

Chimney Package -
Amarkantak TPS, Unit-6
(1x660 MW), Chachai, M.P.

VOLUME - IA

TECHNICAL CONDITIONS OF CONTRACT (TCC)

CONSTRUCTION OF ONE (1) NO. 275 M TALL SINGLE FLUE RCC CHIMNEY COMPLETE IN ALL RESPECT INCLUDING CHIMNEY RAFT, CHIMNEY RCC WIND SHIELD, FABRICATION & ERECTION OF STEEL FLUE CANS, STRUCTURAL PLATFORMS ETC, INSTALLATION OF ELECTRICAL ITEMS IN CONFORMITY WITH THE APPROVED LAYOUT ELEVATORS ETC TO COMPLETE THE CHIMNEY IN ALL RESPECT (BUT EXCLUDING BOROSILICATE WORKS) FOR AMARKANTAK TPS, UNIT-6 (1X660 MW), CHACHAI, M.P.

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

Sl No	DESCRIPTION	Chapter
Volume-IA	Part-I: Contract specific details	
1	PROJECT INFORMATION	Chapter-I
2	SCOPE OF WORKS	Chapter-II
3	FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)	Chapter-III
4	T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR	Chapter-IV
5	T&PS AND MMES TO BE DEPLOYED BY BHEL ON SHARING BASIS	Chapter-V
6	TIME SCHEDULE	Chapter-VI
7	TERMS OF PAYMENT	Chapter-VII
8	TAXES AND OTHER DUTIES	Chapter-VIII
9	MATERIAL	Chapter-IX
10	BOQ CUM RATE SCHEDULE AND % WEIGHTAGE OF INDIVIDUAL ITEMS	Chapter-X
11	TECHNICAL SPECIFICATIONS AND DRAWINGS	Chapter-XI

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: PROJECT INFORMATION

Sl. No.	Title	Description
1	Project Title	Amarkantak TPS, Unit-6 (1x660 MW), Chachai
2	Owner/Customer	M.P. Power Generating Co. Ltd. (MPPGCL)
3	Location	The Amarkantak Thermal Power Station is located near Chachai Village, Anuppur District, Madhya Pradesh. The latitude and longitude of site are 23° 10' 04" N and 81° 39' 15" E respectively. The nearest town to the site is Amlai which is about 7 km (NW) and District Head Quarter Anuppur is about 10 km (SE).
4	Nearest Airport	Nearest airport is Jabalpur Airport at a distance of about 220 KM.
5	Access by Road/Major Cities	The site distance from NH-78 (Katni-Gumla) is 10 KM. Nearest railway station is Amlai railway station on Katni-Bilaspur rail line of South Eastern railway, located at a distance of about 8 kms. The road distances of proposed site from major cities/ towns are as follows: Jabalpur City: 220 Kms. Raipur City: 290 Kms
6	Temperature / Humidity / Rain Fall	Climatological data from nearest observatory from Amarkantak is attached as Annexure-II .
7	Seismic Zone	As per Technical Specification of Civil Works, Seismic Design Criteria attached as Annexure-E .
8	Wind Speed	As per Technical Specification of Civil Works Wind Design Criteria attached as Annexure-D

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: PROJECT INFORMATION

1.0	INSTRUCTIONS TO BIDDERS															
1.1	The Bidder shall visit project site and acquire full knowledge and information about conditions prevailing at site and in & around the plant premises, together with site conditions, transportation routes, various distances, all the statutory, obligatory, mandatory requirements of various authorities and all information that may be necessary for preparing the bid and entering into the Contract. All costs for and associated with site visits shall be borne by the bidder.															
1.2	Other contractors would be working in this area and their structures are to be protected. The material brought and stacked for construction should not make hindrance to other contractors.															
1.3	The information given herein is for general guidance and shall not be contractually binding on BHEL/Owner. All relevant site data /information as may be necessary shall have to be obtained /collected by the Bidder.															
1.4	The contractor, in the event of this work awarded to him, shall establish an office at site and keep posted an authorized, responsible officer with valid Power of Attorney for the purpose of the contract. Any order or instructions of the 'Engineer' or his duly authorized representative, communicated to the contractor's representative at site office will be deemed to have been communicated to the contractor at his legal address.															
1.5	No claim will be entertained by BHEL on ground of lack of knowledge and the contractor's rates shall be deemed to have taken this into account.															
1.6	Bidders may fix up their site visit in consultation with below mentioned contact person: <table border="1"><tr><td>Name:</td><td>Ms. Shabana Parveen</td><td>Mr. Amresh Kumar</td></tr><tr><td>Designation:</td><td>Sr. Manager</td><td>AGM & Project Director</td></tr><tr><td>Location:</td><td>BHEL-PSNR HQ</td><td>BHEL-PSNR</td></tr><tr><td>Email:</td><td>shabana.parveen@bhel.in</td><td>amresh@bhel.in</td></tr><tr><td>Ph. No.</td><td>9717144465</td><td>9471000767</td></tr></table>	Name:	Ms. Shabana Parveen	Mr. Amresh Kumar	Designation:	Sr. Manager	AGM & Project Director	Location:	BHEL-PSNR HQ	BHEL-PSNR	Email:	shabana.parveen@bhel.in	amresh@bhel.in	Ph. No.	9717144465	9471000767
Name:	Ms. Shabana Parveen	Mr. Amresh Kumar														
Designation:	Sr. Manager	AGM & Project Director														
Location:	BHEL-PSNR HQ	BHEL-PSNR														
Email:	shabana.parveen@bhel.in	amresh@bhel.in														
Ph. No.	9717144465	9471000767														

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

2.0	Scope of Works:
2.1	<p>CONSTRUCTION OF ONE (1) NO. 275 M TALL SINGLE FLUE RCC CHIMNEY COMPLETE IN ALL RESPECT INCLUDING CHIMNEY RAFT, CHIMNEY RCC WIND SHIELD, FABRICATION & ERECTION OF STEEL FLUE CANS, STRUCTURAL PLATFORMS ETC, INSTALLATION OF ELECTRICAL ITEMS IN CONFORMITY WITH THE APPROVED LAYOUT ELEVATORS ETC TO COMPLETE THE CHIMNEY IN ALL RESPECT (BUT EXCLUDING BOROSILICATE WORKS) FOR AMARKANTAK TPS, UNIT-6 (1X660 MW), CHACHAI, M.P.</p> <p>Excluding Supply of Reinforcement Steel & Structural Steel which shall be issued by BHEL on free of cost (FOC) basis as per BOQ cum Rate Schedule.</p>
2.1.1	<p>Scope of Consortium Partner (In case of consortium bidding): -Construction of RCC Chimney Shell with Slipform shuttering.</p> <p>Note - Works covered under the scope of the consortium partner shall be executed exclusively by the respective consortium agency. Deployment of technical manpower for execution and supervision of the consortium partner's scope of work shall be the responsibility of the consortium partner. However, this clause shall not absolve the prime bidder/contractor of its overall and prime responsibility under the contract</p>
2.2	The brief scope of work is as follows:
2.2.1	<p>Construction of One (1) Nos. 275-metre-tall single flue RCC chimney complete in all respect including:</p> <ol style="list-style-type: none"> a. RCC Works for Chimney Raft & Chimney Shell (using slip form shuttering) & other misc. works. b. Supply of Structure Steel (Bolts, Chequered plate etc.) is under bidder's scope as per BOQ. c. Site Fabrication & Erection of Structural Platforms (Internal & External), Staircase, Fabrication & Erection of Steel Flue Cans & flue duct inside the chimney, Mini Shell with Titanium cladding as per Specification, (including development of hard crusted / paved fabrication yard for onsite structural steel fabrication work wherever permitted by customer), d. Supply & Installation of Electrical Items, Fixtures, Fittings, Conduit, Embedment and other associated works. e. Supply including design, receipt, unloading, erection, testing and commissioning of stack elevator and electrical equipment; allied items, cabling, earthing, spares etc f. Condensate Water Collection system in conformity with the approved layout etc. g. Air Aviation Obstruction lighting system, gas sampling ports, opacity measurement ports, lightning protection and grounding system, doors for access to the shell, external platforms and inspection of the liners, ladders, communication system components, embedment for installation of equipment and fixtures, Lift (inside windshield), Ventilation, insulation, etc. all complete. h. Painting both internal and external of the chimney shell as well as of all doors, stairs, ladders and other structural steel items in accordance with this specification and approved drawings.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	Note: The scope work for Chimney Civil Works under the specification covers the supply, storage at site, storage of material supplied by BHEL (i.e. taking delivery of materials from plant gate / BHEL stores, transportation to site), Civil, Structural and Architectural works as specified herein but without excluding any other necessary components, which are not mentioned herein but are required for the completeness and efficient, easy and reliable operation of the system.
2.2.2	The contractor shall prepare, at his own cost, the detailed working drawings showing all details of the formwork, staging/ slip form (adequacy to be supported by design calculations) and other arrangements for the concreting work and submit six copies of the same duly approved/vetted by reputed third party consultant/ Engineering Institutes with consent of BHEL Engineer. Only on the receipt of the approval/vetting of the consultants the work shall be taken up. However, the consultant's approval of the design/drawings shall not absolve the Bidder of his responsibility for correctness of design, accuracy of dimensions, loadings, details, etc., or safety and stability of the structure including foundations, accessories, appurtenances, etc. Any modifications/change in subsequent revisions of design/drawings shall be clearly marked and identified with a revision of the approval. All modifications suggested by the Owner/BHEL to meet specification requirements and sound engineering practice, shall be incorporated by the Bidder at no extra cost .
2.2.3	The contractor shall prepare, at his own cost, the detailed working drawings showing all Electrical details and Elevator details and shall submit six copies of the same for the approval of the Engineer-in-Charge /consultants and only on the receipt of the approval of the consultant the work shall be allowed to be taken up.
2.2.4	Supply including design, receipt, unloading, erection, testing and commissioning of stack elevator and electrical equipment; allied items, cabling, earthing, spares etc. are also under the scope of this of work.
2.2.5	VOID
2.2.6	BHEL at its discretion may include other area works limited to 15% of awarded contract value, which are not mentioned in above scope of works. Contractor shall execute such works as desired and as directed by BHEL Engineer. The item rates & contract conditions shall remain unchanged for such works.
2.3	The work under this contract shall be carried out as per BOQ Cum Rate Schedule and in compliance of tender conditions including technical specifications and approved drawings/ documents.
2.4	VOID
2.5	General:
2.5.1	Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

