culverts etc.Two sets of drawings (Contour 0.5M)and survey reports (Scale: 1:10000) along with all relevant documents to be submitted in hard copy. Soft copy of the drawings in ACAD latest version, Survey details also shall be made available in CDs with GPS points of the key points as instructed by BHEL	ACRES	1100	2800	3080000.00
5	Mobilisation of necessary equipment, men & materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc.	LS	20	200000	4000000.00

<b>PRICE BID (UP TO 25MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
6(a)	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter below ground level in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	500	820	410000.00
6(b)	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.S	340	88	29920.00
6(c)	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	100	4160	416000.00
6(d)	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	60	240	14400.00
7(a)	Collection of undisturbed samples from bore holes are required	EACH	400	112	44800.00
7(b)	Collection of disturbed samples from bore holes are required	EACH	400	72	28800.00
8	Conducting electrical Resistivity Test(ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	300	3760	1128000.00
9	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
9(a)	Atterberg limits	EACH	660	48	31680.00
9(b)	Dry and Bulk Density	EACH	660	48	31680.00
9(c)	Moisture Content	EACH	660	48	31680.00
9(d)	Sieve analysis including Hydrometer analysis	EACH	660	48	31680.00
9(e)	Specific Gravity and Void ratio	EACH	660	48	31680.00
9(f)	Direct Shear Test or Triaxial Test as applicable	EACH	660	96	63360.00
9(g)	CBR Test & consolidation	EACH	100	96	9600.00
9(h)	Shrinkage Limit Test	EACH	660	48	31680.00
9(i)	Swell pressure test	EACH	660	48	31680.00
9(j)	Unconfined Compressive strength	EACH	660	96	63360.00
10	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
10(a)	Determination of RQD / Slake durability test	EACH	140	80	11200.00
10(b)	UCC test ( in-situ & saturated)	EACH	140	80	11200.00
10(c)	Specific gravity test & Hardness	EACH	140	80	11200.00
10(d)	Water absorbtion test & Unit Weight	EACH	140	80	11200.00
11	Preparation and submission of draft report in two copies and final report in five hard copies and two soft copies in CD's after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results and suitable recommendation regarding type of foundation etc all complete as per specification etc.	LS	20	20000	400000.00
12	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	20	1280	25600.00

<b>PRICE BID (UP TO 25MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
13	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	20	1440	28800.00
14	Trail Pit Excavation (approximate size of 2x2x2.5M) and backfilling, compaction as directed by Engineer in-charge. Relevant test to be done as per above item no. 9 & 10 and observations to be recorded in the geotechnical investigation report with relevant photographs.	NO.S	80	3360	268800.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>18150380.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

**PRICE BID (MORE THAN 25MW AND UP TO 75MW)****(A. Ground Mounted Solar PV Projects - Segment-2)****"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>LAND DEVELOPMENT</b>				
1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees & saplings of girth up to 30cm measured at a height of 1m above ground level & removal of rubbish up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge.	SQ.M.	6171675	2.4	14812020.00
2	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 30cm girth upto and including 60 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1520	760000.00
3	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 60cm girth upto and including 120 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1600	800000.00
<b>B</b>	<b>TOPOGRAPHICAL SURVEY AND GEOTECHNICAL INVESTIGATION WORKS</b>				
4	Topographical survey (UTM Grid System) shall have to be done of the proposed site at suitable grid interval(10M×10M or as directed by Engineer In-Charge) by total station equipment.The Contractor shall carry the Bench Mark from nearest GTS Bench Mark, or any other establish source like Railway station etc. as approved by the Employer, by fly-levelling and establish two permanent bench marks (PBM) at site.All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars at suitable locations as approved by the Employer. While carrying bench mark to project site level shall be established at least on one object like culvert etc along the route in every one km. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks and reference pillars shall be shown on the survey drawings. All necessary levels as entered in the field book have to be submitted along with precontour layout of the total site. Based on the above survey work a general layout drawing with clear demarcation showing boundary pillars, location of control room, array yard, approach road drainage, existing electrical Tower/ poles, and other structures detailing with elevation along with Bore hole detailing & other test locations with Co ordinates, Establishing(Setting out) the TBM points (min 15 pillars as per IRC025 page no 03 with painting) on plant area / periphery and over permanent structure like culverts etc.Two sets of drawings (Contour 0.5M)and survey reports (Scale: 1:10000) along with all relevant documents to be submitted in hard copy. Soft copy of the drawings in ACAD latest version, Survey details also shall be made available in CDs with GPS points of the key points as instructed by BHEL	ACRES	3050	2400	7320000.00
5	Mobilisation of necessary equipment, men & materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc.	LS	10	200000	2000000.00

