

# VOLUME-IB

# SPECIAL CONDITIONS OF CONTRACT (SCC)

**CIVIL AND STRUCTURAL WORKS**

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**BHARAT HEAVY ELECTRICALS LIMITED**

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## Chapter - I : General Intent of Specifications

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1.0	INTENT OF THE SPECIFICATION
1.1	The intent of this specification is to provide services for execution of the project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation/ Construction of the plant shall not relieve the contractor of the responsibility of providing such services / facilities to complete the work or portion of work awarded to him. The quoted / accepted rates / price shall deem to be inclusive of all such contingencies.
1.2	The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during execution. If any portion of works is found to be defective in workmanship and not conforming to drawings / documents or other stipulations, the contractor shall dismantle and re-do the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be effected from contractor's bills.
1.3	It is not the intent of this specification to specify herein all the details of construction, erection and commissioning. However, the system shall conform in all respects to high standards of quality and workmanship for performing the required duties in a manner acceptable to purchaser who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his judgments is not in full accordance herewith.
1.4	The omission of specific reference to any construction, fabrication / erection or other method, equipment or material necessary for proper and efficient working of the plant shall not relieve the tenderer of the responsibility of providing such facilities to complete the work at quoted rates. Any mismatch/ defect found due to mistake in construction, fabrication / erection shall have to be rectified by the vendor free of cost. Inspection by BHEL/Customer does not relieve vendor of his responsibility of executing quality work.
1.5	The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, supervision, engineering and construction management. The contractor should ensure proper planning and successful and timely completion of the work to meet the overall project schedule. The contractor must deploy adequate quantity of tools & plants, modern / latest construction aids etc. He must also deploy adequate trained, qualified and experienced supervisory staff and skilled personnel.

## SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural Chapter - I : General Intent of Specifications

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1.6	Following shall be the minimum responsibility of contractor and have to be provided within finally accepted rates / prices.
1.6.1	Achieving Proper out-turn / Turn-over as per BHEL plan and commitment.
1.6.2	Completion of work as per BHEL Schedule. For this, the contractor, just after mobilization, has to submit detail work completion schedule along with their resource/T&P deployment plan in line with contract schedule for review/approval by BHEL/customer.
1.6.3	Good quality and accurate workmanship with good aesthetics value for the works done.
1.6.4	Repair and rectification.
1.6.5	Preservation / Re-conservation of all components/ structures during storage / erection / construction/ commissioning till handing over.

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### Chapter - II : General Services to be rendered by the Bidder

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<b>2.0</b>	<b>GENERAL SERVICES TO BE RENDERED BY THE BIDDER</b>
2.1	Services for construction, fabrication, and erection under the contract shall include but not be limited to the following:
2.2	Issuing materials from store / open yard from time to time for construction/ erection as per the construction programme. The Contractor shall be the custodian of all the materials issued till the structure/ plant/equipment is officially taken over by the owner / BHEL after satisfactory completion of work.
2.3	Transport of material to their respective places of construction / erection.
2.4	Deployment of all skilled and unskilled manpower required for construction/ erection, supervision of erection/ construction, watch & ward, commissioning and other services to be rendered under this specification.
2.5	Deployment of all erection tools & tackle, construction machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the construction / erection work to be handled under scope of this specification except otherwise specified.
2.6	Supply of all consumables, e.g. welding electrodes, cleaning agents, diesel oil, lubricant etc. as well as materials required for temporary supports, scaffolding etc. as necessary for such construction / erection work, unless specified otherwise.
2.7	Providing support services for the contractor's staff e.g. construction of site offices, temporary stores, residential accommodation and transport to work site for personnel, watch and ward for security and safety of the materials under the Contractor's custody etc. as required.
2.8	Maintaining proper documentation of all the site activities undertaken by the Contractor as per the Proforma mutually agreed with BHEL, Submission of monthly progress reports and any such document as and when desired by BHEL/owner, taking approval of all statutory authorities, Inspector of Explosives etc. as applicable for respective portions of work fall under the jurisdiction of such statutes of laws.
2.9	Any other service, although not specifically called for but required for a contract of the size and nature indicated in the specification.

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**Chapter - III : General Technical Requirements**  
**(Codes and Standards)**

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<b>3.0</b>	<b>GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS)</b>
3.1	Except where otherwise specified, the construction/ erection activity shall comply with the appropriate Indian Standard or an agreed internationally accepted Standard Specification as mentioned elsewhere in contract specifications, each incorporating the latest revisions at the time of tendering. Where no internationally accepted standard is applicable, the Bidder shall give all particulars and details as necessary, to enable BHEL to identify all material/ process in the same detail as would be possible had there been a Standard Specification.
3.2	Where the Bidder proposes alternative codes or standards he shall include in his tender one copy (in English) of each Standard Specification to which materials offered shall comply. In such case, the adopted alternative standard shall be equivalent or superior to the standards mentioned in the specification.
3.3	In the event of any conflict between the codes and standards referred above, and the requirements of this specification, the requirements which are more stringent shall govern.
3.4	Tools used during construction/ erection shall not be accepted except with the specific approval of the Engineer.

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**Chapter - IV : Obligations of Contractor**

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4.0	<b>OBLIGATIONS OF CONTRACTOR</b>
4.1	<b>CONSUMABLES &amp; OTHER ITEMS</b>
4.1.1	The contractor shall provide within finally accepted price / rates, all consumables (excepting those indicated in BHEL scope) like welding electrodes (including alloy steel and stainless steel), filler wires, TIG filler wires (over & above as supplied by the unit along with the plant materials, which will be given free of cost to bidder), gases (inert, welding, cutting), soldering material, dye penetrants, radiography films, etc. Other erection consumables such as tapes, jointing compound (As applicable), grease, mobile oil, M-seal, Araldite, petrol, CTC / other cleaning agents, grinding and cutting wheels are also to be provided by the contractor. Steel, packers, shims, wooden planks, scaffolding materials hardware items etc. required for temporary works such as supports, scaffoldings are to be arranged by the contractor. Sealing compounds, wooden/concrete sleepers, for temporary work, required for completion of work except those which are specifically supplied by manufacturing unit are also to be arranged by the contractor.
4.1.2	All the shims, gaskets and packing, which go finally as part of plant equipment, shall be supplied by BHEL free of cost.
4.1.3	It shall be the responsibility of the contractor to plan the activities and store sufficient quantity of consumables. Non-availability of any consumable materials or equivalent suggested by BHEL cannot be considered as reason for not attaining the required progress or for additional claim.
4.1.4	It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of electrodes etc. before procurement of welding electrodes. On receipt of electrodes at site these shall be subjected to inspection and approval by BHEL. The contractor shall inform BHEL details regarding type of electrodes, batch number, date of expiry etc. and produce test certificate for each lot / batch with correlation of batch / lot number with respective test certificate. No electrode without a valid test certificate will to be used.
4.1.5	BHEL reserves the right to reject the use of any consumable including electrodes, gases, lubricants / special consumables if it is not found to be of the required standard / make / purity or when shelf life has expired. Contractor shall ensure display of shelf life on consumable wherever required and records maintained.

