

MAJOR HIGHLIGHTS OF THE TENDER

CPC TENDER NO. BHEL/CPC/SGL/FAB_STR/25/034

BROAD SCOPE OF JOB: Fabrication and Supply of Factory Finished Fabricated Structure of Power House, Common Control Room, Mill Bunker Structure (Columns, Bracings, Wall beams, Floor Beams, Trusses etc.) up-to Project Site, based on input design & detailed drawing provided by BHEL and where most of the raw material supply is in BHEL scope, and as specified in scope / BOQ of Unit#1 and Unit#2. for 2x800 MW NTPC Singrauli (Stage-III), Shakti Nagar, Uttar Pradesh State India.

| SL. NO. | HIGHLIGHTS / SALIENT POINTS | DESCRIPTION |
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| 1. | Pre-Bid Meeting with Interested Bidders (NIT Clause 1.0 (X)) | 1. Facilitate better understanding of the Project Requirements; 2. Clarifying any ambiguities in the bidding documents. |
| 2. | Earnest Money Deposit (EMD) [NIT Clause 1.0 (vii) and GCC Clause 2.12] | Rs. 40,00,000/- (Rupees Forty Lakhs Only) |
| 3. | Price Variation Compensation (TCC – Annexure B) | Applicable from the start of work. |
| 4. | Quantity Variation (NIT Clause 16) | Quantity variation of $\pm 30\%$ is applicable |
| 5. | Duration of Contract | Zero date: Clause no. 3.1.5 of TCC Contract period: Clause 3.1.6 of TCC Priority Schedule of important structural buildings: clause 3.1.7 of TCC |
| 6. | Performance Security (TCC Clause 4.5) | Performance Security shall be 5% of Contract value. |
| 7. | Payment Terms | Refer. Chapter –IV of TCC. |
| 8. | Retention Amount | As per cl. no. 4.2 (3) of chapter-IV of TCC. |
| 8. | Reverse Auction (NIT Clause 15.0) | Applicable. |
| 9. | Transit Insurance Detailed as per sl. no. 2.22.4 of Chapter II of TCC (Vol – IA). | Transit insurance from supplier's works/warehouse to BHEL site stores shall be in the scope of BHEL. |
| 10. | Splitting of order | Refer. Clause no. 19 of NIT. |
| 11. | Declaration by Bidders | Refer. Clause no. 20 of NIT. Bidder to submit Annexure –1, 1A of Tender Document along with techno-commercial offer. |
| 12. | Modality of award | Refer. Clause no. 8.2 of Chapter –IX of TCC. |
| 13. | Bank Guarantee for free issue material | Refer. Clause 2.19.1 of TCC and Annexure-C of TCC. |

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| SL. NO. | HIGHLIGHTS / SALIENT POINTS | DESCRIPTION |
|----------------|---|------------------------|
| 14. | Tentative Requirement for Factory for Fabrication of Steel Structures | Refer. Annex-A of TCC. |

Note: The above is for reference only. Bidders are requested to go through the complete tender documents for preparation of their offer.

VOLUME-IB

SPECIAL CONDITIONS OF CONTRACT (SCC)

STRUCTURAL WORKS (15.04.2024, REV 01)

BHARAT HEAVY ELECTRICALS LIMITED

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SPECIAL CONDITIONS OF CONTRACT (SCC)-Structural

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 fabrication/ erection / Construction work 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 work. 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 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. |
| 1.6 | Following shall be the minimum responsibility of contractor and have to be provided within finally accepted rates / prices. |

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Chapter - I: General Intent of Specifications

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| 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 award, 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 fabrication/ erection / construction/ commissioning till handing over. |

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural
Chapter - II : General Services to be rendered by the Bidder

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| 2.0 | GENERAL SERVICES TO BE RENDERED BY THE BIDDER |
| 2.1 | Services for construction/fabrication/erection under the contract shall include but not be limited to the following: |
| 2.2 | Raising demand for issuance of materials from time to time for fabrication/construction/ erection as per the program. 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 Project Site is in the scope of contractor. |
| 2.4 | Deployment of all skilled and unskilled manpower required for fabrication/ construction / erection, supervision of fabrication/ erection/ construction, watch & ward. |
| 2.5 | Deployment of all tools & tackle, construction/fabrication machinery, transportation vehicles and all other implements in adequate number and size, appropriate for the fabrication/ 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 fabrication/ construction / erection work, unless specified otherwise. |
| 2.7 | Maintaining proper documentation of all the 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 etc. as applicable for respective portions of work fall under the jurisdiction of such statutes of laws. |
| 2.8 | 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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| 3.0 | GENERAL TECHNICAL REQUIREMENTS (CODES AND STANDARDS) |
| 3.1 | Except where otherwise specified, the fabrication/ 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 fabrication/ construction/ erection shall not be accepted except with the specific approval of the Engineer. |

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural
Chapter - IV: Obligations of Contractor

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| 4.0 | OBLIGATIONS OF CONTRACTOR |
| 4.1 | CONSUMABLES & OTHER ITEMS |
| 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, gases (inert, welding, cutting), soldering material, dye penetrants, radiography films, etc. Other 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 | 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. |
| 4.1.3 | 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. Electrodes 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 be used. |
| 4.1.4 | 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. |
| 4.1.5 | Storage of all consumables including welding electrodes shall be done as per requirement / instruction of the Engineer by the contractor at his cost. |
| 4.1.6 | 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 |

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural

Chapter - IV: Obligations of Contractor

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| | 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. |
| 4.1.7 | 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 | TOOLS AND PLANTS / MONITORING AND MEASURING EQUIPMENT (MMEs) |
| 4.2.1 | T&Ps and MMEs to be provided by Contractor |
| 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. 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 are included in scope. |
| 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 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 | 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 |

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| | <p>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. 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 with its calibration status is to be submitted to BHEL Engineer on monthly basis in prescribed format for control. |

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| 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. |

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

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| 5.0 | RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF LABOUR, SUPERVISORY STAFF, ETC. |
| 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 statutory 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 fabrication/ construction/ erection/ 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 shall be liable to follow all relevant acts/rules incl. Contract labour (Regulation and Abolition) Act 1970. 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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| 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.</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.</p> |
| 5.13 | <p>It is the responsibility of the contractor to arrange gate pass for all his employees, T&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> |

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

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| 6.0 | MATERIAL HANDLING, STORAGE AND PRESERVATION ETC |
| 6.1 | MATERIAL HANDLING AND STORAGE |
| 6.1.1 | All the equipments/materials furnished under this contract shall be received, verified, unloaded, preserved and stored in the storage spaces in a manner so that they are easily retrievable. While drawing/lifting material from stores, the contractor shall ensure that the balance / other materials are stacked back immediately. No claim is admissible on this account. |
| 6.1.2 | All the construction material/consumables shall be handled carefully by contractor to prevent any damage or loss. |
| 6.1.3 | The contractor shall identify and deploy necessary Engineers / supervisors / workmen for the above work in sufficient number, for areas covering their scope. |
| 6.1.4 | All the equipment/material 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 fabrication/erection/lifting/handling work. The equipment/material shall be properly protected to prevent damage either to the equipment/material or to the floor where they are stored. |
| 6.1.5 | Contractor shall indicate point of lifting on the structure component and 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 component against any damage. Dragging of component should be avoided. In case of any damage the cost shall be recovered from the contractor. |
| 6.1.6 | Contractor shall be responsible for examining all the materials issued to him and notify the Engineer immediately of any damage, shortage, discrepancy etc. The contractor shall be solely responsible for any shortages or damages in transit, handling, storage and theft 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. |
| 6.1.7 | The contractor shall maintain an accurate and exhaustive record-detailing out the list of all material received by him for the purpose of fabrication/ construction / erection and keep such record open for the inspection of the engineer at any time. |

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| 6.1.8 | 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. |
| 6.1.9 | The contractor shall be responsible for making suitable indoor storage facilities to store all material & equipment, 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. |
| 6.1.10 | 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. 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/GCC. |
| 6.1.11 | The contractor shall hand over all parts / materials remaining extra over the normal requirement with proper identification tags to the BHEL as directed by the concerned BHEL engineer. |
| 6.1.12 | 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). |
| 6.2 | PRESERVATION OF COMPONENTS |
| 6.2.1 | After taking delivery from BHEL, 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. |
| 6.2.2 | 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. |
| 6.3 | <u>HANDLING OF MATERIALS ISSUED BY BHEL:</u> |

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Chapter – VI: Material Handling, Storage & Preservation

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| 6.3.1 | Materials shall be issued by BHEL based on the weighment basis/linear measurements & sectional weight. |
| 6.3.2 | <p>All materials issued by BHEL shall be stacked, stored above ground level by use of concrete or wooden sleepers. No materials shall remain on ground at any time. 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 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> |
| 6.3.3 | 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. 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. |
| 6.3.4 | <u>ISSUE OF STEEL:</u> |
| 6.3.4.1 | <p>The steel shall be issued to the contractor on the following basis:</p> <ul style="list-style-type: none"> i. Structural Steel: Weighment basis (Unit – MT) ii. Reinforcement Steel and Earthing Rod: Weighment basis (Unit-MT) iii. MS Rails: Weighment Basis (Unit-MT) |
| 6.3.4.2 | 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. |

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| 6.3.4.3 | Sr No | Name of Standard | Name of Section |
| | 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 |
| In case any such sectional weights are not available in the above documents, the manufacturer recommendation/BHEL instruction shall be binding. | | | |
| 6.3.4.4 | 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 provided and no claims for extra payment because of issue of non-standard length will be entertained. | | |
| 6.3.4.5 | The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL. | | |
| 6.3.4.6 | The contractor shall submit to BHEL well in advance of before Three month from requirement, a statement indicating estimated quantity of 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. | | |
| 6.3.4.7 | Bidders shall ensure that no lamination material is taken over by them from BHEL. | | |
| 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 fabrication/ construction /erection will be responsibility of Bidder only. | | |
| 6.4 | <u>RETURN OF MATERIALS (BHEL Free Issued Material)</u> | | |

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural

Chapter – VI: Material Handling, Storage & Preservation

| | |
|---------|---|
| 6.4.1 | <p>Return of Reinforcement Steel and Structural Steel including Scrap: 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. 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 BHEL and a receipt obtained for material accounting purposes. Scrap for reinforcement steel and structural steel shall be returned separately.</p> |
| 6.4.3 | <p><u>Scrap and Serviceable Materials:</u></p> |
| 6.4.3.1 | <p>All structural steel of length above 2 Meter except M.S Plate shall be considered as serviceable materials provided the materials is in good and acceptable condition. Structural steel in length less than 2 Meter Shall be treated as scrap.</p> |
| 6.4.3.2 | <p>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 serviceable material.</p> |
| 6.4.3.3 | <p>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.</p> |
| 6.4.3.4 | <p>All TMT measuring 3 Meter and above in length shall be treated as serviceable material provided they are in good acceptable condition. TMT in less than 3 Meter shall be treated as scrap.</p> |
| 6.4.4 | <p><u>Steel Consumption and wastage:</u></p> |
| 6.4.4.1 | <p>Reinforcement Steel, MS earthing rod, GI gratings, Foundation bolts and MS Rails Consumption 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> <ul style="list-style-type: none"> a. Actual consumption = Issue – Surplus. b. Surplus = un-tampered, unused, uncut QTY of steel including serviceable material returned by the contractor to BHEL along-with relevant documents. c. Wastage = Actual consumption – Theoretical consumption. |

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural

Chapter – VI: Material Handling, Storage & Preservation

6.4.4.2

Reinforcement Steel, MS earthing rod, Foundation bolts and MS Rails Wastage

Allowable Wastage: (+3%) of the theoretical consumption shall be considered as allowable wastage.

| Wastage and scrap shall be as per actual weighment 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. | Free |
| R2b | Wastage limited to plus three percent (+3%) of aforesaid theoretical consumption (R1) towards allowable wastage but not returned to BHEL. | Scrap Recovery Rate as mentioned in TCC. |
| R3 | Wastage beyond THREE percent (+3%) of the theoretical consumption above (R1). | Penal rate |

6.4.4.3

Structural Steel (Rolled Sections and Plates etc.) Consumption

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.

a.

Actual consumption = Issue – Surplus.

b.

Surplus = un-tempered, unused, uncut quantity of steel **including serviceable material** returned by the contractor to BHEL.

c.

Wastage = Actual consumption – Theoretical consumption.

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural

Chapter – VI: Material Handling, Storage & Preservation

6.4.4.4

Structural Steel Wastage
Allowable wastage: 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.

| Sl no | Structural steel including SS plate | Basis of issue & penal Recovery |
|-------|--|--|
| 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. | 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. | Scrap Recovery Rate as mentioned in TCC. |
| S3 | Wastage beyond four percent (4%) of the aforesaid theoretical consumption (S1). | Penal rate |

6.4.4.5

Reconciliation of Materials:

- a. The contractor shall submit a reconciliation statement of steel issued to the contractor with each RA Bill.
- 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.
- 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.
- 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.
- 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.

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural

Chapter – VII: Drawings and Documents

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| 7.0 | DRAWINGS AND DOCUMENTS |
| 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 as per requirement.</p> |
| 7.2 | <p>Necessary drawings to carry out the Fabrication/construction/ erection work will be furnished to the contractor by BHEL on loan basis, which shall be returned to BHEL 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)- Structural
Chapter – VIII: Inspection and Quality

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| 8.0 | INSPECTION AND QUALITY |
| 8.1 | Inspection, Quality Assurance, Quality Control |
| 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 | VOID |
| 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 fabrication/ 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>Record of heat treatments performed shall be maintained as prescribed by BHEL.</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 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 | VOID |

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

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| 8.1.11 | In the courses of fabrication/ 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 | Stage Inspection By FES / QA Engineers |
| 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 | Field Quality Assurance |
| 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)- Structural
Chapter-IX: Health, Safety & Environment Obligations

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| 9.0 | OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENT MANAGEMENT / QUALITY ASSURANCE PROGRAMME: 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 & ISO 45001:2018) and therefore Contractor also shall organize / plan/ perform all their activities to meet with the applicable requirements of these standards. |
| 9.1 | HSE (Health, safety & Environment): Contractor will comply with HSE (Health, Safety & Environment) requirements. |

SPECIAL CONDITIONS OF CONTRACT (SCC)- Structural

Chapter-X: RA Bill Payments

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|-------------|---|
| 10.0 | RA Bill Payments |
| 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 TCC/GCC. |
| 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 | The payment for running bills will normally be released within 45 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. |
| 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 Project Manager/Construction Manager of the Site. Any change in the paying Authority shall be intimated to the Contactor accordingly. |

Volume-IC

GENERAL CONDITIONS OF CONTRACTS (GCC)

Bharat Heavy Electricals Limited
Central Procurement Cell (CPC)





**CENTRAL PROCUREMENT
CELL (CPC)**
PURCHASE DEPARTMENT

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

GENERAL CONDITIONS OF CONTRACTS (GCC)

1. INSTRUCTIONS TO BIDDERS
2. GENERAL COMMERCIAL TERMS & CONDITIONS
3. ANNEXURES

**CENTRAL PROCUREMENT CELL
BHARAT HEAVY ELECTRICALS LIMITED**

BHEL SADAN, 8TH FLOOR
PLOT NO. 25, SECTOR – 16A
NOIDA – 201301 (U.P.)


Not for Publication

For Official Use

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**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

**INSTRUCTIONS TO
BIDDER**

1.1 GENERAL INSTRUCTIONS:

- 1.1.1** The General Conditions of Contract form part of the Tender specifications. For this tender, bidders shall use electronic Signature Viz. Digital Signature Certificate while uploading the tender documents on the e-procurement portal. The information furnished shall be complete by itself. The tenderer is required to furnish all the details and other documents as required in the following pages.
- 1.1.2** Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done only after careful study and examination of the tender documents and with the full understanding of the implications thereof. The specifications and terms and conditions shall be deemed to have been accepted unless otherwise specifically commented upon in the deviation sheets by the tenderer in his offer. Non-compliance with any of the requirements and instructions of the Tender Enquiry may result in the rejection of the tender.
- 1.1.3** All commercial terms and conditions except price should be submitted as part of techno- commercial offer (Part-I) which may be opened first. The price part (Part-II) is to be submitted in price bid section separately.
- 1.1.4** Price bids of only those bidders will be opened who will qualify for the subject job on the basis of evaluation of Techno-commercial bids / Pre – Qualification criteria and as considered suitable by BHEL. BHEL shall have sole discretion to adopt its own method for evaluation of Techno-commercial bids/ Pre - Qualification Criteria.
- 1.1.5** No revision of price will be entertained after tenders are opened, unless mentioned in our enquiry/ asked so by BHEL.
- 1.1.6** BHEL reserves the right to split, accept or reject any or all tenders without assigning any reason what so ever.
- 1.1.7** BHEL reserves the right to reduce the tendered item and/or quantity, while awarding the order, without assigning any reason what so ever.
- 1.1.8** In case supplier fails to execute the Purchase Order (PO) as per terms and conditions of PO, BHEL shall have the right to arrange/procure the material from alternate sources as deemed appropriate by BHEL in line with Clause no. 2.26 of GCC.

1.2 PROCEDURE FOR SUBMISSION & OPENING OF TENDERS:

- 1.2.1** The tenderers must submit their tenders to Officer inviting tender as per instructions in the NIT. E-Tenders shall be submitted through E-Procurement portal (<https://eprocurebhel.co.in>) as per instruction in NIT. Tenderers to upload offers well in advance in order to avoid last minute congestion in e-procurement website. However, after submission of the tender, the tenderer can re-submit revised tender but before due date and time of submission of tender as notified.
- 1.2.2** PART-I (techno-commercial bid) shall be opened on the due date and time as specified in the NIT. Tenderers or their authorized representatives may witness the event online through BHEL E-Procurement site (<https://eprocurebhel.co.in>).
- NOTE:** In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day.
- 1.2.3** Tenderers whose bids are found techno commercially qualified shall be informed the date and time of opening of the Price Bid through system generated email from BHEL E-Procurement system. Tenderers or their authorized representatives may witness the event online through BHEL E-Procurement site (<https://eprocurebhel.co.in>).
- 1.2.4** No correspondence shall be entertained from the tenderers after the opening of Part-II (Price bid) of the tender.

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1.2.5 Purchaser may negotiate the tender, if the quoted rates/terms are found to be unreasonable or in the unacceptable range.

1.2.6 In case wherever scope comprises of supply and services, the tenderers are advised to inspect the site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour, means of transport and access to Site, accommodation etc before submission of Offer. No claim will be entertained later on the grounds of lack of knowledge of any of these conditions.

The tenderer may get aware about weather conditions, contingencies & other circumstances which may influence or affect their tender prices. Invariable of inspection by the tenderer, the tenderer shall be considered deemed acquainted with all site conditions such as rain patterns, hazardous conditions, soil patterns, local factors etc. Tenderer to have satisfied himself in all respect before quoting his rates and no claim will be entertained later on the grounds of lack of knowledge of any of these conditions.

1.3 CLARIFICATIONS REQUIRED BY BIDDERS:

Technical and Commercial clarifications required, if any, before submission of tender, should be addressed (on or before the date as specified in sl. no. 1. ix of Salient Features of NIT to the official inviting the tenders.

1.4 DEVIATIONS – LISTING:

Tenders shall be submitted strictly in accordance with the requirements of tender documents. Deviations (Technical and Commercial), if any, shall be listed out separately. Technical deviations and Commercial deviations shall be furnished in separate sheets under headings “**TECHNICAL DEVIATIONS**” and “**COMMERCIAL DEVIATIONS**” respectively, along with reasons for taking such deviations. Deviations mentioned elsewhere but not included in the above sheet as above shall not be accepted.

1.5 METRIC SYSTEM:

Suppliers are requested to give metric measurements while quoting.

1.6 ETHICS IN BUSINESS DEALINGS/ SUSPENSION OF BUSINESS DEALINGS:

In order to protect the commercial interests of BHEL, it becomes necessary to take action against bidders/ Supplier / Vendors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business/ money/ reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc. Suspension of Business Dealings could be in the form of debarment of bidders/ Supplier / Vendors/ suppliers. The abridged version of extant ‘Guidelines for suspension of business dealings with suppliers/ vendors’ is available on www.bhel.com on “supplier registration page” i.e., <https://www.bhel.com/guidelines-suspension-business-dealings-supplierscontractors> Bidders should get themselves acquainted with these guidelines.

1.7 INTEGRITY COMMITMENT:

The offers of the bidders who are on the debarred list and also the offer of the bidders, who engage the services of the debarred firms, shall be rejected. The list of debarred firms is available on BHEL web site www.bhel.com on <supplier registration page i.e., <<https://www.bhel.com/list-debarred-firms>>.

1.7.1 Integrity commitment, performance of the contract and punitive action thereof:

1.7.1.1 Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender Process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.



1.7.1.2 Commitment by Bidder/ Supplier:

1.7.1.2.1 The bidder/ supplier commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

1.7.1.2.2 The bidder/ supplier will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.

1.7.1.2.3 The bidder/ supplier will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ vendor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ vendor as per extant guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

1.8 INTEGRITY PACT (IP):

Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer) along with techno-commercial bid, if applicable (as given at Clause no. 1 (xi), Salient Features of NIT). This pact shall be considered as a preliminary qualification for further participation. The names and other details of Independent External Monitor (IEM) for the subject tender is as given below:

- a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Supplier / Vendor s are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

| Sl. No. | IEM | Email |
|---------|---------------------------------------|--|
| 1. | Shri Otem Dai, IAS (Retd.) | iem1@bhel.in |
| 2. | Shri Bishwamitra Pandey, IRAS (Retd.) | iem2@bhel.in |
| 3. | Shri Mukesh Mittal, IRS (Retd.) | iem3@bhel.in |

- b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such



clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are as per SCC of tender.

(Please submit the Integrity Pact Format as per **Annexure – XIV**).

1.9 EVALUATION OF BIDS:

- 1.9.1** Techno-commercial evaluation shall be carried out on the basis of technical specifications, commercial terms and conditions and PQR (if applicable) specified in the tender documents and changes/clarifications thereof, if any.
- 1.9.2** Bidders (other than cases of single part bids) shall be given an opportunity to withdraw the deviations/ furnish clarifications/submit documents by appropriate cut-off date by authorized purchase executive. If the bidder does not withdraw its deviation(s) and the deviation(s) is/are acceptable to BHEL, loading of offers shall be done as per the loading criteria. Loading details in respect to deviations in Payment Terms, LD, Guarantee/ Warranty & PBG will be as indicated in Annexure-IV. If no loading criteria is defined for any deviation, it will be derived and communicated to the Bidder. **IF THE BIDDER DOES NOT WITHDRAW ITS DEVIATION(S) AND THE DEVIATION(S) IS/ARE NOT ACCEPTABLE TO BHEL, THE BID WILL BE LIABLE TO BE REJECTED.**
- 1.9.3** In case of changes in scope and/or technical specification and/or commercial terms & conditions, having price implications, techno-commercially acceptable bidders shall be asked to submit the impact (either positive or negative, as decided by BHEL) of such changes on their price bid on or before the cut-off date. If the bidder submits impact opposite of the asked for (positive or negative), the impact will be considered as ZERO for evaluation as well as ordering. If BHEL does not specify the type of impact (positive or negative), bidders shall be free to quote the impact in positive or negative. Bidder's query/correspondence etc. with respect to this tender shall not be entertained after opening of Price bid, except from L1 bidder. The offers of the bidders who are under suspension by BHEL and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of firms is available on BHEL web site www.bhel.com.
- 1.9.4** Price Bids of shortlisted bidders shall only be opened through the electronic price bid opening with/without Reverse Auction, at the discretion of BHEL, unless specified otherwise in the tender.

