

Corrigendum - 3 dated 23/11/2024 to CPC Tender No. BHEL/CPC/UKI/PRE-BID BOP/25/050

Corrigendum - 3 dated 23/11/2024 to CPC Tender No. BHEL/CPC/UKI/PRE-BID BOP/25/050 for the work of “PRE-BID TIE-UP/ MOU FOR EXECUTION OF BOP PACKAGES ON EPC BASIS AT 1X800 MW ULTRA SUPER CRITICAL UNIT No. # 7 TO BE CONSTRUCTED ON ASH DYKE AREA AT UKAI TPS, GSECL, GUJARAT”.

A) TECHNICAL CONDITIONS OF CONTRACT (TCC): Clause 5.0 of TCC are revised as below:

Sl. No.	Clause No.	Existing clause in Tender	Revised clause
1	Clause No. 5.0 of Technical Conditions of Contract (TCC)	TOOLS & PLANTS, MMR TO BE PROVIDED BY SUCCESSFUL BIDDER: All T&Ps, as may be required for completion of the work, have to be provided by the successful bidder within the quoted rates.	TOOLS & PLANTS, MMR TO BE PROVIDED BY SUCCESSFUL BIDDER: All T&Ps, as may be required for completion of the work, have to be provided by the successful bidder within the quoted rates. Further, fully equipped centralised lab for complete Civil works (BTG area undertaken by BHEL as well as BOP area covered under this tender) and its operations by deploying Manpower (as per Annexure-I) and T&P's (as per Annexure-II) also maintenance of these testing equipment's including calibration for smooth operation. Any damage to testing equipment during operation or any problem during execution stage shall be repaired by the bidder & no extra payment shall be made for same. After completion of work, the lab equipment shall be the property of BHEL. Annexure-I (Operating Manpower Requirement), Annexure-II (Typical Field Laboratory Equipment List) and Annexure-III (Centralised Civil Quality Laboratory Drawing) are attached.

Note:

- 1) All other terms and conditions against this NIT shall remain unchanged.
- 2) This corrigendum is to be submitted duly signed and stamped along with the Techno-commercial bid (Part- I).

for BHARAT HEAVY ELECTRICALS LTD
Sr. Manager/ SCT- CPC

Annexure-I (Operating Manpower Requirement)

Sl. No.	Description of work	Unit	Quantity	Qualification
1	QA/QC Engineer (Day shift & Night Shift)	Man-Months	03	B.E (Civil with min. 3 years of experience) or Diploma holders with min. 5 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM, /SERC/CGCRI/NTH or equivalent. Preference - Part time experience in QA/QC lab.
2	QA/QC Testing	Man-Months	06	Fresh B.E with min. 70% marks or Diploma holder with 3 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM /SERC/CGCRI/NTH or equivalent.
3	Lab. Technician	Man-Months	06	Previous experience of working as a Lab. Assistant in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCcBM,/SERC/CGCRI/NTH or equivalent.
		TOTAL	15	

Annexure-II (Typical Field Laboratory Equipment List)