**PRICE BID (MORE THAN 25MW AND UP TO 75MW)**

**(A. Ground Mounted Solar PV Projects - Segment-2)**

**"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
6(a)	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; perfoming standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	690	800	552000.00
6(b)	Perfoming standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.S	460	76	34960.00
6(c)	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	100	4080	408000.00
6(d)	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory.Location shall be identified and shown by BHEL prior to commencement.	EACH	70	200	14000.00
7(a)	Collection of undisturbed samples from bore holes are required	EACH	530	96	50880.00
7(b)	Collection of disturbed samples from bore holes are required	EACH	530	56	29680.00
8	Conducting electrical Resistivity Test(ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	400	3680	1472000.00
9	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
9(a)	Atterberg limits	EACH	920	44	40480.00
9(b)	Dry and Bulk Density	EACH	920	44	40480.00
9(c)	Moisture Content	EACH	920	44	40480.00
9(d)	Sieve analysis including Hydrometer analysis	EACH	920	44	40480.00
9(e)	Specific Gravity and Void ratio	EACH	920	44	40480.00
9(f)	Direct Shear Test or Triaxial Test as applicable	EACH	920	88	80960.00
9(g)	CBR Test & consolidation	EACH	200	88	17600.00
9(h)	Shrinkage Limit Test	EACH	920	44	40480.00
9(i)	Swell pressure test	EACH	920	44	40480.00
9(j)	Unconfined Compressive strength	EACH	920	88	80960.00
10	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
10(a)	Determination of RQD / Slake durability test	EACH	130	80	10400.00
10(b)	UCC test ( in-situ & saturated)	EACH	130	80	10400.00
10(c)	Specific gravity test & Hardness	EACH	130	80	10400.00
10(d)	Water absorbtion test & Unit Weight	EACH	130	80	10400.00
11	Preparation and submission of draft report in two copies and final report in five hard copies and two soft copies in CD's after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results and suitable recommendation regarding type of foundation etc all complete as per specification etc.	LS	10	20000	200000.00
12	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10	1280	12800.00

**PRICE BID (MORE THAN 25MW AND UP TO 75MW)**

**(A. Ground Mounted Solar PV Projects - Segment-2)**

**"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
13	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10	1440	14400.00
14	Trail Pit Excavation (approximate size of 2x2x2.5M) and backfilling, compaction as directed by Engineer in-charge. Relevant test to be done as per above item no. 9 & 10 and observations to be recorded in the geotechnical investigation report with relevant photographs.	NO.S	60	3280	196800.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>29182020.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>PRICE BID (MORE THAN 75MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-3)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>LAND DEVELOPMENT</b>				
1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees & saplings of girth up to 30cm measured at a height of 1m above ground level & removal of rubbish up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge.	SQ.M.	6677308	2	13354616.00
2	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 30cm girth upto and including 60 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1440	720000.00
3	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches ,removing the roots and stacking of serviceable material and disposal of unserviceable material up to a distance of 50m out side the periphery of the Project area cleaned as per the directions of Engineer In charge- Beyond 60cm girth upto and including 120 cm girth (mandatory permissions/ licenses/ statutory clearances from competent authorities if required for cutting of trees, blasting or mining operations, disposal of waste material etc. shall be obtained by the contractor)	EACH	500	1520	760000.00
<b>B</b>	<b>TOPOGRAPHICAL SURVEY AND GEOTECHNICAL INVESTIGATION WORKS</b>				
4	Topographical survey (UTM Grid System) shall have to be done of the proposed site at suitable grid interval(10M×10M or as directed by Engineer In-Charge) by total station equipment. The Contractor shall carry the Bench Mark from nearest GTS Bench Mark, or any other establish source like Railway station etc. as approved by the Employer, by fly-levelling and establish two permanent bench marks (PBM) at site. All subsequent transfer of levels shall be carried out with respect to these PBMs. The work shall also include constructing permanent reference pillars at suitable locations as approved by the Employer. While carrying bench mark to project site level shall be established at least on one object like culvert etc along the route in every one km. These reference pillars shall be labelled permanently with their respective coordinates and reduced levels for future use. The Permanent Bench Marks and reference pillars shall be shown on the survey drawings. All necessary levels as entered in the field book have to be submitted along with precontour layout of the total site. Based on the above survey work a general layout drawing with clear demarcation showing boundary pillars, location of control room, array yard, approach road drainage, existing electrical Tower/ poles, and other structures detailing with elevation along with Bore hole detailing & other test locations with Co ordinates, Establishing (Setting out) the TBM points (min 15 pillars as per IRC025 page no 03 with painting) on plant area / periphery and over permanent structure like culverts etc. Two sets of drawings (Contour 0.5M) and survey reports (Scale: 1:10000) along with all relevant documents to be submitted in hard copy. Soft copy of the drawings in ACAD latest version, Survey details also shall be made available in CDs with GPS points of the key points as instructed by BHEL	ACRES	5000	2000	10000000.00
5	Mobilisation of necessary equipment, men & materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc.	LS	10	200000	2000000.00