1.10 MICRO & SMALL SCALE ENTERPRISES (MSE):

- 1.10.1** Any Bidder falling under MSE category, shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their Techno-commercial offer;

| Type under MSE | SC/ST owned | Women owned | Others (excluding SC/ST & Women) |
|----------------|-------------|-------------|----------------------------------|
| Micro | | | |
| Small | | | |

NOTE: - *If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.*

- 1.10.2** MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011-MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration Certificate. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. Documents submitted by the bidder may be verified by BHEL for rendering the applicable benefits.

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1.10.3 MSEs shall be exempted from payment of earnest money at the time of tender deposit.

1.10.4 MSEs shall not be exempted from payment of Performance Security deposit submission.

For this procurement, purchase preference to MSE shall be in line with Office Order No. F. No. DPE/3(3)/10-Fin dated 29.05.2023 forwarded by Department of Public Enterprises against Department of Expenditure O M No. F.1/4/2021-PPD dated 18.05.2023. In case of subsequent orders issued by the nodal ministry, changing the definition of MSE, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

1.11 LANGUAGE & CORRECTIONS:

- a) The Bid shall be in English language. All correspondence and documents relating to the bid exchanged between the bidder and the purchaser shall also be in ENGLISH language. However, any technical document/ literature etc. printed in a language other than English shall be accompanied by its true English translation duly signed for its correctness. Any document submitted with the bid but not in English language shall not be treated as part of the bid document. The responsibility for the correctness of the translations if any solely rests on the bidder and purchaser shall not be responsible for any loss/likely loss arising out of error in translation whatsoever. In such cases, for the purpose of interpretation of the bid, the English translation shall prevail.
- b) Tenderer shall quote the rates in English language and Indo-Arabic numerals only. These rates shall be entered in figures as well as in words. For the purpose of tender, metric system of units shall be used.
- c) All entries in the tender shall either be typed or written legibly in ink. Cancellations, insertions, erasement, over-writing (if unavoidable) shall be authenticated with signature and seal by the bidder.
- d) Tenderer's offer, remarks and deviations shall be with reference to sections and clause numbers given in the tender documents.

1.12 PRICE DISCREPANCY:

Following shall be considered for evaluation and ordering for non-conformities/errors/ discrepancies in price bid:

- a) If, in the price structure quoted for the required goods/ services/~~works~~, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
- b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
- c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above.
- d) Taxes and duties if not specified clearly as extra shall be considered as included in the basic price and, therefore, shall not be reimbursed. Shall prevail subject of (a) and (b) above.
- e) Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.

1.13 PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA):


For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/Non-Local Supplier and purchase preferences to Class I local supplier, is as defined in Public

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Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

1.13.1 Compliance to Restrictions under Rule 144 (xi) of GFR 2017

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. The Competent Authority for the purpose of this Clause shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Clause means:-
 - a) An entity incorporated established or registered in such a country; or
 - b) A subsidiary of an entity incorporated established or registered in such a country; or
 - c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d) An entity whose beneficial owner is situated in such a country; or
 - e) An Indian (or other) agent of such an entity; or
 - f) A natural person who is a citizen of such a country; or
 - g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.
- IV. The beneficial owner for the purpose of (III) above will be as under:
 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.
Explanation-
 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company.
 - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.
 2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership.
 3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person has ownership of or entitlement to more than fifteen percent of the property or capital or profits of the such association or body of individuals.
 4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in

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the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

Note:


- i. The bidder shall provide undertaking for their compliance to this Clause, in the format provided in Annexure-13.
- ii. Registration of the bidder with Competent Authority should be valid at the time of submission of bids and at the time of acceptance of the bids.

1.14 CONFLICT OF INTEREST:

A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidder found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

- a) they have controlling partner (s) in common; or
- b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; or
- c) they have the same legal representative/agent for purposes of this bid; or
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid: or
- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:
 - i. The principal manufacturer directly or through one Indian agent on his behalf, and
 - ii. Indian/foreign agent on behalf of only one principal;

or
- g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; or
- h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business."

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2.1 DEFINITION OF TERMS:

- 2.1.1 PURCHASER / BUYER** shall mean Bharat Heavy Electricals Limited, a company registered under Indian Companies Act 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110049, or its CPC (Central Procurement Cell) -PSHQ (inviting tenders) or its Power Sector Regional Offices or its Authorized Officers or its Site Engineers or other employees authorized to deal with any matters with which these persons are concerned on its behalf.
- 2.1.2 TENDERER/ BIDDER** shall mean the Firm/ Company/ Organisation who quotes against the Tender Enquiry issued by Purchaser.
- 2.1.3 SUPPLIER/ VENDOR / CONTRACTOR** shall mean the successful bidder with whom the Order/ Contract is made.
- 2.1.4 “ENGINEER” or “ENGINEER IN CHARGE”** shall mean an Officer of BHEL as may be duly appointed and authorized by BHEL to act as “Engineer” on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents. The term also includes “CONSTRUCTION MANAGER” or “SITE INCHARGE” as well as Officers at Site or at the Headquarters of the respective Power Sector Regions.
- 2.1.5 GCC** means General Conditions of Contract.
- 2.1.6 GOODS/ STORE / SUPPLIES** means all the items, materials, equipment and/or machinery, which the supplier is required to supply to the purchaser in terms of a contract.
- 2.1.7 SERVICES** means the services ancillary to the supply of the goods, such as transportation and insurance and as any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligation of the supplier covered under a contract.
- 2.1.8 CONSIGNEE** means the individual or body to whom the contracted goods are required to be delivered as per the terms and conditions incorporated in a contract.
- 2.1.9 DAY** means calendar day of the Gregorian calendar.
- 2.1.10 MONTH** means calendar month of the Gregorian calendar.

2.2 PRICES:

Prices shall be for the entire scope of supply / services in line with all instructions, specifications, terms & conditions specified in the tender documents and subsequent clarifications/ confirmations till completion of contract.

2.3 INSPECTION:

Inspection for the stores will be carried out at the Supplier / Vendor’s works/ Purchaser’s Destinations/ Sites by the Purchaser’s authorized inspecting officer. Wherever preliminary or stage Inspection is to be carried out at the Supplier / Vendor’s works the same will be subject to final acceptance/after receipt of the stores at the Purchaser’s works / Destinations/ Site as the case may be and the decision of the purchaser shall be final. Rejected goods will be returned to the supplier at his cost including freight on original shipment.

2.4 MATERIAL DESPATCH CLEARANCE CERTIFICATE (MDCC):

- 2.4.1** When the inspection have been satisfactorily completed at Supplier/Vendors’ works, the Inspection Agency /BHEL shall issue an inspection report that effect within Ten (10) days after completion of the inspection. If the inspections were waived by Purchaser, the material acceptance report would be issued within Ten (10) days after receipt of the test certificates by the Purchaser.



2.4.2 Purchaser will issue MDCC to the Supplier/Vendor within Ten (10) days based on inspection report/ test certificates/Certificate of Conformance, to be completed in all aspects, as applicable.

In case of delay in issuance of MDCC beyond 10 days stipulated time (i.e. from the date of successful inspection report), by BHEL arising due to reasons not attributable to vendor, BHEL will extend the delivery period for such delay in issuing MDCC.

2.4.3 Supplier/Vendor **shall not dispatch any material before issue of MDCC by Purchaser.**

2.4.4 Satisfactory completion of tests or issue of MDCC shall not absolve the responsibilities of Supplier/Vendor from the contract.

2.5 INSURANCE:

2.5.1 Wherever Transit insurance is under Vendor's Scope, the Vendor will insure at his cost the goods for all transit risks.

2.5.2 In all other cases, Vendors shall inform to Underwriters (appointed/ nominated by BHEL/ Purchaser) regarding the details of despatches under intimation to BHEL such as LR No. and date, Truck No., P.O. No., project and value. The details of underwriter shall be collected by the Vendor before dispatch of material from their works. Failure to do this will make the Vendor responsible for making goods any loss which might have otherwise been recovered from insurers.

2.6 PACKING AND MARKING:

Packing shall be in conformity with specifications and shall be such as to ensure prevention of damages, corrosion, deterioration, shortages, pilferage and loss in transit or storage. In case of shipment by sea, the packing shall be sea-worthy and of international standards. If any damage, deterioration or loss is sustained when the carrier or underwriter attributed to improper/defective packing the Supplier / Vendor shall be liable to replace the stores at his cost or reimburse the value of the loss to the purchaser notwithstanding whether the insurance is arranged by him or not.

The following marking shall be made on each package in Black bold capital letters;

- i. Name & Address of Consignee
- ii. Dimension of Package
- iii. Weight details (Gross & Net)


These markings should be stencilled or written in bold letters on the package. Should the package be small, suitable cards/ metal tags giving these details may be tagged or nailed to such package.

2.7 DELIVERY:

Supply of plant/ equipment/ stores shall not be considered complete until they have been inspected and accepted at the place and destination specified for delivery by the time stipulated under the terms & conditions of the Order/ Contract. **Supplier/Vendor shall not dispatch any material before issuance of MDCC by Purchaser.** Mere payment by itself shall not constitute acceptance of the goods or materials in any manner, whatsoever.

2.8 REJECTION:

The Supplier / Vendor shall intimate the purchaser in writing, within 15 days after the receipt of rejection advice, regarding disposal of the rejected plant/ equipment/ material /stores. If no advice is received within aforesaid period the purchaser shall be at liberty to return the stores at the cost of the Supplier / Vendor after recovering the cost, if any paid by the purchaser including inward freight and other incidental charges. The purchaser will not be responsible for rejected stores thereafter and no claim whatsoever will rest on the purchaser.

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2.9 SHORTAGES / DAMAGES:

If there are any shortages/damages in Equipment/ Stores found during receipt of material at Destination/ site, vendor shall supply replacements for same, as early as possible, at the old contractual rates upon intimation to vendor within one (1) months of receipted LR. Decision of BHEL regarding shortages/damages shall be final and binding. LD shall be applicable as per original delivery schedule of P.O.

2.10 TRANSPORTATION & FREIGHT CHARGES:

All dispatches shall be through road / rail / air carriers on freight pre-paid basis, unless otherwise specified in the tender. E-way bill, if required, will be arranged by Supplier.

2.11 TERMS OF PAYMENT: Payment terms shall be as mentioned below, unless otherwise specified in the Technical Conditions of Contract (TCC)

2.11.1 FOR SUPPLY PACKAGES WITHOUT INSTALLATION/ COMMISSIONING/ DEMONSTRATION TEST:

2.11.1.1 Ninety percent (90%) of Ex-works price of materials supplied along with applicable 100% taxes and duties, insurance & freight (if in vendor scope) shall be paid after the receipt of material at site, physical verification and submission of billing documents on pro-rata basis.

2.11.1.2 Ten percent (10%) of Ex-works price of materials supplied will be released on pro-rata basis after submission of SRV duly certified by BHEL.

2.11.2 FOR SUPPLY PACKAGES WITH INSTALLATION/ COMMISSIONING/ DEMONSTRATION TEST AT SITE (FOR BHEL USES AT SITE):

2.11.2.1 FOR SUPPLY PORTION:

2.11.2.1.1 Ninety percent (90%) of Ex-works price of materials supplied along with applicable 100% taxes and duties, insurance & freight (if in vendor scope) shall be paid after the receipt of material at site, physical verification and submission of billing documents on pro-rata basis.

2.11.2.1.2 Ten percent (10%) of Ex-works price of materials supplied will be released on pro-rata basis after submission of SRV duly certified by BHEL.

2.11.2.2 FOR INSTALLATION/ COMMISSIONING/ DEMONSTRATION PORTION:

100% Payment will be released after successful completion of the activity on pro-rata basis and submission of Installation/ Commissioning/ Demonstration Certificate duly certified by BHEL site Engineer.

2.11.3 FOR SUPPLY OF SPARES PARTS:

2.11.3.1 Ninety percent (90%) of Ex-works price of materials supplied along with applicable 100% taxes and duties, insurance & freight (if in vendor scope) shall be paid after the receipt of material at site, physical verification and submission of billing documents on pro-rata basis.

2.11.3.2 Ten percent (10%) of Ex-works price of materials supplied will be released on pro-rata basis after submission of SRV duly certified by BHEL from BHEL site Engineer.

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2.11.4 RELEASE OF PAYMENT:

Vendors shall submit billing documents as per clause no. 2.11.5 for payment, directly to BHEL Payment Authority (Bill To/Ship To) as specified in TCC. Payment will be released within 90 days (45 days for vendors qualified and registered as Micro or Small and 60 Days for vendors qualified and registered as Medium as per MSMED Act) after receipt of billing documents as per clause no. 2.11.3 or as specified in order / contract.

2.11.5 BILLING DOCUMENTS (Original + 1 copy) TO BE SUBMITTED BY VENDOR:

2.11.5.1 FOR SUPPLY PACKAGES WITHOUT INSTALLATION/ COMMISSIONING/ DEMONSTRATION TEST

- i. GST compliant invoice
- ii. Copy of receipted LR (signed & stamped by BHEL official)
- iii. Test Certificate
- iv. Guarantee Certificate (if applicable)
- v. Copy of MDCC / Inspection Report (if applicable)

2.11.5.2 FOR SUPPLY PACKAGES WITH INSTALLATION/ COMMISSIONING/ DEMONSTRATION TEST AT SITE (FOR BHEL USES AT SITE):

- i. GST compliant invoice
- ii. Copy of receipted LR (signed & stamped by BHEL official)
- iii. Test Certificate along with Calibration Certificate.
- iv. Inspection Report (if applicable) / Copy of MDCC
- v. Warranty Certificate (if applicable).
- vi. O&M Manuals.
- vii. Performance Security

2.11.5.3 FOR SUPPLY OF SPARES PARTS

- i. GST compliant invoice
- ii. Copy of receipted LR (signed & stamped by BHEL official)
- iii. Guarantee Certificate (if applicable)
- iv. Copy of SRV duly certified by BHEL.

2.11.6 MODE OF PAYMENT:

Payments shall be made directly to the Supplier / Vendor by E-transfer. Supplier / Vendor will provide necessary information for the same as per **Annexure – XX** to the Purchaser.

2.11.7 No interest shall be payable by the Purchaser to the Supplier / Vendor on any money or balances including but not limited to the Performance security amount, EMD, any bills or any amount withheld which may become due owing to difference or misunderstanding or any dispute between the Purchaser and the Supplier / Vendor, or any delay on the part of Purchaser in making periodical or final payment or any other aspects incidental thereto.

2.12 Earnest Money Deposit (EMD):

2.12.1 Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.

- i. EMD shall be furnished before tender opening / along with the offer in full as per the amount indicated in the NIT.
- ii. The EMD up to an amount of Rs. 2 Lakh is to be paid only in the following forms:

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- a) Electronic Fund Transfer credited in BHEL account (before tender opening).
- b) Banker's cheque/ Pay order/ Demand draft, in favour of 'Bharat Heavy Electricals Limited' and payable at Regional HQ issuing the tender (along with offer).
- c) Fixed Deposit Receipt (FDR) issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Supplier / Vendor, a/c BHEL) (along with offer). The Fixed Deposit in such cases shall be valid for a period of 45 (forty-five) days beyond the final bid validity period.
- d) Bank Guarantee from any of the Scheduled Banks. In such cases shall be valid for a period of 45 (forty-five) days beyond the final bid validity period.
- e) Insurance Surety Bonds.

In case, the EMD is more than Rs. Two lakh and in case of foreign bidders, it may be in the form of a bank guarantee (in equivalent Foreign Exchange amount, in case of foreign bidders) issued/ confirmed from any of the scheduled commercial bank in India in the prescribed format. The EMD shall remain valid for a period of 45 (forty-five) days beyond the final bid validity period.

iii. No other form of EMD remittance shall be acceptable to BHEL.

2.12.2 EMD by the Tenderer will be forfeited as per NIT conditions, if:

- i. The bidder withdraws or amends its/his tender or impairs or derogates from the tender in any respect within the period of validity of the tender or if the successful bidder fails to furnish the required performance security within the specified period mentioned in the Tender.
- ii. EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ Supplier / Vendor s" and forfeited/ released based on the action as determined under these guidelines.

2.12.3 EMD of the unsuccessful bidders shall be returned at the earliest after expiry of the final bid validity period and latest by the 30th day after the award of the contract. However, in case of two packet or two stage bidding, EMD of unsuccessful bidders during first stage i.e., technical evaluation etc. shall be returned within 30 days of declaration of result of first stage i.e. technical evaluation etc.

2.12.4 EMD of successful tenderer shall be refunded on conclusion of the order/ receipt of a performance security as mentioned in NIT.

2.12.5 EMD shall not carry any interest.

2.12.6 Micro and Small Enterprises (MSEs) or Startups as recognized by Department for Promotion of Industry and Internal Trade (DPIIT) shall be exempted from payment of EMD.

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2.13 PERFORMANCE SECURITY:

2.13.1 Successful bidder awarded the contract should deposit performance security, as mentioned in TCC, towards fulfilment of all contractual obligations, including warranty obligations.

2.13.2 Performance Security is to be furnished within 14 days after issuance of Contract and should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the supplier, including warranty obligations.

2.13.3 Modes of deposit:

a) Performance security may be furnished in the following forms:

- i. Local cheques of Scheduled Banks (subject to realization)/ Pay Order/Demand Draft/ Electronic Fund Transfer in favour of 'Bharat Heavy Electricals Limited' and payable at Regional HQ
- ii. Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee should be in the prescribed format of BHEL.
- iii. Fixed Deposit Receipt (FDR) issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Supplier / Vendor, a/c BHEL).
- iv. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Supplier / Vendor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).
- v. Insurance Surety Bond.

Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.

b) In case of GTE tenders, the performance security should be in the same currency as the contract and must conform to Uniform Rules for Demand Guarantees (URDG 758) - an international convention regulating international securities.

2.13.4 The performance security will be forfeited and credited to BHEL's account in the event of a breach of contract by the supplier.

2.13.5 Performance Security shall be refunded to the Supplier / Vendor without interest, after the Supplier / Vendor duly performs and completes the contract in all respects but not later than 60(sixty) days of completion of all such obligations including the warranty under the contract.

2.13.6 The Performance Security shall not carry any interest.

2.13.7 There is no exemption of Performance security deposit submission for MSE Vendors.

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Note:

- i. Performance Security shall be from list of Consortium Bank as per **Annexure –XXII**. In case of bank guarantee from any other bank, BHEL shall get confirmation from the consortium bank, for which the confirmation charges will be borne by the vendor. Bank guarantees from co-operative banks/ non-scheduled banks are not acceptable.
- ii. In case of private sector banks, a clause to be incorporated in the text of BG that it can be enforceable by being presented at any branch of the bank.

2.14 GUARANTEE / WARRANTY FOR EQUIPMENT/ STORES:

2.14.1 Supplier / Vendor shall warrant that the stores supplied shall be free from all defects and faults in design & engineering, material, workmanship & manufacture and shall be of the highest grade and consistent with the established and generally accepted standards and in full conformity with the Order/ Contract specifications, drawing or samples, if any.

2.14.2 Unless otherwise specified in the TCC, Guarantee / Warranty shall be as mentioned below:

- a) Guarantee / Warranty period for Supply package with Commissioning / Demonstration test at site in Vendor's scope shall be, 18 (Eighteen) calendar months from the date of last dispatch or 12 (Twelve) calendar months from the date of satisfactory Commissioning or Demonstration of the package, whichever is later.
- b) Guarantee / Warranty period for **Supply of Spare Parts** shall be 12 (Twelve) calendar months from the date of last dispatch.

2.14.3 Rectification / replacement required during the Guarantee / Warranty period shall be arranged by the supplier free of cost including to and fro transport charges, import duty/excise duty/other taxes/insurance etc. payable on the items rectified and/or replaced.

2.15 RECOVERY OF OUTSTANDING AMOUNT:

In event of any amount of money being outstanding at any point of time against the Supplier / Vendor due to excess payment or any other reason whatsoever, in the present order/ contract or any other order/ contract from any BHEL Unit, the outstanding amount shall be recovered from the payments due to the Supplier / Vendor at any appropriate time and manner/ mode as deemed fit by the Purchaser from this or any other order/ contract of any BHEL unit at its sole discretion.

2.16 INDEMNIFICATION:

Supplier / Vendor shall fully indemnify and keep indemnified the Purchaser against all claims /losses/damages/demands/expenses of whatsoever nature arising during the course and out of the execution of this Order/Contract.

2.17 DELAY/ TIME EXTENSION:

The Supplier shall timely dispatch/ deliver and complete other schedules as stipulated in Order/ Contract. If the Supplier / Vendor fails to complete the dispatch/ delivery and other schedules within the time period stipulated in Order/ Contract, or within any extension of time granted by Purchaser, it shall be lawful for Purchaser to recover damages for the breach of Order/ Contract without prejudice to any other rights and/ or remedies provided for, in the Order/ Contract and hereunder. For any delay not attributable to the Supplier / Vendor, the Supplier / Vendor must report the same to the Purchaser immediately in writing only.

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2.18 LIQUIDATED DAMAGES: As per TCC

- ~~a) LD shall be 0.5% of the total order value per week of delay or part thereof subject to a maximum of 10% of the total order value.~~
- ~~b) In case of staggered delivery schedule, LD shall be 0.5% of the undelivered portion per week of delay or part thereof subject to a maximum of 10% of the total order value. However even if a staggered delivery schedule for Capital Machine is agreed, the LD cap will be levied on total order value and not undelivered portion of the order value.~~
- ~~c) In case of any amendment/ revision, the LD shall be linked to the amended/ revised PO value.~~
- ~~d) LR/ GR/ RR date for indigenous supplies shall be treated as the date of dispatch for levying LD. However if date of receipt of material at destination is beyond ten (10) days from the date of LR, such excess period shall be considered for LD purpose.~~
- ~~e) Any delay in Erection/ Commissioning/ Demonstration of Machines/ Equipments/ IMTEs from schedule completion period due to reasons attributable to Supplier, the excess period shall be considered for LD purpose.~~

2.19 TERMINATION:

2.19.1 The Purchaser, without prejudice to any other rights or remedies it may possess, may terminate the Contract in the following circumstances:


- a) If the Supplier / Vendor becomes bankrupt or insolvent, has a receiving order issued against it, compounds with its creditors, or, if the Supplier / Vendor is a corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), a receiver is appointed over any part of its undertaking or assets, or if the Supplier / Vendor being an individual or if a firm on a partnership thereof, is adjudged insolvent or has a receiving order for administration of his estate made against him or takes any proceeding for composition under any Insolvency Act for the time being in force or if the Supplier / Vendor takes or suffers any other analogous action in consequence of debt.
- b) If the Supplier / Vendor assigns or transfers the Contract or any right or interest therein in violation of the provision of Clause 17 (Assignment).
- c) If the Supplier / Vendor, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this Sub-Clause :

"**Corrupt practice**" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

"**Fraudulent practice**" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

- d) If the Supplier / Vendor has abandoned or repudiated the Contract without assigning any reason.
- e) If the Supplier / Vendor has without valid reason failed to commence work on the contract promptly or has suspended the progress of Contract performance for more than 07 (seven) days after receiving a written instruction from the Purchaser to proceed.