2.5.2	The drawings enclosed with this tender are intended to give the tenderer a general idea of the type and extent of work involved. The drawings are as such only indicative and not to be considered as the exact construction drawings.
2.5.3	Further this is to be noted that the drawings and the documents furnished along with this specification are the sole property of BHEL. It must not be used directly or indirectly in any way detrimental to the interest of the company.
2.5.4	Furnishing all labor, materials, supervision, scaffolding, construction plans, equipment, tools & plants, inspection/ measuring/ testing instruments, supplies, transport to and from the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown or specified but reasonably implied or necessary for the proper completion, maintenance and handing over the works in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provided by the Engineer during the course of works.
2.5.5	All the works areas shall be adequately flood lighted to the satisfaction of the Engineer-in-Charge when the work is in progress during the night shifts. Adequate lighting facilities such as flood lamps, hand lamps and area lighting shall be arranged by the contractor at the site of construction, and contractor's material storage area etc. at his cost.
2.5.6	Drawings showing enough details for the construction as per the specification shall be furnished to the contractor in a phased manner as far as possible.
2.5.7	<p>All necessary arrangement for safety like Hard Barricading around deep structures with scaffolding pipes and providing of safety net on the slope of excavated area, PPEs and for height works is in contractor's scope. Contractor shall comply with all safety requirements as per statutes, BHEL and Customer specifications as applicable for execution of works. Safety rules and guidelines of BHEL and BHEL'S customer are provided elsewhere.</p> <p>The contractor shall also deploy PVC/MS barricading with fluorescent stickers mentioning agency's name in addition to the hard barricading with proper signages as instructed by BHEL.</p>
2.5.8	The Customer may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works at no extra cost to BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as if pointed out by the BHEL Engineer, without any cost implication to BHEL.
2.5.9	Giving all notices, paying all fees, taxes, statutory clearances/license/Certificates (like T&P load test, worker's medical certificates) etc., in accordance with the general conditions of contract, that is required for all works including temporary works is in the scope of bidder.
2.5.10	VOID
2.5.11	Carrying out topographic survey of the entire and establish levels and coordinates at suitable intervals from existing grid levels and coordinates furnished by the owner established bench marks, setting out the locations and levels of proposed structures, constructions and marking of reference pillars and other identification works etc., The contractor shall provide the

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	<p>owner/BHEL such a assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.</p> <p>It is the responsibility of the contractor to deploy experienced surveyors well acquainted with latest versions of auto-cad for correct plotting and representation of line, levels, contours and co-ordinates, auto-cad drawings for civil works. The contractor shall take all precautions to maintain same levels of all civil structures with respect to the Bench Mark Pillars (installed by BHEL).</p> <p>For works on emergency basis/ special assignments as per project requirement under the instruction of BHEL EIC, the agency shall deploy the surveyor with no extra cost to BHEL.</p>
2.5.12	Arranging for joint checking (with BHEL / BHEL's Customer / Consultant) of all site construction activities Preparation of joint protocols for each & every activity and maintaining quality records for audit/inspection as per approved FQP by BHEL.
2.5.13	<p>Medical/First aid center/medicine purchased for emergency/ Doctor purpose along with ambulance services with fuel and operator (round the clock) shall be arranged by BHEL for handling medical emergencies. Cost against these facilities shall be distributed/ shared among the contractors working in Project site proportionately based on contract value.</p> <p>However, till the time BHEL is arranging first aid arrangements & ambulance as said above, the contractor to suitably arrange for necessary emergency/first aid facilities for their personnel.</p>
2.5.14	The complete works shall be carried out as per BOQ cum Rate schedule . If any work covered in the scope of contract cannot be executed using items available in BOQ, additional / extra items shall be made and rates for such items shall be worked out as per GCC clause 2.15.7. However, contractor shall be bound to execute all the works under the scope of the contract and decision whether an extra item is applicable or not, shall be taken by BHEL Engineer which will be binding on the contractor.
2.5.15	Any activity which is necessarily required for satisfactory execution of any item of BOQ in line with technical specifications shall be deemed to be included in BOQ item even if it is not described in the item description and no extra payment shall be made against such activity.
2.6.16	Contractor shall take up housekeeping activity on regular basis to keep the site clear of rubbish/ debris.
2.6.17	All necessary inputs with respect to all the changes carried out during the execution, for preparation of 'As built Drawings' to be submitted by Contractor to BHEL for submitting the 'As Built drawings' to BHEL's customer.
2.6.18	The necessary precautionary measures shall be adopted by the contractor to prevent water logging in the area, while carrying out the site works. Dewatering as required in the project area shall be done by the contractor.
2.6.19	Contractor shall ensure at all times that his work area & approach/ access roads are free from accumulation of water, so that the materials are safe and the erection/ progress schedule are not affected. No separate claim in this regard shall be admitted by BHEL. No separate

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	<p>payments for dewatering of surface water or catchments water, if required, at any time during execution of the work including monsoon period shall be considered by BHEL.</p> <p>Dewatering required for control of sub-soil water for construction of various foundations for the package shall be paid under relevant item(s) available in the BOQ cum rate schedule. Dewatering shall be planned and continued till backfilling is completed. For discharge of sub-soil water/ rain water, a suitable piping system with pumping arrangement shall be provided by the contractor with prior approval of BHEL/ Customer as per instruction of BHEL Engineer in-charge. Contractor has to deploy dewatering diesel driven pumps/ DG sets of suitable capacity to take care of any exigencies in case of power disruption to the electrical driven dewatering pumps.</p>
2.5.20	<p>Documentation and Reporting:</p> <p>The Contractor shall maintain accurate records of material supplies, including delivery challans, invoices, and stock registers. These records shall be submitted to BHEL on monthly basis maintaining proper format of records in consultation with BHEL site.</p>
2.5.21	<p>Quantity Assessment of Supply Items: -</p> <p>Supply of BOI material shall be based on assessment of the project status/requirement and shall be done only after written clearance of BHEL's Engineer-In-Charge. The supply quantities shall be calculated based on available drawings and work fronts.</p> <p>Contractor shall be the custodian of the BOI supplied items. In case, contractor fails to execute/install/fix/etc. the BOI items for recorded reasons, the contractor shall be liable to handover the materials in good usable condition to BHEL Stores. Further, if the contractor denies to/doesn't handover the materials on the instruction of BHEL-In Charge, payment made against such supplies shall be recovered from the contractor.</p> <p>The decision of Engineer-In-Charge Shall be final and Binding to the contractor.</p>
2.5.22	<p>Reconciliation of Supply:</p> <p>The final quantities of BOI materials supplied shall be reconciled upon the final execution of the total scope of work. The measurement against supply portion shall be reconciled after final execution of total work and the actual executed quantities as per BOQ items shall be considered for final measurement for recording in measurement book.</p>
2.6	<p>Tentative-Technical Staff Requirement:</p>
2.6.1	<ul style="list-style-type: none"> • Project Manager – 01 Head with 15 Years' experience in Industrial Foundation, Building, Chimney/NDCT/Tall Structures & Power Plant Civil & Architectural Works etc. • Asst. Project Managers – 01 Heads with 10 Years' experience in Industrial Foundation, Building & Power Plant Civil & Architectural Works • Experienced Civil Engineers – 02 heads • Experienced Foreman / Supervisors – 02 heads • Planning & Billing Engineers – 01 head • Stores, Gate Pass – 02 head • Accounts & Administration – 01 head

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	<ul style="list-style-type: none"> • Quality Control Engineer – 02 head • Safety Engineer – As per HSE Plan • Surveyor – 01 head capable to handle total station • Operator, Licensed Electrician, Mechanic - As per requirement • Experienced Carpenters & Helpers – As per requirement • Experienced Bar Benders & Helpers – As per requirement • Security Guards (Round the Clock) – As per requirement. <p>Note: Above manpower requirement is tentative only. Contractor shall augment manpower to meet the project schedule/ milestones. Deployment of manpower shall be progressive to meet the project schedule.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. Dedicated deputation of Project-In-Charge, Planning & Billing Engineers, Quality Control Engineer, Safety Head is must during the entire duration of execution. 2. Contractor shall deploy such Technical Staff (as mentioned above) as per directions of BHEL Engineer within 07 days from the date of intimation from BHEL Site. 3. In case of non-compliance, penalty shall be imposed as decided by Engineer In-charge. Such penalty shall be deducted from the corresponding month’s RA Bill (RA Bill of the month where technical staffs were not deployed as per BHEL’s requirement.) 4. Maximum Penalty can be up to Rs. 1,00,000 per Man-Month (unless a higher penalty is mentioned in other part of tender document.) <p>Recovery can also be done on pro-rata basis as per no. of days of short deployment in the month.</p>
2.6.2	Deputation of above man-power shall be jointly decided at site in line with construction Schedule.
2.6.3	Engineer/ supervisor for other functions like store & purchase, material management, finance, administration etc. are to be provided as per site requirement and not considered in above list.
2.6.4	BHEL reserves the right to reject or approve the list of personnel proposed by the contractor. The persons whose bio-data have been approved by BHEL will have to be posted at site and deviation in this regard will not be permitted unless specific & reasonable justification is made.
2.6.5	In addition to above, a well experienced qualified engineer to be designated, as ‘Project Co-ordinator’, shall be deployed by the contractor. Such engineer shall have adequate exposure on the job and shall remain fully involved in all planning activities, guidance etc. to contractor’s own team during the complete execution period of contract.
2.7	Computer Infrastructure & Operator/Support Staff for exclusive use of BHEL:
2.7.1	Computer Operator and Support Staff: The successful bidder shall also provide the following for miscellaneous service for BHEL’s