<b>PRICE BID (MORE THAN 75MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-3)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
6(a)	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling,cleaing,providing casing pipes as required or as directed; perfoming standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	2500	780	1950000.00
6(b)	Perfoming standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below ground level and at change of strata at depths whereever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.'S	1670	60	100200.00
6(c)	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	200	3200	640000.00
6(d)	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory.Location shall be identified and shown by BHEL prior to commencement.	EACH	130	160	20800.00
7(a)	Collection of undisturbed samples from bore holes are required	EACH	1800	80	144000.00
7(b)	Collection of disturbed samples from bore holes are required	EACH	1800	40	72000.00
8	Conducting electrical Resistivity Test(ERT) at various locations complete as per specification,drawings and as directed by the engineer- In-charge.	EACH	700	2800	1960000.00
9	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
9(a)	Atterberg limits	EACH	3330	40	133200.00
9(b)	Dry and Bulk Density	EACH	3330	40	133200.00
9(c)	Moisture Content	EACH	3330	40	133200.00
9(d)	Sieve analysis including Hydrometer analysis	EACH	3330	40	133200.00
9(e)	Specific Gravity and Void ratio	EACH	3330	40	133200.00
9(f)	Direct Shear Test or Triaxial Test as applicable	EACH	3330	80	266400.00
9(g)	CBR Test & consolidation	EACH	300	80	24000.00
9(h)	Shrinkage Limit Test	EACH	3330	40	133200.00
9(i)	Swell pressure test	EACH	3330	40	133200.00
9(j)	Unconfined Compressive strength	EACH	3330	80	266400.00
10	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
10(a)	Determination of RQD / Slake durability test	EACH	270	80	21600.00
10(b)	UCC test ( in-situ & saturated)	EACH	270	80	21600.00
10(c)	Specific gravity test & Hardness	EACH	270	80	21600.00
10(d)	Water absorbtion test & Unit Weight	EACH	270	80	21600.00
11	Preparation and submission of draft report in two copies and final report in five hard copies and two soft copies in CD's after the approval of draft report including all field records,laboratory test results,graphs,analysis of test results and suitable recommendation regarding type of foundation etc all complete as per specification etc.	LS	10	20000	200000.00
12	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic,sulphates,Chlorides,PHvalues,suspended matter,acids,alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10	1280	12800.00

