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T E N D E R S P E C I F I C A T I O N

TENDER NO. BHEL/NR/SCT/TISHREEN/TOPO SUR & GEO INV/575

FOR

Topographical Survey & Geotechnical Investigation work of 2 x 200 MW Tishreen Thermal Power Project at Syria.

PART II – PRICE BID

भारत हैवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Limited

(A Govt. Of India Undertaking)

Power Sector – Northern Region,

Plot No. 25, Sector - 16A ,

Distt. Gautam Budh Nagar, NOIDA – 201 301. INDIA

2X200 MW TISHREEN TPS EXTENSION PROJECT OF PEEGT SYRIA

PRICE SCHEDULE

FOR TOPOGRAPHICAL SURVEY & GEOTECHNICAL INVESTIGATION

Sl. No./ SECTION	ITEM	UNIT	QTY.	RATE (EURO)	TOTAL AMOUNT (EURO)
A)	**GEOTECHNICAL INVESTIGATION**				
1	Mobilisation of necessary equipments, 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		
2	Making 150mm nominal diameter bore hole 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 2m interval upto 10m depth below ground level and at every 3m interval beyond 10m depth upto a maximum depth of 35m below ground level, at change of strata and at depths wherever undisturbed soil samples could not be collected; collection of undisturbed soil samples at every 2m interval upto 10m depth below ground level and at every 3m interval beyond 10m 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	910		
3	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	300		
4	Excavating trial pit of size 3m x 3m at various locations upto a maximum depth of 4m depth below ground level in all types of soil and weathered rock which can be excavated with pick axe/crow bar etc including sheeting or shoring the sides for the purpose of stability, dewatering and maintaining the pit dry at all times, collecting disturbed/undisturbed samples at 1m interval and at final depth and transporting all the collected samples to the laboratory; backfilling of the pit with excavated material etc all complete as per specification and as directed by the engineer-in-charge.	CuM	4		

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Sl. No./ SECTION	ITEM	UNIT	QTY.	RATE (EURO)	TOTAL AMOUNT (EURO)
5	Conducting plate load test in various locations at specified depth complete as per specification, drawings and as directed by the engineer-in-charge. Payment for making the pit of suitable size, maintaining it dry and backfilling etc shall be paid separately as per item no.4.	Each	5		
6	Conducting cyclic plate load test in various locations at specified depth complete as per specification, drawings and as directed by the engineer-in-charge. Payment for making the pit of suitable size, maintaining it dry and backfilling etc shall be paid separately as per item no.4.	Each	4		
7	Conducting electrical resistivity test at various locations complete as per specification, drawings and as directed by the engineer-in-charge.	Each	15		
8	Performing dynamic cone penetration test at various locations using 65mm cone with circulation of bentonite slurry etc all complete as per specification, drawings and as directed by the engineer-in-charge.	Each	12		
9	Conducting pressuremeter test in various bore holes at all depth such as 3m, 5m, 7m, 9m, 11m, 13m, 15m, 18m, 20m, 23m, 26m, 30m & 35m depth below ground level in all types of strata including preparation of bore hole of required size etc all complete as per specification, drawings and as directed by the engineer-in-charge.	Each	4		
10	Conducting seismic refraction test at various locations complete as per specification, drawings and as directed by the engineer-in-charge.	M	880		
11	Conducting cross hole shear wave test in bore hole in all types of strata at all depths such as 3m, 5m, 7m, 9m, 11m, 13m, 15m, 18m, 20m, 23m, 26m, 30m and 35m below ground level including preparation of borehole, 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	5		
12	Conducting pump in type field permeability test by constant head or falling head method (suitability of type of test shall be as per site conditions)in various boreholes at specified depth including providing packers as required etc all complete as per specification, drawings and as directed by the engineer-in-charge. Cost of the borehole and backfilling etc shall be paid separately as per item no.2.	Each	10		

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Sl. No./ SECTION	ITEM	UNIT	QTY.	RATE (EURO)	TOTAL AMOUNT (EURO)
13	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	50		
	b)Sieve analysis	Each	200		
	c)Hydrometer analysis	Each	35		
	d)Liquid limit and plastic limit	Each	200		
	e)Shrinkage limit	Each	35		
	f)Specific gravity	Each	35		
	g) Swell pressure	Each	20		
	h) Free swell index	Each	20		
	i) Relative density	Each	25		
	j) Unconfined compressive strength	Each	50		
	k) Direct shear test	Each	35		
	l) Triaxial shear test				
	i)Un-consolidated undrained test	Each	35		
	m) One dimensional consolidation test	Each	35		
	n) Standard Proctor compaction test	Each	5		
	o) CBR test	Each	5		
	p) Chemical analysis	Each	10		
14	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	25		
	b)Specific gravity	Each	25		
	c)Slake durability index	Each	30		
	d)Unconfined compressive strength (both at saturated and in–situ water content)	Each	60		
	e)Point load strength	Each	30		
15	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	7		

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Sl. No./ SECTION	ITEM	UNIT	QTY.	RATE (EURO)	TOTAL AMOUNT (EURO)
16	Preparation and submission of draft report in 3 copies and final report in 5 hard copies and 2 soft copies on CDs after the approval of draft report including all field records, laboratory test results, graphs, analysis of test results and recommendation etc all complete as per specification.	LS	1		
B)	**TOPOGRAPHICAL SURVEY**				
1	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	5		
2	Carrying out topographical survey of plant and allied areas showing all permanent & general features and detailed contour survey by taking spot levels at 15m interval, carrying out cross section of canal/nallah 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, floppy and originals etc all complete as per specification and instructions of the engineer-in- charge.	Hectare	32		
3	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	2		
	b) Grid/reference pillar	Each	22		
	TOTAL (in figures)				

TOTAL (in words)

1. Incomplete offer received may not be considered for the subject work.

2. The Rate shall be entered in figures as well as in words. In case of difference in rates between words and figures THE LESSER OF THE TWO will be treated as valid rate.

3. In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work , if awarded, will be on the lowest quoted rate obtained against that item.

(Signature and seal of tenderer)