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4.1.6	Storage of all consumables including welding electrodes shall be done as per requirement / instruction of the Engineer by the contractor at his cost.
4.1.7	In case of improper arrangement for procurement of any consumable, BHEL reserves the right to procure the same from any source and recover the cost from the Contractor's first subsequent bill at market value plus the departmental charges of BHEL from time to time. Postponement of such recovery is normally not permitted. The decision of Engineer in this regard shall be final and binding on the Contractor.
4.1.8	All charges on account of any kind of taxes and duties on materials obtained from any source for carrying out the works in the scope of the contractor shall be borne by the contractor.
4.2	<b>TOOLS AND PLANTS / MONITORING AND MEASURING EQUIPMENT (MMEs)</b>
4.2.1	<b>T&amp;Ps and MMEs to be provided by Contractor</b>
4.2.1.1	All T&Ps and MMEs excepting those specifically indicated in BHEL scope are to be provided by the Contractor. Record of availability of T&Ps and MMEs with Valid Fitness/Calibration Certificate of T&P & MME's need to be submitted on monthly basis by contractor to site package in charge. Contractor has to make his own arrangement at his cost for completing the formalities (including arrangement of Road permits/ e-way bill, if any) if required with Tax authorities, for bringing their materials, plants and equipments at site for the execution of work under this contract.
4.2.1.2	All suitable cranes, lifting and transport equipments for material handling at stores/yard/siding of BHEL/Customer are included in scope. BHEL's cranes will not be available for this purpose unless otherwise specifically permitted as per contract conditions
4.2.1.3	All T&Ps to be deployed by the contractor shall have the approval of BHEL Engineer with regard to brand, quality and specification.
4.2.1.4	Indicative list of Major T&Ps in the scope of Contractor are given in the Technical Conditions of Contract. Bidders to note that these are only indicative and as such all other T&P necessary for timely and satisfactory completion of work in scope shall be mobilized by Contractor
4.2.1.5	Timely deployment of adequate T&Ps/MME's is the responsibility of the contractor. The contractor shall be prepared to augment the



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	T&P/MME's at short notice to match the planned programme and to achieve the milestones.
4.2.1.6	Contractor shall maintain and operate his tools and plants in such a way that major breakdowns are avoided. In the event of major breakdown, contractor shall make alternative arrangements expeditiously so that the progress of work is not hampered.
4.2.1.7	<p>In the event of contractor failing to arrange the required tools, plants, machinery, equipment, material or non-availability of the same owing to breakdown, BHEL can deploy own/hired/otherwise arrange resources and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.</p> <p>It is not obligatory on the part of BHEL to provide any tools and tackles or other materials other than those specifically agreed to do so by BHEL. However, depending upon the availability, BHEL/ BHEL's Customer handling equipment and other plants may be made available to the contractor on payment of hire charges as fixed, subject to the conditions laid down by BHEL/ Customer from time to time. Unless paid in advance, such hire charges, if applicable, shall be recovered from contractor's bill/ security deposit or any other due payment in one instalment.</p>
4.2.1.8	The T&P to be arranged by the contractor shall be in proper working condition and their operation shall not lead to unsafe condition. The movements of cranes, and other equipment should be such that no damage / breakage occurs to foundations, other equipments, material, property and men. All arrangements for the movement of the T&P etc. shall be the contractor's responsibility.
4.2.1.9	Use of welding generators / rectifiers only shall be permitted for welding. Use of welding transformers will be subject to specific approval of BHEL engineer.
4.2.1.10	The contractor at his cost shall carry out periodical testing of his construction equipment. Test and calibration certificates shall be furnished to BHEL.
4.2.1.11	Contractor shall ensure deployment of serviced and healthy T&Ps including cranes, lifting tackles, wire ropes, manila ropes, winches and slings etc. History card and maintenance records for major T&Ps will be maintained by the contractor and will be submitted to BHEL Engineer for inspection on monthly basis. Fitness certificate / Test Certificates of T&P shall have to be submitted before it is put in use.

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**Chapter - IV : Obligations of Contractor**

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	Identification for such T&Ps will be done as per BHEL Engineer's advice.
4.2.1.12	Contractor shall ensure deployment of reliable and calibrated MMEs (Inspection measuring and Monitoring equipment). The MMEs shall have test / calibration certificates from authorized / Government approved / accredited agencies traceable to National / International standards. Each MME shall have a label indicating calibration status i.e. date of calibration, calibration agency and due date for calibration. A list of such instruments deployed by contractor at site with its calibration status is to be submitted to BHEL Engineer on monthly basis in prescribed format for control.
4.2.1.13	Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MME so that work does not suffer when the particular instrument is sent for calibration. If any MMEs not found fit for use, BHEL shall have the right to stop the use of such item. It will be necessary for the contractor to deploy proper item. Any readings taken by the defective instrument will be recalled and repeat the readings taken by that instrument with a proper one. In case he fails to do so, BHEL may deploy MMEs and retake the readings at contractor's cost.
4.2.1.14	BHEL shall have lien on all T&P, MMEs and other equipment of the contractor brought to the site for the purpose of work awarded by BHEL. BHEL shall continue to hold the lien on all such items throughout the period of contract / extended period. The contractor and / or his sub-contractors, without the prior written approval of the Engineer, shall remove no material brought to the site for the purpose of work awarded by BHEL.
4.2.1.15	The month wise T&P deployment plan to execute the work is to be submitted as per relevant format as per the instruction of BHEL. It shall be the contractor's responsibility to deploy the required T&P, for timely and successful completion of the job, to any extent.
4.2.2	<b>Obligations in respect of T&amp;Ps and MMEs provided by BHEL</b>
4.2.2.1	T&P / MMEs being provided by BHEL to sub-contractor free of hire charges shall be shared by other subcontractors working for BHEL at site and the allotment done by BHEL Engineer shall be final and binding.
4.2.2.2	BHEL T&P will be issued in basic assembled condition. Additional loose components / sub-assemblies / attachments as and when