<b>PRICE BID (MORE THAN 75MW)</b>					
<b>(A. Ground Mounted Solar PV Projects - Segment-3)</b>					
<b>"Rate Contract for Land development, Topographical Survey, Soil Investigation works for Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
13	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10	1440	14400.00
14	Trail Pit Excavation (approximate size of 2x2x2.5M) and backfilling, compaction as directed by Engineer in-charge. Relevant test to be done as per above item no. 9 & 10 and observations to be recorded in the geotechnical investigation report with relevant photographs.	NO.S	80	3200	256000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>33780416.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>PRICE BID (UP TO 25MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>GEOTECHNICAL INVESTIGATION AT LAND FOR PCU/TRANSFORMER STATION</b>				
1.a	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter/5 meter (as per location) below ground level in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement.	RUNNING METER	150.00	800	120000.00
1.b	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/5 Meter as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.S	120.00	76	9120.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	60.00	4080	244800.00
1.d	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	40.00	200	8000.00
2. a	Collection of undisturbed samples from bore holes are required	EACH	160.00	96	15360.00
2.b	Collection of disturbed samples from bore holes are required	EACH	160.00	56	8960.00
3	Conducting electrical Resistivity Test (ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	20.00	3680	73600.00
4	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification.				
a	Atterberg limits	EACH	240.00	44	10560.00
b	Dry and Bulk Density	EACH	240.00	44	10560.00
c	Moisture Content	EACH	240.00	44	10560.00
d	Sieve analysis including Hydrometer analysis	EACH	240.00	44	10560.00
e	Specific Gravity and Void ratio	EACH	240.00	44	10560.00
f	Direct Shear Test or Triaxial Test as applicable	EACH	240.00	88	21120.00
g	CBR Test & consolidation	EACH	280.00	88	24640.00
h	Shrinkage Limit Test	EACH	240.00	44	10560.00
i	Swell pressure test	EACH	240.00	44	10560.00
j	Unconfined Compressive strength	EACH	240.00	88	21120.00
5	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
a	Determination of RQD / Slake durability test	EACH	80.00	44	3520.00
b	UCC test ( in-situ & saturated)	EACH	80.00	44	3520.00
c	Specific gravity test & Hardness	EACH	80.00	44	3520.00
d	Water absorption test & Unit Weight	EACH	80.00	44	3520.00
6	Chemical Analysis -water As per IS456. Scope to cover organic, inorganic, sulphates, chlorides, PH value, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1280	12800.00
7	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1440	14400.00
<b>B</b>	<b>GEOTECHNICAL INVESTIGATION IN WATER BODY</b>				

<b>PRICE BID (UP TO 25MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1.a	Location and making 150 mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter from the reservoir bottom in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including hesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5 m interval down to required depth below reservoir bottom (starting depth 1 m from reservoir bottom) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	240.00	1680	403200.00
1.b.	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below reservoir bottom and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.S	170.00	180	30600.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below reservoir bottom using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	50.00	3280	164000.00
1.d	Performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	40.00	220	8800.00
2.a.	Collection of undisturbed samples from bore holes are required	EACH	210.00	256	53760.00
2.b	Collection of disturbed samples from bore holes are required	EACH	210.00	88	18480.00
3	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification and applicable standrad				
3.a.	Atterberg limits Liquid limit & plastic limit as per IS-2720 – part V	EACH	340.00	48	16320.00
3.b.	Dry and Bulk Density	EACH	340.00	48	16320.00
3.c	Moisture Content	EACH	340.00	48	16320.00
3.d	Sieve analysis including Hydrometer analysis as per IS-2720-Part-IV	EACH	340.00	48	16320.00
3.e	Specific Gravity and Void ratio as per IS-2720	EACH	340.00	48	16320.00
3.f	Direct Shear Test or Triaxial Test as applicable as per IS-2720-Part XI	EACH	340.00	88	29920.00
3.g	Shrinkage Limit Test	EACH	340.00	48	16320.00
3.h	Swell pressure test	EACH	340.00	48	16320.00
3.i	Unconfined Compressive strength	EACH	340.00	88	29920.00
4	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
4.a.	Determination of RQD / Slake durability test	EACH	80.00	176	14080.00
4.b.	UCC test ( in-situ & saturated)	EACH	80.00	176	14080.00
4.c.	Specific gravity test & Hardness	EACH	80.00	176	14080.00
4.d.	Water absorbtion test & Unit Weight	EACH	80.00	176	14080.00
5	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic,sulphates,Chlorides,PHvalues,suspended matter,acids,alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1280	12800.00
6	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	10.00	1440	14400.00
<b>C</b>	<b>BATHYMETRIC SURVEY</b>				
1	Conducting Bathymetric Survey of given area including Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed as per tender specification	ACRES	700.00	4800	3360000.00
<b>D</b>	<b>PREPARATION AND SUBMISSION OF DOCUMENTS AND REPORTS &amp; EQUIPMENT MOBILISATION CHARGES</b>				