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- f) If the Supplier / Vendor persistently fails to execute the Contract in accordance with the Contract or persistently neglects to carry out its obligations under the Contract without just cause.
- g) If the Supplier / Vendor refuses or is unable to provide sufficient goods or materials or any instalment thereof in the manner specified and within the Time specified in the contract.

2.19.2 Purchaser shall have the right to cancel Order/ Contract, wholly or in part, in case they are constrained to do so on account of any decline, diminution, curtailment or stoppage of their business. In such eventuality, the Supplier / Vendor shall make compensation claim in writing upon the purchaser. Thereafter, both the parties shall arrive at mutually acceptable compensation to be accorded to the Supplier / Vendor. The mutually acceptable compensation shall be final and binding upon both the parties.

2.19.3 In case either the Supplier / Vendor himself or any of his representative or agent is found to have been an employee of the Purchaser or has within a period of two years of his retirement accepted the employment of the Supplier / Vendor either as a Supplier / Vendor or as an employee without having obtained prior permission of Purchaser, the Purchaser shall have the right to cancel order/ contract under the provision of Breach of Contract (Clause no. 2.26).

2.19.4 In case of cancellation of main supply order/ contract, all other associated orders/ contracts like mandatory spares/ recommended spares/ E&C/ supervision of E&C shall stand cancelled.

2.19.5 Subject to Sub-Clause 2.19.6, the Supplier / Vendor shall be entitled to be paid the Contract Price attributable to the materials supplied as on the date of termination. Any sums due to the Purchaser from the Supplier / Vendor accruing prior to the date of termination shall be deducted from the amount to be paid to the Supplier / Vendor under this Contract.

2.19.6 In case the Purchaser so desires, may procure upon such terms and in such manner as deemed appropriate, stores not so delivered or others of similar description where stores exactly complying with particulars are not, in the opinion of the Purchaser, which shall be final, readily procurable, at the cost of the Supplier plus overheads. Supplier shall be liable to the Purchaser for any excess costs provided that the Supplier shall continue the performance of the Order/ Contract to the extent not cancelled under the provisions of this clause. The Supplier shall on no account be entitled to any gain on such repurchases. Cost of the purchases made by Purchaser at the cost of Supplier / Vendor shall be worked out as follows:

"Excess cost (difference in values of new Awarded Contract/Purchase Order and old Awarded Contract/Purchase Order) plus 5% of Excess cost as overheads (Departmental charges) along with Liquidated Damages as applicable".

2.20 TRANSFER, SUB-LETTING/ ASSIGNMENT SUB-CONTRACTING:

Supplier / Vendor shall not sublet, transfer or assign order/ contract or any part thereof or interest therein or benefit or advantage thereof save with the prior consent in writing of Purchaser. In the event Supplier / Vendor sub-lets, transfers or assigns order/ contract or any part thereof or interest therein or benefit or advantage thereof without such permission, the Purchaser shall be entitled to cancel the Order/ Contract and to purchase the stores from elsewhere at the costs of Supplier / Vendor, under the provision of Breach of Contract (Clause no. 2.26). In such eventuality, the Supplier / Vendor shall be liable for any loss or damage which Purchaser may sustain in consequence of or arising out of such risk purchase.

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2.21 FORCE MAJEURE:

- 2.21.1** “Force Majeure” shall mean any event beyond the reasonable control of the Purchaser or of the Supplier / Vendor/ including but not limited to fire, flood, earthquake or other acts of God, war, riots, civil war and restraints of Governing States, as the case may be, and which is unavoidable notwithstanding the reasonable care of the party affected. The following events are explicitly excluded from Force Majeure and are solely the responsibilities of the non-performing party: a) any strike, work-to-rule action, go-slow or similar labour difficulty (b) late delivery of equipment or material (unless caused by Force Majeure event) and (c) economic hardship.
- 2.21.2** If either party is prevented, hindered or delayed from or in performing any of its obligations under the Contract by an event of Force Majeure, then it shall notify the other in writing of the occurrence of such event and the circumstances thereof within 15 (fifteen) days after the occurrence of such event.
- 2.21.3** The party who has given such notice shall be excused from the performance or punctual performance of its obligations under the Contract for so long as the relevant event of Force Majeure continues and to the extent that such party’s performance is prevented, hindered or delayed. The Time for Completion shall be extended by a period of time equal to period of delay caused due to such Force Majeure event.
- 2.21.4** Delay or non-performance by either party hereto caused by the occurrence of any event of Force Majeure shall not
- (a) Constitute a default or breach of the Contract.
 - (b) Give rise to any claim for damages or additional cost or expense occasioned thereby, if and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.


2.22 SETTLEMENT OF DISPUTES:

If any dispute arises between the Parties hereto during the subsistence of the order /contract or thereafter, arising out of or in connection with, the validity, interpretation, implementation or alleged breach of any provision of the order/ contract, the Parties hereto shall endeavour to settle such dispute amicably.

2.23 ARBITRATION & CONCILIATION:

2.23.1 ARBITRATION:

- 2.23.1.1** Except as provided elsewhere in this Contract, in case Parties are unable to reach amicable settlement (whether by Conciliation to be conducted as provided in Clause 21.2 herein below or otherwise) in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract (hereinafter referred to as the ‘Dispute’), then, either Party may, commence arbitration in respect of such Dispute by issuance of a notice in terms of section 21 of the Arbitration & Conciliation Act, 1996 (hereinafter referred to as the ‘Notice’). The Notice shall contain the particulars of all claims to be referred to arbitration in sufficient detail and shall also indicate the monetary amount of such claim. The arbitration shall be conducted by a sole arbitrator to be appointed by the Head of the BHEL Power Sector Region issuing the

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Contract within 60 days of receipt of the complete Notice. The language of arbitration shall be English.

The Arbitrator shall pass a reasoned award.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder as in force from time to time shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Nagpur. The Contract shall be governed by and be construed as per provisions of the laws of India. Subject to this provision 2.23.1.1 regarding ARBITRATION, the principal civil court exercising ordinary civil jurisdiction over the area where the seat of arbitration is located shall have exclusive jurisdiction over any DISPUTE to the exclusion of any other court.

2.23.1.2 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD (Administrative Mechanism for Resolution of CPSEs Disputes) as mentioned in DPE OM No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22-05-2018 as amended from time to time.

2.23.1.3 The cost of arbitration shall initially be borne equally by the Parties subject to the final allocation thereof as per the award/order passed by the Arbitrator.

2.23.1.4 Notwithstanding the existence of any dispute or differences and/or reference for the arbitration, the Supplier / Vendor shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and expedition in a professional manner unless the dispute inter-alia relates to cancellation, termination or short-closure of the Contract by BHEL.

2.23.2 CONCILIATION:

If at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the agreement, contract), which the Parties are unable to settle mutually, arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee (IEC) to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

Notes:

1. No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators
2. Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Procedure (Annexure-XXIII) to this GCC. The Procedure (Annexure-XXIII) together with its Formats will

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be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in this GCC.

The Vendor/ supplier / contractor hereby agrees that BHEL may make any amendments or modifications to the provisions stipulated in the Procedure (Annexure-XIII) to this GCC from time to time and confirms that it shall be bound by such amended or modified provisions of the Procedure (Annexure-XIII) with effect from the date as intimated by BHEL to it.

2.23.3 NO INTEREST PAYABLE TO SUPPLIER / VENDOR:

Notwithstanding anything to the contrary contained in any other document comprising in the Contract, no interest shall be payable by BHEL to Vendor/ supplier on any moneys or balances including but not limited to the Performance Security Deposit, EMD, ~~Retention Money~~, RA Bills or the Final Bill, or any amount withheld and/or appropriated by BHEL etc., which becomes or as the case may be, is adjudged to be due from BHEL to Vendor / supplier whether under the Contract or otherwise.

2.24 LAWS GOVERNING THE CONTRACT:

The Contract, including all matters connected with contract, shall be governed by and interpreted in accordance with laws in force in India.

2.25 JURISDICTION OF COURT:

The contract shall be governed by the Law for the time being in force in the Republic of India. Subject to clause 2.23.1.1 of this contract, the Civil Court having original Civil Jurisdiction at Nagpur, shall alone have exclusive jurisdiction in regard to all matters in respect of the Contract.

2.26 BREACH OF CONTRACT, REMEDIES AND TERMINATION:

2.26.1 Breach of Contract will be considered to have been established in following cases:

- Termination of contract by BHEL after due notice of period of 14 days' in case of non-supply by the supplier within schedule delivery period or as extended from time to time, which if not improved within the time period mentioned in the notice.
- Supplier's poor execution w.r.t., timelines as stipulated in the contract, backlog (attributable to supplier) including unexecuted portion of supply does not appears to be executable within the balance available period considering the supplier's performance of execution.
- Termination of Contract on account of any other reason (s) attributable to Vendor/supplier.
- Assignment, transfer, subletting of Contract without BHEL's written permission.
- Non-compliance to any contractual condition or any other default attributable to Vendor/supplier.

LD against delay in executed work/supply in case of Termination of Contract:

LD against delay in executed supply shall be calculated in line with LD clause no. 2.18 of GCC, for the delay attributable to Vendor/supplier. For limiting the maximum value of LD, contract value shall be taken as Executed Value of supply till termination of contract.

Method for calculation of "LD against delay in executed supply in case of termination of contract" is given below.

- Let the time period from scheduled date of start of supply till termination of contract excluding the period of Hold (if any) not attributable to Supplier / Vendor = T1
- Let the value of executed supply till the time of termination of contract = X
- Let the Total Executable Value of supply for which inputs/fronts were made available to Vendor / supplier and were planned for execution till termination of contract = Y

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- iv). Delay in executed supply attributable to Supplier / Vendor i.e. $T2 = [1 - (X/Y)] \times T1$
v). LD shall be calculated in line with LD clause (clause 2.18) of the Contract for the delay attributable to Vendor / supplier taking "X" as Contract Value and "T2" as period of delay attributable to Vendor / supplier.

26.2 Remedies in case of Breach of Contract is established

In case 'Breach of Contract' is established, recovery to be made, is as below:

- a). Performance Security Deposit of 10% shall be encashed/ forfeited. This is without prejudice to BHEL's right to levy of liquidated damages, debarment etc. which shall be applied as per the provisions of the contract.
- b). In case the non-applicability of Performance Security Deposit in the contract, the amount (equivalent to 10% of contract value) shall be recovered from dues available in the form of Bills payable to Vendor/ supplier against the same contract etc.
- c). If funds are insufficient to effect complete recovery against dues indicated in (b) above, demand notice for deposit of balance recovery amount will be sent to Vendor/ supplier.
- d). If Vendor/ supplier fails to deposit the balance amount as per (c) above within the period as prescribed in demand notice, following action shall be taken for balance recovery:
 - i. Dues payable to Vendor/ supplier against other contracts in the same region shall be considered for recovery.
 - ii. If recovery cannot be made out of dues payable to the Vendor/ supplier as above, balance amount to be recovered, shall be informed to other Regions/Units of BHEL for making recovery from the Unpaid Bills/Running Bills/SD/BGs/Final Bills of Vendor/ supplier.
 - iii. In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against Vendor/supplier.

Note:

- 1) In addition to above, levy of liquidated damages, debarment, termination, short-closure etc. shall be applied as per provisions of the contract.
 - 2) If tendering is done for the balance supply, the defaulted Supplier / Vendor shall not be eligible for either executing the balance supply or to participate in the tender(s) for executing the balance supply. Defaulted Supplier / Vendor will include:
 - (a) In case defaulted Supplier / Vendor is The Sole Proprietorship Firm, any Sole Proprietorship Firm owned by same Sole Proprietor.
 - (b) In case defaulted Supplier / Vendor is The Partnership Firm, any firm comprising of same partners/ some of the same partners (but not including any new partner); or sole proprietorship firm owned by any partner(s) as a sole proprietor.
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**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

ANNEXURES

ANNEXURE - I

OFFER SUBMISSION AS PER NIT

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

Offer Reference No:

Date:

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);

Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub: Submission of Offer against Tender Enquiry No:

Having examined the tender documents against your tender Enquiry No. _____ dated _____ and having understood the provisions of the said tender documents and having thoroughly studied the requirements of BHEL related to the work tendered for, in connection with _____ (name of work & project site), we hereby submit our offer for the proposed work in accordance with terms and conditions mentioned in the tender documents, at the prices quoted by us and as per the indicated delivery schedule.

Should our offer be accepted by BHEL for Award, I/we further agree to furnish 'Performance Security' for the work as provided for in the Tender Conditions within the stipulated time as may be indicated by BHEL.

I/We further agree to execute all the works referred to in the said Tender documents upon the terms and conditions contained or referred to therein and as detailed in the appendices annexed thereto.

I/We have deposited/depositing herewith the requisite Earnest Money Deposit (EMD) as per details furnished in the Check List.

Authorised Representative of Bidder

Signature:

Name:

Address:

Place:

Date:


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ANNEXURE - II

CHECK LIST

NOTE: - Suppliers are required to fill in the following details in their Letterhead and no column should be left blank

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| A | Name and Address of the Supplier | | |
| B | GSTN No. the Supplier (Place of Execution of Contract / Purchase Order) | | |
| C | Details of Contact person for this Tender | Name : Mr./Ms. Designation: Telephone No: Mobile No: Email ID: | |
| D | Details of alternate Contact person for this Tender | Name : Mr./Ms. Designation: Telephone No: Mobile No: Email ID: | |
| E | EMD Details | | |
| F | DESCRIPTION | APPLICABILITY (BY BHEL) | BIDDER'S CONFIRMATION (YES/ NO) |
| 1 | Whether Pre - Qualification Criteria is understood and provided proper supporting documents. | Applicable | YES / NO |
| 2 | Whether all pages of the Tender documents including annexures, appendices etc are read and understood | Applicable | YES / NO |
| 3 | Submission of Technical specifications/ write-ups / Catalogues, literature & drawings/data sheets / Quality plans/ all other details & documents as required in tender documents. | Applicable | YES / NO |
| 4 | Recommended list of spare parts for three years operation as applicable. | Applicable | YES / NO |
| 5 | Audited Balance Sheet and profit & Loss Account for the last three years | Applicable | YES / NO |
| 6 | Copy of PAN Card & GST registration | Applicable | YES / NO |
| 7 | Submission of MSE certificate as specified in Tender | Applicable | YES / NO |
| 8 | Submission of format for Clarification / Deviation as per Annexure – III | Applicable | YES / NO |
| 9 | Submission of Certificate of No Deviation as per Annexure – IV | Applicable | YES / NO |
| 10 | Loading Criteria as per Annexure – V | Applicable | YES / NO |

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| 11 | Submission of Reverse Auction Format as per Annexure – VI | Applicable | YES / NO |
| 12 | Submission of Reverse Auction Process Compliance Form as per Annexure - VII | Applicable | YES / NO |
| 13 | Submission of Reverse Auction price confirmation and breakup as per Annexure - VIII | Applicable | YES / NO |
| 14 | Submission of Non-Disclosure Certificate as per Annexure - IX | Applicable | YES / NO |
| 15 | Declaration regarding Insolvency/ Liquidation/ Bankruptcy Proceedings as per Annexure – X | Applicable | YES / NO |
| 16 | Declaration by Authorized Signatory as per Annexure – XI | Applicable | YES / NO |
| 17 | Submission of Power of Attorney as per Annexure – XII | Applicable | YES / NO |
| 18 | Declaration by Authorized Signatory regarding Authenticity of submitted Documents as per Annexure – XIII | Applicable | YES / NO |
| 19 | Submission of Integrity Pact as specified in Tender as per Annexure – XIV | Applicable | YES / NO |
| 20 | Declaration confirming knowledge about Site Conditions as per Annexure – XV | Applicable | YES / NO |
| 21 | Declaration reg. Related Firms & their areas of Activities as per Annexure – XVI | Applicable | YES / NO |
| 22 | Declaration for relation in BHEL as per Annexure – XVII | Applicable | YES / NO |
| 23 | Declaration reg. minimum local content in line with revised public procurement as per Annexure – XVIII | Applicable | YES / NO |
| 24 | Declaration regarding compliance to Restrictions under Rule 144 (xi) of GFR 2017 as per Annexure – XIX | Applicable | YES / NO |
| 25 | Bank Account Details for E-Payment as per Annexure – XX | Applicable | YES / NO |
| 26 | Submission of Unprice Format as specified in Tender | Applicable | YES / NO |
| 27 | Submission of Signed Tender Documents (NIT, TCC & GCC) | Applicable | YES / NO |

NOTE: TENDER NOT ACCOMPANIED BY THE PRESCRIBED ABOVE APPLICABLE DOCUMENTS ARE LIABLE TO BE SUMMARILY REJECTED.

Date:

(Signatures of the Bidder with Name, Designation & Company's Seal)



**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

ANNEXURES

ANNEXURE- III

FORMAT FOR CLARIFICATION / DEVIATION

(To be Typed & submitted in the Letter Head of the Company/Firm of Bidder)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);

Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Subject : **Clarification / Deviation Sheet**

Ref: 1) NIT/Tender Enquiry No:

2) All other pertinent issues till date

| Sl. No. | Reference Clause of Tender Document | Existing provision of Tender Document | Bidder's Clarification / Deviations | Reason for Clarification / Deviation |
|---------|-------------------------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note:

1. All bidders have to list out all their Clarification / Deviations (if any) in detail in the above format.
2. Any deviation not mentioned above and shown separately or found hidden in offer, will not be taken cognizance of.
3. The final decision for acceptance / rejection of the deviations quoted by the bidder shall be at discretion of the Purchaser.

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)



**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
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ANNEXURES

ANNEXURE- IV

CERTIFICATE OF NO DEVIATION

(To be Typed & submitted in the Letter Head of the Company/Firm of Bidder)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);

Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Subject : No Deviation Certificate

Ref: 1) NIT/Tender Enquiry No:

2) All other pertinent issues till date

We hereby confirm that we have not changed/ modified/materially altered any of the tender documents as downloaded from the website/ issued by BHEL and in case of such observance at any stage, it shall be treated as null and void.

We also hereby confirm that we have neither set any Terms and Conditions and nor have we taken any deviation from the Tender conditions together with other references applicable for the above referred NIT/Tender Enquiry.

We further confirm our unqualified acceptance to all Terms and Conditions, unqualified compliance to Tender Conditions.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

**(Signature, date & seal of authorized
representative of the bidder)**

| | | | |
|--|---|---|------------------|
|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
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ANNEXURE – V

LOADING CRITERIA

No deviation in Tender terms & conditions are generally acceptable and bids with deviation are liable to be rejected. However exceptional circumstances, BHEL may accept the deviations with loadings as given below;

1. PAYMENT TERMS:

Loading of any deviation in the Payment terms w.r.t NIT terms shall be as follows;

“Base rate of SBI (as applicable on the date of bid opening; Techno-commercial bid opening in case of two part bids) + 6%, shall be considered for loading for the period of relaxation sought by Bidder.”

2. LIQUIDATED DAMAGES/ PENALTY:

Any Loading on LD clause shall be to the extent to which it is not agreed to by the Bidder (at offered value).

3. GUARANTEE/ WARRANTY PERIOD:

No deviation is permitted

4. PERFORMANCE SECURITY:

No deviation is permitted

NOTE: Any new Loading factor/s arising out of Techno-commercial clarifications / discussions stage shall be intimated to all eligible Tenderers before opening of Price bid.



ANNEXURE- VI

REVERSE AUCTION (RA) FORMAT

Authorization of representative who will participate in the on line Reverse Auction Process:

| | | |
|---|--|--|
| 1 | Name of the Bidder | |
| 2 | Name & Designation of Official | |
| 3 | Postal address (complete) | |
| 4 | Telephone nos. (land line & mobile both) | |
| 5 | E-mail address | |
| 6 | Name of place/ state/country, wherefrom s/he will participate in the reverse auction | |

| | | | |
|--|---|---|------------------|
|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
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ANNEXURE – VII

REVERSE AUCTION PROCESS COMPLIANCE FORM

(The bidders are required to print this on their company's letterhead and sign, stamp before RA)

To

- M/s. {Service provider}

- Postal address}

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{.....} dtd {.....}

This letter is to confirm that:

1. The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
2. We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
3. We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
4. We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per Annexure - VIII within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.

| | | | |
|--|---|---|------------------|
|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
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ANNEXURE – VIII

RA PRICE CONFIRMATION AND BREAKUP
(To be submitted by L1 bidder after completion of RA)

To

- M/s. Service provider
- Postal address

CC: M/s BHEL
{Unit-
Address-}

Sub: **Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

Rs. {___ in value & in words _____} for item(s) covered under tender enquiry No.
{.....} Dtd. {.....}

Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST freight and insurance charges up to {.....} District, {.....} State and Type Test Charges etc., other as per NIT}

as our final landed prices as quoted during the Reverse Auction conducted today {date} which will be valid for a period of {___ in nos. & in words ___} days.

The price break-up is as given below.

=====
Total - Rs. **in value & in words**
=====

Yours sincerely,

For _____

Name:

Company:

Date:

Seal:

| | | | |
|--|--|---|------------------|
|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
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ANNEXURE- IX

NON DISCLOSURE CERTIFICATE

(To be Typed & submitted in the Letter Head of the Company/Firm of Bidder)

I/We understand that BHEL, Central Procurement Cell (CPC) is committed to Information Security Management System as per their Information Security Policy.

Hence, I/We M/sWho are submitting offer for providing services to BHEL against Tender Enquiry No..... hereby undertake to comply with the following in line with Information Security Policy of BHEL.

- To maintain confidentiality of documents & information which shall be used during the execution of the Contract.
- The documents & information shall not be revealed to or shared with third party which shall not be in the business interest of BHEL, Central Procurement Cell (CPC).

Date:

**(Signatures of the Bidder with Name,
Designation & Company's Seal)**

| | | | |
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ANNEXURE – X

UNDERTAKING

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
 Bharat Heavy Electricals Limited,
 Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
 Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir/Madam,

Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS

Ref: NIT/Tender Specification No:

I/We,

 declare that, I/We am/are not under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR,
 which will render him ineligible for participation in this tender.

**Sign. of the AUTHORISED SIGNATORY
 (With Name, Designation and Company seal)**

Place:

Date:



**CENTRAL
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PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
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ANNEXURES

ANNEXURE – XI

DECLARATION BY AUTHORISED SIGNATORY OF BIDDER

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub: **Declaration by Authorised Signatory**

Ref: 1) NIT/Tender Specification No:

2) All other pertinent issues till date

I/We, hereby certify that all the information and data furnished by me with regard to the above Tender Specification are true and complete to the best of my knowledge. I have gone through the specifications, conditions, stipulations and all other pertinent issues till date, and agree to comply with the requirements and Intent of the specification.

I further certify that I am authorised to represent on behalf of my Company/Firm for the above mentioned tender and a valid Power of Attorney to this effect is likewise enclosed.