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	necessary, will be issued by BHEL. Assembly of such additional loose components/sub-assemblies/ attachments is in contractor's scope.
4.2.2.3	In case of non-availability of the T&Ps to be provided by BHEL due to breakdown, major overhauls, distribution pattern or any other reason, the contractor shall plan / amend / alter his activities to meet construction, erection / commissioning targets in consultation with BHEL.
4.2.2.4	Unless otherwise specified elsewhere in the contract, the contractor shall engage trained and experienced operators for the operation of BHEL's T&Ps. Their skill / performance will be checked by BHEL Engineer before they are allowed to operate the same. However, checking of skills by BHEL does not absolve the contractor of his responsibilities for proper and safe handling of equipment, consistent good performance of operators and regular performance evaluation of operators.
4.2.2.5	The day to day operation and maintenance of BHEL's T&Ps ( <b>Other than cranes</b> ) shall be carried out by contractor as per manufacturer's / BHEL's maintenance schedule at his cost. The contractor shall arrange, at his own cost, trained operators, fuel and other consumables for their operation. The contractor has to arrange for fixing of the spares; supervision in specialized cases will be provided by BHEL. BHEL supplied T&Ps shall be maintained in good working condition during the entire period of use. T&Ps in defective / damaged condition shall be rectified promptly to the full satisfaction of BHEL engineer. Contractor shall maintain records for maintenance of major T&Ps. These shall be made available for Inspection whenever required. In case of any lapses on the part of the contractor, BHEL at its own discretion shall get the servicing / repair of equipment done and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC. Further, if there are breakdowns / damages due to negligence of the contractor, the complete service / repair charges and cost of all the spares damaged with BHEL overheads shall be recovered from contractor's RA bills.
4.2.2.6	Increasing / shortening of the crane boom to suit work requirements shall have to be arranged by the indenting contractor at his cost including restoration to a state as directed by BHEL. All necessary manpower tools, support, consumables, illumination etc. will have to be arranged by contractor at his cost. If required, contractor has to return the crane with original boom.

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4.2.2.7	<p>The rate quoted shall be inclusive of cleaning the site of any vegetation, dressing and levelling etc., required for commencement of site activities. The rates shall also be inclusive of final micro grading before handing over. No separate payment will be made towards the same.</p> <p>However, in construction projects of this magnitude it is possible that all the areas / approaches may not be ready. In such cases backfilling of approaches where ever necessary, consolidation of ground and arrangement of sleepers / sand bag filling etc. for safe operation / movement of equipment including cranes / trailers etc. shall be the responsibility of the contractor at his cost. No compensation on this account shall be payable.</p>
4.2.2.8	<p>In the event of contractor not using and maintaining BHEL T&amp;Ps according to BHEL's instructions. BHEL will have the right to withdraw such item without any notice and no claim in this regard shall be entertained and contractor shall be responsible for delay in execution on this account.</p>
4.2.2.9	<p>The contractor shall furnish regular utilization report of the BHEL T&amp;Ps, as per requirement of BHEL.</p>
4.2.2.10	<p>Any loss / damage to any part of BHEL T&amp;Ps and MMEs shall be to the contractor's account and any expenditure on these accounts by BHEL will be recovered from the contractor's bill in case the contractor fails to make good the loss.</p>
4.2.2.11	<p>It shall be responsibility of the contractor to take delivery of T&amp;Ps and MMEs from stores or place of use of other contractor at project site, transport the same to site and return the same to BHEL store / place as intimated by Engineer in project site in good working conditions after use.</p>
4.2.2.12	<p>The contractor shall return BHEL T&amp;Ps and MMEs issued to him in good working condition as and when desired by BHEL (on completion or reduction of workload). If contractor delays return of T&amp;P and MME, hire charges as applicable shall be levied by BHEL from time, it was requisitioned till the time of actual return.</p> <p>T&amp;Ps and MMEs returned in damaged / unserviceable condition shall be got repaired by BHEL at its own discretion and entire cost of repair with BHEL overheads shall be recovered from the contractor.</p>
4.2.2.13	<p>Replacement cost including BHEL overheads in respect of irreparable / completely damaged / non return of T&amp;Ps and MMEs shall be recovered from the contractor's running / final bills</p>

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**Chapter - IV : Obligations of Contractor**

4.2.2.14	<b>Obligations in respect of Cranes provided by BHEL</b>
a)	BHEL will make available the cranes (as per Technical Conditions of Contract) free of charge to the contractor on sharing basis mainly for the purposes enumerated/ indicated therein. BHEL cranes have to be shared with other agencies / contractors of BHEL. The allocation of cranes shall be the discretion of BHEL engineer, which shall be binding on the contractor.
b)	In case BHEL cranes /EOT (Electrically operated trolley) are covered under AMC awarded by BHEL, then the day-to-day upkeep and running maintenance as described above are excluded from scope. However, any additional helpers if any required during Preventive / Breakdown Maintenance, Assembly / disassembly shall be provided by contractor at no extra cost.  BHEL may also provide cranes through crane hiring agencies in which case the day-to-day upkeep and running maintenance shall be excluded from scope of contractor.
c)	Minor consumables like cotton cloth, cotton waste, etc. is to be supplied by Contractor. All spares and lubricants/grease is excluded from scope. Contractor to give the requirements of these items well in advance in case the cranes provided by BHEL are BHEL owned cranes.
d)	Unless otherwise specified, trained operators for BHEL owned cranes shall be provided by the contractor. These operators should possess valid license for heavy vehicle.
e)	BHEL cranes /EOT (Electrically operated trolley) will be withdrawn for regular and capital maintenance as per the respective schedule of maintenance. As far as possible such schedules will be intimated to the contractor in advance and may be adjusted depending on the work requirements at site. However no claim whatsoever will be entertained on account of non-availability of cranes.
f)	Where the services of the cranes provided by BHEL are to be shared by other agencies / contractors of BHEL, the contractor's responsibilities defined above will also be apportioned accordingly to the beneficiary agency. Working arrangements in this regard will be done at site by BHEL engineer and in any case his decision shall be final and binding.
g)	Major breakdowns will be attended to by BHEL. However, in case of breakdowns or damages due to negligence of the contractor, the complete service / repair charges including cost of spares shall be to the account of the contractor, along with BHEL overheads.