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	<p>use at site/ PSNR-HQ for construction detail drawings, reconciliation, progress review & day-to-day planning purpose, documentation, etc.: -</p> <ul style="list-style-type: none"> • 02 Nos. Computer operator and 04 Nos. supporting staff at BHEL Site office for assist in bill processing and maintaining infrastructure (Computer, Printer etc.) at BHEL site office. <p>Approval or Rejection of the candidate shall be sole discretion of BHEL and shall be binding on the Contractor.</p> <p>These facilities are to be provided within 15 days from the written intimation of BHEL site till completion of scheduled contract period (i.e. 27 contractual months).</p> <p>In case successful bidder fails, to provide personnel as per requirement in the aforesaid mandatory period (i.e. 27 contractual months), for a continuous period of fifteen days or more, BHEL shall have the right to deduct as per following rates on prorata basis, from successful bidder's RA bill or any other dues with 5% overheads.</p> <ol style="list-style-type: none"> a. @Rs 30,000/- (Thirty thousand) per month for each computer operator. b. @Rs 25,000/- (Twenty-five thousand) per month for each supporting staff. <p>In case BHEL intends to extend the services of computer operator or service staff beyond the aforesaid mandatory period (i.e. 27 contractual months), the successful bidder shall extend the service to BHEL, for which BHEL will reimburse following rates.</p> <ol style="list-style-type: none"> a. @Rs 30,000/- (Thirty thousand) per month for each computer operator. b. @Rs 25,000/- (Twenty-five thousand) per month for each supporting staff.
2.8	Field Quality Assurance:
2.8.1	<p>The contractor shall be responsible for day-to-day quality checks for civil, structural and architectural works including concrete and other building materials in line with approved Field Quality Plan (FQP) and Manufacturing Quality Plan (MQP) during the progress of work. All quality records and log sheets shall be maintained as per the requirement of BHEL/CUSTOMER and as per FQP/MQP approved by BHEL/CUSTOMER.</p> <p>Note: Weekly reconciliation of records is to be done and all pending record/protocols to be updated.</p>
2.8.2	<p>Setting Up of Laboratory Works:</p> <p>Initially, the contractor shall arrange for civil quality laboratory setup with minimum required testing facilities for his own scope of work.</p> <p>BHEL shall set up centralised civil quality laboratory within 06 (six) months in the close vicinity of the work site wherein routine test shall be performed by the service provider for all civil contractors working for the project. The civil lab building and the testing equipment shall be excluded from the contractor's scope.</p> <p>Sampling of all construction materials, cube casting for concrete (required number of cubes to be arranged by contractor), etc. shall be carried out by contractor, transported to the laboratory and handed over to the service provider of the centralized laboratory for routine testing and documentation.</p> <p>All field test like slump test (at batching plant/ field), soil test for compaction (MDD), test for road work, etc. shall be carried out by the contractor without any extra cost to BHEL.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	<p>In case, third party testing related to the scope of work is required to be conducted for any reason whatsoever, shall be arranged/conducted by the contractor without any extra cost to BHEL.</p> <p>Contractor shall depute their representative QA/QC Engineer and Supporting Staff at site/lab during testing and documentation, etc. for satisfactory conductance of the routine test.</p> <p>In view of above scope matrix for the routine testing, contractor does not absolve from their responsibility for satisfactory performance of the work done as per terms and conditions of the contract.</p> <p>However, till such time the centralized civil quality laboratory is set up and made operational by BHEL, the contractor shall make necessary arrangements to carry out required testing either in their own facility or through third-party laboratory, in consultation with and to the satisfaction of BHEL, without any extra cost.</p>
2.8.3	<p>Minimum Testing Facilities to be arranged by contractor at site are as under:</p> <p>A. Soil Works:</p> <p>A.1 Facilities for HDD A.2 Field Compaction Test (Core Cutter / Sand Replacement Method). A.3 Atterberg Limit Test of Soil. A.4 Grain Size Distribution Test.</p> <p>B. Road Works:</p> <p>B.1 Facilities for mechanical strength of aggregates. B.1.1 Impact and Abrasion Value. B.1.2 Crushing Value. B.1.3 Water Absorption</p> <p>C. Concreting Works:</p> <p>C.1 Facilities for sieve Analysis for both fine and coarse aggregates. C.2 Facilities for workability test of concrete by Slump cone / BV. C.3 Facilities for Cube Strength.</p>
2.8.4	<p>Initially Mix design for concreting shall be provided by BHEL, based on Mix Design Report Contractor shall conduct trial mixes. The approved design mix shall be followed by the bidder. However, in case any mix design is required to be carried out due to change in brand of cement/change in source of raw materials during any stage of the project, the same shall be in bidder's scope and to be carried out from NCCBM / IITs / NITs / other reputed laboratories approved by CUSTOMER/BHEL. Contractor has to ensure adding of high grade PCE based admixture to minimize the cement content in line with ASTM C 494 as advised by BHEL time to time without any additional cost.</p>
2.8.5	VOID
2.8.6	The following specifications of PCE-type high performance super plasticizer shall be used for concrete works as per BOQ item.
2.8.6.1	High performance super plasticizer PCE-based water reducing admixture of Type-G/F as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30%.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	<p>The performance compliance of the Super-plasticizer should be ensured based on the following tests:</p> <p>a) Marsh cone test for optimum dosage of admixture with specific brand of cement.</p> <p>b) Slump retention test of concrete.</p> <p>c) Water reduction capability test by doing trial mix.</p> <p>d) Rheological properties of fresh concrete on trial mix.</p>
2.8.7	<p>In case ambient temperature is greater than 32 Degree Celsius, Placement temperature should be controlled with necessary temperature correction of concrete by introducing Chiller Plant along with Batching Plant or by adopting ice concrete. If ice is used, the ice water source test report shall be provided for review and approval of BHEL/Customer prior to use. (Note: - Contractor may make alternative arrangement for temperature control of fresh concrete.)</p>
2.8.8	<p>Before commencement of work, Contractor has to satisfy/ ensure the design mix proportions through conducting trial mix. Contractor shall not be absolved from the responsibility of quality of concrete works as per relevant specification, standard and to ensure satisfactory performance as per terms and conditions of contract. Any issue raised regarding design mix after successful completion of trial mix shall not be entertained and contractor shall not be entitled for any cost or damages.</p>
2.9	<p>GENERAL NOTES FOR ELECTRICAL WORKS: -</p>
2.9.1	<p>A lighting and power panel each shall be located at grade level and at other in between levels as required. All distribution boards, aviation lighting controls, etc. shall be located at grade level only. At each platform, 1 No. 63A, 415V welding receptacle and 1 No. 20A, 240V receptacle shall be provided and shall be fed from power panel. Wiring installation for lighting fixture shall be of PVC insulated copper/aluminium wires through galvanised steel conduits.</p>
2.9.2	<p>Aviation obstruction lighting system shall conform to the requirements of the latest rules and regulations of the International Civil Aviation Organisation (ICAO), National Airports Authority (NAA) and Directorate of Air Routes and Aerodromes (DARA). The type of aviation obstruction lighting system shall be of high intensity aviation obstruction lights having an effective intensity of 4000 to 2,00,000 cd depending upon back ground illuminance. The aviation obstruction lighting system shall be of type FTB 205 and FTC 140 of Flash Technology Corporation of USA or equivalent. A minimum of three levels will be provided with aviation obstruction lights and there will be four light units per level. The lowest level should not be lower than 70 meters above the ground and vertical spacing of the intermediate levels could vary between 70 and 105 meters. Aviation obstruction lighting shall be complete with lights, photo cell, controller, special cables, etc. The system shall also provide automatic sensing and display of system status and aviation lamp failure detection</p>
2.9.3	<p>A temporary aviation obstruction lighting system shall be provided during construction of the chimney.</p>
2.9.4	<p>Cables from distribution board to lighting panels/power panels/receptacles shall be 1100V grade, XLPE insulated armoured aluminium conductor FRLS PVC sheathed with a minimum size of 4 sq.mm. cables shall be laid on galvanised sheet steel cable trays. Cables shall be terminated using double compression type cable glands and solderless crimping type tinned copper cable lugs.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

2.9.5	A temporary lightning protection system shall be provided during construction of the chimney till a permanent lightning protection system is installed. In no case reinforcement bars of Shell should be used as earthing Down Conductors.
2.9.6	Communication system comprising of telephone socket at every internal platform level and at grade level, necessary wiring installation, a telephone hand set, junction boxes etc. shall also be provided.
2.9.7	415V, normal and emergency AC power supply for chimney shall be derived from main plant power supply system. Emergency supply shall feed 20% of platform lighting, 50% of staircase lighting, aviation obstruction lighting and elevator load. All other loads shall be connected on normal power supply.
2.9.8	Ambient temperature for design of all equipment shall be considered as 55 deg. C which is likely to be encountered inside the chimney.
2.9.9	Schedule of Equipment has been indicated for reference only. All electrical items shall be supplied on as required basis.
2.9.10	Make of Aviation Light shall be subject to BHEL / end customer approval.
2.9.7	EARTHING SYSTEM: Earth grid system for chimney shall consist of horizontal conductors and vertical conductors. Horizontal conductor shall be of 40mm dia. mild steel rod buried at a depth of 1 metre all around the chimney. Vertical rods shall be of 40 mm dia., 3-metre-long mild steel driven deep into the ground and also connecting to horizontal conductor at 20 metre intervals. The chimney earth grid system shall be interconnected with main plant earth grid at minimum 2 points, through bolted removable link and earth pits. Steel structures, metallic pipes etc. shall also be connected to earthing system. Connections between earthing conductor and equipment shall be of bolted type only. Earthing conductors along their run-on walls shall be supported by cleating at 1 metre interval. Clamps and hardware shall be of compatible material. Metallic enclosures of all electrical equipment shall be earthed by two separate and distinct connections to earth grid system. The earth connections shall consist of galvanized steel strip/rod/wire, sized adequately to carry the earth fault current of the system. Two nos. main earthing conductor shall be run inside all along chimney height. Electrical equipment at every platform shall be earthed with this conductor. Cable armour shall be bonded to earthing system at both ends of the circuit. The earthing conductors and accessories located at top 12m level shall have lead cover of minimum 2mm thickness. The accessories like nuts, bolts, dash fasteners, round clamps, washers etc. to be used for top 12m level shall be made of stainless steel. The minimum size of earthing conductor shall not be less than 14 SWG G.S wire. Earthing conductor shall also be run along with cable ways / each conduit run.
2.9.8	A temporary lightning protection system shall be provided during construction of the chimney till a permanent lightning protection system is installed. In no case reinforcement bars of Shell should be used as earthing Down Conductors.
2.9.10	Communication system comprising of telephone socket at every internal platform level and at grade level, necessary wiring installation, a telephone hand set, junction boxes etc. shall also be provided.
2.9.11	415V, normal and emergency AC power supply for chimney shall be derived from main plant power supply system. Emergency supply shall feed 20% of platform lighting, 50% of staircase