Yours faithfully,

(Signature, Date & Seal of Authorized
Signatory of the Bidder)

Date:

Enclosed: Power of Attorney



**CENTRAL
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ANNEXURE – XII

POWER OF ATTORNEY for SUBMISSION OF TENDER

(To be typed on non-judicial stamp paper of minimum Rs. 100/- and Notarized)

KNOW ALL MEN BY THESE PRESENTS, that I/We do hereby make, nominate, constitute and appoint Mr., whose signature given below herewith to be true and lawful Attorney of M/s..... hereinafter called 'Company', for submitting Tender/entering into Contract and inter alia, sign, execute all papers and to do necessary lawful acts on behalf of Company with M/s Bharat Heavy Electricals Ltd, Central Procurement Cell (CPC), in connection with.....
..... vide Tender Specification No: _____, dated _____.

And the Company do hereby agree to ratify and confirm all acts, deeds, things or proceedings as may be lawfully done by the said attorney and by or on behalf of the company and in the name of the company, by virtue of the powers conferred herein and the same shall be binding on the company and shall have full force and effect.

IN WITNESS WHEREOF, the common seal of the company has been hereunto affixed in the manner hereinafter appearing on the document.

Dated at _____, this _____ day of _____

Director/CMD/Partner/Proprietor

Signature of Mr. (Attorney)

Attested by: Director/CMD/Partner/Proprietor

Witness

Notary Public

| | | | |
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|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
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ANNEXURE – XIII

DECLARATION BY AUTHORISED SIGNATORY OF BIDDER

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub : **Declaration by Authorised Signatory regarding Authenticity of submitted documents.**

Ref : 1) NIT/Tender Enquiry No. & Date:
2) All other pertinent issues till date


I/We, hereby certify that all the documents submitted by us in support of possession of “Qualifying Requirements” are true copies of the original and are fully compliant required for qualifying / applying in the bid and shall produce the original of same as and when required by Bharat Heavy Electricals Limited.

I / We hereby further confirm that no tampering is done with documents submitted in support of our qualification as bidder. I / We understand that at any stage (during bidding process or while executing the awarded works) if it is found that fake / false / forged bid qualifying / supporting documents / certificates were submitted, it would lead to summarily rejection of our bid / termination of contract. BHEL shall be at liberty to initiate other appropriate actions as per the terms of the Bid / Contract and other extant policies of Bharat Heavy Electricals Limited.

Yours faithfully,

**(Signature, Date & Seal of Authorized
Signatory of the Bidder)**

Date:

| | | | |
|--|---|---|------------------|
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ANNEXURE – XIV

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for **Tender Enquiry No: BHEL/CPC/SGL/FAB STR/25/034 for Fabrication and Supply of Factory Finished Fabricated Structure of Power House, Common Control Room, Mill Bunker Structure (Columns, Bracings, Wall beams, Floor Beams, Trusses etc.) up-to Project Site, based on input design & detailed drawing provided by BHEL and where most of the raw material supply is in BHEL scope, and as specified in scope / BOQ of Unit#1 and Unit#2. for 2x800 MW NTPC Singrauli (Stage-III).** The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.


Supplier / Vendor

Section 1- Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

- 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- 1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal

| | | | |
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enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.


2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.

| | | | |
|--|---|---|------------------|
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4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.

6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.


Section 8 -Independent External Monitor(s)

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

| | | | |
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- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity; they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.12 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.
- 9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.
- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

| | | | |
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10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

(Office Seal)

Place-----

Date-----

Witness: _____

(Name & Address) _____

For & On behalf of the Bidder/ Contractor

(Office Seal)

Witness: _____

(Name & Address) _____



**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
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ANNEXURE – XV

DECLARATION CONFIRMING KNOWLEDGE ABOUT SITE CONDITIONS
(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub: Declaration confirming knowledge about Site conditions

Ref: 1) NIT/Tender Specification No:

2) All other pertinent issues till date

I/We, _____ hereby declare and confirm that we have visited the Project Site as referred in BHEL Tender Specifications and acquired full knowledge and information about the Site conditions including Wage structure, Industrial Climate, the Law & Order and other conditions prevalent at and around the Site. We further confirm that the above information is true and correct and we shall not raise any claim of any nature due to lack of knowledge of Site conditions.

I/We, hereby offer to carry out work as detailed in above mentioned Tender Specification, in accordance with Terms & Conditions thereof.

Yours faithfully,

(Signature, Date & Seal of Authorized
Representative of the Bidder)

Date :

Place:



ANNEXURE – XVI

DECLARATION

Date: _____

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Sub: **Details of related firms and their area of activities**

Dear Sir/ Madam,

Please find below details of firms owned by our family members that are doing business/ registered for same item with BHEL, _____ (NA, if not applicable)

| | | |
|-----|-------------------------------------|--|
| 1 | Material Category/ Work Description | |
| | Name of Firm | |
| | Address of Firm | |
| | Nature of Business | |
| | Name of Family Member | |
| | Relationship | |
| 2 | Material Category/ Work Description | |
| | Name of Firm | |
| | Address of Firm | |
| | Nature of Business | |
| | Name of Family Member | |
| | Relationship | |
| ... | | |

Note: I certify that the above information is true and I agree for penal action from BHEL in case any of the above information furnished is found to be false.

Regards,

(_____)

From: M/s _____
Supplier Code: _____
Address: _____



ANNEXURE – XVII

DECLARATION FOR RELATION IN BHEL

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder failing which the offer of Bidder is liable to be summarily rejected)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub: **Declaration for relation in BHEL**

Ref: 1) NIT/Tender Specification No:

I/We hereby submit the following information pertaining to relation/relatives of Proprieter/Partner(s)/ Director(s) employed in BHEL

Tick (v) any one as applicable:

1. The Proprieter, Partner(s), Director(s) of our Company/Firm DO NOT have any relation or relatives employed in BHEL

OR

2. The Proprieter, Partner(s), or Director(s) of our Company/Firm HAVE relation/relatives employed in BHEL and their particulars are as below:


i.

ii.

**(Signature, Date & Seal of Authorized
Signatory of the Bidder)**

Note:

1. Attach separate sheet, if necessary.
2. If BHEL Management comes to know at a later date that the information furnished by the Bidder is false, BHEL reserves the right to take suitable against the Bidder/Supplier / Vendor.

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ANNEXURE – XVIII

**DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE, 2020
AND SUBSEQUENT ORDER(S)**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);

Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 04th June, 2020 and subsequent order(s).

Ref : 1) NIT/Tender Specification No: _____,
2) All other pertinent issues till date

We hereby certify that the items/works/services offered by..... *(specify the name of the organization here)* has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017-Revision dated 04.06.2020 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |


Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

**** - Strike out whichever is not applicable.**

Note:

1. Bidders to note that above format, duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practicing chartered accountant (in respect of suppliers other than companies).

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3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.

ANNEXURE – XIX

DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017

(To be typed and submitted in the Letter Head of the Entity/ Firm providing certificate as applicable)

To,

_____ (Write Name and Designation of Officer of BHEL inviting the Tender);
Bharat Heavy Electricals Limited,
Central Procurement Cell (CPC), 8th Floor, BHEL SADAN,
Plot No. 25, Sector-16A, Noida, U.P.-201301

Dear Sir,

Sub: Declaration regarding compliance to Restrictions under Rule 144 (xi) of GFR 2017

Ref: 1) NIT/Tender Specification No:

2) All other pertinent issues till date

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India. I certify that _____ (**SPECIFY THE NAME OF THE ORGANIZATION HERE**), is not from such a country/ has been registered with the Competent Authority (*attach valid registration by the Competent Authority, i.e., the Registration Committee constituted by the Dept. for Promotion of Industry and Internal Trade (DPIIT).*

I hereby certify that we fulfil all requirements in this regard and is eligible to be considered.

Thanking you,
Yours faithfully,

(Signature, Date & Seal of
Authorized Signatory of the Bidder)

Note: Bidders to note that in case above certification given by a bidder, whose bid is accepted, is found to be false, then this would be a ground for immediate termination and for taking further action in accordance with law and as per BHEL guidelines

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ANNEXURE – XX

BANK ACCOUNT DETAILS FOR E-PAYMENT

(To be given on Letter head of the Company /Firm of Bidder, and **ENDORSED (SIGNED & STAMPED) BY THE BANK** to enable BHEL release payments through Electronic Fund Transfer (EFT/RTGS)

1. Beneficiary Name :
2. Beneficiary Account No. :
3. Bank Name & Branch :
4. City/Place :
5. 9 digit M ICR Code of Bank Branch :
6. IFSC Code of Bank Branch :
7. Beneficiary E-mail ID :
(for payment confirmation)

NOTE: In case Bank endorsed certificate regarding above has already been submitted earlier, kindly submit photocopy of the same

NOTE:

- THE DETAILS MAY EITHER BE ATTESTED BY YOUR BANKERS OR ACCOMPANIED BY A CANCELLED CHEQUE LEAF WITH IFSC CODE & A/C NO.PRINTED ON IT.
- UNDERTAKING TO REPORT IMMEDIATELY ANY CHANGES IN THE ABOVE TO BE SUBMITTED ON THE COMPANY'S LETTER HEAD



**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

ANNEXURES

ANNEXURE – XXI

PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY

(On non-Judicial paper of appropriate value)

Bank Guarantee No.....

Date.....

To

BHARAT HEAVY ELECTRICALS LIMITED

Power Sector Western Region,
6th Floor, Shree Mohini Complex,
345 Kingsway, Nagpur 440 001

Dear Sirs,

In accordance with the terms and conditions of Invitation for Bids/Notice Inviting Tender No.....¹(Tender Conditions), M/s. having its registered office at² (hereinafter referred to as the 'Tenderer'), is submitting its bid for the work of.....³ invited by M/s Bharat Heavy Electricals Limited (A Govt. of India Undertaking) a company incorporated under the Companies Act, 1956, having its registered office at BHEL House, Siri Fort, Asiad, New Delhi – 110049 through its Unit at Bharat Heavy Electricals Limited, Power Sector Western Region, 6th Floor, Shree Mohini Complex, 345 Kingsway, Nagpur 440 001.

The Tender Conditions provide that the Tenderer shall pay a sum of Rs as Earnest Money Deposit in the form therein mentioned. The form of payment of Earnest Money Deposit includes Bank Guarantee executed by a Scheduled Bank.

In lieu of the stipulations contained in the aforesaid Tender Conditions that an irrevocable and unconditional Bank Guarantee against Earnest Money Deposit for an amount of⁵ is required to be submitted by the Tenderer as a condition precedent for participation in the said Tender and the Tenderer having approached us for giving the said Guarantee,

we, the[Name & address of the Bank]

..... having our Registered Office at

.....(hereinafter referred to as the Bank) being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer without any demur, merely on your first demand any sum or sums of Rs.

.....⁵ (in words Rupees.....) without any reservation, protest, and recourse and without the beneficiary needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.



We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor/Contractor in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the Tenderer shall have no claim against us for making such payment.

We Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Tender or to extend the time of submission of from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Tenderer and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Tenderer or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Tenderer and notwithstanding any security or other guarantee that the Employer may have in relation to the Tenderer's liabilities.

This Guarantee shall be irrevocable and shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by the Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Tenderer but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms hereof. However, unless a demand or claim under this Guarantee is made on us in writing on or before the⁷ we shall be discharged from all liabilities under this Guarantee.


We, Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a. The liability of the Bank under this Guarantee shall not exceed.....⁵
- b. This Guarantee shall be valid up to⁶
- c. Unless the Bank is served a written claim or demand on or before⁷ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank

We, Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of

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|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
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| <p>Date.....</p> <p>Place of Issue.....</p> <p>¹ <i>Details of the Invitation to Bid/Notice Inviting Tender</i></p> <p>² <i>Name and Address of the Tenderer</i></p> <p>³ <i>Details of the Work</i></p> <p>⁴ <i>Name of the Employer</i></p> <p>⁵ <i>BG Amount in words and Figures</i></p> <p>⁶ <i>Validity Date</i></p> <p>⁷ <i>Date of Expiry of Claim Period</i></p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Units are advised that expiry of claim period may be kept 3-6 months after validity date. It may be ensured that the same is in line with the agreement/ contract entered with the Vendor. 2. The BG should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Contractor/sub-contractor /vendor/ Bank issuing the guarantee. 3. In line with the GCC, SCC or contractual terms, Unit may carry out minor modifications in the Standard BG Formats. If required, such modifications may be carried out after taking up appropriately with the Unit/Region's Law Deptt. 4. In Case of Bank Guarantees submitted by Foreign Vendors- <ol style="list-style-type: none"> a. From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India) can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e., Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located. b. From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank) <ol style="list-style-type: none"> b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by any of the Consortium Banks only will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India. It is advisable that all charges for issuance of Bank Guarantee/ | <p>(Name of the Bank)</p> |
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|  | CENTRAL PROCUREMENT CELL (CPC) <i>PURCHASE DEPARTMENT</i> | GENERAL CONDITIONS OF CONTRACT (GCC) | <i>ANNEXURES</i> |
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counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.

b.2 In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.

b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). The BG Format provided to them should clearly specify the same.



**CENTRAL
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PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

ANNEXURES

ANNEXURE – XXII

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at BHEL House, Siri Fort, Asiad, New Delhi – 110049 ¹ through its Unit at Bharat Heavy Electricals Limited, Power Sector Western Region, 6th Floor, Shree Mohini Complex, 345 Kingsway, Nagpur 440 001. (name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at _____ ² hereinafter referred to as the 'Vendor / Contractor / Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated ³ valued at Rs..... ⁴ (Rupees -- -----) / FC.....(in words.....) for ⁵ (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

We,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs ----- ⁶ (Rupees -----) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any

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|  | <p align="center">CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT</p> | <p align="center">GENERAL CONDITIONS OF CONTRACT (GCC)</p> | <p align="center">ANNEXURES</p> |
|--|---|---|--|

Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/ satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

WeBANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force upto and including.....⁷ and shall be extended from time to time for such period as may be desired by Employer.


This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁸ we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a. The liability of the Bank under this Guarantee shall not exceed.....⁶

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- b. This Guarantee shall be valid up to⁷
- c. Unless the Bank is served a written claim or demand on or before⁸ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER i.e., Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ CONTRACT VALUE

⁵ PROJECT/SUPPLY DETAILS

⁶ BG AMOUNT IN FIGURES AND WORDS

⁷ VALIDITY DATE

⁸ DATE OF EXPIRY OF CLAIM PERIOD

Note:

- Units are advised that expiry of claim period may be kept 3-6 months after validity date. It may be ensured that the same is in line with the agreement/ contract entered with the Vendor.
- The BG should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Vendor/Contractor/Supplier /Bank issuing the guarantee.
- In line with the GCC, SCC or contractual terms, Unit may carry out minor modifications in the Standard BG Formats. If required, such modifications may be carried out after taking up appropriately with the Unit/Region's Law Deptt.
- In Case of Bank Guarantees submitted by Foreign Vendors-**
 - From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located

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i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.

b. From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)

b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India. It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.

b.2 In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.


b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). The BG Format provided to them should clearly specify the same.



ANNEXURE- XXIII

LIST OF CONSORTIUM BANK


| Sl. No. | NAME OF THE BANK |
|----------------|---|
| 1 | State Bank of India |
| 2 | Canara Bank |
| 3 | IDBI Bank Limited |
| 4 | ICICI Bank Limited |
| 5 | HDFC Bank Limited |
| 6 | Axis Bank |
| 7 | IndusInd Bank Limited |
| 8 | Bank of Baroda |
| 9 | Exim Bank |
| 10 | Indian Bank |
| 11 | Punjab National Bank |
| 12 | Union Bank of India |
| 13 | Yes Bank Limited |
| 14 | RBL Bank Ltd. |
| 15 | Standard Chartered Bank |
| 16 | Indian Overseas Bank |
| 17 | Kotak Mahindra Bank Limited |
| 18 | Federal Bank Limited |
| 19 | Hongkong and Shanghai Banking Corporation Ltd |

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ANNEXURE – XXIV

PROCEDURE FOR CONDUCT OF CONCILIATION PROCEEDINGS

1. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided herein:
2. The party desirous of resorting to Conciliation shall send an invitation/notice in writing to the other party to conciliate specifying all points of Disputes with details of the amount claimed. The party concerned shall not raise any new issue thereafter. Parties shall also not claim any interest on claims/counter-claims from the date of notice invoking Conciliation till the conclusion of the Conciliation proceedings. If BHEL is to initiate Conciliation, then, the invitation to Conciliate shall be extended to the concerned Stakeholder in **Format-2** hereto. Where the stakeholder is to initiate the Conciliation, the notice for initiation of Conciliation shall be sent in **Format-3** hereto.
3. The party receiving the invitation/notice for Conciliation shall within 30 days of receipt of the notice of Conciliation intimate its consent for Conciliation along with its counter-claims, if any.
4. The Conciliation in a matter involving claim or counter-claim (whichever is higher) up to Rs 5 crores shall be carried out by sole Conciliator nominated by BHEL while in a matter involving claim or counter-claim (whichever is higher) of more than Rs 5 crores Conciliation shall be carried out by 3 Conciliators nominated by BHEL. The appointment of Conciliator(s) shall be completed and communicated by the concerned Department/Group of BHEL Unit/Division/Region/Business Group to the other party and the Conciliator(s) within 30 days from the date of acceptance of the invitation to conciliate by the concerned party in the **Format-4**. The details of the Claim, and counter-claim, if any, shall be intimated to the Conciliator(s) simultaneously in **Format-1**.
5. The Parties shall be represented by only their duly authorized in-house executives/officers and neither Party shall be represented by a Lawyer.
6. The first meeting of the IEC shall be convened by the IEC by sending appropriate communication/notice to both the parties as soon as possible but not later than 30 days from the date of his/their appointment. The hearings in the Conciliation proceeding shall ordinarily be concluded within two (2) months and, in exceptional cases where parties have expressed willingness to settle the matter or there exists possibility of settlement in the matter, the proceedings may be extended by the IEC by a maximum of further 2 months with the consent of the Parties subject to cogent reasons being recorded in writing.
7. The IEC shall thereafter formulate recommendations for settlement of the Disputes supported by reasons at the earliest but in any case within 15 days from the date of conclusion of the last hearing. The recommendations so formulated along with the reasons shall be furnished by the IEC to both the Parties at the earliest but in any case within 1 month from the date of conclusion of the last hearing.
8. Response/modifications/suggestions of the Parties on the recommendations of the IEC are to be submitted to the IEC within time limit stipulated by the IEC but not more than 15 days from the date of receipt of the recommendations from the IEC.

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9. In the event, upon consideration, further review of the recommendations is considered necessary, whether by BHEL or by the other Party, then, the matter can be remitted back to the IEC with request to reconsider the same in light of the issues projected by either/ both the Parties and to submit its recommendations thereon within the following 15 days from the date of remitting of the case by either of the Parties.
10. Upon the recommendations by the Parties, with or without modifications, as considered necessary, the IEC shall be called upon to draw up the Draft Settlement Agreement in terms of the recommendations.
11. When a consensus can be arrived at between the parties only in regard to any one or some of the issues referred for Conciliation the draft Settlement Agreement shall be accordingly formulated in regard to the said Issue(s), and the said Settlement Agreement, if signed, by the parties, shall be valid only for the said issues. As regards the balance issues not settled, the parties may seek to resolve them further as per terms and conditions provided in the contract.
12. In case no settlement can be reached between the parties, the IEC shall by a written declaration, pronounce that the Conciliation between the parties has failed and is accordingly terminated.
13. Unless the Conciliation proceedings are terminated in terms of para 22 (b), (c) & (d) herein below, the IEC shall forward his/its recommendations as to possible terms of settlement within one (1) month from the date of last hearing. The date of first hearing of Conciliation shall be the starting date for calculating the period of 2 months
14. In case of 3 members IEC, 2 members of IEC present will constitute a valid quorum for IEC and meeting can take place to proceed in the matter after seeking consent from the member who is not available. If necessary, videoconferencing may be arranged for facilitating participation of the members. However, the IEC recommendations will be signed by all members. Where there is more than one (1) Conciliator, as a general rule they shall act jointly. In the event of differences between the Members of IEC, the decision/recommendations of the majority of the Members of IEC shall prevail and be construed as the recommendation of the IEC.
15. The Draft Settlement Agreement prepared by the IEC in terms of the consensus arrived at during the Conciliation proceedings between the Parties shall be given by the IEC to both the parties for putting up for approval of their respective Competent Authority.
16. Before submitting the draft settlement agreement to BHEL's Competent Authority viz. the Board Level Committee on Alternative Dispute Resolution (BLCADR) for approval, concurrence of the other party's Competent Authority to the draft settlement agreement shall be obtained by the other party and informed to BHEL within 15 days of receipt of the final draft settlement agreement by it. Upon approval by the Competent Authority, the Settlement Agreement would thereafter be signed by the authorized representatives of both the Parties and authenticated by the members of the IEC.
17. In case the Draft Settlement Agreement is rejected by the Competent Authority of BHEL or the other Party, the Conciliation proceedings would stand terminated.
18. A Settlement Agreement shall contain a statement to the effect that each of the person(s) signing thereto (i) is fully authorized by the respective Party (ies) he/she represents, (ii) has fully

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understood the contents of the same and (iii) is signing on the same out of complete freewill and consent, without any pressure, undue influence.

19. The Settlement Agreement shall thereafter have the same legal status and effect as an arbitration award on agreed terms on the substance of the dispute rendered by an arbitral tribunal passed under section 30 of the Arbitration and Conciliation Act, 1996.
20. Acceptance of the Draft Settlement Agreement/recommendations of the Conciliator and/or signing of the Settlement Agreement by BHEL shall however, be subject to withdrawal/closure of any arbitral and/or judicial proceedings initiated by the concerned Party in regard to such settled issues.
21. Unless otherwise provided for in the agreement, contract or the Memorandum of Understanding, as the case may be, in the event of likelihood of prolonged absence of the Conciliator or any member of IEC, for any reason/incapacity, the Competent Authority/Head of Unit/Division/Region/Business Group of BHEL may substitute the Conciliator or such member at any stage of the proceedings. Upon appointment of the substitute Conciliator(s), such reconstituted IEC may, with the consent of the Parties, proceed with further Conciliation into the matter either de-novo or from the stage already reached by the previous IEC before the substitution.
22. The proceedings of Conciliation under this Scheme may be terminated as follows:
 - a. On the date of signing of the Settlement agreement by the Parties; or,
 - b. By a written declaration of the IEC, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of the declaration; or,
 - c. By a written declaration of the Parties addressed to the IEC to the effect that the Conciliation proceedings are terminated, on the date of the declaration; or,
 - d. By a written declaration of a Party to the other Party and the IEC, if appointed, to the effect that the Conciliation proceedings are terminated, on the date of the declaration; or,
 - e. On rejection of the Draft Settlement Agreement by the Competent Authority of BHEL or the other Party.
23. The Conciliator(s) shall be entitled to following fees and facilities:


| Sl. No. | Particulars | Amount |
|---------|--|---|
| 1 | Sitting fees | Each Member shall be paid a Lump Sum fee of Rs 75,000/- for the whole case payable in terms of paragraph No. 27 herein below. |
| 2 | Towards drafting of settlement agreement | In cases involving claim and/or counter-claim of up to Rs 5crores. Rs 50,000/- (Sole Conciliator) In cases involving claim and/or counter-claim of exceeding Rs 5 crores but less than Rs 10 crores. Rs 75,000 (per Conciliator) In cases involving claim and/or counter-claim of more than Rs 10 crores. Rs 1,00,000/- (per Conciliator) <u>Note:</u> The aforesaid fees for the drafting of the Settlement Agreement shall be paid on the, |

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|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
|--|--|---|------------------|

| | | |
|---|---|--|
| | | Signing of the Settlement Agreement after approval of the Competent Authority or Rejection of the proposed Settlement Agreement by the Competent Authority of BHEL. |
| 3 | Secretarial expenses | Rs 10,000/- (one time) for the whole case for Conciliation by a Sole Member IEC. Where Conciliation is by multi member Conciliators –Rs 30,000/- (one time) - to be paid to the IEC. |
| 4 | Travel and transportation and stay at outstation i) Retired Senior Officials of other Public Sector Undertakings (pay scale wise equivalent to or more than E-8 level of BHEL) | As per entitlement of the equivalent officer (pay scale wise) in BHEL. |
| | Others | As per the extant entitlement of whole time Functional Directors in BHEL. Ordinarily, the IEC Member(s) would be entitled to travel by air Economy Class. |
| 5 | Venue for meeting | Unless otherwise agreed in the agreement, contract or the Memorandum of Understanding, as the case may be, the venue/seat of proceedings shall be the location of the concerned Unit / Division / Region / Business Group of BHEL. Without prejudice to the seat/venue of the Conciliation being at the location of concerned BHEL Unit / Division / Region / Business Group, the IEC after consulting the Parties may decide to hold the proceedings at any other place/venue to facilitate the proceedings. Unless, Parties agree to conduct Conciliation at BHEL premises, the venue is to be arranged by either Party alternately. |

24. The parties will bear their own costs including cost of presenting their cases/evidence/ witness (es)/expert(s) on their behalf. The parties agree to rely upon documentary evidence in support of their claims and not to bring any oral evidence in IEC proceedings.