<b>PRICE BID (UP TO 25MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-1)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1	Mobilization of all necessary survey instruments, materials, tools, equipment, survey boat, necessary engineering supervision and technical personnel, skilled and unskilled labours, arranging water for drilling etc as required to carry out all Geotechnical Investigation and Bathymetric Survey works and demobilisation of the same after completion of work	LS	10.00	260000	2600000.00
2	Preparation and submission of documents and reports after completion of work as per tender specification. All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) colour hard copies of appropriate size after approval of the report by End Customer.	LS	10.00	32000	320000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>7878360.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>GEOTECHNICAL INVESTIGATION AT LAND FOR PCU/TRANSFORMER STATION</b>				
1.a	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter/5 meter (as per location) below ground level in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including chesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement.	RUNNING METER	110.00	768	84480.00
1.b	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/5 Meter as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.'S	88.00	408	35904.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	44.00	2440	107360.00
1.d	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	30.00	240	7200.00
2. a	Collection of undisturbed samples from bore holes are required	EACH	118.00	160	18880.00
2.b	Collection of disturbed samples from bore holes are required	EACH	118.00	120	14160.00
3	Conducting electrical Resistivity Test (ERT) at various locations complete as per specification, drawings and as directed by the engineer- In-charge.	EACH	20.00	3200	64000.00
4	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification.				
a	Atterberg limits	EACH	176.00	240	42240.00
b	Dry and Bulk Density	EACH	176.00	2400	422400.00
c	Moisture Content	EACH	176.00	240	42240.00
d	Sieve analysis including Hydrometer analysis	EACH	176.00	240	42240.00
e	Specific Gravity and Void ratio	EACH	176.00	240	42240.00
f	Direct Shear Test or Triaxial Test as applicable	EACH	176.00	240	42240.00
g	CBR Test & consolidation	EACH	56.00	2000	112000.00
h	Shrinkage Limit Test	EACH	176.00	240	42240.00
i	Swell pressure test	EACH	176.00	240	42240.00
j	Unconfined Compressive strength	EACH	176.00	240	42240.00
5	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
a	Determination of RQD / Slake durability test	EACH	60.00	320	19200.00
b	UCC test ( in-situ & saturated)	EACH	60.00	320	19200.00
c	Specific gravity test & Hardness	EACH	60.00	320	19200.00
d	Water absorption test & Unit Weight	EACH	60.00	320	19200.00
6	Chemical Analysis -water As per IS456. Scope to cover organic, inorganic, sulphates, chlorides, PH value, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
7	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
<b>B</b>	<b>GEOTECHNICAL INVESTIGATION IN WATER BODY</b>				

<b>PRICE BID (MORE THAN 25MW AND UP TO 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-2)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1.a	Location and making 150 mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter from the reservoir bottom in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including hesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5 m interval down to required depth below reservoir bottom (starting depth 1 m from reservoir bottom) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	140.00	800	112000.00
1.b.	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below reservoir bottom and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc., all complete as per specification.	NO.'S	98.00	408	39984.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below reservoir bottom using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	28.00	2440	68320.00
1.d	Performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	20.00	240	4800.00
2.a.	Collection of undisturbed samples from bore holes are required	EACH	118.00	160	18880.00
2.b	Collection of disturbed samples from bore holes are required	EACH	118.00	120	14160.00
3	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc. all complete as per specification and applicable standrad				0.00
3.a.	Atterberg limits Liquid limit & plastic limit as per IS-2720 – part V	EACH	196.00	240	47040.00
3.b.	Dry and Bulk Density	EACH	196.00	2400	470400.00
3.c	Moisture Content	EACH	196.00	240	47040.00
3.d	Sieve analysis including Hydrometer analysis as per IS-2720-Part-IV	EACH	196.00	240	47040.00
3.e	Specific Gravity and Void ratio as per IS-2720	EACH	196.00	360	70560.00
3.f	Direct Shear Test or Triaxial Test as applicable as per IS-2720-Part XI	EACH	196.00	2000	392000.00
3.g	Shrinkage Limit Test	EACH	196.00	240	47040.00
3.h	Swell pressure test	EACH	196.00	240	47040.00
3.i	Unconfined Compressive strength	EACH	196.00	240	47040.00
4	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc. all complete as per specification.				
4.a.	Determination of RQD / Slake durability test	EACH	40.00	320	12800.00
4.b.	UCC test ( in-situ & saturated)	EACH	40.00	320	12800.00
4.c.	Specific gravity test & Hardness	EACH	40.00	320	12800.00
4.d.	Water absorbtion test & Unit Weight	EACH	40.00	320	12800.00
5	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic, sulphates, Chlorides, PH values, suspended matter, acids, alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
6	Chemical Analysis -Soil As per relevant standard. Scope to cover content of sulphates, chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	2.00	2400	4800.00
<b>C</b>	<b>BATHYMETRIC SURVEY</b>				
1	Conducting Bathymetric Survey of given area including Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed as per tender specification	ACRES	700.00	552	386400.00
<b>D</b>	<b>PREPARATION AND SUBMISSION OF DOCUMENTS AND REPORTS &amp; EQUIPMENT MOBILISATION CHARGES</b>				