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

	lighting, aviation obstruction lighting and elevator load. All other loads shall be connected on normal power supply.
2.9.12	Ambient temperature for design of all equipment shall be considered as 55 deg. C which is likely to be encountered inside the chimney.
2.9.13	Schedule of Equipment has been indicated for reference only. All electrical items shall be supplied on as required basis.
2.10	HEIRARCHY:
2.10.1	<p>In case of any conflict/ deviations amongst various documents, the order of precedence shall be as follows:</p> <ol style="list-style-type: none">1. Items Description in BOQ Cum Rate Schedule2. Technical Conditions of Contract (TCC)3. Technical Specifications for Customer (Section-C)4. BHEL's Standard Specification (Section-D)5. IS Standard

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0 <i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>				
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
3.1	Establishment:			
3.1.1	For Construction Purpose:			
a	Open space for office	Yes		Location will be finalized after joint survey with owner.
b	Open space for storage	Yes		
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipment, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc.		Yes	
f	Firefighting equipment like buckets, extinguishers etc.		Yes	
g	Fencing of storage area, office, canteen etc. of the bidder		Yes	
h	Development of land provided for office, storage, fabrication yard, etc.		Yes	
3.1.2	For living purpose of the bidder:			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0				
<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>				
Sl. No	Description	Scope		Remarks
		BHEL	Bidder	
PART I				
a	Open space for labour colony	Yes	Yes	In case requirement of labour shed shall be more than as mentioned in clause no 3.11.1 of TCC, the Contractor has to make his own arrangements for land (outside the plant), accommodation, shelter and transportation of labours as per requirement. In such case, Construction Plan shall be approved by BHEL.
b	Centralized Labour Colony with internal roads, sanitation, complying with statutory requirements	Yes		As per Annexure A – “Standard Guidelines for Worker’s Accommodation / Establishments at BHEL-Project Sites”
3.2	Electricity:			
3.2.1	Electricity for construction purposes (for Site/Project works only) 3 Phase 415/440 V			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0	<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>			
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
a	Single point source	Yes		Construction power shall be provided by BHEL free of cost at one point near the site at a distance of approx. 500M, within 06 months from the date of start of work. However, contractor has to deploy DG Sets to meet power requirement in case of delay in availability of single point source or any kind of power interruptions during the course of the project at no extra cost to BHEL.
b	Further distribution for the work to be done which include supply of materials and execution		Yes	At contractor's own cost
c	Distribution of Electricity for the office, stores, canteen, of the contractor which include supply of materials and execution		Yes	At contractor's own cost
d	Supply, installation and connection of energy meter including operation and maintenance		Yes	At contractor's own cost. Calibration certificate to be provided.
e	Duties and deposits including statutory clearances if applicable		Yes	At contractor's own cost
f	Demobilization of all the facilities after completion of works		Yes	At contractor's own cost
3.2.2	Electricity for office, stores, canteen etc. of the bidder			
a	Single point source		Yes	Contractor has to make his own arrangements
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	At contractor's own cost
c	Duties and deposits including statutory clearances if applicable		Yes	At contractor's own cost

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0	<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>			
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors, labour Hutment etc:-			
a	Single point source		Yes	Contractor has to make his own arrangements
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	At contractor's own cost
c	Payment/Duties and deposits including statutory clearances if applicable		Yes	At contractor's own cost
3.3	Water Supply:			
3.3.1	For construction purposes:			
a	Making the water available at single point	Yes		BHEL shall provide water supply free of cost (at single point source) for construction purpose However, contractor may initially make his own arrangement for water supply till source is obtained from Customer.
b	Further distribution as per the requirement of work including supply of materials and execution.		Yes	Contractor shall arrange construction water from single point source including all necessary piping, valves, water meter etc. shall be arranged by the contractor at his own cost
3.3.2	Water supply for bidder's office, stores, canteen etc.			Contractor has to make his own arrangement at his own cost.
a	Making the water available at single point		Yes	At contractor's own cost

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0	<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>			
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	At contractor's own cost
3.3.3	Water supply for Living Purpose			Contractor has to make his own arrangement at his own cost.
a	Making the water available at single point		Yes	At contractor's own cost
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	At contractor's own cost
3.4	Lighting			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	At contractor's own cost
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	At contractor's own cost
c	Providing the necessary consumables like bulbs, switches, etc. during the course of project work		Yes	At contractor's own cost
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	At contractor's own cost
3.5	<i>Communication facilities for site operations of the bidder</i>			
a	Téléphone, fax, internet, intranet, e-mail etc.		Yes	At contractor's own cost
3.6	<i>Compressed air wherever required for the work</i>		Yes	At contractor's own cost
3.7	<i>Demobilization of all the above facilities</i>		Yes	At contractor's own cost
3.8	<i>Transportation</i>			
a	For site personnel of the bidder		Yes	At contractor's own cost

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.0	<i>FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)</i>			
Sl. No	Description PART I	Scope		Remarks
		BHEL	Bidder	
b	For bidder's equipment and consumables (T&P, Consumables etc.)		Yes	At contractor's own cost
3.9	Erection Facilities and Site Construction Management:			
3.9.1	Engineering works for construction:			
a	Providing the erection/constructions drawings for all the equipment covered under this scope	Yes		
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL
c	As-built drawings where ever deviations observed and executed and also based on the decisions taken at site		Yes	Changes are to be marked in drawing & handed over to BHEL on completion of work.
d	Shipping lists etc. for reference and planning the activities			Not Applicable
e	Preparation of site construction / erection schedules and other input requirements as per Form-14.	Yes	Yes	In consultation with BHEL
f	Review of performance and revision of site construction / erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly construction / erection schedules based on Sl. No. e		Yes	In consultation with BHEL
h	Daily work plan based on Sl. No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works is completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
j	Preparation of preassembly bay		Yes	
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor /bidder himself		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.10	Land/Open Space and Labour Colony:
3.10.1	Availability of land within plant boundary is very limited and the contractor has to plan and use the existing land considering the use of land by other Civil /mechanical/ electrical contractors and the storage of plant machineries and materials. The existing land shall be shared by all erection agencies. BHEL shall provide free of charge limited open space for office, storage shed and laydown area as and where made available by Customer. It is the responsibility of the contractor to construct sheds, fabrication yard, establish batching plant, provide all utilities and dismantle and clear the site after completion of work or as and when required, as a part of his scope of work.
3.11	Labour and Staff Colony: Following are in the Bidder's scope of work for labour & staff colony:
3.11.1	<p>BHEL shall provide Labour Shed (1 Nos.) for approx. 125 labours on chargeable basis in line with the contractor's mobilization plan for chimney work. Contractor shall intimate mobilization plan for labourers for Chimney Work and BHEL shall allot labour shed accordingly.</p> <p>The labour shed shall be provided on land arranged by BHEL. Each labour shed shall be equipped (one time only) with beds and mattresses, electrical wiring and fittings for electricity distribution, toilets, sanitary fittings, internal piping, and other necessary facilities. These sheds will be handed over to the contractor for use during the execution period. The contractor shall ensure dismantling of labour shed within reasonable time of completion of work or as directed by BHEL Engineer in Charge and no extra payment shall be made in this regard.</p> <p>The contractor will be responsible for the maintenance and upkeep of the labour sheds and all the facilities provided by BHEL. Additionally, common expenses related to monthly maintenance, repair of common areas, security guards, electricity, water, cleanliness, etc shall be shared among all agencies availing the facilities in the labour colony on a prorated basis, as directed by BHEL.</p> <p>The cost of each labour shed is Rs 65.00 Lakhs. This amount (on the basis of sheds handed over to contractor) will be recovered progressively from the contractor R A Bills at a rate of 15% of the gross RA Bill amount from each running bill until the full cost is recovered. Ownership of the labour sheds will be transferred to the contractor once the full amount is recovered. The contractor shall be allowed to take away the labour shed with prior permission of BHEL Engineer in Charge.</p> <p>Contractor shall ensure establishment & maintenance of workmen/labour colony in line with BHEL layout drawings & Guidelines (As per Annexure A - Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites).</p> <p>In the event BHEL is unable to provide the labour sheds, the contractor will be responsible for arranging suitable labour accommodation in compliance with the stipulated guidelines and drawings. Any additional facilities required for the scope of work must be arranged by the contractor at their own cost.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.11.2	Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour & staff colonies.
3.11.4	Any other development and maintenance of above facilities for construction workers deployed by the Contractor shall solely rest with the Contractor.
3.11.5	In the event of delay in providing the worker's accommodation sheds by BHEL / BHEL is unable to provide the worker's accommodation sheds / additional requirement, the contractor will be responsible for arranging suitable labour accommodation in compliance with statutory norms, stipulated guidelines and drawings. Any additional facilities required for the scope of work must be arranged by the contractor at their own cost.
3.11.6	Contractor shall ensure maintenance of workmen/labour colony in line with BHEL' standard Guidelines (As per Annexure A- Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites).
3.11.7	Contractor shall maintain one centralized store cum bar bending yard at his own cost. Hard surfacing of this yard and all-around drains shall be carried out by the contractor at his own cost within the quoted rate. The construction of cement storage sheds for unloading of cement bags, stacking properly in the storage sheds shall be carried out by the contractor at his own cost within the quoted rate.
3.12	<p>Installation of necessary amenities- and temporary infrastructure for construction activities at Project site locations.</p> <p>Following are the minimum amenities to be provided by the contractor within the quoted price including removal/disposal of the same in environment friendly manner after its intended use/completion of scope of work:</p> <ol style="list-style-type: none">Labour rest sheds near work spot.Canteen facility creation.Drinking water facility.Labour Bio toilets near work spot in sufficient nos. with regular cleaning & maintenance arrangement. Exclusive arrangement of Bio toilets to be made at site for ladies.Labour colony should have all hygienic condition, dining hall, toilets, proper sewerage system, good drinking water arrangements.Recreational facilities, etc.
3.13	Construction Power:
3.13.1	<p>Construction power (three phase, 415 V/ 440 V) shall be provided by BHEL free of cost at one point near the site at a distance of approx. 500M within 06 months from the date of start of work. Further, distribution shall be arranged by the contractor at his own cost and services.</p> <p>However, contractor has to deploy DG Sets to meet power requirement in case of delay in availability of single source or any kind of power interruptions during the course of the project at no extra cost to BHEL.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