25. If any witness (es) or expert(s) is/are, with the consent of the parties, called upon to appear at the instance of the IEC in connection with the matter, then, the costs towards such witness (es)/expert(s) shall be determined by the IEC with the consent of the Parties and the cost so determined shall be borne equally by the Parties.

| | | | |
|--|---|---|------------------|
|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
|--|---|---|------------------|

26. The other expenditures/costs in connection with the Conciliation proceedings as well as the IEC's fees and expenses shall be shared by the Parties equally.
27. Out of the lump sum fees of Rs 75,000/- for Sitting Fees, 50% shall be payable after the first meeting of the IEC and the remaining 50% of the Sitting Fees shall be payable only after termination of the conciliation proceedings in terms of para 22 hereinabove.
28. The travelling, transportation and stay at outstation shall be arranged by concerned Unit as per entitlements as per Serial No. 4 of the Table at para 23 above, and in case such arrangements are not made by the BHEL Unit, the same shall be reimbursed to the IEC on actuals limited to their entitlement as per Serial No. 4 of the Table at Para 23 above against supporting documents. The IEC Member(s) shall submit necessary invoice for claiming the fees/reimbursements.
29. The Parties shall keep confidential all matters relating to the conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of its implementation and enforcement or as required by or under a law or as per directions of a Court/Governmental authority/ regulatory body, as the case may be.
30. The Parties shall not rely upon or introduce as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the Disputes that is the subject of the Conciliation proceedings:
 - a. Views expressed or suggestions made by the other party in respect of a possible settlement of the Disputes;
 - b. admissions made by the other party in the course of the Conciliator proceedings;
 - c. proposals made by the Conciliator;
 - d. The fact that the other Party had indicated his willingness to accept a proposal for settlement made by the Conciliator.
31. The Parties shall not present the Conciliator(s) as witness in any Alternative Dispute Resolution or Judicial proceedings in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.
32. None of the Conciliators shall act as an arbitrator or as a representative or counsel of a Party in any arbitral or judicial proceeding in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.
33. The Parties shall not initiate, during the Conciliation proceedings, any arbitral or judicial proceedings in respect of a Disputes that is the subject matter of the Conciliation proceedings except that a Party may initiate arbitral or judicial proceedings where, in his opinion, such proceedings are necessary for preserving his rights including for preventing expiry of period of limitation. Unless terminated as per the provisions of this Scheme, the Conciliation proceedings shall continue notwithstanding the commencement of the arbitral or judicial proceedings and the arbitral or judicial proceedings shall be primarily for the purpose of preserving rights including preventing expiry of period of limitation.
34. The official language of Conciliation proceedings under this Scheme shall be English unless the Parties agree to some other language.



FORMAT-1

**STATEMENT OF CLAIMS/COUNTER CLAIMS TO BE SUBMITTED TO THE IEC BY BOTH
THE PARTIES**

1. Chronology of the Disputes
2. Brief of the Contract/MoU/Agreement/LOI/LOA
3. Brief history of the Disputes:
4. Issues:
5. Details of Claim(s)/Counter Claim(s):

| Sl. No. | Description of claim(s)/Counter Claim | Amount (in INR)Or currency applicable in the contract | Relevant contract clause |
|---------|--|---|-----------------------------|
| | | | |
| | | | |
| | | | |

6. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract)

Note— *The Statement of Claims/Counter Claims may ideally be restricted to maximum limit of 20 pages. Relevant documents may be compiled and submitted along with the statement of Claims/Counter Claims. The statement of Claims/Counter Claims is to be submitted to all IEC members and to the other party by post as well as by email.*



**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

ANNEXURES

FORMAT-2

**FORMAT FOR NOTICE INVOKING CONCILIATION CLAUSE BY BHEL FOR REFERRING THE
DISPUTES TO CONCILIATION THROUGH IEC**

To,

M/s. (Stakeholder's name)

Subject: **NOTICE FOR INVOCATION OF THE CONCILIATION CLAUSE OF THE CONTRACT BY BHEL**

Ref: Contract No/MoU/Agreement/LOI/LOA& date _____.

Dear Sir/Madam,

As you are aware, with reference to above referred Contract/MoU/Agreement/LOI/LOA, certain disputes have arisen, which, in spite of several rounds of mutual discussions and various correspondences have remained unresolved. The brief particulars of our claims which arise out of the above- referred Contract/MoU/Agreement/LOI/LOA are reproduced hereunder:

| Sl. No. | Claim description | Amount involved |
|---------|-------------------|-----------------|
| | | |

As you are aware, there is a provision in the captioned Contract/MoU/Agreement/LOI/ LOA for referring disputes to conciliation.

In terms of Clause -----of Procedure i.e., Annexure ----- to the Contract/MoU /Agreement / LOI / LOA, we hereby seek your consent to refer the matter to Conciliation by Independent Experts Committee to be appointed by BHEL. You are invited to provide your consent in writing to proceed with conciliation into the above mentioned disputes within a period of 30 days from the date of this letter along with details of counter-claims, if any, which you might have with regard to the subject Contract/ MoU/ Agreement/ LOI/ LOA.

Please note that upon receipt of your consent in writing within 30 days of the date of receipt of this letter by you, BHEL shall appoint suitable person(s) from the BHEL Panel of Conciliators.

This letter is being issued without prejudice to our rights and contentions available under the contract and law.

Thanking you
Yours faithfully

Representative of BHEL

Note: The Format may be suitably modified, as required, based on facts and circumstances of the case.



**CENTRAL
PROCUREMENT CELL
(CPC)
PURCHASE DEPARTMENT**

**GENERAL CONDITIONS OF
CONTRACT (GCC)**

ANNEXURES

FORMAT-3

**FORMAT FOR NOTICE INVOKING CONCILIATION CLAUSE BY A STAKEHOLDER FOR
REFERRING THE DISPUTES TO CONCILIATION THROUGH IEC**

To,
BHEL (Head of the Unit/Division/Region/Business Group)

Subject: **NOTICE FOR INVOCATION OF THE CONCILIATION CLAUSE OF THE CONTRACT BY A STAKEHOLDER**

Ref: Contract No/MoU/Agreement/LOI/LOA& date _____.

Dear Sir/Madam,

As you are aware, with reference to above referred Contract/MoU/Agreement/LOI/LOA, certain disputes have arisen, which, in spite of several rounds of mutual discussions and various correspondences have remained unresolved. The brief particulars of our claims which have arisen out of the above-referred Contract/MoU/Agreement/LOI/LOA are enumerated hereunder:

| Sl. No. | Claim description | Amount involved |
|---------|-------------------|-----------------|
| | | |

As you are aware, there is a provision in the captioned Contract/MoU/Agreement/LOI/ LOA for referring inter-se disputes of the Parties to conciliation.

We wish to refer the above-said disputes to Conciliation as per the said Clause of the captioned Contract/MoU/Agreement/LOI/ LOA. In terms of Clause -----of Procedure i.e., Annexure ----- to the Contract/MoU /Agreement / LOI / LOA, we hereby invite BHEL to provide its consent in writing to proceed with conciliation into the above mentioned disputes within a period of 30 days from the date of this letter along with details of counter-claims, if any, which it might have with regard to the subject Contract/ MoU/ Agreement/ LOI/ LOA and to appoint suitable person(s) as Conciliator(s) from the BHEL Panel of Conciliators.

This letter is being issued without prejudice to our rights and contentions available under the contract and law.

Thanking you
Yours faithfully

Representative of the Stakeholder

Note: The Format may be suitably modified, as required, based on facts and circumstances of the case.

| | | | |
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|  | CENTRAL PROCUREMENT CELL (CPC) PURCHASE DEPARTMENT | GENERAL CONDITIONS OF CONTRACT (GCC) | ANNEXURES |
|--|--|---|------------------|

FORMAT-4

**FORMAT FOR INTIMATION TO THE STAKEHOLDER ABOUT APPOINTMENT OF
CONCILIATOR/IEC**

To,

M/s. (Stakeholder's name)

Subject: **INTIMATION BY BHEL TO THE STAKEHOLDER AND CONCILIATOR(S) ABOUT APPOINTMENT OF
CONCILIATOR/IEC**

Ref: Contract No/MoU/Agreement/LOI/LOA& date _____.

Sir,

This is with reference to letter dated ----- regarding reference of the disputes arising in connection with the subject Contract No/MoU/Agreement/LOI/LOA to conciliation and appointment of Conciliator(s).

In pursuance of the said letter, the said disputes are assigned to conciliation and the following persons are nominated as Conciliator(s) for conciliating and assisting the Parties to amicably resolve the disputes in terms of the Arbitration & Conciliation Act, 1996 and the Procedure ---- to the subject Contract/MoU/Agreement/LOI/LOA, if possible.

Name and contact details of Conciliator(s)

- a)
- b)
- c)

You are requested to submit the Statement of Claims or Counter-Claims (strike off whichever is inapplicable) before the Conciliator(s) in Format 5 (enclosed herewith) as per the time limit as prescribed by the Conciliator(s).

Yours faithfully,

Representative of BHEL

CC: To Conciliator(s)... for Kind Information please.

Encl.: As above

Note: The Format may be suitably modified, as required, based on facts and circumstances of the case.

**BANK GUARRENTEE FOR SUPPLY FREE
ISSUE MATERIAL**

Bank
Guarantee No:

Date:

To
NAME & ADDRESSES OF THE BENEFICIARY:

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at

_____ ¹ through its Unit at _____ (Name of the Unit) having
_____ awarded to _____

_____ ² (~~Name of the Vendor / Contractor~~ / Supplier), with its registered
_____ office at _____ ²

(hereinafter called "the Vendor/Contractor/Supplier" which expression shall include its successors and

permitted _____ assigns) a contract date _____ ³ valued at Rs.
Ref No. _____ d _____

(Rupees _____)/ FC _____ (in words _____) _____ ⁴ (hereinafter
for the 'Contract') _____ called

AND WHEREAS the Employer having agreed as per the terms and conditions of the Contract to supply

free issue material costing Rs.____for the manufacture/fabrication of the equipment at the 'Contractor/Supplier/Fabricator's' site on furnishing of a Bank Guarantee for Rs./FC_____(Rupees/FC____)5 in the manner hereinafter specified for the due safeguard of the free issue material,

we,_____(hereinafter referred to as the Bank), having registered/Head office at_____and inter alia a branch at____being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount but not exceeding Rs./FC_____(Rupees/FC____) without any demur, merely on a demand from the Employer and without any reservation, protest and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs._____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the 'Contractor/Supplier/Fabricator in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the 'Contractor/Supplier/Fabricator' shall have no claim against us for making such payment.

We the_____Bank further agree that the guarantee herein contained shall remain in full force

and effect during the period that would be taken for the performance of the said Contract and till the

reconciliation of the free issue material has been carried out and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We_____Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said

'Contractor/Supplier/Fabricator' from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier/Fabricator and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said

'Contractor/Supplier/Fabricator' or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said 'Contractor/Supplier/Fabricator' or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor/Supplier/ Fabricator and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's/Supplier's/ Fabricator's liabilities.

This Guarantee shall remain in force upto and _____⁶ and shall be extended including time to time for such period as may _____ from be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/ Supplier/ Fabricator but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the

7

we shall be discharged from all liabilities under this guarantee thereafter.

We, _____ BANK lastly undertake not to revoke this guarantee during its currency except with

the previous consent of the Employer in writing.

Any claim or dispute arising under the terms of this Guarantee shall be subject to the exclusive

jurisdiction of the court at ~~NEW DELHI~~ only.
Nagpur

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed _____ 5

b) _____ This Guarantee shall be valid up to 6

c) Unless the Bank is served a written claim or demand on or before _ 7
all rights under this

guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a

duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated _____

Place of Issue _____

- 1 NAME AND ADDRESS OF THE EMPLOER. i.e. Bharat Heavy Electricals Limited
- 2 NAME AND ADDRESS OF THE CONTRACTOR / SUPPLIER/ FABRICATOR.
- 3 DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE
- 4 PROJECT/SUPPLY DETAILS AND CONTRACT VALUE
- 5 BG AMOUNT IN FIGURES AND WORDS
- 6 VALIDITY DATE
- 7 DATE OF EXPIRY OF CLAIM PERIOD

PROFORMA OF BANK GUARANTEE (in lieu of RETENTION AMOUNT)

B.G. NO.

Date

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at BHEL House, Siri Fort, Asiad, New Delhi – 110049 ¹ through its Unit at Bharat Heavy Electricals Limited, Power Sector Western Region, 6th Floor, Shree Mohini Complex, 345 Kingsway, Nagpur 440 001 having agreed to exempt (Name of the Vendor / Contractor / Supplier) with its registered office at _____ ² (hereinafter called the said "Contractor" which term includes supplier), from demand under the terms and conditions of the Contract reference No. _____ dated _____ ³ valued at Rs. ⁴ (Rupees -----) ⁴ (hereinafter called the said Contract), of Retention Amount for the due fulfilment by the said Contractor of the terms and conditions contained in the said Contract, on production of a Bank Guarantee for Rs. _____ ⁵ (Rupees _____ only) ⁵.

We _____ (indicate the name and address of the Bank) having its Head Office at _____ (address of the head Office) (hereinafter referred to as the Bank), at the request of _____ [Contractor(s)], being the Guarantor under this Guarantee, do hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer, an amount not exceeding Rs. _____ without any demur, immediately on demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the bank, shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any Court or Tribunal or Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment hereunder and the Contractor(s) shall have no claim against us for making such payment.

We, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied & the Employer certifies that the terms and conditions of the said Contract have been fully and properly carried out by the said contractor(s) or acceptance of the final bill or discharge of this guarantee by the Employer, whichever is earlier. This guarantee shall initially remain in force upto and including _____ ⁶ and shall be extended from time to time for such period as may be desired by the Employer. Unless a demand or claim under this guarantee is made on us in writing on or before the _____ ⁷, we shall be discharged from all the liability under this guarantee thereafter.

We, _____ (indicate the name of the Bank) _____ further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the

PROFORMA OF BANK GUARANTEE (in lieu of RETENTION AMOUNT)

terms and conditions of the said Contract or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).

We..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁵
- b) This Guarantee shall be valid up to⁶
- c) Unless the Bank is served a written claim or demand on or before⁷ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.
- d) We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

Date _____ Day of _____
for____(indicate the name of the Bank)____

(Signature of Authorized signatory)

¹ ADDRESS OF THE EMPLOYER. i.e. Bharat Heavy Electricals Limited

² ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

PROFORMA OF BANK GUARANTEE (in lieu of RETENTION AMOUNT)

⁴ CONTRACT VALUE

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. Units are advised that expiry of claim period may be kept 3-6 months after validity date. It may be ensured that the same is in line with the agreement/ contract entered with the Vendor.
2. The BG should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Vendor/Contractor/Supplier /Bank issuing the guarantee.
3. In line with the GCC, SCC or contractual terms, Unit may carry out minor modifications in the Standard BG Formats. If required, such modifications may be carried out after taking up appropriately with the Unit/Region's Law Deptt.
4. In Case of Bank Guarantees submitted by Foreign Vendors-
 - a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
 - b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor Country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India. It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). The BG Format provided to them should clearly specify the same.



TITLE:

**TECHNICAL SPECIFICATION FOR
FABRICATION OF STRUCTURAL
STEEL WORK**

SPECIFICATION NO. PE-TS-999-600-C017

VOLUME - II B

SECTION - D

SUBSECTION -D17

REV.NO. 0

DATE 16/03/2016

SHEET

1

OF

43

VOLUME: II B

**SECTION - D
(PART I)**

SUB-SECTION – D 17

FABRICATION OF STRUCTURAL STEEL WORK



Bharat Heavy Electricals Limited
Project Engineering Management
PPEI Building, Power Sector,
Plot No. 25, Sector 16A,
Noida (U.P.)-201301



TITLE:

**TECHNICAL SPECIFICATION FOR
FABRICATION OF STRUCTURAL
STEEL WORK**

SPECIFICATION NO. PE-TS-999-600-C017

VOLUME - II B

SECTION - D SUBSECTION -D17

REV.NO. 0 DATE 16/03/2016

SHEET 2 OF 43

C O N T E N T

| CLAUSE NO. | DESCRIPTION | SHEET NO. |
|-------------------|--|------------------|
| 1.00.00 | SCOPE | 3 |
| 2.00.00 | GENERAL | 3 |
| 3.00.00 | WORKMANSHIP | 19 |
| 4.00.00 | INSPECTION, TESTING, ACCEPTANCE CRITERIA AND DELIVERY | 29 |
| 5.00.00 | INFORMATION TO BE SUBMITTED | 33 |
| 6.00.00 | RATES AND MEASUREMENTS | 34 |



TITLE:

**TECHNICAL SPECIFICATION FOR
FABRICATION OF STRUCTURAL
STEEL WORK**

SPECIFICATION NO. PE-TS-999-600-C017

VOLUME - II B

SECTION - D SUBSECTION -D17

REV.NO. 0 DATE 16/03/2016

SHEET 3 OF 43

SUB-SECTION – D XVII

FABRICATION OF STRUCTURAL STEEL WORK

1.00.00 SCOPE


This specification covers supply, fabrication, testing, painting and delivery to site of structural steelwork including supply of all consumable stores and rivets, bolts, nuts, washers, electrodes and other materials required for fabrication and field connections of all structural steelwork covered under the scope of the contract.

2.00.00 GENERAL

2.01.00 Work to be provided for by the Contractor

The work to be provided for by the Contractor, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following

- a) Preparation of complete detailed fabrication drawings and erection marking drawings required for all the structures covered under the scope of the contract based on the approved design drawings. As decided by the Engineer, some or all of these detailed drawings will have to be submitted for approval.
- b) To submit revised design with calculations and detailed fabrication drawings in case any substitution of the designed sections are to be made.
- c) To submit design calculations for joints and connections developed by the contractor along with detailed fabrication drawings.
- d) Furnish all materials, labour, tools and plant and all consumables required for fabrication and supply, all necessary rivets, bolts, nuts, washers, tie rods and welding electrodes for field connections,
- e) Furnish shop painting of all fabricated steelwork as per requirements of this Specification.
- f) Suitably mark, bundle, and pack for transport all fabricated materials.
- g) Prepare and furnish detailed Bill of Materials, Drawing Office Dispatch lists, Rivet and Bolt List and any other list of bought out items required in connection with the fabrication and erection of the structural steelwork.
- h) Insure, load and transport all fabricated steelwork field connection materials to site.

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| <p>IS : 961 - Structural Steel (High Tensile)</p> <p>IS : 1148 - Rivet bars for structural purposes</p> <p>IS : 1149 - High tensile rivet bars for structural purposes</p> <p>IS : 1161 - Steel Tubes for structural purposes</p> <p>IS : 1200 - Method of measurement of steelwork and ironwork (Part 8)</p> <p>IS : 1239 - Mild Steel Tubes</p> <p>IS : 1363 - Black hexagon bolts, nuts and lock nuts (dia. 6 to 30 mm) and black hexagon screws (dia 6 to 24 mm)</p> <p>IS : 1364 - Precision and semi-precision hexagon bolts, screws, nuts and locknuts (dia, range 6 to 39 mm)</p> <p>IS : 1367 - Technical supply conditions for threaded fasteners</p> <p>IS : 1442 - Covered electrodes for the metal arc welding of high tensile structural steel</p> <p>IS : 1608 - Method for tensile testing of steel products other than sheet strip, wire and tube</p> <p>IS : 1730 - Dimensions for steel plate, sheet, and strip for structural and general engineering purposes.</p> <p>IS : 1731 - Dimensions for steel flats for structural and general engineering purposes</p> <p>IS : 1852 - Rolling and cutting tolerances for hot-rolled steel products</p> <p>IS : 1977 - Structural steel (ordinary quality) St-42-0</p> <p>IS : 2062 - Steel for General Structural Purposes</p> <p>IS : 2074 - Ready mixed paint, red oxide Zinc chromate priming</p> <p>IS : 2595 - Code of Practice for Radiographic Testing</p> <p>IS : 2629 - Recommended practice for Hot-Dip Galvanizing of Iron and Steel</p> <p>IS : 2633 - Method for testing uniformity of coating on Zinc Coated Articles</p> | | | | | |



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- IS : 3757 - High strength structural bolts
- IS : 4759 - Specifications for Hot-Dip Zinc Coatings on Structural Steel and other allied products
- IS : 7205 - Safety Code for Erection of Structural Steelwork
- IS : 7215 - Tolerances for fabrication of steel structures
- IS : 7280 - Bare wire electrodes for submerged arc welding of structural steels.
- IS : 9595 - Recommendations for metal arc welding of carbon and carbon manganese steels.

2.04.00 Conformity with Designs


The contractor shall design all connections, supply and fabricate all steelwork and furnish all connection materials in accordance with the approved drawings and/or as instructed by the Engineer keeping in view the maximum Utilization of the available sizes and sections of steel materials. The methods of painting, marking, packing and delivery of all fabricated materials shall be in accordance with the provisions of the contract and/or as approved by the Engineer. Provision of all relevant Indian Standard Specifications and Codes of Practice shall be followed unless otherwise specified in the contract.

2.05.00 Materials to be used

2.05.01 General

All steel materials required for the work will be supplied by the contractor unless otherwise specified elsewhere in the contract. The materials shall be free from all imperfections, mill scales, slag intrusions, laminations, fittings, rusts etc. that may impair their strength, durability, and appearance. All materials shall be of tested quality only unless otherwise permitted by the Engineer and/or Consultant. If desired by the Engineer, Test Certificates in respect of each consignment shall be submitted in triplicate. Whenever the materials are required to be used from unidentified stocks, if permitted by the Engineer, a random sample shall be tested at an approved laboratory from each lot of 50 tones or less of any particular section.