**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter – V: Responsibilities of Contractor in respect of**  
**Labour, Supervisory Staff, etc.**

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<b>5.0</b>	<b>RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF LABOUR, SUPERVISORY STAFF, ETC.</b>
5.1	Refer relevant clauses of General Conditions of Contract (GCC) also in this regard
5.2	The contractor shall deploy all the necessary skilled/semiskilled/ unskilled labour including highly skilled workmen etc. These workmen should have previous experience on similar job. They shall hold valid certificates wherever necessary. BHEL reserves the right to insist on removal of any employee of the contractor at any time if he is found to be unsuitable and the contractor shall forthwith remove him.
5.3	Contractor shall also comply with the requirements of local authorities/ project authorities calling for police verification of antecedents of the workmen, staff etc.
5.4	It is the responsibility of the contractor to engage his workmen in shifts and or on overtime basis for achieving the targets set by BHEL. This target may be set to suit BHEL's commitments to its customer or to advance date of completion of events or due to other reasons. Prior Information will be communicated by BHEL to contractor for arrangement of required manpower and T&P/MME's at no extra cost to BHEL. The decision of BHEL in regard to setting the construction, erection and commissioning targets will be final and binding on the contractor.
5.5	Contractor shall provide at different elevation suitable arrangement for urinal and drinking water facility with necessary plumbing & disposal arrangement including construction of septic tank. These installations shall be maintained in hygienic condition at all times.
5.6	The Contractor in the event of engaging 20 or more workmen, shall obtain Independent license under the Contract labour (Regulation and Abolition) Act 1970 from the concerned authorities based on Form-V issued by the Principal Employer/Customer. In order to issue Form-V by Customer, Contractor shall fulfill all Statutory requirements like Insurance Policy, PF Code/PF Account number etc. as per the requirement of BHEL/Customer
5.7	Contractor shall deduct the necessary amount towards Provident Fund and contribute equal amount as per Government of India laws. This amount will be deposited regularly to the provident Fund Commissioner. BHEL/Customer may insist for submission of the account code duly certified by PF Commissioner
5.8	Contractor may also be required to comply with provisions of ESI Act in vogue if applicable and submit evidence to BHEL.

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**Chapter – V: Responsibilities of Contractor in respect of**  
**Labour, Supervisory Staff, etc.**

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5.9	<p>BHEL / customer may insist for witnessing the regular payment to the labour. They may also like to verify the relevant records for compliance with statutory requirements. Contractor shall enable such facilities to BHEL / Customer. Documentary proof of Labour wage payment with bank seal and sign should be submitted every month with RA Bill. All Labours should be provided with Labour ID Card as per format prescribed by Labour department.</p> <p>Contractor shall also provide monthly declaration for the current month regarding payment of wages, PF, ESI etc. payable to all the engaged workers as per existing labour laws and practice.</p>
5.10	<p>Contractor shall deploy only qualified and experienced engineers/supervisors. They shall have professional approach in executing the work. Refer Clause No. 2.4</p>
5.11	<p>The contractor's supervisory staff shall execute the work in the most professional manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. They shall be responsible to ensure that the assembly and workmanship conform to dimensions and tolerances given in the drawings/instructions given by BHEL engineer from time to time.</p>
5.12	<p>The supervisory staff employed by the contractor shall ensure proper outturn of work and discipline on the part of the labour put on the job by the contractor. Also in general they should see that the works are carried out in a safe and proper manner and in coordination with other labour and staff employed directly by BHEL or other contractors of BHEL or BHEL's client.</p>
5.13	<p>It is the responsibility of the contractor to arrange gate pass for all his employees, T&amp;P etc. for entering the project premises. Necessary coordination with customer officials is the responsibility of the contractor. Contractor to follow all the procedures laid down by the customer for making gate passes. Where permitted, by customer / BHEL, to work beyond normal working hours, the contractor shall arrange necessary work permits for working beyond normal working hours. Contractor shall also arrange deputation of required supervisors, safety officers and all necessary arrangements to the satisfaction of BHEL engineer for extended hour working/night shift working.</p>

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**Chapter – V: Responsibilities of Contractor in respect of**  
**Labour, Supervisory Staff, etc.**

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5.14	The actual deployment of Labour and Engineer / supervision staff by the Contractor shall be so as to satisfy the construction, erection and commissioning targets set by BHEL. If at any time, it is found that the contractor is not in a position to deploy the required engineers / supervisors / workmen due to any reason, BHEL shall have the option to make alternative arrangements and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.
5.15	Contractor shall not deploy women labour at night.



**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter – VI: Material Handling, Storage & Preservation**

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6.0	<b>MATERIAL HANDLING, STORAGE AND PRESERVATION ETC</b>
6.1s	<b>MATERIAL HANDLING AND STORAGE</b>
6.1.1	All the equipments/materials furnished under this contract shall be received from the project stores, sheds / storage yards and transported to pre assembly area / construction / erection site and stored in the storage spaces in a manner so that they are easily retrievable till the contractor erects them. <b>While drawing/lifting material from BHEL / customer stores, the contractor shall ensure that the balance / other materials are stacked back immediately. No claim is admissible on this account</b>
6.1.2	While BHEL will endeavor to store / stack / identify materials properly in their open / close / semi closed / tarpaulins covered storage yard / shed, it shall be contractor's responsibility to assist BHEL in identifying materials well in time for construction / erection. They should take the delivery of the same, following the procedure indicated by BHEL, and transport the material safely to pre-assembly yard / construction / erection site in time, according to program.
6.1.3	The contractor shall take delivery of Construction material/ consumables (as specified in tender conditions) from storage area after getting the approval of BHEL Engineer on standard indent forms. All the construction material/consumables shall be handled carefully by contractor to prevent any damage or loss.
6.1.4	The contractor shall identify and deploy necessary Engineers / supervisors / workmen for the above work in sufficient number as may be needed by BHEL, for areas covering their scope.
6.1.5	All the equipment shall be handled very carefully to prevent any damage or loss. No untested wire ropes / slings etc. shall be used for unloading / handling. Valid fitness/load test certificate need to be submitted before execution of erection/lifting/handling work. The equipment shall be properly protected to prevent damage either to the equipment or to the floor where they are stored.
6.1.6	Contractor shall ensure that while lifting slings shall be put over the points indicated on the structure/ erection component or as indicated in the manufacturer's drawings. Slings / shackles of proper size shall be used for all lifting and rigging purposes. All care shall be taken to safe guard the structure/ erection component against any damage. Dragging of piping / erection component should be avoided. In case of any damage the cost shall be recovered from the contractor, for those structure/ erection component which are issued, stored, erected by contractor.