	<p>If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor shall be responsible for fulfilment of all requirements including statutory requirements in this regard.</p>
3.13.2	<p>Contractor shall deploy and install required energy meter, cables, fuses, distribution boards, switchboards, bus bars, earthing arrangements, protection devices and any other installation as specified by statutory authority/act. Contractor shall also obtain approvals of appropriate authority and pay necessary fees, levies etc. towards the clearance of such installations, prior to use.</p>
3.13.3	<p>Sufficient power factor compensation equipment like capacitor shall be provided by contractor for reactive loads like welding machines etc. In case of any fine/penalty on account of low power factor, same shall be shared by contractor proportionately according to power consumption.</p>
3.13.4	<p>Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/ erection etc. and safety of personnel. It may become necessary to relocate some of the installations to facilitate work by other agencies or by him.</p>
3.13.5	<p>It shall be the responsibility of the Contractor to provide, maintain the complete installation on the load side of the supply with due regard to the safety requirements at site. All cabling and installations shall comply in all respects with the appropriate statutory requirements. The installation and maintenance of this shall be done by licensed and experienced electrician.</p>
3.13.6	<p>While reasonable efforts will be made to ensure continuous electric power supply, interruptions cannot be ruled out and no claim from the Contractor shall be entertained on this account such as idle labour, extension of time etc. The Contractor shall adjust his working shift accordingly and deploy additional manpower, if necessary, so as to achieve the target.</p>
3.13.7	<p>Contractor to note that till construction power is made available by BHEL; contractor shall make his own arrangement like DG set etc. The contractor shall also take the approval/ permission of statutory authorities for his DG set installation. The Contractor has to make his own arrangement for the same as required to carry out the job under the scope of work within the quoted rate. Nothing extra shall be paid on this account of DG set up and running for construction and office, maintenance etc.</p>
3.13.8	<p>Contractor shall be well equipped with back-up power supply arrangement like DG set and diesel operated welding machine etc. to tackle situations arising due to failure of supplied power, so as to ensure continuity and completion of critical processes that are underway at the time of power failure or important activities planned in immediate future.</p>
3.13.9	<p>BHEL is not responsible for any loss or damage to the Contractor's equipment as a result of variations in voltage or frequency or interruptions in power supply.</p>
3.13.10	<p>The bidder will have to procure & install General mobile illumination system during construction right from start of his work. This system will include temporary pole lighting, portable lighting towers with DG back-up, within the quoted price. The illumination should be such that minimum illumination requirement as specified by Indian standards for general illumination is maintained.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

3.13.11	Supply of electricity shall be governed by Indian Electricity Act and Installation Rules and other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.
3.14	Construction water:
3.14.1	BHEL shall provide water supply free of cost (at single point source) for construction purpose as and when made available by customer within 3 months from date of start of work for construction purpose. Contractor has to make arrangement of further distribution. However, contractor shall make alternate arrangement of construction water till the same is made available by BHEL.
3.14.2	The Contractor should make arrangements for storage of sufficient quantity of water required for work. The agency should also construct sumps (if required) of suitable size for storage of construction water as per their requirement for use in construction purposes.
3.14.3	Contractor to satisfy himself that the water drawn by him is fit for construction / consumption and adequately treat such water at his cost when it is not found fit for the said purposes. Necessary tests as per FQP to be carried out time to time and reports to be submitted to BHEL.
3.14.4	In case of non-availability of water, the contractor shall make his own arrangements of water suitable for construction purpose to have uninterrupted work. No separate payment shall be made for any contingency arrangement made by contractor.
3.14.5	CONTRACTOR'S OBLIGATION ON COMPLETION On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and levelled and debris shall be removed, as per instructions of BHEL, by the contractor at his cost. In the event of his failure to do so, the Engineer will get it done and expenses incurred shall be recovered from the contractor along with prevailing overheads. The decision of BHEL Engineer in this regard shall be final.
3.15	RECORDS TO BE MAINTAINED AT SITE
3.15.1	Record of Quantity of free/Chargeable items issued by BHEL must be maintained during contract execution. Also, reconciliation statement to be prepared at regular intervals.
3.15.2	The below mentioned Records/ Log-books/ Registers applicable to be maintained. <ol style="list-style-type: none">Hindrance RegisterSite Order Book.Test Check of measurements.Steel and Cement Supply and Consumption Daily RegisterRecords of Test reports of Field tests.Records of manufacture's test certificates.Records of disposal of soil/ rock generated during and after the work completion.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – III: FACILITIES IN THE SCOPE OF CONTRACTOR/BHEL (SCOPE MATRIX)

	<ul style="list-style-type: none">h. Records of disposal of scraps generated during and after the work completion.i. List of T&Ps and MMEs.
--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

4.0 Tools and Plants:

Nos. of T&Ps to be deployed at site shall be decided w.r.t. monthly plan and review format (F-14) based on site requirement. Below given Nos. are tentative for planning purposes by the bidder.

4.1	For Civil Works	Tentative Requirement
4.1.1	Hydraulic Excavator /Poclain	02 Nos
4.1.2	Dumper	04 Nos
4.1.3	Pneumatic wagon drills with compressor for controlled blasting.	As per requirement
4.1.4	Portable magazine	As per requirement
4.1.5	Dozer	As per requirement
4.1.6	Trailer (20MT Capacity)	02 Nos. (Incl Flue Can Shifting)
4.1.7	Automatic Batching Plant (Capacity- 30 Cum/Hr.) with printing facility, having minimum total cement silo storage capacity of 300 T for each batching plant. The batching plant shall also have provision for feeding cement silos through cement bags, as per site requirements.	01 Nos.
4.1.8	Chiller Plant of adequate capacity for Temperature controlled concrete.	As per requirement
4.1.9	Cement Storage Sheds of Min. 300 MT / 6000 Bags Capacity (If required)	01 Nos.
4.1.10	Multi stage high lift water pump (for curing) (lifting height 150 meters). One shall be working type and other shall be stand by.	02 Nos.
4.1.11	Strand Jacks of required capacity (includes 4 nos. standby Jacks) with 01 nos. power Pack including strand Rope of adequate thickness & length	01 Set
4.1.12	Slip Form Shuttering System & Necessary Spare Parts	01 Set

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

4.1.13	Concrete Transit Mixer	04 Nos. (However, for large pours, bidder has to arrange required nos. of Transit Mixers.)
4.1.14	Concrete Boom placer min. 35m long of required Capacity	01 No. Requirement till erection of winch for concrete
4.1.15	Concrete Pump (Capacity- Minimum 60 Cum/Hr.)	01 Nos.
4.1.16	Concrete Mixture Machine	As per requirement
4.1.17	Vibrators (electrical/diesel)	As per requirement
4.1.18	Reinforcement bending machine	As per requirement
4.1.19	Reinforcement cutting machine	As per requirement
4.1.20	JCB	01 No
4.1.21	Farana crane (Required Capacity) *Note- Hydra is not allowed at project site	01 No
4.1.22	Self-priming Dewatering pump of various capacity (Diesel/Electric) From 2 HP to 15 HP	As per requirement
4.1.23	Curing / dewatering pump – 1.5 / 2 HP	As per requirement
4.1.24	De-watering pump (diesel operated) – 20 HP & 30 HP	As per requirement
4.1.25	Well Point De-watering System	As per requirement
4.1.26	Hydraulic Excavator /Poclain with rock breaker arrangement	As per requirement
4.1.27	Pneumatic rock breaker with jack hammer	As per requirement
4.1.28	0.47 mm thick color coated GI sheet should be used along with Slipform shutter plate.	01 sets (to be replaced if damaged during slipping)
4.1.29	MS Scaffolding Pipes.	As per requirement
4.1.30	Motorized External Platform (Sky Climber)	As per requirement
4.1.31	Tractor mounted grader/ loader	As per requirement

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

4.1.32	Plate compactor	As per requirement
4.1.33	Earth Compactor / Mini Roller- 3MT Capacity	01 Nos.
4.1.34	Total Station	01 Nos.
4.1.35	Auto level & staff	02 Nos.
4.1.36	Road Roller/Vibro Roller/ Mini Roller	As per requirement
4.1.37	Water Tanker with sprinkler attachment	As per requirement
4.1.38	Man lift crane of Minimum 20m reach	As per requirement
4.1.39	DG Set of 125 KVA Capacity	01 Nos.
4.1.43	Electrical Winches with Building Hoist	As per Requirement
4.1.44	Construction Cable and Water Pipe Line	As per Requirement
4.1.45	Other Construction / Finishing Tools and Machines	As per Requirement
4.1.46	Welding Machine	As per Requirement
4.1.47	Cutting Sets	As per Requirement
4.2	Structural Fabrication and Erection Works	
4.2.1	TYRE MOUNTED CRANE 75 MT (For fabrication and erection of Flue cans)	01 Nos./As per requirement
4.2.2	Farana crane (Required Capacity) *Note- Hydra is not allowed at project site	01 Nos.
4.2.3	Power winch – 3 T - for structural erection/ concreting / passenger lift.	02 Nos.
4.2.4	Power winch – 5 T - for structural erection.	01 Nos.
4.2.5	Power winch – 10 T for structural erection	01 Nos.
4.2.6	Welding Machine (Sub-Merged Arc & MIG Machine)	As per Requirement
4.2.7	Cutting Sets	As per Requirement
4.2.8	Groove Cutting Machine	As per Requirement

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&PS AND MMES TO BE DEPLOYED BY CONTRACTOR

4.2.9	Motorized MS Plate bending machine (Suitable for bending standard width of MS plate)	01 Nos.
4.2.10	Motorized MS Angle bending machine	01 Nos.
4.2.11	Hole Drilling machine	As per Requirement
4.2.12	All equipment for area lighting like LED bulbs and Portable light Towers etc.	As per Requirement
4.2.13	Laser Beam for verticality check and also rotation (Capacity- up to 300 m heights)	01 Nos.
4.2.14	Hydraulic Jack Set with pump, Jack Rod, Recovery Jack, Laser Light, Hydraulic Pump and Turn Buckle Jacks	As per requirement
4.2.15	Material Lifting Winch and Passenger Lift	As per requirement
4.2.16	40/45 MT Capacity Crawler/ Tyre Mounted Crane	01 Nos.