The arc welding electrodes shall be of approved reputed manufacture and conforming to the relevant Indian Standard Codes of Practice and Specifications and shall be of heavily coated type and the thickness of the coating shall be uniform and concentric. With each container of electrodes,

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| | <p>the manufacturer shall furnish instructions giving recommended voltage and amperage (Polarity in case of D.C. supply) for which the electrodes are suitable.</p> <p>2.05.02 Steel</p> <p>All steel materials to be used in construction within the purview of this specification shall comply with any of the following Indian Standard Specifications as may be applicable:</p> <p>a) IS : 2062 - Steel for general structural purposes</p> <p>b) IS : 961 - Structural steel High Tensile</p> <p>c) IS : 1977 - Structural steel (Ordinary quality) St-42-0</p> <p>In case of imported steel materials being used, these shall conform to specifications equivalent to any of the above as may be applicable.</p> <p>2.05.03 Rivet Steel</p> <p>All rivet steel used in construction within the purview of this Specification shall comply with one of the following Indian Standard Specifications as may be applicable:</p> <p>a) IS : 1148 - Rivet Bars for structural purpose</p> <p>b) IS : 1149 - High tensile rivet bars for structural purposes. Where high tensile steel is specified for rivets, steps shall be taken to ensure that the rivets are so manufactured that they can be driven and heads formed satisfactorily without the physical properties of steel being impaired.</p> <p>2.05.04 Electrodes</p> <p>All electrodes to be used under the Contract shall be of approved reputed manufacture, low hydrogen electrode and shall comply with any of the following Indian Standard Specifications as may be applicable</p> <p>a) IS : 814 - Covered electrodes for metal arc welding of structural steel</p> <p>b) IS : 815 - Classification and coding of covered electrodes for metal arc welding of mild steel and low alloy high tensile steel</p> | |



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c) IS : 1442 - Covered electrodes for the metal arc welding of high tensile structural steel

d) IS : 7280 - Bare wire electrodes for submerged arc welding of structural steels

2.05.05 Bolts and Nuts

All bolts and nuts shall conform to the requirements of Indian Standard Specification IS: 1367 - Technical Supply Conditions for Threaded Fasteners.

Materials for Bolts and nuts under the purview of this contract shall comply with any of the following Indian Standard Specifications as may be applicable.

a) Mild Steel

All mild steel for bolts and nuts when tested in accordance with the following Indian Standard Specification shall have a tensile strength of not less than 44 Kg/mm² and a minimum elongation of 23 per cent on a gauge length of 5.6 _/A, where "A" is the cross sectional area of the test specimen

i) IS: 1367: Technical supply conditions for threaded fasteners

ii) IS: 1608: Method for tensile testing of steel products other than sheet, strip, wire and tube

b) High Tensile Steel

The material used for the manufacture of high tensile steel bolts and nuts shall have the mechanical properties appropriate to the particular class of steel as set out in IS: 1367 or as approved by the Engineer.


2.05.06 Washers

Washers shall be made of steel conforming to any of the following Indian Standard Specifications as may be applicable under the provisions of the Contract:

a) IS : 2062 - Steel for general structural purposes

b) IS : 961 - Structural Steel (High Tensile Quality)

c) IS : 1977 - Structural steel (Ordinary Quality) St-42-0

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| | <p>d) IS : 6649 - Hardened washers</p> <p>2.05.07 Paints</p> <p>Paints to be used for shop coat of fabricated steel under the purview of this contract shall conform to the Indian Standard Specification IS: 2074 - Ready mixed Paint, Red oxide Zinc Chromate Priming.</p> <p>2.06.00 Coal Bin</p> <p>2.06.01 Shape of bins shall be circular, polygonal, square, or rectangular in plan. Bottom hopper portion may have be conical-cum-hyperbolic or any other profile shape as shown in the drawing. Bin shall be termed as bunkers or silos according to their shape and plane of rupture of coal.</p> <p>2.06.02 For general requirements, fabrication and construction details IS: 9178 (Pt.1 & 11) shall be followed as general guidance. The bins shall be fabricated and erected in segments.</p> <p>2.06.03 The Coal bins shall be made of mild steel plates joined together with full strength butt weld and provided with stiffeners at regular interval. Stiffeners shall be provided on the external face and it may be welded with external face.</p> <p>2.06.04 Bending of plates and rolled sections to the required shape for fabrication shall be done by plate bending machine or cold bending process Without resorting to heating, hammering, angle smithy and black smithy process.</p> <p>2.06.05 Poking hole (manual or pneumatic) and striking plate shall be provided to facilitate coal flow. Poking holes shall have circular MS pipe and cover cap as detailed in the drawing.</p> <p>2.07.00 New Erection Marks</p> <p>2.07.01 Additional structures involving new erection marks may be required to be added at any stage of work.</p> <p>2.07.02 All such new erection marks shall be detailed and included in marking schemes and fabrication carded out thereafter.</p> <p>2.07.03 All such new erection marks shall be considered under item of original fabrication work. As a result of additional structures becoming necessary if the work is delayed beyond the time schedule stipulated, the Engineer shall give suitable extension of time provided he is satisfied about the reasonableness of the delay involved. However, no claim for extra payments or revision of rates due to delay shall be entertained.</p> | |



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| 2.08.00 | ELECTRO FORGED STEEL GRATINGS | |
| 2.08.01 | Factory made fabricated electro forged gratings unit with steel conforming to IS: 2062 shall be supplied, fabricated, transported, erected and aligned in floorings, platforms, drain and trench covers, walkways, passages, staircases with edge binding strips and anti skid nosing in treads etc. | |
| 2.08.02 | All grating units shall be rectangular in pattern and electro forged. The size and the spacing of the bearing bars and cross bars shall be as detailed in fabrication drawings. The contractor shall submit the grating design for different spans and load intensities along with fabrication drawings. The depth of the grating unit shall be 40 mm, unless specified otherwise. | |
| 2.08.03 | The gratings shall be made up in panel units designed to coincide with the span of the structural steel framing or openings as indicated in the design/scope drawings. Maximum possible standardization of the grating panel sizes shall be tried and designed. | |
| 2.08.04 | The grating unit shall be accurately fabricated and finished, free from wraps, twists, or any defects that would impair their strength, serviceability, and appearance. | |
| 2.08.05 | Grating work shall include cut outs and clearance opening for all columns, pipes, ducts, conduits or any other installation penetrating through the grating work. Such cut outs and clearances shall be treated as specified in subsequent clauses. | |
| 2.08.06 | The gratings shall be notched, trimmed and neatly finished around flanges and webs of the columns, moment connections, cap plates, and such other components of the steel structures encountered during the placement of the gratings. In all such cases, the trimming shall be done to follow the profile of the components encountered. After trimming, the binding strip shall be provided on the grating to suit the profile so obtained. | |
| 2.08.07 | Opening in gratings for pipes or ducts that are 150mm in size or diameter or larger shall be provided with steel bar toe plates of not less than 5mm thickness and appropriate width, set flush with the bottom of the bearing bars. | |
| 2.08.08 | Penetrations in gratings that are more than 50mm but less than 150mm in size or diameter shall be welded with plates of size shown in the detailed drawings set flush with the bottom of the grating panel. | |
| 2.08.09 | Unless otherwise indicated on the drawings, grating units at all penetrations shall be made up in split section, accurately fitted and neatly finished to provide for proper assembly and erection at the job site. | |

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| | <p>patches, bare spots, unevenness of coating, spelter that is loosely attached to the steel, blistered surface, flaking or peeling off etc. The presence of any of these defects noticed on visual or microscopic inspection shall render the material liable to rejection.</p> <p>2.09.05 There shall be no flaking or loosening when struck squarely with a chisel faced hammer. The galvanized steel member shall withstand minimum four one minute dips in copper sulphate solution as per IS: 2633.</p> <p>2.09.06 When the steel section is removed from the galvanizing kettle, excess spelter shall be removed by 'bumping'. The processes known as 'wiping' or 'scrapping' shall not be used for this purpose.</p> <p>2.09.07 Defects in certain members indicating presence of impurities in the galvanizing bath in quantities larger than that permitted by the specifications or lack of quality control in any manner in the galvanizing plant, shall render the entire, production in the relevant shift liable to rejection.</p> <p>2.09.08 All structural steel shall be treated with sodium dichromate or an approved equivalent solution after galvanizing; so as to prevent white storage stains.</p> <p>2.09.09 If the galvanizing of any member is damaged, the Engineer shall be shown of the extent of damage, if so directed the galvanizing may have to be redone in the similar manner as stated above at no extra cost to the Owner.</p> <p>2.10.00 STAINLESS STEEL HOPPERS (As per BOQ item)</p> <p>2.10.01 Material</p> <p>In case SS Hopper is to be fabricated & erected as per BOQ item with SS415M, following specification shall be followed. Stainless steel hopper of grade SS 415M as manufactured by SAIL or equivalent shall be provided in the lower portion of bunker hopper. SS 4 15M having the following chemical composition shall be used.</p> <table> <tr> <th>Material</th><th>%</th><th>Remarks</th></tr> <tr> <td>Carbon</td><td>10.03%</td><td>Max.</td></tr> <tr> <td>Silicon</td><td>1.60%</td><td>Max.</td></tr> <tr> <td>Manganese</td><td>0.80% to 1.50%</td><td></td></tr> <tr> <td>Phosphorous</td><td>0.03%</td><td>Max.</td></tr> <tr> <td>Sulphur</td><td>0.03%</td><td>Max.</td></tr> </table> | Material | % | Remarks | Carbon | 10.03% | Max. | Silicon | 1.60% | Max. | Manganese | 0.80% to 1.50% | | Phosphorous | 0.03% | Max. | Sulphur | 0.03% | Max. | |
| Material | % | Remarks | | | | | | | | | | | | | | | | | | |
| Carbon | 10.03% | Max. | | | | | | | | | | | | | | | | | | |
| Silicon | 1.60% | Max. | | | | | | | | | | | | | | | | | | |
| Manganese | 0.80% to 1.50% | | | | | | | | | | | | | | | | | | | |
| Phosphorous | 0.03% | Max. | | | | | | | | | | | | | | | | | | |
| Sulphur | 0.03% | Max. | | | | | | | | | | | | | | | | | | |

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| <table><tr><td>Chromium</td><td>10.80% to 12.50%</td><td></td></tr><tr><td>Nickel</td><td>1.50%</td><td>Max.</td></tr><tr><td>Titanium</td><td>0.75%</td><td>Max.</td></tr><tr><td>Nitrogen</td><td>0.03%</td><td>Max.</td></tr></table> <p>The mechanical properties shall be as follows:</p> <table><tr><th>Description</th><th>Value</th><th>Remarks</th></tr><tr><td>Hardness Rock Well B Scale</td><td>90</td><td>Max.</td></tr><tr><td>Tensile Strength</td><td>450 MPa</td><td>Min.</td></tr><tr><td>Yield Strength</td><td>300 MPa</td><td>Min.</td></tr><tr><td>Elongation</td><td>25%</td><td>Min.</td></tr></table> | | | | | | | Chromium | 10.80% to 12.50% | | Nickel | 1.50% | Max. | Titanium | 0.75% | Max. | Nitrogen | 0.03% | Max. | Description | Value | Remarks | Hardness Rock Well B Scale | 90 | Max. | Tensile Strength | 450 MPa | Min. | Yield Strength | 300 MPa | Min. | Elongation | 25% | Min. |
| Chromium | 10.80% to 12.50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nickel | 1.50% | Max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Titanium | 0.75% | Max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nitrogen | 0.03% | Max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Description | Value | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hardness Rock Well B Scale | 90 | Max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tensile Strength | 450 MPa | Min. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yield Strength | 300 MPa | Min. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elongation | 25% | Min. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.10.02 | Fabrication The fabrication, erection, alignment and welding shall be carried out as per the accepted practice and in accordance with relevant I.S. and international specification as well as stipulations contained herein. Fabrication drawings shall be prepared by the contractor on the basis of the design / scope drawings furnished by Engineer. The fabrication and erection works shall be done as per the approved fabrication drawings. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.10.03 | Fabrication Drawings a) Fabrication drawing shall give the cutting plan for each hopper plate. Such, cutting plan shall be based on the size of the Stainless Steel plate available at store. In order to reduce the wastage and ensure the maximum utilization of stainless steel plate, the cutting plan shall take in the consideration of the reverse curvature and place the various elements of hopper plate in opposite fashion to reduce the end wastage. Similarly the hopper plate element having different radii shall be placed one inside the other, to optimize the stainless steel plate use. Such optimization may also required adjustment in the size of the each element of hopper plate and also additional weld joints. b) The bill of material of hopper plate shall indicate the inner surface area of the hopper, weight of the hopper based on the inner surface area, weight of each of the cut plate of hopper fabrication, weight of cut and scrap pieces | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | <p>generated. Contractor shall return to the Owner's store all unutilized (surplus) stainless steel plates and all waste and cut pieces generated. Non return of any part of the surplus/waste steel pieces to the Owner's store will call for the penal recovery at three (03) times the maximum procurement rate for the weight of stainless steel pieces not returned to the store.</p> <p>c) In case the contractor does the cutting of the stainless steel without approved cutting plan then all the wastage (i.e. the difference between the weight of stainless steel plate cuts and the actual finished weight considered for the measurement for payment) shall be subjected to the penal recovery at the rate mentioned above.</p> <p>2.10.04 Cuffing</p> <p>Cutting may be affected by shearing, or by using plasma. The cut edges of all plates shall be perfectly straight and uniform through out. Cutting shall be done as per the cutting plan shown in the fabrication drawing. Should the Engineer find it necessary, the edges shall be ground smooth afterwards by contractor within the unit rates quoted by him. All the edge s shall be ground smooth before they are welded.</p> <p>2.10.05 Jointing</p> <p>Welding shall join stainless steel. All weld joints (along the inclined plane) shall be staggered. Any common welding process can weld stainless steel viz. MIG, metal arc or plasma using the covered compatible electrodes as per IS: 5206 or by inert gas arc welding as per IS: 2811. Shielding gas shall be Argon + Hydrogen mixture or Argon + Oxygen mixture. However, Argon + Oxygen mixture shall be preferred. Carbon-di-oxide mixture shall be avoided. 308L and 315L electrodes/fillers shall be used for the welding of Stainless Steel to Stainless Steel and Stainless Steel to Mild Steel respectively. However, the welding process and the type of the electrodes to be used for welding shall be as per welding procedure, as approved by the Engineer. On the basis of the welding procedure, the Contractor shall conduct qualification test.</p> <p>2.10.06 Bending</p> <p>The stainless steel plates shall be subjected to cold forming and bending in order to get the desired shape and profile.</p> <p>2.10.07 Welding sequence</p> <p>The type of electrodes, welding sequence, preheat and interpass temperature and post weld heat treatment shall be as approved by the Engineer.</p> | |



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2.10.08

Acceptance Criteria of Fabricated Structures

The acceptance of the fabricated structure work shall depend upon correct dimensions and alignment, absence of distortion in the structure, satisfactory results from the inspection and testing of the welded structure joints and the test specimens, general workmanship being good meeting the tolerance requirements given in IS: 7215.

2.11.00

BEARINGS

2.11.01

PTFE (Poly tetra fluorethylene) slide bearing

a) General

The bearings shall consist of upper and lower units. The upper unit shall include a sole plate with mirror finish stainless steel facing bonded to the bottom surface of the sole plate. The lower unit shall consist of a relevant laminated elastomers pad surfaced with PTFE. A rigid confining medium substructure bonds the PTFE to the pad. When the upper and lower units are mated the stainless steel slides on the PTFE surface with an extremely low coefficient of friction. These bearings shall be designed as per the performance requirements. The bearing shall be of reputed make and manufacturer as approved by Engineer, for required vertical loads, as per the construction drawings and for a maximum displacement of ± 50 mm.

b) Material

PTFE bearing shall be sliding against highly polished stainless steel and the coefficient of friction between them shall be less than 0.06 at 55 kg/cm². In order to prevent cold flow in the PTFE surface it shall be rigidly bonded by a special high temperature resistant adhesive to the stainless steel sub-strata. The stainless steel surface, which slides against the PTFE, is mirror polished. The stainless steel shall be bonded to the top plate by special high strength adhesive. The thickness of the stainless steel shall be between 1.0 to 1.5mm.

The resilient bearing pad shall consist of multiple layers of lightweight fabric impregnated with a high quality elastomer compound vulcanized into slabs of uniform standard thickness as per the requirement. This shall withstand vertical (compressive) load not less than 500 kg/cm² and shear loads upto 40 kg/cm².

c) Installation

The seating area for PTFE bearing shall be prepared accurately level and furnished with a thin layer of epoxy resin mortar. The bearing will be



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placed on this layer while it is still workable and the bearing is levelled. The bearing should not be displaced as the beam is lowered into position. When the mortar and adhesive are fully set and the beam slightly above the top of the bearing. The upper surface of the bearing shall then be coated with sufficient thickness of epoxy resin mortar so that when the beam is lowered on to the temporary supports it comes into full contact with the mortar and some is squeezed out. The surplus shall be troweled off and after the mortar is fully set the temporary supports removed.

2.12.00 Storage of material

2.12.01 General

All materials shall be so stored as to prevent deterioration and to ensure the preservation of their quality and fitness for the work. Any material, which has deteriorated or has been damaged, shall be removed from the contractor's yard immediately, failing which, the Engineer shall be at liberty to get the material removed and the cost incurred thereof shall be realised from the Contractor. The Contractor shall maintain upto date accounts in respect of receipt, use, and balance of all sizes and sections of steel and other materials. In case the fabrication is carried out in contractor's fabrication shop outside the plant site where other fabrication works are also carried out, all materials meant for use in this contract shall be stacked separately with easily identifiable marks.

2.12.02 Steel

The steel to be used in fabrication and the resulting cut-pieces shall be stored in separate stacks off the ground section wise and lengthwise so that they can be easily inspected, measured, and accounted for at any time. If required by the Engineer, the materials may have to be stored under cover and suitably painted for protection against weather.

2.12.03 Electrodes

The electrodes for electric arc welding shall be stored in properly designed racks, separating different types of electrodes in distinctly marked compartments. The electrodes shall be kept in a dry and warm condition if necessary by resorting to heating.

2.12.04 Bolts, Nuts and Washers

Bolts, nuts and washers and other fastening materials shall be stored on racks off the ground with a coating of suitable protective oil. These shall be stored in separate gunny bags or compartments according to diameter, length, and quality.



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2.12.05 Paints

Paints shall be stored under cover in air tight containers. Paints supplied in sealed containers shall be used up as soon as possible once the container is opened.


2.13.00 Quality Control


The Contractor shall establish and maintain quality control procedures for different items of work and materials to the extent he deems necessary to ensure that all work is performed in accordance with this specification. In addition to the Contractor's quality control procedures, materials and workmanship at all times shall be subjected to inspection by the Engineer or Engineer's representative. As far as possible, all inspection by the Engineer or Engineer's representative shall be made at the Contractor's fabrication shop whether located at Site or elsewhere. The Contractor shall co-operate with the Engineer or Engineer's representative in permitting access for inspection to all places where work is being done and in providing free of cost all necessary help in respect of tools and plants, instrument, labour and materials required to carry out the inspection. The inspection shall be so scheduled as to provide the minimum interruption to the work of the Contractor.

Materials or workmanship not in reasonable conformance with the provisions of this Specification may be rejected at any time during the progress of the work.

The quality control procedure shall cover but not be limited to the following items of work

- a) Steel: Quality manufacturer's test certificates, test reports of representative samples of materials from unidentified stocks if permitted to be used.
- b) Rivets, Bolts, : Manufacturer's certificate, dimension checks, Nuts & Washers material testing.
- c) Electrodes : Manufacturer's certificate, thickness and quality of flux coating.
- d) Welders : Qualifying Tests
- e) Welding sets : Performance Tests
- f) Welds : Inspection, X-ray, Ultrasonic tests
- g) Paints : Manufacturer's certificate, physical inspection

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| <p style="text-align: center;">reports</p> <p>h) Galvanizing : Tests in accordance with IS 2633 - Method for testing uniformity of coating on Zinc Coated Articles and IS : 4759 - Specification for Hot-Dip Zinc coatings on Structural Steel and other allied products.</p> <p>2.14.00 Standard dimensions, forms and weights</p> <p>The dimensions, forms, weights and tolerances of all rolled shapes rivets, bolts, nuts, studs, washers etc. and other members used in the fabrication of any structure shall, wherever applicable, conform to the requirements of the latest relevant Indian Standards, wherever they exist, or, in the absence of Indian Standards, to other equivalent standards.</p> <p>2.15.00 Fabrication Drawings</p> <p>The contractor shall within thirty (30) days after the award of the Contract submit to the Engineer the Schedule of Fabrication and erection of structural Steelworks, for approval. Within one week after receipt of approval on design of any steel structure (part or full) based on the approved design. As decided by the Engineer, six (6) copies each of some or all of the detailed fabrication drawings will have to be submitted for approval.</p> <p>The sequence of preparation of fabrication drawings shall match with the approved fabrication and erection schedule. The above-mentioned approval for fabrication drawings will be accorded only towards the general conformity with the design requirements as well as specifications. The approval of drawing however shall not relieve the contractor of his sole responsibility in carrying out the work correctly and fulfilling the complete requirements of contract documents.</p> <p>The fabrication drawings shall include but not limited to the following:</p> <p>a) Assembly drawings giving exact sizes of the sections to be used and identification marks of the various sections.</p> <p>b) Dimensional drawings of base plates, foundation bolts location etc.</p> <p>c) Comparison sheets to show that the proposed alternative section, if any, is as strong as the original sections shown on the Design Drawings.</p> <p>d) Complete Bill of Materials and detailed drawings of all sections as also their billing weights.</p> | | | | | |

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| | <p>e) Any other drawings or calculations that may be required for the clarification of the works or substituted parts thereof.</p> <p>These drawings shall give all the necessary information for the fabrication, erection, and painting of the steelwork in accordance with the provisions of this Specification. Fabrication drawings shall be made in accordance with the best modern practice and with due regard to sequence, speed and economy in fabrication and erection. Fabrication drawings shall give complete information necessary for fabrication of the various components of the steelwork, including the location, type, size, and extent of welds. These shall also clearly distinguish between shop and field rivets, bolts, and welds and specify the class of bolts and nuts. The drawings shall be drawn to a scale large enough to convey all the necessary information adequately. Notes on the fabrication drawings shall indicate those joints or groups of joints in which it is particularly important that the welding sequence and technique of welding shall be carefully controlled to minimize the locked up stresses and distortion. Welding symbols used shall be in accordance with the requirements of the Indian Standard Specification. IS: 813 - Scheme of symbols for Welding, and shall be consistent throughout. Weld lengths called for on the drawings shall mean the net effective length.</p> <p>The Contractor shall be responsible for and shall carry out at his cost any alterations of the work due to any discrepancies, errors or omissions on the drawings or other particulars supplied by him, whether such drawings or other particulars have been duly approved or not in accordance with the Contract.</p> <p>3.00.00 WORKMANSHIP</p> <p>3.01.00 Fabrication</p> <p>3.01.01 General</p> <p>All workmanship shall be equal to the best practice in modern structural shops, and shall conform to the provisions of the Indian Standard IS: 800 - Code of Practice for general construction in steel and other relevant Indian Standards or equivalent.</p> <p>3.01.02 Straightening Material</p> <p>Rolled materials before being laid off or worked, must be clean, free from sharp kinks, bends or twists and straight within the tolerances allowed by the Indian Standard Specification on IS: 1552 - Specification for rolling and cutting tolerance for hot-rolled steel products. If straightening is necessary, it may be done by mechanical means or by the application of a limited amount of localized heat. The temperature of heated areas, as measured by approved methods, shall not exceed 600°C.</p> | |



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3.01.03

Cutting

Shearing, cropping, or sawing shall affect cutting. Use of a mechanically controlled gas-cutting torch may be permitted for mild steel only. Gas cutting of high tensile steel may also be permitted provided special care is taken to leave sufficient metal to be removed by machining, so that all metal that has been hardened by flame is removed. Gas cutting without a mechanically controlled torch may be permitted if special care is taken and done under expert hand, subject to the approval of the Engineer.