Sl. No.	Equipment Name	Min. Quantity	Reference Indian Standard for Test/ Equipment	Brief Specifications
General Laboratory Equipment				
1	Digital Weighing Balance	1	IS 9281	Capacity: Minimum 2000g, Readability: 0.1g
2	Digital Weighing Balance 5kg, 10kg, 30kg & 100 kg	1 each	IS 9281	Readability: 1g
3	Drying Oven & Crucibles/Sample Containers	1/8 nos	-	Chamber size - 24" x 24" x 36" Temp. range: Up to 200°C Container sizes: 25 mm dia; 50 mm dia; 75 mm dia; 80 mm dia; 100 mm dia.
4	Hot Plate	1	IS 2720	
5	Water Bath/Automatic temperature control curing tank	1	IS 516 / Ref. IS 9013	Temperature control: $\pm 1^{\circ}\text{C}$ for curing of Cement cube.
6	Marsh Cone	1	D6910	MOC: Steel
7	Sieve Set (IS)	1 set	IS 460, IS 383, IS 2386	Complete set of standard sieves
8	Sieve Shaker	1	-	Electric, with adjustable time and amplitude
9	Measuring Jars: Borosilicate glass	1 each	-	Graduated, 50 ml, 100 ml, 250 ml, 500 ml, 1000 ml capacity
10	Spatulas	2	-	Stainless steel
11	Wash Bottles	2	-	Plastic, with distilled water
12	Funnels	1 each	ISO 4798	Borosilicate Glass, dia. 25mm, 50mm, 75mm, 100mm
13	Filter Paper	As required	-	Qualitative, different grades
14	Digital thermometer	2	-	-50 °C to 300 °C
15	Stop Watches	2	-	Digital, with lap timer function
16	Outside Micrometer	2	-	Range: 0-25mm Accuracy: $\pm 0.002\text{mm}$ Resolution: 0.001mm
17	Vernier Caliper	2	-	Range: 0-600mm & 0-300mm Accuracy: $\pm 0.02\text{mm}$ Resolution: 0.02mm
18	Mercury Thermometers	2	IS 2480 P-1	Glass, -10°C to 250°C
19	Inside Micrometer	2		Range: 25-100mm & 100-750mm Accuracy: $\pm 0.002\text{mm}$ Resolution: 0.001mm
20	Splitting Machine	1	IS 516	Capacity: Suitable for splitting concrete cubes
21	Glass Rods	4	-	Stirring rods
22	Glass / Poly carbonate sheet	2	-	15mm Thk.

Sl. No.	Equipment Name	Min. Quantity	Reference Indian Standard for Test/ Equipment	Brief Specifications
Soil Testing Equipment				
23	Rapid Moisture Meter	2 nos	IS 12175	
24	Liquid Limit Apparatus	1	IS 2720 (Part 5)	Complete set including casagrande cup
25	Plastic Limit Apparatus	1	IS 2720 (Part 5)	Glass plate and porcelain dish
26	Compaction/Proctor test Apparatus (Standard and Modified Proctor)	1 each	IS 2720 (Part 8)	Complete set including rammer, moulds, and other accessories
27	For relative density / density index of cohesion less soil	1 set	IS 2720 (Part 14)	Electrically heated, temperature control
28	Sand Replacement Mould / Sand Pouring Cylinder	1 set	IS 2720 (Part 28)	To check Dry density by sand replacement method
29	Pycnometer / Specific Gravity Bottles	3	IS 2720 (Part 3)	Glass, calibrated, 01L capacity
30	California Bearing Ratio (CBR) Apparatus	1	IS 2720 (Part 16)	Complete set including mould and loading frame
31	Hydrometer: 1.2 -1.3 Hydrometer: 1.0 -1.2 Hydrometer: 1.0 -1.1	1 set each	-	For specific gravity check of liquid.
32	Soil permeability test apparatus.	1 set	IS 2720 (Part 17)	For permeability test of soil.
33	Core Cutter	1 set (6 nos.)	IS 2720 (Part 29)	Various sizes for different soil samples
Concrete Testing Equipment				
34	Le Chatelier Flask & mould	1 set	IS 4031 (Part 3) / IS 5514.	Glass, 50 ml
35	Pan Type Concrete Mixer	1	-	Min. 40L capacity
36	Cube Moulds (150 mm)	48/180 nos for TG raft	IS 516/ 10086	Steel/ PVC, with tight-fitting lids
37	Cube Moulds for cement testing (70.6mm)	12	IS 4031/ 10086	Steel/ PVC, with tight-fitting lids
38	Compression Testing Machine with Automatic Pace Rate Controller	02	IS 516/ 14858	Capacity 2000 kN, suitable for 50, 70.6, 100 mm and 150 mm cubes
39	Slump Cone	04	IS 1199/7320	Metal, complete set/with tamper
40	Digital Rebound Hammer	01	IS 5816	Suitable for concrete surface hardness testing
41	Vicat Apparatus with Deskpot	02	IS 4088/ 5513	Complete set for determining Cement consistency/setting time.
42	Vibrating Machine for Cement Cube	01	IS: 4031 & 10080	For Cement cube sampling for compressive strength check.
43	Cube Moulds for concrete testing (100mm)	12	IS 516/ 10086	Steel/ PVC, with tight-fitting lids