**PRICE BID (MORE THAN 25MW AND UP TO 75MW)**

**(B. Floating Solar PV Projects - Segment-2)**

**"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1	Mobilization of all necessary survey instruments, materials, tools, equipment, survey boat, necessary engineering supervision and technical personnel, skilled and unskilled labours, arranging water for drilling etc as required to carry out all Geotechnical Investigation and Bathymetric Survey works and demobilisation of the same after completion of work	LS	2.00	600000	1200000.00
2	Preparation and submission of documents and reports after completion of work as per tender specification. All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) colour hard copies of appropriate size after approval of the report by End Customer.	LS	2.00	100000	200000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>4611248.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					

<b>PRICE BID (MORE THAN 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-3)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>GEOTECHNICAL INVESTIGATION AT LAND FOR PCU/TRANSFORMER STATION</b>				
1.a	Location and making 150mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter/5 meter (as per location) below ground level in all type of the soil including laterite/weathered soft rock using suitable approved method of boring including chesiling,cleaing,providing casing pipes as required or as directed; perfroming standard penetration test at every 1.5m interval down to required depth below ground level (starting depth 0.5 m from ground level) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement.	RUNNING METER	315.00	768	241920.00
1.b	Perfroming standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/5 Meter as required depth below ground level and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO:S	252.00	408	102816.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below ground level using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	126.00	2440	307440.00
1.d	performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory.Location shall be identified and shown by BHEL prior to commencement.	EACH	84.00	240	20160.00
2. a	Collection of undisturbed samples from bore holes are required	EACH	336.00	160	53760.00
2.b	Collection of disturbed samples from bore holes are required	EACH	336.00	120	40320.00
3	Conducting electrical Resistivity Test (ERT) at various locations complete as per specification,drawings and as directed by the engineer- In-charge.	EACH	60.00	3200	192000.00
4	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification.				
a	Atterberg limits	EACH	504.00	240	120960.00
b	Dry and Bulk Density	EACH	504.00	2400	1209600.00
c	Moisture Content	EACH	504.00	240	120960.00
d	Sieve analysis including Hydrometer analysis	EACH	504.00	240	120960.00
e	Specific Gravity and Void ratio	EACH	504.00	240	120960.00
f	Direct Shear Test or Triaxial Test as applicable	EACH	504.00	240	120960.00
g	CBR Test & consolidation	EACH	84.00	2000	168000.00
h	Shrinkage Limit Test	EACH	504.00	240	120960.00
i	Swell pressure test	EACH	504.00	240	120960.00
j	Unconfined Compressive strength	EACH	504.00	240	120960.00
5	Conducting Laboratory test on rock samples(if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
a	Determination of RQD / Slake durability test	EACH	168.00	320	53760.00
b	UCC test ( in-situ & saturated)	EACH	168.00	320	53760.00
c	Specific gravity test & Hardness	EACH	168.00	320	53760.00
d	Water absorbtion test & Unit Weight	EACH	168.00	320	53760.00
6	Chemical Analysis -water As per IS456. Scope to cover organic, inorganic, sulphates, chlorides, PH value, suspended matter, acids, alkalis etc. to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
7	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
<b>B</b>	<b>GEOTECHNICAL INVESTIGATION IN WATER BODY</b>				