To determine the effective size of members cut by gas, 3 mm shall be deducted from each cut edge. Gas cut edges, which will be subjected to substantial stress or which are to have weld metal deposited on them, shall be reasonably free from gouges, occasional notches or gouges not more than 4 mm deep will be permitted. Gouges greater than 4 mm that remain from cutting shall be removed by grinding. All re-entrant corners shall be shaped notch free to a radius of at least 12 mm. Shearing, cropping and gas cutting shall be clean, reasonably square and free from any distortion.

3.01.04

Planning of edges

Planning or finishing of sheared or cropped edges of plates or shapes or of edges gas-cut with a mechanically controlled torch shall not be required, unless specifically required by design and called for on the drawings, included in a stipulation for edge preparation for welding or as may be required after the inspection of the cut surface. Surface cut with hand-flame shall generally be ground, unless specifically instructed otherwise by the Engineer.

3.01.05

Clearances

The erection clearance for cleated ends of members connecting steel to steel shall preferably be not greater than 2 mm at each end. The erection clearance at ends of beams web shall be not more than 3 mm at each end, but where for practical reasons greater clearance is necessary, suitably designed cheatings shall be provided.

3.02.00

Riveted and bolted construction

3.02.01

Holes

Holes through more than one thickness of material for members, such as compound stanchions and girder flanges, shall be drilled after the members are assembled and tightly clamped or bolted together. Punching may be permitted before assembly, if the thickness of the material is not greater than the nominal diameter of rivet or bolt plus 3 mm subject to a maximum thickness of 16 mm



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provided that the holes are punched 3 mm less in diameter than the required size and reamed after assembly to the full diameter.

Holes for rivets or black bolts shall be not more than 1.5 mm or 2.0 mm (depending on whether the diameter of the rivet or bolt is less or more than or equal to 25 mm) larger in diameter than the nominal diameter of the rivet or black bolt passing through them.

Holes for turned and fitted bolts shall be drilled to a diameter equal to the nominal diameter of the shank or barrel subject to a tolerance grade of BS as specified in IS: 919. Parts to be connected shall be firmly held together by tacking welds or clamps and the holes drilled through all the thicknesses in one operation and subsequently reamed to size. Holes not drilled through all thickness in one operation shall be drilled to a smaller size and reamed out after assembly.

Holes for rivets or bolts shall not be formed by gas cutting process.

3.02.02

Assembly

All parts of riveted members shall be well pinned or bolted and rigidly held together while riveting. Drifting to enlarge unmatching holes shall not generally be permitted. In case drifting is permitted to a slight extent during assembly, it shall not distort the metal or enlarge the holes. Holes that must be enlarged to admit the rivets or bolts shall be reamed. Poor matching of holes shall be cause for rejection .The component parts shall be so assembled that they are neither twisted not otherwise damaged, and shall be so prepared that the specified cambers, if any, are maintained.

Rivets shall ordinarily be hot driven, in which case their finished heads shall be approximately hemispherical in shape and shall be of uniform size throughout the work for rivets of the same size full, neatly finished and concentric with he holes. Rivets shall be heated uniformly to a temperature not exceeding 1 125°C they shall not be driven after their temperature has fallen below 540°C.

Rivets shall be driven by power riveters, of either compression or manually operated type, employing pneumatic, hydraulic or electric power. Hand driven rivets shall not be allowed unless in exceptional cases specifically approved by the Engineer. After driving, rivets shall be tight, shall completely fill the holes and their heads shall be in full contact with the surface. In case of countersunk rivets, the countersinking shall be fully filled by the rivet, any proudness of the countersunk head being dressed off flush, if required.

Riveted members shall have all parts firmly drawn and held together before and during riveting and special care shall be taken in this respect for all single



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riveted connections. For multiple riveted connections, a service bolt shall be provided in every third or fourth hole.

All loose, burnt, or otherwise defective rivets shall be cut out and replaced and special care shall be taken to inspect all single riveted connections. Special care shall also be taken in heating and driving long rivets. The Contractor shall prove the quality of riveting by cutting some rivets chosen at random by the Engineer. No extra payment will be made to the Contractor for such cutting and replacing. Riveting work, for any particular section or group, will be considered satisfactory when at least 90% of the corresponding cut rivets is found to be sound. If the ratio is below 75%, all the rivets in the particular section or group shall be cut, removed and replaced and tested again at the Contractor's expense. For cases between 75% and 90% the engineer shall have the option to instruct cutting and replacing any number of further rivets at the Contractor's cost as he deems necessary.

Bolted construction shall be permitted only in case of field connections if called for on the Drawings and is subjected to the limitation of particular connections as may be specified. In special cases, however, shop bolt connections may be allowed if shown on drawing or directed by the Engineer.

Washers shall be tapered or otherwise suitably shaped, where necessary, to give the heads and nuts of bolts a satisfactory bearing. The threaded portion of each bolt shall project through the nut at least one thread. In all cases the bolt shall be provided with a washer of sufficient thickness under the nut to avoid any threaded portion of the bolt being within the thickness of the parts bolted together. In addition to the normal washer one spring washer or lock nut shall be provided for each bolt for connections subjected to vibrating forces or otherwise as may be specified on the Drawings.

3.03.00 Welded Construction

3.03.01 General

Welding shall be in accordance with relevant Indian Standards and as supplemented in the Specification. Welding shall be done by experienced and good welders who have been qualified by tests in accordance with IS: 817.

3.03.02 Preparation of material

Surface to be welded shall be free from loose scale, slag, rust, grease, paint, and any other foreign material except that mill scale, which withstands vigorous wire brushing, may remain. Joint surfaces shall be free from fins and tears. Preparation of edges by gas cutting shall, wherever practicable, be done by a mechanically guided torch.



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3.03.03

Assembling

Parts to be fillet welded shall be brought in, as close contact as practicable and in no event shall be separated by more than 4 mm. If the separation is 1.5 mm or greater, the size of the fillet welds shall be increased by the amount of the separation. The fit of joints at contact surfaces, which are not completely sealed by, welds, shall be close enough to exclude water after painting. Abutting parts to be butt-welded shall be carefully aligned. Misalignments greater than 3 mm shall be corrected and in making the correction the parts shall not be drawn into a sharper slope than two degrees (2°).

The work shall be positioned for flat welding whenever practicable.

3.03.04

Welding Sequence

In assembling and joining parts of a structure or of built-up members, the procedure and sequence of welding shall be such as will avoid needless distortion and minimize shrinkage stresses in the closing welds of a rigid assembly, such closing welds shall be made in compression elements.

In the fabrication of cover-plated beams and built-up members, all shop splices in each component part shall be made before such component part is welded to other parts of the member. Long girders or girder sections may be made by shod splicing not more than three sub-sections, each made in accordance with this paragraph.


When required by the Engineer, welded assemblies shall be stress relieved by heat-treating in accordance with the provisions of the relevant Indian Standard or any other Standard approved by the Engineer.


3.03.05


Welding technique

All complete penetration groove welds made by manual welding, except when produced with the aid of backing material not more than 8 mm thick with root opening not less than one-half the thickness of the thinner part joined, shall have the root of the initial layer gouged out on the back side before welding is started from that side, and shall be so welded as to secure sound metal and complete fusion throughout the entire cross-section. Groove welds made with the use of the backing of the same material, as the base metal shall have the weld metal thoroughly fused with the backing material. Backing strips need not be removed. If required, they may be removed by gouging or gas cutting after welding is completed, provided no injury is done to the base metal and weld metal and the weld metal surface is left flush or slightly convex with full throat thickness.

Groove welds shall be terminated at the ends of a joint in a manner that will

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| | <p>ensure their soundness. Where possible, this should be done by use of extension bars or run-off plates. Extension bars or run-off plates need not be removed upon completion of the weld unless otherwise specified elsewhere in the contract.</p> <p>To get the best and consistent quality of welding, automatic submerged arc process shall be preferred. The technique of welding employed, the appearance and quality of welds made, and the methods of correcting defective work shall all conform to the relevant Indian Standards.</p> <p>3.03. 12 Temperature</p> <p>No welding shall normally be done on parent material at a temperature below (-) 5°C. However, if welding is to undertaken at low temperature, adequate precautions as recommended in relevant Indian Standard shall be taken. When the parent material is less than 40 mm thick and the temperature is between (-) 5°C and 0°C, the surface around the joint to a distance of 100 mm or 4 times the thickness of the material, whichever is greater, shall be preheated till it is hand warm. When the parent material is more than 40 mm thick, the temperature of the area mentioned above shall be in no case be less than 20°C. All requirements regarding preheating of the parent material shall be in accordance with the relevant Indian Standard.</p> <p>3.03. 13 Peening</p> <p>Where required, intermediate layers of multiple-layer welds may be peened with light blows from a power hammer, using a round-nose tool, peening shall be done after the weld has cooled to a temperature warm to the hand. Care shall be exercised to prevent scaling or flaking of weld and base metal from over peening.</p> <p>3.03. 14 Equipment</p> <p>These shall be capable of producing proper current so that the operator may produce satisfactory welds. The welding machine shall be of a type and capacity as recommended by the manufacturers of electrodes or as may be approved by the engineer.</p> <p>3.04.00 Finish</p> <p>Column splices and butt joints of compression members depending on contact for stress transmission shall be accurately machined and close-butt over the whole section with a clearance not exceeding 0.1 mm locally at any place. In column caps and bases, the ends of shafts together with the attached gussets, angles, channels etc; after welding/riveting together, should be accurately machined so that the parts connected butt over the entire surfaces of contact. Care should be taken that those connecting angles of channels are fixed with such accuracy that they are not reduced in thickness by machining by more</p> | |

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| | <p>than 1.0 mm.</p> <p>3.05.00 Slab bases and caps</p> <p>Bases and caps fabricated out of steel slabs, except when cut material with true surface, shall be accurately machined over the bearing surface and shall be in effective contact with the end of the stanchion. A bearing face, which is to be grouted direct to a foundation, need not be machined if such face is true and parallel to the upper face.</p> <p>To facilitate grouting, holes shall be provided, where necessary, in stanchion bases for the escape of air.</p> <p>3. 12.00 Lacing bars</p> <p>The ends of lacing bars shall be neat and free from burns.</p> <p>3. 13.00 Separators</p> <p>Rolled section or built-up steel separators or diaphragms shall be required for all double beams except where encased in concrete, in which case, pipe separators shall be used.</p> <p>3.14.00 Bearing Plates</p> <p>Provision shall be made for all necessary steel bearing plates to take up reaction of beams and columns and the required stiffeners and gussets whether or not specified in Drawings.</p> <p>3.15.00 Floor Grating</p> <p>All grating units shall be rectangular in pattern and of pressure locked assembly. The size and spacing of bearing bars and cross bars shall be as approved in detailed drawings. Alternatively diamond pattern grating if approved may be used.</p> <p>The grating shall be made in panel units designed to span as indicated in structural steel framing drawing or as directed by the Engineer.</p> <p>The grating units shall be finished free from warps, twists, or any other defects. Grating work shall include cutouts and clearance openings for all columns, pipes, ducts, conduits etc. The gratings shall be notched, trimmed, and neatly finished around components of the steel structures encountered.</p> | | | | | | | | | | | | | | | | |

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| | <p>Binding strip shall be provided on the grating to suit the profile. Openings in gratings shall be provided with steel bar toe plates of not less than 5 mm thickness and 100 mm width.</p> <p>Unless otherwise indicated on drawings, all penetrations of grating units shall be made up in split section, accurately fitted, and neatly finished. Grating units shall be provided with all necessary clips, bolts, lock washers etc. for proper assembly and installation on supporting steel members. Maximum deviation in linear dimension shall not exceed 12 mm.</p> <p>3.10.00 Chequered Plates</p> <p>Minimum thickness of chequered plate floorings, covers etc. shall be 6 mm O/P. Chequered plate shall be accurately cut to the required sizes and shapes and the cut edges properly ground. Stiffeners shall be provided wherever required from design consideration.</p> <p>3.11.00 Architectural Clearances</p> <p>Bearing plates and stiffener connections shall not be permitted to encroach on the designed architectural clearances.</p> <p>3.11.00 Shop connections</p> <p>a) All shop connections shall be otherwise riveted or welded as specified on the Drawings.</p> <p>b) Heads of rivets on surfaces carrying brick walls shall be flattened to 10 mm thick projection.</p> <p>c) Certain connections, specified to be shop connections, may be changed to field connections if desired by the Engineer for convenience of erection and the contractor will have to make the desired changes at no extra cost to the exchequer.</p> <p>3.13.00 Castings</p> <p>Steel castings shall be annealed.</p> <p>3.14.00 Shop erection</p> <p>The steelwork shall be temporarily shop-erected complete or as directed by the Engineer so that accuracy of fit may be checked before dispatch. The parts shall be shop-erected with a sufficient number of parallel drifts to bring and keep the parts in place. In case of parts drilled or punched using steel jigs to make all similar parts interchangeable, the steelwork shall be shop erected in</p> | |



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such a way as will facilitate the check of interchange ability.

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| 3.15.00 | Shop painting |
| 3.15.01 | General <p>Unless otherwise specified, steelwork, which will be concealed by interior building finish, need not be painted; steelwork to be encased in concrete shall not be painted. Unless specifically exempted, all other steelwork shall be given one coat of shop paint, applied thoroughly and evenly to dry surfaces which have been cleaned, in accordance with the following paragraph, by brush, spray, roller coating, flow-coating or dipping as may be approved by the Engineer.</p> <p>After inspection and approval and before leaving the shop, all steelwork specified to be painted shall be cleaned by hand-wire brushing or by other methods of loose mill scale, loose rust, weld slag or flux deposit, dirt and other foreign matter. Oil and grease deposits shall be removed by the solvent. Steelwork specified to have no shop paint shall, after fabrication, be cleaned of oil or grease by solvent cleaners and be cleaned of dirt and other foreign material by trough sweeping with a fibre brush.</p> |
| 3.15.02 | Inaccessible parts <p>Surfaces not in contact, but inaccessible after assembly, shall receive two coats of shop paint, Positively of different colours to prove application of two coats before assembly. This does not apply to the interior of sealed hollow sections.</p> |
| 3.15.03 | Contact surfaces <p>Contact surface shall be cleaned in accordance with sub-clause 3.13.1 before assembly.</p> |
| 3.15.04 | Finished surfaces <p>Machine finished surfaces shall be protected against corrosion by a rust inhibiting coating that can be easily removed prior to erection or which has characteristics that make removal unnecessary prior to erection.</p> |
| 3.15.05 | Surfaces adjacent to field welds <p>Unless otherwise provided for, surfaces within 50 of any field weld location shall be free of materials that would prevent proper welding or produce objectionable fumes while welding is being done.</p> |

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| 3.16.00 | Galvanizing | | | | |
| 3.16.01 | General | | | | |
| | <p>Structural steelwork for switchyard or other structures as may be specified in the contract shall be hot dip galvanized in accordance with the American Society for Testing and Materials Specification ASTM-A 123 or IS: 2629 - Recommended practice for Hot-Dip Galvanizing of Iron and steel. Where the steel structures are required to be galvanized the field connection materials like bolts, nuts and washers shall also be galvanized.</p> | | | | |
| 3.16.02 | Surface Preparation | | | | |
| | <p>All members to be galvanized shall be cleaned, by the process of pickling of rust, loose scale, oil, grease, slag and spatter of welded areas and other foreign substances prior to galvanizing. Pickling shall be carried out by immersing the steel in an acid bath containing either sulphuric or hydrochloric acid at a suitable concentration and temperature. The concentration of the acid and the temperature of the bath can be varied, provided that the pickling time is adjusted accordingly.</p> <p>The pickling process shall be completed by thoroughly rinsing with water, which should preferably be warm, so as to remove the residual acid.</p> | | | | |
| 3.16.03 | Procedure | | | | |
| | <p>Galvanizing shall be carried out by hot dip process in a proper and uniformly heated bath. It shall meet all the requirements when tested in accordance with IS: 2633 - Method for testing uniformity of coating on Zinc Coated Articles and IS: 4759 - Specification for Hot-dip zinc coatings on Structural Steel & other allied products.</p> <p>After finishing the threads of bolts, galvanizing shall be applied over the entire surface uniformly. The threads of bolts shall not be machined after galvanizing and shall not be clogged with zinc. The threads of nuts may be tapped after galvanizing but care shall be taken to use oil in the threads of nuts during erection.</p> <p>The surface preparation for galvanizing and the process of galvanizing itself, shall not adversely affect the mechanical properties of the materials to be galvanized. Where members are of such lengths as to prevent complete dipping in one operation, great care shall be taken to prevent warping.</p> <p>Materials on which galvanizing has been damaged shall be acid stripped and re-galvanized unless otherwise directed, but if any member becomes damaged after leaving been dipped twice, it shall be rejected. Special care shall be taken</p> | | | | |

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| | <p>not to injure the skin on galvanized surfaces during transport, handling, and erection. Damages, if occur, shall be made good in accordance or as directed by the Engineer.</p> <p>4.00.00 INSPECTION, TESTING, ACCEPTANCE CRITERIA AND DELIVERY</p> <p>4.01.00 Inspection</p> <p>Unless specified otherwise, inspection to all, work shall be made by the or Engineer's representative at the place of manufacture prior to delivery. The Engineer or his representative shall have free access at all reasonable times to those parts of the manufacturer's works which are concerned with the fabrication of the steelwork under this Contract and he shall be afforded all reasonable facilities for satisfying himself that the fabrication is being done in accordance with the provisions of this Specification.</p> <p>The Contractor shall provide free of charge, such labour, materials, electricity, fuel, water, stores, tools and plant, apparatus and instruments as may be required by the Engineer to carry out inspection and/or tests in accordance with the Contract. The Contractor shall guarantee compliance with the provisions of this Specification.</p> <p>4.02.00 Testing and Acceptance Criteria</p> <p>4.02.01 General</p> <p>The Contractor shall carry out sampling and testing in accordance with the relevant Indian Standards and as supplemented herein for the following items at his own Cost. The Contractor shall get the specimens tested in a laboratory approved by the Engineer and submit to the Engineer the test results in triplicate within 3 (three) days after completion of the test.</p> <p>4.02.02 Steel</p> <p>All steel supplied by, the Contractor shall conform, to the relevant Indian Standards. Except otherwise mentioned in the contract, only tested quality steel having mill test reports shall be used. In case unidentified steel materials are permitted to be used by the Engineer, random samples of materials will be taken from each unidentified lot of 50 M.T or less of any particular section for tests to conform to relevant Indian Standards. Cost of all tests shall be born by the contractor.</p> <p>All material shall be free from all imperfections, mill scales, slag intrusions, laminations, fittings, rusts etc. that may impair their strength, durability, and appearance.</p> | |



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4.02.02

Welding

- a) The weld surface shall be cleaned with steel wire brush to remove spatter metal, slag etc. and 100% of welds shall be inspected visually for size, length of weldment and external defects. Weld gauges shall be used for checking weld sizes. The surface shall be clean with regular beads and free from slags, cracks, blow-holes etc.
- b) Non-destructive examination shall be carried out to determine soundness of weldments as follows:
 - i) 10% at random on fillet-joints.
 - ii) 100% on all butt-joints.
- c) Should the ND tests indicate defects like improper root penetration, extensive blowholes, slag intrusion etc., such welds shall be back gauged, joints prepared again and rewelded. All defects shall be rectified by the Contractor at no extra costs.
- d) All electrodes shall be procured from approved reputed manufacturers with test certificates. The correct grade and size of electrode, which has not deteriorated in storage, shall be used. The inspection and testing of welding shall be performed in accordance with the provisions of the relevant Indian Standards or other equivalents. For every 50 tones of welded fabrication, the Engineer may ask for 1(one) test-destructive or non-destructive including X -ray, ultrasonic test or similar, the cost of which shall be borne by the Contractor.

4.02.04


Rivets, bolts, nuts and washers

All rivets, bolts, nuts, and washers shall be procured from M/s. Guest Keen William Ltd. or equivalent and shall confirm to the relevant Indian Standards. If desired by the Engineer, representative samples of these materials may have to be tested in an approved laboratory and in accordance with the procedures described in relevant Indian Standards. Cost of all such testing shall have to be borne by the Contractor. In addition to testing the rivets by hammer, 2% (two per cent) of the rivets done shall have to be cut off by chisels to ascertain the fit, quality of material and workmanship. The removal of the cut rivets and re-installing new rivets shall be done by the Contractor at his own cost.

4.02.05

Shop painting

All paints and primers shall be of standard quality and procured from approved

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| | <p>manufacturers and shall conform to the provisions of the relevant Indian Standards.</p> <p>4.02. 12 Galvanizing</p> <p>All galvanizing shall be uniform and of standard quality when tested in accordance with IS: 2633 - Method for testing uniformity of coating on Zinc Coated Articles and 15: 4759 - specification for Hot-Dip Zinc Coatings on Structural Steel & other allied products.</p> <p>4.03.00 Tolerance</p> <p>The tolerances on the dimensions of individual rolled steel components shall be as specified in IS: 1852 - specification for rolling and Cutting Tolerances for Hot-rolled Steel Products. The tolerances on straightness, length etc. of various fabricated components (such as beams and girders, columns, crane gantry girder etc.) of the steel structures shall be as specified in IS: 721 - Tolerances for Fabrication of Steel Structures.</p> <p>4.04.00 Acceptance</p> <p>Should any structure or part of a structure be found not to comply with any of the provisions of this specification, the same shall be liable to rejection. No Structure or part of the structure once rejected, shall be offered again for test, except in cases where the Engineer considers the defects rectifiable. The Engineer may, at his discretion, check some of the tests at an appropriate laboratory at the contractors cost.</p> <p>When all tests to be performed in the Contractor's shop under the terms of this contract have been successfully carried out, the steelwork will be accepted forthwith and the Engineer will issue acceptance certificate, upon receipt of which, the items will be shop painted, packed and dispatched. No item to be delivered unless an acceptance certificate for the same has been issued. The satisfactory completion of these tests or the issue of the certificates shall not bind the Owner to accept the work, should it, on further tests before or after erection, be found not in compliance with the Contract.</p> <p>4.05.00 Delivery of materials</p> <p>4.05.01 General</p> <p>The Contractor will deliver the fabricated structural steel materials to site with all necessary field connection materials in such sequence as will permit the most efficient and economical performance of the erection work. The Owner may prescribe or control the sequence of delivery of materials, at his own</p> | |



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- e) A schedule of parts or pieces, giving the parts or piece number with reference to assembly drawings and the quantity of each.

The shipping dimensions of each packing shall not exceed the maximum dimensions permissible for transport over the Indian Railways/Roads.

