TENDER SPECIFICATION

BHEL: PSSR: SCT:1981

FOR

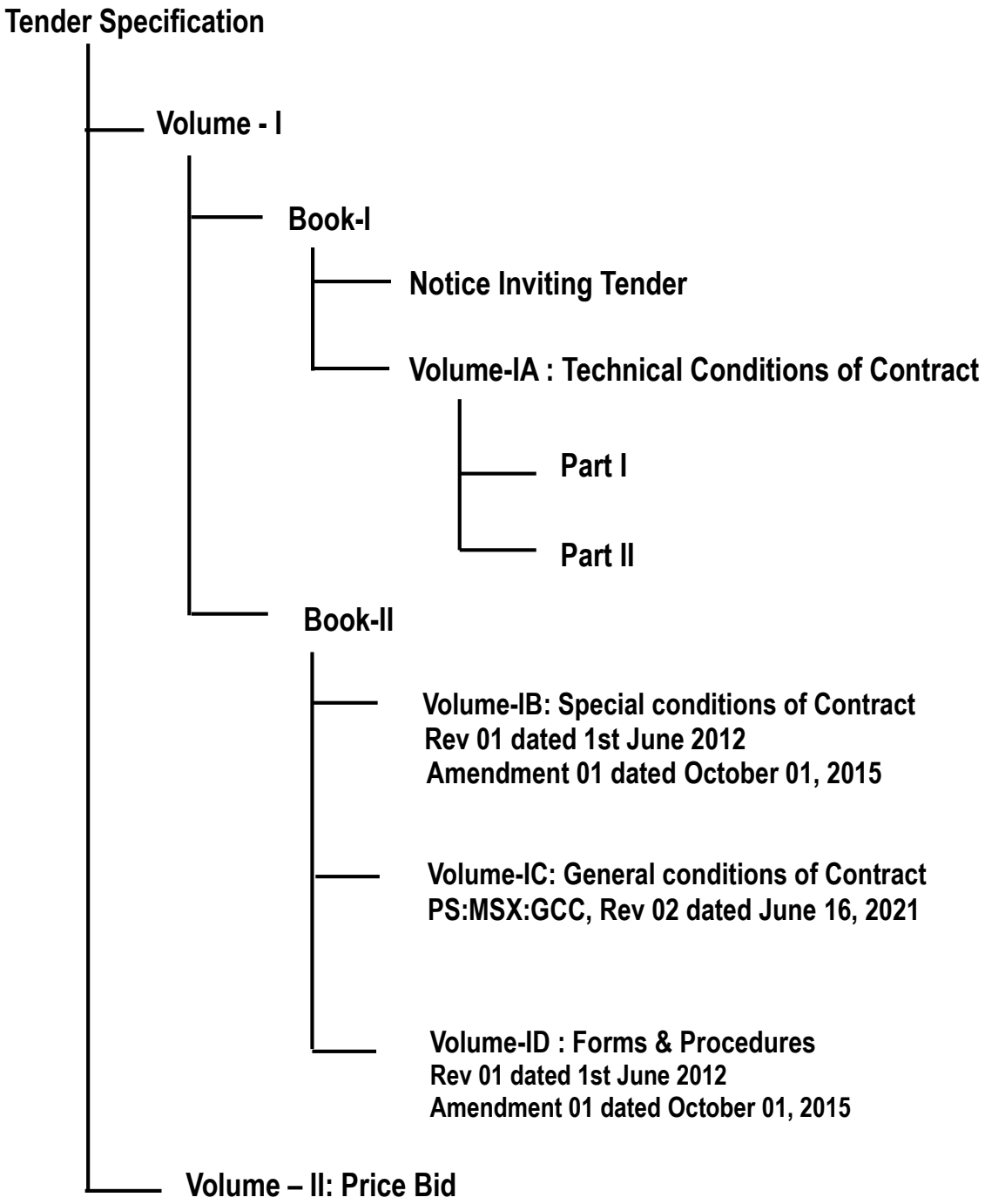
Topographical survey and geo-technical investigation works at 2X500MW, NTPL TUTICORIN FGD CHIMNEY , Tuticorin TPS, Tamil Nadu.

VOLUME –II

PRICE BID

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector – Southern Region
Tek Towers, No. 11, Old Mahabalipuram Road,
Okkiyam Thoraipakkam , Chennai-600097

TENDER SPECIFICATION CONSISTS OF



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PART-A

INSTRUCTIONS TO BIDDERS

1. The quantity indicated in the BOQ in Part C of Price Bid is approximate only and is liable for variation. Payment will be as per actual quantity executed and as certified by BHEL Engineer.

2. Tenderers are requested to affix their company seal and authorized signature in all pages.

3. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)'' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/formats will not be entertained.

4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part C of the Price Bid.

5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part C of Price Bid.

6. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.

7. Based on the quantities of individual item and the amount arrived in Sl. No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.

8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per Sl No.7 above.

9. The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The derived item rates (as mentioned above) for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value is within the limit of Minus (-) 25% of awarded contract value.