4.3	Measuring and Monitoring Equipment (MMEs): To be finalized as per site requirement.
4.4	<p>T&Ps shown in the above-mentioned list is tentative requirement. However, mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to.</p> <p>Numbers/time of requirement will be reviewed from time to time at site and contractor will provide required T&Ps / Equipment to ensure completion of entire work within schedule / target date of completion without any additional financial implication to BHEL. Contractor will give advance intimation & certification regarding capacity etc. prior to dispatch of heavy equipment. Also on completion of the respective activity, demobilization of T&Ps in total or in part can be done with the due approval of Engineer-In-Charge. Retaining of the T&Ps during the contract period will be mutually agreed in line with construction requirement.</p>
4.5	The contractor shall arrange crane operator, diesel, petrol and other consumables including electrical / water / air connections required for the tools and plants, equipment etc. Preventive and routine maintenance of T & P are also to be arranged by the contractor at his cost without any delay. Required number of experienced mechanics and helpers for routine maintenance of the above T&Ps shall be provided by the contractor within his quoted rate.
4.6	Other terms and conditions regarding T&Ps to be deployed by Contractor, shall be as per clause No. 4.2 of SCC.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: T&PS AND MMES TO BE PROVIDED BY BHEL

5.0	LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:
5.1	BHEL shall not provide any T&Ps for this scope of work. All T&Ps required for handling of items / materials to be arranged by bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

6	Time Schedule and Mobilization:	
6.1	Initial Mobilization and Time Schedule:	
	<p>After issue of LOA (through Fax/courier/email) the contractor shall report to the Construction Manager/Site In-Charge of BHEL at site within seven (07) days from date of LOA and submit detailed mobilization plan to start work within 15 days from date of LOA; unless instructed by BHEL to differ start of work in writing.</p> <p>The contractor has to subsequently augment his resources in such a manner that the entire works are completed within the contract period of Twenty-Seven (27) Months from the date of start of work in a manner required by BHEL to match with the project schedule.</p> <p>Date of Start of work shall be considered as 15 days after date of LOA or as instructed by BHEL in writing.</p>	
6.2	Schedule of Completion:	
	<p>The entire work under the scope of this contract shall be carried out in such a manner that the following listed major milestones are achieved as per completion schedule given against each activity & released for erection by other agency.</p>	
Sl. No	Activity	Schedule completion from date of start of work
6.2.1	Completion of Raft	4th Month
6.2.2	Slip-form Assembly and Erection Completion	6th Month
6.2.3	Completion of RCC shell & Installation of Temporary Aviation Light. (M1)	14th Month
6.2.3	Completion of platform beams fabrication and erection	16th Month
6.2.4	Slipform Dismantling	17th Month
6.2.5	Flue Can Fabrication and Erection	22th Month
6.2.6	Readiness for Boiler Light Up (BLU) (M2)	25th Month
6.2.7	External Painting	26 th Month
6.2.8	Completion of all Balance Misc. Works like electrical item installation, including erection of elevator etc.	27th Month
6.3	<p>The above schedule is only tentative. The above schedule shall be advanced, if there are requirements to advance the project schedule and the civil works in the scope of the contractor is to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account.</p>	
6.4	<p>The Contractor shall submit a detailed L-2 schedule for execution of the complete works covered under the scope of this tender at the BHEL site within fifteen (15) days from the date of issuance of the Letter of Acceptance (LOA).</p>	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

	<p>The L-2 schedule shall be reviewed and approved by the BHEL site. The L-2 schedule, duly approved by the BHEL Site-In-Charge/ Construction Manager, shall be a prerequisite for signing of the contract.</p> <p>In order to meet the above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, Contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL Engineer.</p>									
6.5	Intermediate milestones:									
6.5.1	Two Major Intermediate Milestones are identified as M1 and M2 above.									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Milestones</th> <th style="width: 40%;">Activity</th> <th style="width: 45%;">Schedule of completion from start of work</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">M1</td> <td>Completion of RCC shell & Installation of Temporary Aviation Light</td> <td style="text-align: center;">14th Months</td> </tr> <tr> <td style="text-align: center;">M2</td> <td>Readiness for Boiler Light Up (BLU)</td> <td style="text-align: center;">25th Months</td> </tr> </tbody> </table>	Milestones	Activity	Schedule of completion from start of work	M1	Completion of RCC shell & Installation of Temporary Aviation Light	14th Months	M2	Readiness for Boiler Light Up (BLU)	25th Months
Milestones	Activity	Schedule of completion from start of work								
M1	Completion of RCC shell & Installation of Temporary Aviation Light	14th Months								
M2	Readiness for Boiler Light Up (BLU)	25th Months								
6.6	<p><u>Provision of Penalty in case of slippage of Intermediate Milestones:</u> <u>In case of slippage of Two Major Intermediate Milestones, mentioned as M1 & M2 above, delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14.</u></p>									
6.6.1	In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones.									
6.6.2	<u>In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 2% of executable contract value, will be withheld.</u>									
6.6.3	In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of executable contract value*, limited to maximum 3% of executable contract value, will be withheld.									
6.6.4	Amount already withheld, if any against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 Milestone.									
6.6.5	Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment (corresponding RA Bill) and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.									
6.6.6	Final deduction towards LD (if applicable), on account of delay attributable to contractor shall be based on final delay analysis on completion/ closure of contract. Withheld amount, if any									

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: TIME SCHEDULE

	due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.
6.6.7	In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.
6.7	Common activities shall be completed in Phase wise manner/ Instruction of Engineer within the Contractual time.
6.8	Above milestone dates has to be completed in parallel.
6.9	Bidders are requested to submit Resource deployment plan Area wise with detail program in line with above schedule in the form of Bar Chart/ MS project planer along with their offer.
	*Executable Contract Value - Value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.
6.10	COMPLETION OF WORK AND COMMENCEMENT OF GUARANTEE PERIOD
6.10.1	The works shall be completed to the entire satisfaction of the Engineer and in accordance with the completion schedule as specified in the Contract, and all unused stores and materials, tools, plant, equipment, temporary buildings, site office, labor hutments and other things shall be removed and the site and work cleared of rubbish and all waste materials and delivered up clean and tidy to the satisfaction of the Engineer at the Contractor's expenses.
6.10.2	BHEL shall have power to take over from the Contractor from time to time such sections of the work as have been completed to the satisfaction of the Engineer. Such work however shall not be treated as have been completed until the remaining / pending works are executed to the satisfaction of Engineer.
6.10.3	The Engineer shall certify to the contractor the date on which the work is completed and the date thereof for commencement of Guarantee Period. Guarantee Period shall be as given in GCC.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VII: TERMS OF PAYMENT

7.0	Terms of Payment:
7.1	Progressive Payment/ Final Payment: The payments for works under the scope of this contract shall be as per clause no 2.6; 2.22; 2.23 of General Conditions of Contract and Volume-IB, Chapter-X of SCC.
7.1.1	<p><u>Documents required for RA Bill:</u></p> <ul style="list-style-type: none"> • GST Complied Invoice of the work done as per approved BBU. • WAM -6 for RA Bill. • Jointly signed Measurement sheet. • Power of Attorney before submission of Bill. • Validity of Bank Guarantees as applicable under the contract. • Certified Quality Documents and Protocols as per FQP. • HR/IR compliance documents: <ol style="list-style-type: none"> i. Wages payment sheet as per applicable minimum wages. ii. Proof of PF contribution submission. iii. Proof of ESI/ WC contribution submission iv. Proof of Bonus payment as per Bonus Act if applicable. v. Proof of EL payment if applicable. vi. Any other statutory document if applicable.
7.1.2	<p><u>Documents required for Final Bill:</u></p> <p>The final bill is drawn as soon as the entire work is completed. From the final amount due, all amounts already claimed up to the previous running account bill will be deducted. It should be ensured that in the final bill the following additional particulars have been provided:</p> <ul style="list-style-type: none"> • Final Bill in WAM-7 Format. • 'No claim' certificate from the contractor. • Clearance certificates where ever applicable viz. Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department etc. • Final Material re-conciliation statement duly approved by BHEL. • Indemnity Bond as per prescribed format. • Deviation statement showing the difference between the actuals and as per the contract.