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### Chapter – VI: Material Handling, Storage & Preservation

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6.1.7	Approach road conditions from the stores / yards to the erection/ construction site may not be equipped and ideal for smooth transportation of the material. Contractor may have to be adequately prepared to transport the materials under the above circumstances without any extra cost. The contractor may familiar himself with soil conditions at site.
6.1.8	Contractor shall be responsible for examining all the plant and materials issued to him and notify the Engineer immediately of any damage, shortage, discrepancy etc. before they are moved out of the stores / storage area. The contractor shall be solely responsible for any shortages or damages in transit, handling, storage, theft and erection of the material once received by him. Materials once taken over will be deemed to have been received in good condition and in correct quantities except for intrinsic defects which cannot be observed by visual and dimensional inspection and weighing. As the construction / erection work will be spread in different areas / locations of the project, contractor has to arrange sufficient number of watch / ward personal to avoid any pilferage of materials which are under custody of the contractor.
6.1.9	The contractor shall maintain an accurate and exhaustive record-detailing out the list of all equipment received by him for the purpose of construction / erection and keep such record open for the inspection of the engineer at any time.
6.1.10	All the material in the custody of contractor and stored in the open or dusty locations must be covered with suitable weather proof / fire retardant covering material wherever applicable and shall be stacked up on raised level above ground. All covering materials including blocks and sleeper shall be arranged by the contractor at his cost.
6.1.11	If the material belonging to the contractor are stored in area other than those earmarked for his operation, BHEL has the right to get it moved to the area earmarked for the contractor and recover the expenses incurred from the dues payable to contractor. Recoveries shall be actual expenses incurred plus 5% overheads or as defined in TCC.
6.1.12	The contractor shall be responsible for making suitable indoor storage facilities to store all material & equipment (drawn by the contractor from BHEL / customer stores), which require indoor storage till the time of their utilization. The Engineer will direct the contractor in this regard, which item in his opinion will require indoor storage, and the contractor shall comply with Engineer's decision.

## SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural

### Chapter – VI: Material Handling, Storage & Preservation

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6.1.13	All materials issued by BHEL shall be utilized as directed by Engineer-in-Charge or most economically in the absence of such direction. The contractor shall ensure that all surplus / damaged / scrap / unused material, packing wood / containers/ special transporting frames etc. are returned to BHEL at a place in project area identified by the Engineer. The contractor will maintain an account for all items received and returned to BHEL. Any shortage in returning such items shall be chargeable to the contractor except allowable wastage as specified in SCC/TCC.
6.1.14	The contractor shall hand over all parts / materials remaining extra over the normal requirement with proper identification tags to the stores as directed by the concerned BHEL engineer.
6.1.15	It shall be the responsibility of the contractor to keep the work / storage areas in neat, tidy and working conditions. All surplus/unusable packing and other materials shall be removed and deposited at location(s) specified by BHEL within the project premises. If required weighing of the same within the project premises will have to be carried out.
6.2	<b>PRESERVATION OF COMPONENTS</b>
6.2.1	After taking delivery from BHEL / customer's stores, plant materials storage shall be subjected to the following protection besides other provisions indicated in these specifications elsewhere.
6.2.1.1	Items stored outdoors shall be stacked up at least six inches (6") off the ground. Items should not be stored in a low lying area where water logging is a possibility. Contractor should have sufficient numbers of wooden / concrete / steel sleepers for the job.
6.2.1.2	Insulation materials shall be stored indoors or otherwise protected against getting wet/ damaged, using suitable measures and should be protected from direct rain.
6.2.2	The contractor shall effectively protect the finished work from action of weather and from damage or defacement and shall cover the finished parts then and there for their protection.
6.2.3	Any failure on the part of contractor to carry out works according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from contractor.

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<b>6.3</b>	<b><u>HANDLING OF MATERIALS ISSUED BY BHEL:</u></b>
6.3.1	Materials shall be issued by BHEL based on the weighment basis/linear measurements & sectional weight. However, on specific request of the contractor “ <b>as a special case to expedite the job</b> ” the consignment received at BHEL stores can directly be diverted to the work site following issuance procedure of BHEL. Quantity of such direct issues shall be as per the Challan/dispatch document/LR received with the consignment. In such cases, Contractor shall do unloading of materials from trucks/lorry at their own cost.
6.3.2	<p>All materials issued by BHEL shall be stacked, stored above ground level <b>by use of concrete or wooden sleepers. No materials shall remain on ground at any time.</b> All concrete or wooden sleepers required for stacking the materials shall be arranged by contractor (successful bidder of this package) at his own cost within the quoted rates. All other equipments like winches, D-Shackles, slings of various sizes, max puller, pulley blocks, jacks, trucks, trailers etc. required for such handling of steel from BHEL stores/storage yard etc. shall be arranged by contractor within quoted/accepted rates.</p> <p>All materials stored by contractor shall be in accordance to standards/specifications and instruction of BHEL. Utilization of these material shall also be done in such a manner so that wastage on account of long storage/storage beyond shelf life can be avoided. Any loss/damage of material on this account will be attributable to the contractor.</p>

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6.3.3	<p>The contractor shall take delivery of the materials from the designated place within the project premises at his own cost and store the same at his stores as per standard norms. Open land for such purposes as available shall be provided by BHEL on free of cost basis. Temporary barbed wire fencing of the open storage yard is to be done by the contractor and is included under the scope of his work. Contractor shall also remove grass, bushes, trees etc. wherever required off the land provided to him and shall make proper continuous up keeping of the open yard /land by removing grass, bushes trees etc. and same is included under the scope of his work &amp; No extra payment shall be made to the contractor in this regard. The bidder shall make complete arrangement of necessary security personnel to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent works. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering. Excessive rusting of steel in custody of agency/contractor must be avoided. <b>In case, due to any cause attributable to the contractor, such rusting of steel occurs rendering the same unusable, then such quantity of steel shall be recovered from the interim payment at the penal rate specified in the tender.</b></p>
6.3.4	<b><u>ISSUE OF STEEL:</u></b>
6.3.4.1	<b>The steel shall be issued to the contractor on the following basis:</b> <ul style="list-style-type: none"><li>i. Structural Steel: Weight basis (Unit – MT)</li><li>ii. Reinforcement Steel and Earthing Rod: Weight basis (Unit-MT)</li><li>iii. MS Rails: Weight Basis (Unit-MT)</li><li>iv. Titanium Plates: Weight basis (Unit – MT)</li></ul>
6.3.4.2	<p>All the steel (structural, reinforcement, earthing rod/GI flats, GI foundation bolts, etc.) issued by BHEL shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs etc. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following IS/BS/EN specifications.</p>