<b>PRICE BID (MORE THAN 75MW)</b>					
<b>(B. Floating Solar PV Projects - Segment-3)</b>					
<b>"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".</b>					
SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1.a	Location and making 150 mm nominal diameter bore hole at various location upto required depth as per site condition maximum of 10 meter from the reservoir bottom in all type of the soil including laterite/ weathered soft rock using suitable approved method of boring including hesiling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.5 m interval down to required depth below reservoir bottom (starting depth 1 m from reservoir bottom) and at change of strata and at the depth however undisturbed soil samples could not be collected; Bore hole location shall be identified and shown by BHEL prior to commencement	RUNNING METER	420.00	800	336000.00
1.b.	Performing standard penetration test and collecting of disturbed samples at every 1.5m interval down to 10 meter/as required depth below reservoir bottom and at change of strata at depths wherever undisturbed soil samples could not be collected; and back filling of bore holes with sand on completion of the same etc.,all complete as per specification.	NO.S	294.00	408	119952.00
1.c	Core drilling (N×size) in rock upto a required depth of maximum of 6 meter to required depth below reservoir bottom using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples.	RUNNING METER	84.00	2440	204960.00
1.d	Performing SPT at locations where core recovery is less than 20%, maintaining continous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory. Location shall be identified and shown by BHEL prior to commencement.	EACH	57.00	240	13680.00
2.a.	Collection of undisturbed samples from bore holes are required	EACH	351.00	160	56160.00
2.b	Collection of disturbed samples from bore holes are required	EACH	351.00	120	42120.00
3	Conducting Laboratory test on soil samples at an approved laboratory including preparation of soil samples to determine the following properties etc.all complete as per specification and applicable standrad				
3.a.	Atterberg limits Liquid limit & plastic limit as per IS-2720 – part V	EACH	588.00	240	141120.00
3.b.	Dry and Bulk Density	EACH	588.00	2400	1411200.00
3.c	Moisture Content	EACH	588.00	240	141120.00
3.d	Sieve analysis including Hydrometer analysis as per IS-2720-Part-IV	EACH	588.00	240	141120.00
3.e	Specific Gravity and Void ratio as per IS-2720	EACH	588.00	360	211680.00
3.f	Direct Shear Test or Triaxial Test as applicable as per IS-2720-Part XI	EACH	588.00	2000	1176000.00
3.g	Shrinkage Limit Test	EACH	588.00	240	141120.00
3.h	Swell pressure test	EACH	588.00	240	141120.00
3.i	Unconfined Compressive strength	EACH	588.00	240	141120.00
4	Conducting Laboratory test on rock samples (if rock encountered including preparation of samples to determine the following properties etc.all complete as per specification.				
4.a.	Determination of RQD / Slake durability test	EACH	114.00	320	36480.00
4.b.	UCC test ( in-situ & saturated)	EACH	114.00	320	36480.00
4.c.	Specific gravity test & Hardness	EACH	114.00	320	36480.00
4.d.	Water absorbtion test & Unit Weight	EACH	114.00	320	36480.00
5	Chemical analysis of water as per IS-456-Scope to cover organic, Inorganic,sulphates,Chlorides,PHvalues,suspended matter,acids,alkalies etc. to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
6	Chemical Analysis -Soil As per relevant standard.Scope to cover content of sulphates,chlorides and PH value to be done for five samples in the area as decided with BHEL site engineer	LS	3.00	2400	7200.00
<b>C</b>	<b>BATHYMETRIC SURVEY</b>				
1	Conducting Bathymetric Survey of given area including Topographical Survey on the banks for a width of 50 m on the sides of bank (if available) adjacent to the proposed location are to be surveyed as per tender specification	ACRES	2100.00	552	1159200.00
<b>D</b>	<b>PREPARATION AND SUBMISSION OF DOCUMENTS AND REPORTS &amp; EQUIPMENT MOBILISATION CHARGES</b>				

**PRICE BID (MORE THAN 75MW)**

**(B. Floating Solar PV Projects - Segment-3)**

**"Rate Contract for Geotechnical Investigation and Bathymetric Survey works for Floating Solar PV Projects (all over India) for BHEL".**

SL NO	DESCRIPTION OF THE WORK	UNIT	QTY	RATE	AMOUNT
1	Mobilization of all necessary survey instruments, materials, tools, equipment, survey boat, necessary engineering supervision and technical personnel, skilled and unskilled labours, arranging water for drilling etc as required to carry out all Geotechnical Investigation and Bathymetric Survey works and demobilisation of the same after completion of work	LS	3.00	600000	1800000.00
2	Preparation and submission of documents and reports after completion of work as per tender specification. All the reports and their supporting documents shall be provided in editable soft form (In a pen drive) as well as in Three (3) colour hard copies of appropriate size after approval of the report by End Customer.	LS	3.00	100000	300000.00
<b>TOTAL AMOUNT (Rs.)</b>					<b>11371128.00</b>
<b>QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT</b>					
<b>Plus applicable GST</b>					
<b>NOTE:</b>					
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT					
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.					