TENDER NO.: BHEL/CPC/AKT /C_CHM/27/009

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VII: TERMS OF PAYMENT

	<ul style="list-style-type: none"> Final Delay Analysis.
7.2	<p>SECURED RECOVERABLE ADVANCES:</p> <p>Interest Free Secured Mobilization Advance as per GCC Clause No. 2.13.1 will be payable under exceptional circumstances on certification of BHEL Construction Manager at Site. Interest Free Mobilization Advance shall be disbursed in specifically mentioned stages of major resource mobilization as specified hereunder:</p> <ol style="list-style-type: none"> For Mobilization of Batching Plant with Cement Silo (01 no.), Transit Mixture (01 no), JCB (01 no), - 2.0% For Mobilization of Material Lifting Winch and Passenger Lift - 1.5% For Mobilization of Hydraulic Jack Set with pump, Jack Rod, Recovery Jack, Laser Light, Hydraulic Pump and Turn Buckle Jacks. - 1.5% <p>Note:</p> <ol style="list-style-type: none"> BHEL Site-CM shall be the deciding authority for assessing the admissibility of advance payment to contractor. In case contractor do not fulfil the agreed conditions of payment of 1st mobilization advance, BHEL Construction Manager will have the authority to not allow the 2nd mobilization advance to contractor.
7.3	<p><u>Royalty & other fees:</u></p> <p>Royalty challan and statutory documents shall be submitted along with RA Bills for processing of Bills. In the event of non-availability of royalty/statutory documents along with RA Bill, BHEL site at its discretion may opt to withhold relevant amount from the running RA Bills and process the bill further to maintain proper cash flow and continuity of work.</p> <p>The Contractor shall pay and indemnify the Employer against any default in payment of Royalties or Seignorage Fee or Cess or other charges by the Contractor or the agency from which the Contractor purchases soil/earth, sand, stone/aggregates, metals, minerals or minor minerals.</p> <p>In the event of there being a statutory increase in the rates of royalty charges/fresh levy of royalty on materials, the same shall be reimbursed to the Contractor upon submission of original challan by him of having made the payments at revised rates. In the event of there being a decrease in such rates, the same shall be recovered from the Contractor. The base date for calculating the increase or decrease shall be the date as on seven (7) days prior to the date of Techno-commercial (Envelope-I) bid opening. The total reimbursement (positive or negative) as specified above, to be paid or recovered, shall however be calculated on the quantity of materials actually accepted for payment), whichever is less, and on the basis of documentary evidence of Govt. Notification. However, the Contractor will settle claims, if any, on account of over charge by the State Authorities.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VII: TERMS OF PAYMENT

	<p>ROYALTY/ SEIGNIORAGE CHARGES FOR EXCAVATION INSIDE PROJECT PREMISES</p> <ol style="list-style-type: none">i. The contract price shall be excluding Royalty for excavation inside Project premises, if any. The Bidder need not quote for the same in his price.ii. Royalty/ seigniorage charges (if any) for excavation inside project premises, if it becomes applicable, as per Govt. of Madhya Pradesh Notification shall be reimbursable to the bidder by BHEL for the quantum of earth work done on submission of necessary documentary evidence as proof of payments/ challans as required by BHEL for reimbursement by the contractor for making such payments as per statutory provisions and this reimbursement shall be over and above the contract price. <p>If there is a demand by statutory bodies at a later date from the contractor for payment of royalty for excavation inside project premises the same will be reimbursed to the contractor at actual against submission of documentary evidence and any penalty levied by the statutory bodies in this regard will be to contractor's account.</p>
7.4	<p>The contractor shall maintain the labour sheds for its workmen as per BHEL guidelines. 0.25 % of every RA Bill shall be linked on certification from BHEL for compliance with the guidelines of labour colony.</p> <p>Regular visit of workmen establishment shall be done by team from BHEL to ensure implementation of above guidelines. Any irregularities observed shall have to be rectified by agencies on immediate basis.</p> <p>In case, the report submitted by BHEL team is not satisfactory, necessary actions including recoveries (0.25% of RA Bill value) shall be done as per contract. In addition to the recoveries as per contract (0.25% of RA Bill value), expenses incurred (if any) for maintenance & rectification by BHEL shall be recovered from agency along with 5% overheads.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND DUTIES

8.0	TAXES & DUTIES
8.1	<p>The contractor shall pay all (save the specific exclusions as enumerated in this clause) taxes, fees, license, charges, deposits, duties, tools, royalty, commissions, other charges, etc. which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes/duties, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.</p> <p>However, provisions regarding GST on output supply (goods/service) and TDS/TCS as per Income Tax Act shall be as per following clauses.</p>
8.2	GST (Goods and Services Tax)
8.2.1	GST as applicable on output supply (goods/services) are excluded from contractor's scope; therefore, contractor's price/rates shall be exclusive of GST. Reimbursement of GST is subject to compliance of following terms and conditions. BHEL shall have the right to deny payment of GST and to recover any loss to BHEL on account of tax, interest, penalty etc. for non-compliance of any of the following condition.
8.2.2	The admissibility of GST, taxes and duties referred in this chapter or elsewhere in the contract shall be limited to direct transactions between BHEL & its Contractor. BHEL shall not consider GST on any transaction other than the direct transaction between BHEL & its Contractor.
8.2.3	Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. Where the GST laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL shall have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor.
8.2.4	Contractor has to submit GST registration certificate of the concerned state. Contractor also needs to ensure that the submitted GST registration certificate should be in active status during the entire contract period.
8.2.5	Contractor/Vendor has to issue Invoice/Debit Note/Credit Note indicating HSN/SAC code, Description, Value, Rate, applicable tax and other particulars in compliance with the provisions of relevant GST Act and Rules made thereunder.
8.2.6	Vendor has to submit GST compliant invoice within the due date of invoice as per GST Law. In case of delay, BHEL reserves the right of denial of GST payment if there occurs any hardship to BHEL in claiming the input thereof. In case of goods, vendor has to provide scan copy of invoice & GR/LR/RR to BHEL before movement of goods starts to enable BHEL to meet its GST related compliances. Special care should be taken in case of month end transactions.
8.2.7	Vendor has to ensure that invoice in respect of such services which have been provided/completed on or before end of the month should not bear the date later than last working day of the month in which services are performed.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND DUTIES

8.2.8	<p>Subject to other provisions of the contract, GST amount claimed in the invoice shall be released on fulfilment of all the following conditions by the Contractor: -</p> <ol style="list-style-type: none">a. Supply of goods and/or services have been received by BHEL.b. Original Tax Invoice has been submitted to BHEL.c. Contractor/ Vendor has submitted all the documents required for processing of bill as per contract/ purchase order/ work order.d. In cases where e-invoicing provision is applicable, vendor/contractor is required to submit invoice in compliance with e-invoicing provisions of GST Act and Rules made thereunder.e. Contractor has filed all the relevant GST return (e.g. GSTR-1, GSTR-3B, etc.) pertaining to the invoice submitted and submit the proof of such return along with immediate subsequent invoice. In case of final invoice/ bill, contractor has to submit proof of such return within fifteen days from the due date of relevant return.f. Respective invoice has appeared in BHEL’s GSTR - 2A for the month corresponding to the month of invoice and in GSTR-2B of the month in which such invoices has been reported by the contractor along with status of ITC availability as “YES” in GSTR-2B. Alternatively, BG of appropriate value may be furnished which shall be valid at least one month beyond the due date of confirmation of relevant payment of GST on GSTN portal or sufficient security is available to adjust the financial impact in case of any default by the contractor.g. Contractor has to submit an undertaking confirming the payment of all due GST in respect of invoices pertaining to BHEL.
8.2.9	<p>Any financial loss arises to BHEL on account of failure or delay in submission of any document as per contract/purchase order/work order at the time of submission of Tax invoice to BHEL, shall be deducted from contractor’s bill or otherwise as deemed fit.</p>
8.2.10	<p>TDS as applicable under GST law shall be deducted from contractor’s bill.</p>
8.2.11	<p>Contractor shall comply with the provisions of e-way bill wherever applicable. Further wherever provisions of GST Act permits, all the e-way bills , road permits etc. required for transportation of goods needs to be arranged by the contractor.</p>
8.2.12	<p>Contractor shall be solely responsible for discharging his GST liability according to the provisions of GST Law and BHEL will not entertain any claim of GST/interest/penalty or any other liability on account of failure of contractor in complying the provisions of GST Law or discharging the GST liability in a manner laid down thereunder.</p>
8.2.13	<p>In case declaration of any invoice is delayed by the vendor in his GST return or any invoice is subsequently amended/alterd/deleted on GSTN portal which results in any adverse financial implication on BHEL, the financial impact thereof including interest/penalty shall be recovered from the Contactor’s due payment.</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND DUTIES

8.2.14	Any denial of input credit to BHEL or arising of any tax liability on BHEL due to non-compliance of GST Law by the Contractor in any manner, will be recovered along with liability on account of interest and penalty (if any) from the payments due to the Contactor.
8.2.15	In the event of any ambiguity in GST law with respect to availability of input credit of GST charged on the invoice raised by the contractor or with respect to any other matter having impact on BHEL, BHEL’s decision shall be final and binding on the contractor.
8.2.16	<p><u>Variation in Taxes & Duties:</u></p> <p>Any upward variation in GST shall be considered for reimbursement provided supply of goods and services are made within schedule date stipulated in the contract or approved extended schedule for the reason solely attributable to BHEL. However downward variation shall be subject to adjustment as per actual GST applicability.</p> <p>In case the Government imposes any new levy/tax on the output service/goods after price bid opening, the same shall be reimbursed by BHEL at actual. The reimbursement under this clause is restricted to the direct transaction between BHEL and its contactor only and within the contractual delivery period only.</p> <p>In case any new tax/levy/duty etc. becomes applicable after the date of Bidder’s offer but before opening of the price Bid, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of price bid. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.</p>
8.3	<p><u>Income Tax:</u></p> <p>TDS/TCS as applicable under Income Tax Act, 1961 or rules made thereunder shall be deducted/collected from contractor’s bill.</p>

8.4 BOCW Act & Cess Act

8.4.1 BOCW Cess is not to be borne by contractor. Refer Annexure-I for BOCW Act & Cess Act.

Annexure-I:

Annexure-I:	
Bidder may please note that the sub-contractor/bidder of BHEL engaging building or construction worker in connection with building or other construction work, are required to follow the procedures enumerated below:	
1.	It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers’ Welfare Cess Act, 1996 and the rules made thereunder.
2.	It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND DUTIES

	Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 from the appropriate Authorities.
3.	It shall be responsibility of the contractor to furnish a copy of such Registration Certificate within a period of one month from the date of commencement of Work.
4.	It is responsibility of the contractor to register under the Building and other Construction Workers’ Welfare Cess Act, 1996 and deposit the required Cess for the purposes of the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 at such rate as the Central Government may, by notification in the Official Gazette, from time to time specify. However, before registering and deposit of Cess under the Building and other Construction Workers’ Welfare Cess Act, 1996, the contractor will seek written prior approval from the Construction Manager.
5.	It shall be sole responsibility of the contractor as employer to get registered every Building Worker, who is between the age of 18 to 60 years of age and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months as Beneficiary under the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996.
6.	It shall be sole responsibility of the contractor as employer to maintain all the registers, records, notices and submit returns under the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers’ Welfare Cess Act, 1996 and the rules made thereunder.
7.	It shall be sole responsibility of the contractor as employer to provide notice of poisoning or occupation notifiable diseases, to report of accident and dangerous occurrences to the concerned authorities under the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 and the rules made thereunder and to make payment of all statutory payments & compensation under the Employees’ Compensation Act, 1923.
8.	<p>It shall be the responsibility of the sub-contractor as employer to make payment/deposit of applicable cess amount on the extent of work involving building or construction workers engaged by the sub-contractor within a period of one month from the receipt of payment. It shall also be responsibility of the Contractor to furnish BHEL on monthly basis, Receipts/ Challans towards Deposit of the Cess under the Building and other Construction Workers’ Welfare Cess Act, 1996 and the rules made thereunder along with following statistics:</p> <ul style="list-style-type: none"> i) Number of Building Workers employed during preceding one month. ii) Number of Building workers registered as Beneficiary during preceding one month. iii) Disbursement of Wages made to the Building Workers for preceding wage month. iv) Remittance of Contribution of Beneficiaries made during the preceding month.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND DUTIES

9.	BHEL shall reimburse the contractor the Cess amount deposited for the purposes of the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 under the Building and other Construction Workers’ Welfare Cess Act, 1996 and the rules made thereunder. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.
10.	It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers’ Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.
11.	Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers’ Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty (if any, imposed by Cess Authorities) from the payables on account of non-compliance.
12.	The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers’ (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers’ Welfare Cess Act, 1996 and the rules made thereunder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: MATERIALS

9.0	MATERIAL
9.1	Material to be issued by BHEL (Free of Cost) as specified in BOQ cum Rate Schedule: <ol style="list-style-type: none"> 1. Reinforcement Steel (Unless Otherwise Noted Elsewhere) 2. Structural Steel Material (Unless Otherwise Noted Elsewhere)
9.2	All other materials required for proper completion of job shall be provided by the contractor and is deemed to be inclusive in the quoted price. Bidder's scope also includes following:
9.2.1	Furnishing samples of all materials required by the BHEL Engineer for testing/inspection and approval for use in the works. The samples may be retained by the Engineer for final incorporation in the works.
9.2.2	Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
9.2.3	Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
9.2.4	Contractor shall set up suitable storage facilities for Cement, sand, bolts, aggregate, reinforcement steel, structural steel, handrail, grating, foundation bolts, shuttering item, inserts, water proofing material, admixture other BOI's etc. and all are stored properly as per IS recommendation/technical specifications/ manufacturer recommendation. Wastage due to inadequacy of storage will be on account of contractor.
9.3	HANDLING OF MATERIAL ISSUED BY BHEL: Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC
9.3.1	Reinforcement Steel & Structural Steel (wherever specified as free issue by BHEL) required for the tender scope shall be procured by BHEL and issued to contractor free of cost (As FOC Item). However, unloading, handling / storage of BHEL materials for this tender scope at site, Contractor's Stores, issuance of materials from BHEL Stores and further transportation from Stores to work area (including loading and unloading) will be in the scope of contractor. No Extra payment shall be made for this work.
9.3.2	The contractor shall take care of material issued by BHEL and shall protect the same from damage and weathering. Contractor shall construct waterproof cement store for storing and stacking of cement issued by BHEL free of cost.
9.3.3	VOID

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: MATERIALS

9.3.4	VOID
9.3.5	VOID
9.3.6	Contractor will be responsible for sampling and testing of cement as per Indian Standard / Specification / approved quality plan in the testing laboratory established by the contractor.
9.3.7	VOID
9.3.8	VOID
9.3.9	Contractor will be responsible for unloading the cement as soon as the arrival of cement in the weather proof cement storage sheds/ Silo's having dense impervious bituminous or concrete floors which shall be kept swept clean at all times. The storage arrangements shall be fully completed and approved by the owner before any cement is delivered to site. The construction of cement storage sheds as per the requirement of BHEL, unloading of cement bags, stacking properly in the storage sheds, removal of the sheds after the completion of the work are in the scope of bidder.. Necessary documents are to be submitted by the contractor to the BHEL stores for having received cement.
9.3.10	The contractor shall in no case be entitled for any compensation on account of any delay in supply or non-supply thereof for all or any such materials. However, in case of non-availability of any specific material / section(s) which delays the completion of work, such cases shall be recorded separately in monthly planning format (F14) and shall be considered for time extension of contract.
9.3.11	Contractor will have to make his own arrangement at his own cost for procurement of any other materials except as mentioned above, as required for the works and of such quality as acceptable to BHEL.
9.3.12	Contractor shall also carryout in complete association with BHEL, the material management functions and execution like day-to-day update of materials, issued to contractor, accounting for surplus/scrap material returned etc. These functions shall also be carried out through computerized system utilizing suitable software. Contractor shall engage experienced software personnel to associate on dedicated basis for efficient discharge of the same in time.
9.3.13	The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-IX: MATERIALS

9.3.14	BHEL reserves the right to recover from the contractor any loss of material issued by BHEL arising out of damage/ theft or any other causes during verification/stacking or at any time under the custody of the contractor.		
9.3.15	BHEL issued materials, shall not be under any circumstances whatsoever, and shall be taken out of the project site unless otherwise permitted by BHEL for outside job.		
9.3.16	The contractor shall maintain proper store account for all the BHEL issued materials and shall give Three (03) copies of monthly-computerized reconciliation statement of such account showing total receipt, consumption and balance at site to the BHEL. BHEL Engineer's certification for the reconciliation of steel shall be final.		
9.4	Issue and Return of Reinforcement Steel, MS Round Bar (Earthing Rod) and Structural Steel. Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.5	Consumption and Wastage of Reinforcement Steel, Structural Steel and MS Round Bar (Earthing Rod): Refer Chapter-VI "Material Handling, Storage & Preservation" of SCC		
9.6	Recovery of Materials (Penal Rates): If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates (excluding GST):		
9.6.1	Sl. No.	Materials	Penal Rate (Rs.)
	1	Reinforcement Steel / Earthing Rod	55,000/- per MT
	2	Structural Steel (Plates, Rolled Sections etc.)	68,000/- per MT
	3	Structural Steel Gratings	1,10,000/- per MT
9.6.2	Penal Rate will be 1.05 times the actual cost to BHEL or Rate mentioned in Table 9.6.1 above, whichever is higher, shall be imposed.		

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-X: BOQ CUM RATE SCHEDULE AND % WEIGHTAGE OF INDIVIDUAL ITEMS

This Chapter consists of Part A & Part B of Volume II “Price bid”:

<u>CONTENTS</u>	
Description	Remarks
PART A:	Vol-II Price Bid Total Price for entire scope of Work (Implanted in the E- Procurement portal entitled as “Vol-II Price Bid”).
PART B:	PREAMBLE, ‘BOQ CUM RATE SCHEDULE’, %WEIGHTAGE FOR AMOUNT OF INDIVIDUAL ITEMS OF BOQ CUM RATE SCHEDULE (ATTACHED SEPARATELY)

<u>Instructions to the Bidders</u>	
1.	<u>Bidders shall quote Total Price for the entire scope of work in Rupees in VOL II PRICE BID at BHEL E-procurement Portal.</u> Any other entry elsewhere in the offer of the bidder shall be treated as Null and Void. The total value shall be automatically calculated on E-portal.
2.	Contract Value based on the price quoted by Bidder in Price Bid shall be as per Part-B.
3.	BHEL has fixed the % weightages as in “Part-B” for the amount of individual items of BOQ Cum Rate Schedule w.r.t. the total value quoted in price-bid.
4.	Based on the pre-fixed % weightages, amount of individual items shall be derived by BHEL. This amount shall not be rounded off.
5.	Based on the quantities of individual item and the amount arrived in Sl. No. 4 above, item rate of individual items shall be derived by BHEL. This item rate shall be rounded off up to two decimal places and shall be used to calculate the total amount of an item.
6.	Bidders to note that this is an <u>‘Item rate contract’</u> . Payment shall be made for the actual quantities of work executed at the Unit rate arrived at as per serial no. 5 above.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI: TECHNICAL SPECIFICATIONS AND DRAWINGS

11.0 Following Technical Specifications shall be integral parts of this tender (attached separately):

- SECTION-C: SPECIFIC TECHNICAL REQUIREMENTS (RCC CHIMNEY)
- TECHNICAL SPECIFICATION FOR CHIMNEY (ELECTRICAL PORTION)
- TECHNICAL SPECIFICATION – MECHANICAL PORTION FOR RACK & PINION TYPE ELEVATOR FOR CHIMNEY
- SECTION-D: GENERAL TECHNICAL REQUIREMENTS
- CHIMNEY GENERAL ARRANGEMENT DRAWING.
- PLOT PLAN (TENDER STAGE DRAWING FOR BIDDER'S INFORMATION ONLY. FINAL PLOT PLAN SHALL BE PROVIDED TO THE SUCCESSFUL BIDDER AFTER AWARD OF WORK).
- WORKER'S ACCOMODATION DRAWING
- STANDARD GUIDLINE FOR WORKER'S ACCOMODATION
- TYPICAL LAYOUT OF WORKMEN SHED

NOTES:

- Contractor has to make him well conversant with the Technical Specifications of Customer (Section-C) and BHEL (Section-D). In case of ambiguity between BHEL's and Customer's specification, Customer's specification shall prevail.
- Above documents have been uploaded Separately.