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6.3.4.3	<b>Sr No</b>	<b>Name of Standard</b>	<b>Name of Section</b>
	1	IS: 808-1964	Beams, Channels and Angles
	2	IS: 1730-1961	Plates, Sheets and Strips/Flats
	3	BS4-1: 1993	UB/UC sections
	4	IS: 12778/equivalence with EN-19-57	For NPB sections
	5	IS: 12778/equivalence with EN-53-62	For HE/WPB sections
	6	IS: 1786 or grade -1 of IS432 (Part-I)	Rounds including deformed high yield strength bars.
	7.	IS:4923-1997	Hollow section
<p>In case any such sectional weights are not available in the above documents, the manufacturer recommendation/BHEL instruction shall be binding.</p>			
6.3.4.4	<p>The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores and no claims for extra payment because of issue of non-standard length will be entertained.</p>		
6.3.4.5	<p>The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.</p>		
6.3.4.6	<p>The contractor shall submit to BHEL well in advance of before Three month from requirement, a statement indicating estimated quantity of cement and steel required during a quarter. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.</p>		
6.3.4.7	<p>Bidders shall ensure that no lamination material is taken over by them from BHEL.</p> <p>The contractor must note that cement and steel required for the contractor's enabling job like store/ site office/batching plant/temporary woks etc. shall be arranged by the contractor at his own cost.</p> <p>All temporary structures constructed/installed/erected are to be dismantled and removed as per instruction of BHEL</p>		

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6.3.4.8	Bidder to give requirement of Material in BHEL Scope well in advance of before Three month from requirement. Any delay in raising the requirement of these item leading to delay in placement of order, will be Contractor responsibility and its attributable delay in construction /erection will be responsibility of Bidder only.
<b>6.4</b>	<b><u>RETURN OF MATERIALS (BHEL Free Issued Material)</u></b>
6.4.1	<b>Return of Cement:</b> Sealed cement bags remaining unused and in perfectly good condition at the time of completion or termination of the contract shall be returned promptly, (within 15 days from assessment) if BHEL/ engineer is satisfied of the physical condition of the cement. Return of such cement to the project stores / place as identified within the project area by engineer/ BHEL will not entitle contractor to handling and incidental charges. Surplus sealed and good conditioned cement bags will be taken back on weighment basis. Loose Cement remaining in Cement Silos will not be taken by BHEL.
6.4.2	<b>Return of Reinforcement Steel and Structural Steel including Scrap:</b> All surplus steel and all wastage materials will be taken back on weighment basis. Surplus, unused and untampered steel shall be sorted section-wise and returned separately at a place directed by BHEL/Engineer within the project area. For return of such materials, contractor will not be entitled to any handling and incidental charges. All wastage / scrap (including melting scrap, wastage, and unusable scrap) shall be promptly returned to the stores and a receipt obtained for material accounting purposes. Scrap for reinforcement steel and structural steel shall be returned separately.
6.4.3	<b><u>Scrap and Serviceable Materials:</u></b>
6.4.3.1	All structural steel of length above 2 Meter except M.S Plate shall be considered as <b>serviceable materials</b> provided the materials is in good and acceptable condition. Structural steel in length less than 2 Meter Shall be treated as scrap.
6.4.3.2	Plates having both side greater than 1 Meter OR if any side is less than 1 Meter but greater than 0.5 Meter and the total area is equal or greater than 2 sq. Meter shall be considered as <b>serviceable material</b> .
6.4.3.3	All pipe measuring 2 Meter and above in length shall be treated serviceable materials provided they are in good and acceptable condition. Pipe in less than 2 Meter length shall be treated as Scrap.
6.4.3.4	All TMT measuring 3 Meter and above in length shall be treated as <b>serviceable material</b> provided they are in good acceptable condition. TMT in less than 3 Meter shall be treated as scrap.

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6.4.4	<b><u>Cement, Steel Consumption and wastage:</u></b>													
6.4.4.1	<p><b>Cement Consumption:</b>  The theoretical consumption of cement shall be based on the following:</p> <ol style="list-style-type: none"> <li>a. For design mix concrete as per approved design mix.</li> <li>b. For nominal mix concrete work, as per minimum cement as specified or as approved by engineer-in-charge.</li> <li>c. For item of works, where volume mix is permitted in writing by the BHEL, for masonry works, plaster other miscellaneous items, the cement consumption shall be governed by the “Statement of cement consumption” attached to the latest version of Delhi Schedule of Rates (DSR) unless otherwise specified in the specifications or the drawing of contract or mutually agreed by engineer-in-charge and the contractor.</li> <li>d. Actual consumption = Issue – Surplus/ unused quantity of cement returned in good condition by the contractor to store. (No sweep cement will be taken back by BHEL).</li> </ol>													
6.4.4.2	<p><b>Cement Wastage:</b></p> <ol style="list-style-type: none"> <li>a. <b>Allowable wastage:</b> One and half percent (+1.5%) of theoretical consumption of cement.</li> <li>b. For any material issued by BHEL to the contractor free of cost, and which is not accounted for by the contractor to BHEL, then recovery for such material shall be affected at penal rates.</li> </ol> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">SI no.</th> <th style="width: 60%;">Cement consumption</th> <th style="width: 30%;">Basis of issue &amp; penal recovery</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">C1</td> <td>Theoretical consumption (without considering any wastage or loss).</td> <td style="text-align: center;">Free</td> </tr> <tr> <td style="text-align: center;">C2</td> <td>Actual consumption being Limited to one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.</td> <td style="text-align: center;">Free</td> </tr> <tr> <td style="text-align: center;">C3</td> <td>Actual consumption beyond one and half percent (+1.5%) of above (C1).</td> <td style="text-align: center;">Penal rate</td> </tr> </tbody> </table>		SI no.	Cement consumption	Basis of issue & penal recovery	C1	Theoretical consumption (without considering any wastage or loss).	Free	C2	Actual consumption being Limited to one and half percent (+1.5%) of aforesaid theoretical consumption towards allowable wastage.	Free	C3	Actual consumption beyond one and half percent (+1.5%) of above (C1).	Penal rate
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6.4.4.3	<p><b>Reinforcement Steel, MS earthing rod, GI gratings, Foundation bolts and MS Rails Consumption</b></p> <p>The theoretical consumption of various sections and/or diameter of reinforcement and earthing rod steel shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.</p> <p style="margin-left: 40px;"> <b>a.</b> Actual consumption = Issue – Surplus.  <b>b.</b> Surplus = un-tampered, unused, uncut QTY of steel <b>including serviceable material</b> returned by the contractor to BHEL store along-with relevant documents.  <b>c.</b> Wastage = Actual consumption – Theoretical consumption.         </p>																		
6.4.4.4	<p><b>Reinforcement Steel, MS earthing rod, Foundation bolts and MS Rails Wastage</b></p> <p><b>a. Allowable Wastage:</b> (+3%) of the theoretical consumption shall be considered as allowable wastage.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th colspan="3" style="text-align: center;">Wastage and scrap shall be as per actual weight basis.</th> </tr> <tr> <th style="width: 10%;">Sl. no.</th> <th style="width: 70%;">Reinforcement steel &amp; MS earthing rod</th> <th style="width: 20%;">Basis of issue &amp; penal recovery</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">R1</td> <td>Theoretical consumption (without considering wastage and scrap or loss)</td> <td style="text-align: center;">Free</td> </tr> <tr> <td style="text-align: center;">R2a</td> <td>Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage and returned to BHEL Store.</td> <td style="text-align: center;">Free</td> </tr> <tr> <td style="text-align: center;">R2b</td> <td>Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage but not returned to BHEL Store.</td> <td style="text-align: center;">Penal Rate</td> </tr> <tr> <td style="text-align: center;">R3</td> <td>Wastage beyond <b>THREE</b> percent (+3%) of the theoretical consumption above (R1).</td> <td style="text-align: center;">Penal rate</td> </tr> </tbody> </table>	Wastage and scrap shall be as per actual weight basis.			Sl. no.	Reinforcement steel & MS earthing rod	Basis of issue & penal recovery	R1	Theoretical consumption (without considering wastage and scrap or loss)	Free	R2a	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage and returned to BHEL Store.	Free	R2b	Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage but not returned to BHEL Store.	Penal Rate	R3	Wastage beyond <b>THREE</b> percent (+3%) of the theoretical consumption above (R1).	Penal rate
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R3	Wastage beyond <b>THREE</b> percent (+3%) of the theoretical consumption above (R1).	Penal rate																	