Part C : Bill of Quantities

Tender Specification BHEL:PSSR:SCT:1981 for Geotechnical Investigation and Topographical survey at NTPL Tuticorin (2X500MW) FGD

Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
1.0	Carrying out bench mark from the nearest GTS bench mark or any other available source as approved by the engineer-in-charge to different locations in the project area including clearing of jungles and/or cutting trees and any other works required for completion of the said item etc all complete as per specification and instructions of the engineer-in-charge. (Construction of bench mark pillar to be paid separately)	km	1	.0084382
2.0	Carrying out topographical survey of plant and allied areas showing all permanent & general features and detailed contour survey by taking spot levels at 10m interval, carrying out cross section of canal/nallah/pipe corridor by taking spot levels at 5m interval or less including clearance of jungles and cutting of trees etc which are interfering with the survey works and any other field works necessary for the completion of the said item, preparation and submission of all plans (maps), reports, CD and originals etc all complete as per specification and instructions of the engineer-in- charge.	Hectare	0.5	.0314188
3.0	Construction of bench mark pillar/reference pillar/grid pillar at different locations including clearing of jungles, excavation, supply of materials, pillar marking, backfilling, white washing, painting on MS plate etc all complete as per specification, drawings and instructions of the engineer-in- charge.	--		
a	Bench mark pillar	Each	1	.0132857
b	Grid/reference pillar	Each	2	.0175945
B	GEO-TECHNICAL INVESTIGATION	--		
1.0	Mobilisation of necessary equipment, men and materials to the project site for carrying out the geotechnical investigation and demobilisation of the same after completion of all the field works etc all complete as per specification, drawings and as directed by the engineer-in-charge.	LS	1	.2549414

SIGNATURE OF BIDDER WITH SEAL

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
2.0	Making 150mm nominal diameter bore hole up to a maximum depth of 30 m below ground level at various locations in all types of soil including laterite using suitable approved method of boring including chiselling, cleaning, providing casing pipes as required or as directed; performing standard penetration test at every 1.0m interval alternate to collection of undisturbed soil samples up to 10m depth below ground level and at every 1.5m interval alternate to collection of undisturbed soil samples beyond 10 m depth, at change of strata and at depths wherever undisturbed soil samples could not be collected; collection of undisturbed sample (UDS) at every 1.0m interval alternate to conducting standard penetration test up to 10 m depth below ground level and at every 1.5m interval alternate to conducting standard penetration test beyond 10 m depth; collection of disturbed soil samples and water samples, sealing and packing of samples, observation such as ground water table etc; transportation of all the collected samples to the laboratory and back filling of boreholes with sand on completion of the same etc all complete as per specification and as directed by the engineer-in-charge.	M	24	.0409438
3.0	Core drilling (Nx size) in rock using hydraulic feed rotary drill and double tube core barrel with diamond bit including collection of core samples, performing SPT at locations where core recovery is less than 20%, maintaining continuous record of core recovery and RQD, keeping the cores in wooden core boxes, transporting the cores to laboratory, back filling the holes with 1 part of cement : 3 part of sand grout on completion of the same etc all complete as per specification, drawings and as directed by the engineer-in-charge.	M	66	.2073907
4.0	Conducting electrical resistivity test at various locations complete as per specification, drawings and as directed by the engineer-in-charge.	Each	2	.014722
5.0	Conducting cross hole shear wave test in bore hole in all types of strata at 2m, 4m, 6m, 8m, 10m, 12m, 15m, 18m, 20m, 22m, 25m, 28m & 30m depth below ground level including drilling and preparation of required number of bore holes, providing PVC liner, grouting and backfilling with sand after completion of the test etc all complete as per specification, drawings and as directed by the engineer-in-charge.	Each	1	.2549414
6.0	Conducting field CBR test in various locations at 0.5m depth below ground level complete as per specification, drawings and as directed by engineer-in-charge.	Each	2	.0140038

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
7.0	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	Bulk density and moisture content	Each	10	.0012607
b	Sieve analysis	Each	10	.0014363
c	Hydrometer analysis	Each	3	.0005386
d	Liquid limit and plastic limit	Each	10	.0017954
e	Shrinkage limit	Each	3	.0005937
f	Specific gravity	Each	3	.0003519
g	Swell pressure	Each	3	.0010246
h	Free swell index	Each	3	.0003232
i	Relative density	Each	3	.0005386
j	Unconfined compressive strength	Each	3	.0008354
k	Direct shear test	Each	3	.0009432
l	Triaxial shear test	--		
(i)	unconsolidated undrained test	Each	3	.0018313
m	One dimensional consolidation test	Each	3	.0018313
n	Standard Proctor compaction test	Each	3	.0048475
o	CBR test	Each	2	.0035907

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
p	Chemical analysis	Each	2	.0023348
8.0	Conducting laboratory test on rock samples including preparation of the samples to determine the following properties etc all complete as per specification	--		
a	Moisture content, porosity & density	Each	15	.0029683
b	Specific gravity	Each	15	.0016158
c	Slake durability index	Each	15	.0148177
d	Unconfined compressive strength (both at saturated and inâ¿¿situ water content)	Each	20	.005027
e	Point load strength	Each	20	.0043089
f	Hardness	Each	15	.0025614
g	Soundness	Each	15	.0251829
h	Deformability (both at saturated and inâ¿¿situ water content)	Each	15	.0118494
9.0	Conducting chemical test on water samples to determine the carbonate, sulphate, chloride and nitrate contents, pH value, turbidity, organic matter and any other chemicals harmful to foundation material etc all complete as per specification..	Each	2	.0032317
10.0	Preparation and submission of draft report in 3 copies and final report in 6 hard copies and 2 soft copies on CD after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results, photo graphs showing details of field tests/soil/rock samples/Trail pits and recommendation etc all complete as per specification.	LS	1	.0466794
TOTAL Weightage				1.0

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