Sl. No.	Equipment Name	Min. Quantity	Reference Indian Standard for Test/ Equipment	Brief Specifications
44	Cube Moulds for sand mortar testing (50mm)	12	IS 516/ 10086	Steel/ PVC, with tight-fitting lids
45	Alkali Mortar Bar Moulds	As required	IS 2386 P-7	Steel, with tight-fitting lids
46	Mould for Flexure Test of concrete (150x150x700) mm	06	IS: 516	Mould to cast concrete beam for Flexure strength check.
47	Flexure Test Machine	01	IS: 516	For Flexure strength check.
48	Concrete Penetrometer	1	IS: 8142	For concrete setting time test
49	Concrete permeability test apparatus	01	IS: 3085	For permeability test of concrete
50	Accelerating Curing Tank	01	IS: 9013	To check rapid compressive strength of concrete equivalent to 28 days.
51	Compaction Factor Apparatus	1	IS 1199/ 5515	Complete set for determining concrete workability
Road Testing Equipment				
52	Specific Gravity Balance	1	IS 2386/ ASTM D-70	For determining specific gravity of bitumen
53	Impact Value test Equipment	1	IS: 2386- P4	For Impact Value test of Aggregate
54	Aggregate Crushing Value Apparatus	1	IS: 2386 P-4	
55	Los Angeles Machine	1	IS: 10070 & IS 2386	For Abrasion value check of Aggregate.
56	Liquid limit – Cone penetrometer	01	IS: 2720 (Part-5)	For liquid limit check of cohesion less soil.
57	Penetration Apparatus	1	IS 1203	Complete set for determining bitumen penetration
58	Softening Point Apparatus	1	IS 1205	Ring and ball type
59	Ductility Apparatus	1	IS 9381	Complete set for determining bitumen ductility
60	Marshall Stability Apparatus	1/ Third party lab test.	ASTM D1559-T-62	Complete set for determining bitumen mix stability
61	Bitumen Extractor	1	ASTM D 2172/ IRC:SP 11	Soxhlet type Centrifuge type (electric operated- for field/lab tests) with Benzene/similar fluid.
62	Length & Thickness Gauge	1	IS: 2386 P-1	For Elongation & Flakiness index check of Aggregate
63	DLC Vibrating Hammer	01		For DLC Cube filling
64	Concrete cube mould Vibrating Table	01	IS: 2514	For Compaction of concrete in moulds.
65	Density Cylinder (5 kg, 10kg, 15kg, 20 kg , 30kg)	1 set		For Density check of aggregates
Other Equipment				
66	UPV Machine	1/ Third party test.	IS 13311/ 516	For determining concrete quality through UPV
67	Pile Integrity Tester (PIT)	1/ Third party test.	IS 14893	

Sl. No.	Equipment Name	Min. Quantity	Reference Indian Standard for Test/ Equipment	Brief Specifications
68	Paint Thickness Gauge (DFT, WFT)	1 each		Digital, with various measurement ranges (upto 4mm)
69	pH Meter	1	pH Meter/ IS: 2711	Accuracy: ± 0.02 pH units Resolution: 0.01 pH units Probe material: Glass
70	RT Film Viewer	1	As per ASTM E1390 or equivalent	For RT film interpretation
71	UCI Hardness Tester	1	UCI test as per ASTM A1038-19, DIN 50159 1,2-2021	repeatability 5% uncertainty max. 4%
72	Portable PMI Machine	1	Portable X-Ray fluorescence type	Analysis of Stainless and Alloy Steels
73	Digital Torque Wrench	11	for up to M36 class 10.9 bolts	for up to M36 class 10.9 bolts
74	Bolt Tension Indicator / Calibrator		for up to M36 class 10.9 bolts	for up to M36 class 10.9 bolts

- All brands shall be BHEL/Customer approved brands.