**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter – VI: Material Handling, Storage & Preservation**

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6.4.4.5	<p><b>Structural Steel (Rolled Sections and Plates etc.)</b>  <b>Consumption</b></p> <p>The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard. No extra shall payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.</p> <p>a. Actual consumption = Issue – Surplus.  b. Surplus = un-tempered, unused, uncut quantity of steel <b>including serviceable material</b> returned by the contractor to BHEL store.  c. Wastage = Actual consumption – Theoretical consumption.</p>		
6.4.4.6	<p><b>Structural Steel Wastage</b></p> <p>a. <b>Allowable wastage:</b> 4% (FOUR percent) of the theoretical consumption shall be considered as wastage. Wastage shall be considered as cut pieces and scrap material, measured as per actual weightment basis. Invisible wastage, if any, shall be considered to be included in the specified 4 % allowable wastage.</p>		
	<b>Sl no</b>	<b>Structural steel including SS plate</b>	<b>Basis of issue &amp; penal Recovery</b>
	S1	Theoretical consumption (without considering any wastage, scrap or loss) as per specification & drg.	Free
	S2a	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (S1) towards allowable wastage (including invisible wastage limited to 0.5%) and return to BHEL Store.	Free
	S2b	Wastage limited to plus four percent (+4%) of aforesaid theoretical consumption (S1) towards allowable wastage (including invisible wastage limited to 0.5%) but not returned to BHEL Store.	Penal Rate
	S3	Wastage beyond <b>four</b> percent (4%) of the aforesaid theoretical consumption (S1).	Penal rate

**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter – VI: Material Handling, Storage & Preservation**

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6.4.4.7	<p><b><u>Reconciliation of Materials:</u></b></p> <ul style="list-style-type: none"><li>a. The contractor shall submit a reconciliation statement of cement and steel issued to the contractor with each RA Bill.</li><li>b. At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material is available in the contractor custody at site.</li><li>c. At the time of submission of bills, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then, BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.</li><li>d. If at any point of time, BHEL finds there is a difference in physical and theoretical balance, where the contractor fails to provide necessary reconciliation, the decision of penal recovery/withhold of amount at penal rate by BHEL shall be final and binding to the contractor till proper records are submitted to and verified by BHEL.</li><li>e. The reference drawings for actual material consumption to be used for the purpose of reconciliation shall be drawings prepared by the BHEL and drawings approved by BHEL for fabrication works and such other drawings approved by BHEL. This shall also include the bar bending schedule prepared by the contractor and approved by BHEL.</li></ul>
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**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter – VII: Drawings and Documents**

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<b>7.0</b>	<b>DRAWINGS AND DOCUMENTS</b>
7.1	<p>The detailed drawings/revised drawings/documents, specifications available with BHEL engineers will be made available to the contractor during execution of work at site. The contractor will also ensure availability of all drawings / documents at work place. Contractor to ensure that hard/soft copies of the drawings not be forwarded and transmitted in any form detrimental to the interest of BHEL.</p> <p>BHEL can issue hard copy or soft copy of the drawings as available. It shall be the responsibility of the contractor to provide print outs for additional copies to site as per requirement.</p>
7.2	<p>Necessary drawings to carry out the construction/ erection work will be furnished to the contractor by BHEL on loan, which shall be returned to BHEL Engineer at site after completion of work. Contractor shall ensure safe storage and quick retrieval of these documents.</p>
7.3	<p>The contractor shall maintain a record of all drawings and documents available with him in a register as per format given by BHEL Engineer. Contractor shall ensure use of pertinent drawings / data / documents and removal of obsolete ones from work place and returning to BHEL.</p>
7.4	<p>The data furnished in various annexure enclosed with this tender specification are only approximate and for guidance. However, the change in the design and in the quantity may occur as is usual in any such large scale of work. The contractors quoted rates shall be inclusive of the above factor.</p>
7.5	<p>Should any error or ambiguity be discovered in the specification or information the contractor shall forthwith bring the same to the notice of BHEL before commencement of work. BHEL's interpretation in such cases shall be final and binding on the contractor.</p>
7.6	<p>Deviation from design dimensions should not exceed permissible limit. The contractor shall not correct or alter any dimension / details, without specific approval of BHEL.</p>

**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter – VIII: Inspection and Quality**

8.0	<b>INSPECTION AND QUALITY</b>
8.1	<b>Inspection, Quality Assurance, Quality Control</b>
8.1.1	Preparation of quality assurance log sheets as per approved FQP and protocols with customer / consultants / statutory authority, welding logs, NDE records, testing & calibration records and other quality control and quality assurance documentation as per BHEL engineer's instructions, is within the scope of work / specification. These records shall be submitted to BHEL / customer for approval from time to time.
8.1.2	The protocols between contractor and customer / BHEL shall be made prior to installation for correctness of foundations, materials, procedures, at each stage of installation, generally as per the requirement of customer / BHEL. This is necessary to ensure elimination of errors or keeping them within tolerable limits and to avoid accumulation and multiplication of errors.
8.1.3	<p>A daily log book should be maintained by every supervisor / engineer of contractor on the job in duplicate (one for BHEL and one for contractor) for detailing and incorporating alignment/clearance / centering / leveling readings and inspection details of various construction/ erection activities etc.</p> <p>High pressure welding details like serial number of weld joints, welders name, date of welding, details of repair, heat treatment etc. will be documented in welding log as per BHEL Engineer's instructions.</p> <p>Record of radiography containing details like serial number of weld joints, date of radiography, repairs, if any, re-shots etc. shall also be maintained as per BHEL Engineer's instructions.</p> <p><b>Record of heat treatments performed shall be maintained as prescribed by BHEL</b></p>
8.1.4	The performance of welders will be reviewed from time to time as per the BHEL standards. Welders' performance record shall be furnished periodically furnished for scrutiny of BHEL's Engineer. Corrective action as informed by BHEL shall be taken in respect of those welders not conforming to these standards. This may include removal/ discontinuance of concerned welder(s). Contractor shall arrange for the alternate welders immediately
8.1.5	All the welders shall carry identity cards as per the Proforma prescribed by BHEL / Customer / Consultant. Only welders duly authorized by BHEL / customer / consultant shall be engaged on the work.

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### Chapter – VIII: Inspection and Quality

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8.1.6	Contractor shall provide all the Measuring Monitoring Equipments (MMEs) required for completion of the work satisfactorily. These MMEs shall be of brand, quality and accuracy specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirement of BHEL Engineer. Decision of BHEL Engineer regarding acceptance or otherwise of the measuring instruments / gauges / tools for the work under this specification, is final and binding on the contractor. BHEL may give an indicative list of MMEs required for this work and to be made available by the contractor. The list will be reviewed by BHEL and the contractor shall meet any augmentation needed wherever required.
8.1.7	It is the responsibility of the contractor to prove the accuracy of the testing / measuring / calibrating equipments brought by him based on the periodicity of calibration as called for in the BHEL's quality assurance standards/BHEL Engineer's instructions.
8.1.9	BHEL, Power Sector Regions (PSNR / PSER / PSWR / PSSR) have already been accredited with ISO 9001 certification and as such this work is subject to various audits to meet ISO 9001 requirements. One particular aspect which needs special mention is about arrangement of calibration of instruments by the contractor. Contractor shall ensure deployment of reliable and calibrated MMEs (Measuring and Monitoring Equipments). The MMEs shall have test / calibration certificates from authorized / Government approved / Accredited agencies traceable to National / International Standards. Re-testing / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price. The contractor will also have alternate arrangements for such MMEs so that work does not suffer when the particular equipment / instrument is sent for calibration. Also if any MMEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall i.e. repeat the readings taken by that instrument, failing which BHEL may deploy MME and retake the readings at Contractor's cost.
8.1.10	Re-work necessitated on account of use of invalid MMEs shall be entirely to the contractor's account. He shall be responsible to take all corrective actions, including resource augmentation if any, as specified by BHEL to make-up for the loss of time.

## SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural

### Chapter – VIII: Inspection and Quality

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8.1.11	In the courses of construction / erection, it may become necessary to carry repeated checks of the work with instruments recently calibrated, re-calibrated. BHEL may counter / finally check the measurements with their own MMEs. Contractor shall render all assistance in conduct of such counter / final measurements.
8.1.12	Total Quality is the watchword of the work and Contractor shall strive to achieve the Quality Standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and Quality Standards.
8.2	<b>Stage Inspection By FES / QA Engineers</b>
8.2.1	Stage inspection of any work, if required as per BHEL/Customer, shall be arranged by Contractor without any additional cost implication.
8.3	The Quality Management System of BHEL, Power Sector Regions (PSNR / PSER / PSWR / PSSR) have already been certified and accredited under ISO 9002 standards in this regard. The basic philosophy of the Quality Management System is to define the organizational responsibility, work as per documented procedures, verify the output with respect to acceptance norms, identify the non-conforming product / procedure and take corrective action for removal of non-conformance specifying the steps for avoiding recurrence of such non-conformities, & maintain the relevant quality records. The non-conformities are to be identified through the conduct of periodical audit of implementation of quality systems at various locations/stages of work. Suppliers / vendors of various products / services contributing in the work are also considered as part of the quality management system. As such the contractor is expected not only to conform to the quality management system of BHEL but also it is desirable that they themselves are accredited under any quality management system standard.
8.4	<b>Field Quality Assurance</b>
8.4.1	Contractor shall carry out all activities conforming to the approved Field Quality Plan (FQP) as revised from time to time. Total quality shall be the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He shall follow all the instructions as per BHEL drawings and quality standards. Contractor shall provide the services of quality assurance engineer as per the relevant clauses.

**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural  
Chapter-IX: Health, Safety & Environment Obligations**

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<b>9.0</b>	<p><b>OCCUPATIONAL HEALTH, SAFETY &amp; ENVIRONMENT MANAGEMENT / QUALITY ASSURANCE PROGRAMME:</b> BHEL, Power Sector Regions (PSNR / ER / WR / SR) are each certified for ISO 9001. Quality of work to customer's satisfaction and fulfillment of system requirements are the essence of ISO 9001 certification. BHEL, PS Regions have HSE certification (ISO 14001: 2015 &amp; ISO 45001:2018) and therefore Contractor also shall organize / plan/ perform all their activities to meet with the applicable requirements of these standards.</p>
<b>9.1</b>	<p><b>HSE (Health, safety &amp; Environment):</b> Contractor will comply with HSE (Health, Safety &amp; Environment) requirements of BHEL as per the "HSE Plan for Site Operations by Subcontractor" for 2X800 MW LARA STP PROJECT (Document No. HSEP: 14 Rev 00 dated 16.11.2023) and any other document issued along with the tender. In case of any ambiguity between these two documents, more stringent clause(s) of the two, as decided by BHEL will be followed.</p>



**SPECIAL CONDITIONS OF CONTRACT (SCC)- Civil & Structural**  
**Chapter-X: RA Bill Payments**

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<b>10.0</b>	<b>RA Bill Payments</b>
10.1	The contractor shall submit his monthly RA bills with all the details required by BHEL on specified date every month covering progress of work in all respects and areas for the previous calendar month.
10.2	Mode of payment and measurement of work completed shall be as per relevant clauses of General Conditions of Contract
10.3	Release of payment in each running bill including PVC Bills where ever applicable will be as per stages of progressive pro rata payments.
10.4	<p>The contractor will be eligible for payment of RA Bills within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc. and other dues in the meanwhile.</p> <p>All documents like HR Clearance, Quality and Safety Compliances etc. required for processing the RA Bills should be submitted along with RA Bills.</p>
10.5	<p>BHEL shall release payment through Electronic Fund Transfer (EFT)/RTGS. In order to implement this system, Contractor to furnish details pertaining to his Bank Accounts where proceeds will be transferred through BHEL's banker, as per prescribed formats.</p> <p>Note: BHEL may also choose to release payment by other alternative modes as applicable</p>
10.6	Paying Authority shall be the Construction Manager of the Site. Any change in the paying Authority shall be intimated to the Contactor accordingly.