After delivery of the materials at site, all packing materials shall automatically become the property of the Owner.

Notwithstanding anything stated hereinbefore, any loss or damage resulting from inadequate packing shall be made good by the Contractor at no additional cost to the Owner. When facilities exist, all shipments shall be covered by approved Insurance Policy for transit at the cost of the Contractor.

The contractor shall ship the complete materials or part on board a vessel belonging to an agency approved by the Owner or on rail and/or road transport as directed. The Contractor shall take all reasonable steps to ensure correct appraisal of freight rates, weights and volumes and in no case will the Owner be liable to pay any warehouse, wharfage, demurrage and other charges.

If, however, the Owner has to make payment of any of the above-mentioned charges, the amount paid will be deducted from the bills of the Contractor.

Necessary advise regarding the shipment with relevant details shall reach the Engineer at least a week in advance.

5.00.00 INFORMATION TO BE SUBMITTED

5.01.00 With Tender

The following information is required to be submitted with the Tender:

- a) Progress Schedule

The Contractor shall quote in his Tender a detailed schedule of progress of work and total time of completion, itemizing the time required for each of the following aspects of work.

- i) Preparation and approval of fabrication drawing
- ii) Procurement of Materials
- iii) Fabrication and shipping of all anchor bolts
- iv) Fabrication and shipping of main steelwork.



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- v) Fabrication and shipping of steelwork for bunkers, tanks and/or silos as applicable.
- vi) Fabrication and shipping of all other remaining steelwork including miscellaneous steelwork.
- vii) Final date of completion of all shipments.

b) Shop

Location of the Tenderer's fabrication workshop giving details of equipment, manpower, the total capacity, and the capacity that will be available exclusively for this contract shall be submitted.

5.02.00 After Award


After award of the Contract the successful Tenderer is to submit the following:


- a) Complete fabrication drawings, material lists, cutting lists, rive and bolt lists, field welding schedules based on the approved design drawings prepared by him in accordance with the approved schedule.
- b) Monthly Progress Report with necessary photographs in six (6) copies to reach the Engineer on or before the 7th day o. each month, giving the up-to-date status of preparation of detailed shop drawings, bill of materials, procurement of materials, actual fabrication done, shipping and all other relevant information.
- c) Detailed monthly material reconciliation statements relevant to the Work done and reported in the Progress Report, giving the stock at hand of raw steel, work in progress, finished materials.
- d) Results of any test as and when conducted and as require by the engineer.
- e) Manufacturer's mill test report in respect of steel materials, rivets, bolts, nuts, and electrodes as may be applicable.


6.00.00 RATES AND MEASUREMENT


6.01.00 Rates


6.01.01 The items of work in the Schedule of items describe the work in brief. The various items of the Schedule of items shall be read in conjunction with these specifications including amendments and additions, general conditions of

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| | <p>contract, special conditions of contracts, and other tender documents, if any. For each item of Schedule of Items, the bidder's rates shall include the activities covered in the description of the item as well as all necessary operations described in the Specifications.</p> <p>6.01.02 The bidder's rates shall include cost of all minor details which are obviously and fairly intended and which may not have been included in the description in these documents but are essential for the satisfactory completion of the work. Rates shall also include for taking all safety measures.</p> <p>6.01.03 The bidder's -rates for all items of schedule of items shall include complete cost towards plant, equipment, erection and dismantling of scaffolding, men, materials and consumables, skilled and unskilled labour, levies, taxes, royalties, duties, transport, storage, repair/rectification/maintenance until handing over, contingencies, overhead and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work.</p> <p>6.01.04 No claims shall be entertained, if the details shown on the 'Released for Construction' drawings differ from those shown on the bid/tender drawings.</p> <p>6.01.05 Rates shall be inclusive of all leads and lifts/elevation.</p> <p>6.01.06 The bidder's rates for Structural Steel shall include for fabrication and erection, transportation to site, preparation checking collecting and distributing of the fabrication drawings and design calculations, erection scheme, alignment, welding, including preheating and post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, etc. The rates shall also be inclusive of providing and installing temporary structures, transport of Owner issue material from store, return of surplus/waste steel materials including cut pieces/waste steel, provision of additional butt/weld joint to reduce the wastage and all other general, special, such requirements as may be required, for the successful completion of the work.</p> <p>The rates for fabrication are inclusive of all tests on welds and material and no extra shall be payable for quality tests specified for fabrication of structure in shop or at site.</p> <p>Separate BOQ items for test on welds like radiography or Ultrasonic, DPT, magnetic particle tests are kept for tests on material/fabrication not covered under regular fabrication item of BOQ.</p> <p>6.01.07 The bidder's rates for foundation bolts assembly shall include fabrication, threading, heat treatment, erection, installation, and alignment of complete bolt</p> | |

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| | <p>assembly with nuts, locknuts, anchor plates, stiffener plates, protective tape, etc. This shall also include the cost of all materials not issued by the Owner. Material issued by Owner will be specified in GCC.</p> <p>6.01.08 The bidders rates for application of inorganic primer shall include surface preparation to near white metal surface by blast cleaning, abrasives, touch up painting, suitable enclosure to avoid contamination and the necessary statutory approval from the factory inspector/pollution control board etc. regarding the method of blast cleaning and abrasives used, and getting approval of the specialized agency supplying the primer specified.</p> <p>6.01.09 The bidder's rates for application of finish painting system shall include surface preparation, application of intermediate (under) coat, finish coat and final finish coat, and getting approval of the specialized agency supplying the finish paint.</p> <p>6.01.10 The bidder's rates for electro-forged gratings (if specified) shall include supply, fabrication, transportation to the site, erection and alignment of factory made electro-forged gratings, all taxes, duties thereon etc. The rates shall also include preparation of grating design for different spans and load intensifies, preparation of design and fabrication drawings, edge preparation, blast cleaning followed by finish paint.</p> <p>6.01.11 The bidder's rates for galvanization of factory made electro-forged gratings (if specified) shall include the application of hot dipped galvanization as finish over the fabricated gratings and the treatment to be given for prevention of white storage stains, as per the technical Aspiration.</p> <p>6.01.12 The bidder's rates for permanent mild steel bolts, nuts and washers shall include the supply and fixing of such bolts, nuts and washers in position, for various types of Structural Steel works, as per the technical specification.</p> <p>6.01.13 The bidder's rates for high strength structural bolts, nuts and washers shall include the supply and fixing of such bolts, nuts and washers in position, for various types, of Structural Steel works, as per the technical specification.</p> <p>6.01.14 The bidder's rates for dismantling, additions to, alterations in and/or modifications shall be inclusive of all operations such as lowering of material, carriage etc., as mentioned in the technical specification. Unutilised steel pieces cut/removed shall be returned to the project stores free of charge. Non-return of unutilized steel pieces to the Owner's store would be considered as wastage and recovery would be affected as per the provision of contract for structural steel consumption. This shall not include the weight of temporarily dismantled/supported members, connected member.</p> <p>The bidder should prepare an optimised cutting plan as per fabrication</p> | |

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| | <p>drawing to utilise the steel material upto maximum extent and minimise the wastage/scrap. Quantity of wastage/scrap of material should be limited to the percentage mentioned elsewhere in the conditions of tender/ contract specifications.</p> <p>6.01.15 The bidder's rates for re-erection of erection marks after additions to, alterations in and/or modifications shall be inclusive of all operations mentioned in technical specification for the calculated weight of the rectified/modified erection mark rejected at site. This shall not include the weight of temporarily dismantled/supported members, connected member. All the operations mentioned above for restoring such members shall be carried out at no extra cost. The work of erection of any erection mark which has not been dismantled but have been modified/rectified before erection shall not be paid under this item but shall be paid under relevant item of fabrication and erection of steel work of Schedule of items for the modified weight.</p> <p>6.01.16 The bidder's rates for PTFE shall include design, supply, transportation of the complete assembly with guides and dust protection cover and installation of bearings in position drilling, bolting, erecting aligning etc. along with any taxes, duties thereon etc.</p> <p>6.01.17 The bidder's rates for Stainless Steel hopper (if specified) shall include fabrication and erection, transportation to site, preparation checking collecting and distributing of the fabrication drawings and design calculations, all other operations mentioned in the technical specification. The rates shall also include for erection scheme, alignment, making cutting plan, cutting, jointing, bending, rolling, grinding, drilling, bolting, assembly, edge preparation, welding including pre-heating, post-heating, testing of welders, inspection of welds, inspection and testing, protection against damage in transit, stability of structures, installation of temporary structures etc. The rates shall also be inclusive of providing and installing temporary structures, transport of Owner issue material from store, return of surplus / waste steel materials including cut pieces/waste steel, provision of additional butt / weld joint to reduce the wastage and all other general, special, such requirements as may be required, for the successful completion of the work.</p> <p>6.01.18 The bidders rates for preformed flexible open ended bellow strap of neoprene (if specified) shall include supply and transportation, installation in position, drilling, bolting, aligning etc. complete along with any taxes, duties thereon etc.</p> <p>6.01.19 The bidder's rates for Stainless Steel Hand Rail (if specified) shall include complete Hand Rail including, materials, fabrication, grinding & finishing, stainless steel beading, stainless steel cleats, stainless steel fasteners, neoprene gaskets, preparation of shop drawing but excluding the cost of glazing. The Owner shall supply no material for this item of work.</p> | |

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| 6.02.00 | MODE OF MEASUREMENT | |
| 6.02.01 | The measurement for the item of foundation bolts assembly including that of nuts; locknuts shall be based on the calculated weight of steel installed in Metric Tonne, corrected to second place of decimal. The weight of the foundation bolt shall be calculated in the same way as that done for the item of fabrication, erection, alignment of structural steel. The weight of the nut / locknut shall be taken as per actual weight supplied by the contractor and accepted by the Engineer. | |
| 6.02.02 | The measurement for the item of fabrication, erection, alignment, welding, etc. of structural steel work shall be based on the approved weight of steel nearest to a Kg, by applying the unit weight as adopted at the time of issue of structural steel on the measurements worked out as given below. | |
| 6.02.03 | For ISMB, ISMC, ISA, flats, round bars, square bars and pipes, length shall be taken as per distance between planes normal to the axis of the member passing through the extreme points of the section. | |
| 6.02.04 | Gussets plates in trusses, and bracings, brackets plates, stiffeners, and skew cuts if any in plates for butt welds, the area shall be assumed as the minimum circumscribed rectangle. However deduction for any notch/skew cut shall be made as mentioned in clause no-6.02.06. | |
| 6.02.05 | For bunker wall plates, the minimum-circumscribing rectangle of the individual plate/pieces out of which these wall plates are assembled by butt-welding, shall be measured. Care shall be taken to ensure maximum utilization of cut-pieces generated by providing extra butt joints (for which no extra payment shall be made). | |
| 6.02.06 | For all other plates, where the area of any notch/skew cut in the plate is less than 0.05 sq.m. the area of the plate shall be assumed as that of the minimum circumscribing rectangle for the purpose of measurement and calculation of area for the purpose of payment. However, if the area of any notch/skew cuts in a plate is more than 0.05 sq.m, the area of notch/skew cut shall be deducted from assumed minimum circumscribing rectangular area for the purpose of payment. | |
| 6.02.07 | No deduction shall be made for the hole in the members, if the area of individual hole is less than 0.05 sq.m. The weight shall be calculated by deducting the area of holes, if area of individual hole is more than 0.05 sq.m. | |
| 6.02.08 | All cut-pieces and scrap generated due to cutting of holes, skew-cuts of plates, gussets, brackets, stiffeners, etc. shall be stacked separately and handed over to the project stores without being considered for material accounting as the | |

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| | <p>circumscribing rectangle has been considered for payment.</p> <p>6.02.09 The splice plate shown in the fabrication drawing or approved by the Engineer shall only be measured for payment.</p> <p>6.02.10 The weight of permanent bolts, washers and nuts and welds shall not be included in the weights of the members. No extra payment shall be made for welding/bolting.</p> <p>6.02.11 The bolts and nuts required for erection purpose shall not be paid for and may be taken away by the Contractor after final welding for members. Erection boltholes left after removal of erection bolts shall be suitably plugged with welds.</p> <p>6.02.12 The measurement for the item of application of inorganic primer including blast cleaning of steel surfaces shall be based on the weight on which the zinc silicate primer is applied, after blast cleaning in Metric Tonne, corrected to third place of decimal. The weight shall be the weight as approved, for erection mark/element of the mark painted, for payment of the item of fabrication and erection of structural steel works.</p> <p>6.02.13 The measurement for the item of application of finish primer system shall be based on the weight on which the epoxy based finish primer is applied in Metric Tonne, corrected to third place of decimal. The weight shall be the weight as approved, for erection mark/element of the mark painted, for payment of the item of fabrication and erection of structural steel works.</p> <p>6.02.14 The measurement for the item of gratings shall be based on the actual weight in Kgs, corrected to second place of decimal, as supplied by the Contractor, and accepted by the Engineer. Nothing extra shall be payable for making cutouts, notches, openings of any profile, trimming profiles etc. in the grating units.</p> <p>6.02.15 The measurement for the item of hot dipped galvanization of gratings shall be based on the actual weight in Kgs, corrected to second place of decimal of gratings galvanized by the Contractor and accepted by the Engineer.</p> <p>6.02.16 The measurement for the item of permanent bolts with nuts and washers shall be based on the actual weight in Kgs, corrected to second place of decimal, as supplied by the Contractor and accepted by the Engineer, and as per the approved bolts and nuts schedules.</p> <p>6.02.17 The measurement for the item of High Strength Structural bolts with nuts and washers shall be based on the actual weight in Kgs, corrected to second place of decimal, as supplied by the Contractor and accepted by the Engineer, and as per the approved bolts and nuts schedules.</p> | |

Annexure 1A

DECLARATION

With reference no CPC TENDER NO. BHEL/CPC/SGL/FAB_STR/25/034 for Fabrication and Supply of Factory Fabricated Structures to Project Site

- a) Bidder shall declare the total number of executable orders in hand and the cumulative tonnage of fabrication to be manufactured under these orders.

| PO/WO Ref. Number | Order Quantity (in MT) | Contract Period (in month) | Balance Order Quantity to be executed (in MT) | Balance Contract Period (in month) |
|-------------------|------------------------|----------------------------|---|------------------------------------|
| | | | | |
| | | | | |
| | | | | |

Based on above, average Monthly Output (in MT) required to execute the above-mentioned orders ___ MT/month.

- b) Facilities/Equipments restricting or deciding the monthly capacity of the works.

| Name of Equipment | Remarks |
|-------------------|---------|
| | |
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| | |

- c) Monthly Capacity of works - ____MT / Month

We, hereby declare that above mentioned details are correct and verifiable. BHEL reserves the right to seek the supporting documents and carryout physical assessment of this works for establishing the claims made above. In case of inconsistency or falsification, appropriate action, as stipulated anywhere in the tender/contract may be taken in line with the provisions of the contract.

Seal and Sign of authorized person of Bidder

Tender Enquiry No. BHEL/CPC/SGL/FAB_STR/25/034 for Fabrication and Supply of Finished Factory Fabricated Structure up to Singrauli Project

| Sl No. | PO/WO Details | PO/WO Date | Total Quantity | Details of supply of Structure (Per Month Quantity in MT) | | | | | | | | | | | | TOTAL QTY for 12 months | Details of end Customer 1) Name of Customer 2) E-Mail Id of Contact Person 3) Phone No (If Available) |
|--------|---------------|------------|----------------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------------------|--|
| | | | | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | MM/YY | | |
| | | | | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | *****/**** | | |
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| 10 | | | | | | | | | | | | | | | | | |
| TOTAL | | | | | | | | | | | | | | | | | |

Details with respect to the Fabrication and Supply of the Heaviest component by the Vendor

| Sl No | Description | Details |
|-------|--|---------|
| 1 | Weight of the Heaviest Component Supplied by Vendor (MT) | |
| 2 | Dimensions of the heaviest Component | |
| 3 | Date of Manufacturing of the heaviest Component | |
| 4 | WO/PO/Drawing Reference for the above. | |

Annexure-2

2.0 Performance Security Bank Guarantee (PBG):

- ❖ The Successful Bidder has to furnish PBG as per format provided.
- ❖ The Performance Bank Guarantee should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the state(s) where the PBG is submitted or is to be acted upon or the rate prevailing in the state where the PBG is executed, whichever is higher.
- ❖ Bidder agrees to submit performance security required for execution of the contract within the time period mentioned. In case of delay in submission of performance security, enhanced performance security which would include interest (**SBI base rate + 6%**) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT/ contract, from the bills along with due interest.

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME & ADDRESSES OF THE BENEFICIARY:

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____¹ through its Unit at _____ (Name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at _____² hereinafter referred to as the 'Vendor / Contractor / Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No. _____ dated _____³ valued at Rs. _____⁴ (Rupees _____)/FC _____ (in words _____) for _____⁵ (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to ____% (____Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we, _____ (hereinafter referred to as the Bank), having registered/Head office at _____ and inter alia a branch at _____ being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums up to a maximum amount of Rs. _____⁶ (Rupees _____) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We the _____ bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We _____ BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force up to and including _____⁷ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the _____⁸ we shall be discharged from all liabilities under this guarantee thereafter.

We, _____ BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Any claim or dispute arising under the terms of this Guarantee shall be subject to the exclusive jurisdiction of the court at Delhi only.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed _____⁶

b) This Guarantee shall be valid up to _____⁷

c) Unless the Bank is served a written claim or demand on or before _____⁸ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated _____

Place of Issue _____

¹ NAME AND ADDRESS OF EMPLOYER i.e. Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

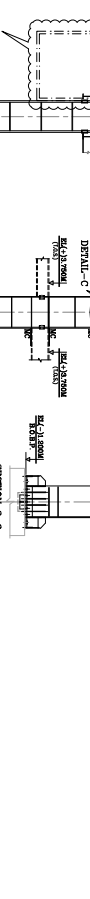
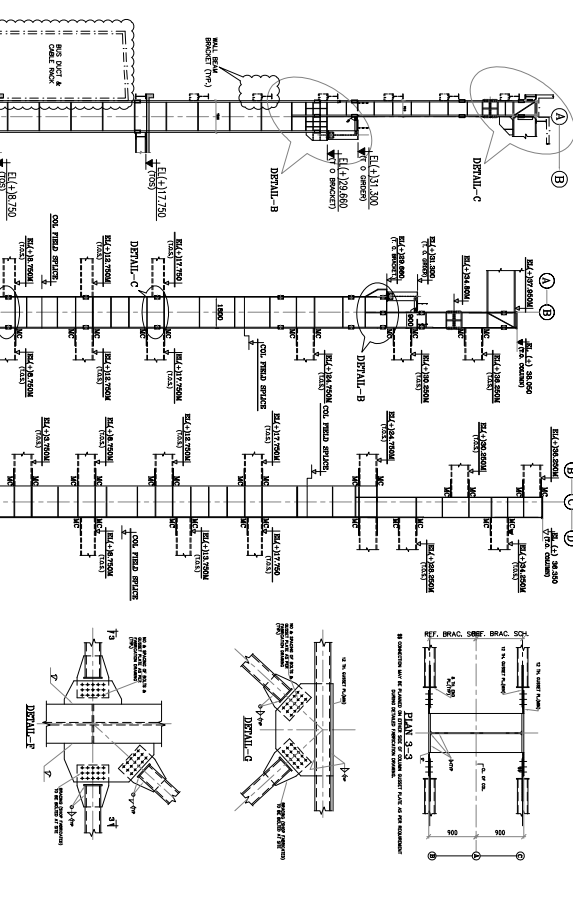
⁴ CONTRACT VALUE

⁵ PROJECT/SUPPLY DETAILS


⁶ BG AMOUNT IN FIGURES AND WORDS

⁷ VALIDITY DATE

⁸ DATE OF EXPIRY OF CLAIM PERIOD







| HORIZONTAL BRACING SCHEDULE | | | RELEASED |
|-----------------------------|-----------------|------|--------------------------------|
| BRACE NO. | BRACING SECTION | TYPE | |
| WB-1 | 2-MK 10X BOX | | |
| WB-2 | 2-MK 20X BOX | | |
| WB-3 | 2-MK 20X BOX | | |
| | | | PLATE OF CONNECTED JOINTS WELD |
| | | | SSB |

| | | | |
|------|--|----------|--|
| HE-4 | 2-WC 300 BOX | | |
| HE-5 | 1-WEB, P.T. 28GX10 2-TLG P.L.T. 320GX10 | 380 2 | |
| HE-6 | 1-WEB, P.L.T. 33GX12 2-TLG P.L.T. 370GX12 | 380 2 |  |

(*) BRACING TYP. ON BOTH
COLUMN ISMC SHALL BE
TIE TO TIE WITH CON

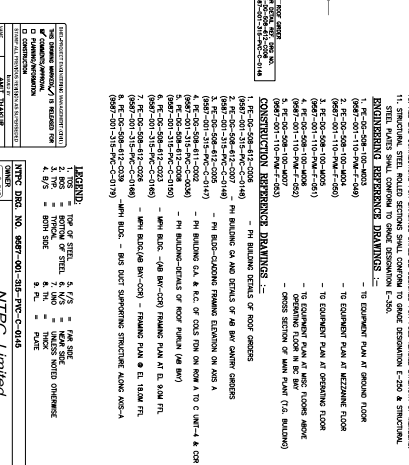
| VERTICAL BRACING SCHEDULE | | | |
|---------------------------|-----------------|------|---------|
| BRACING BOX | BRACING SECTION | TYPE | REMARKS |
| V81e | 2-AC 100 BOX | | |
| V81 | 2-AC 100 BOX | | |
| V82 | 2-AC 200 BOX | | |

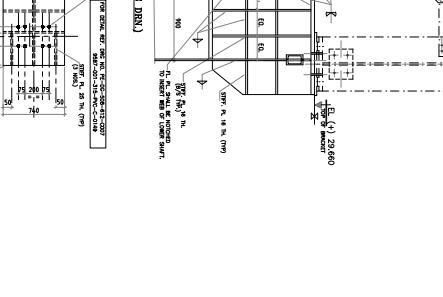
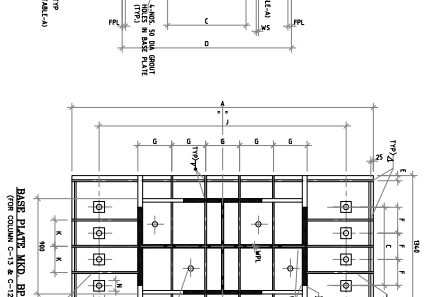
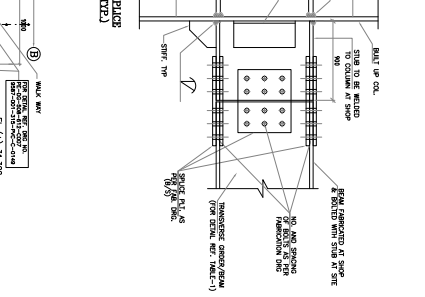
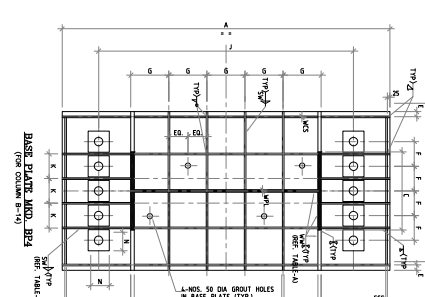
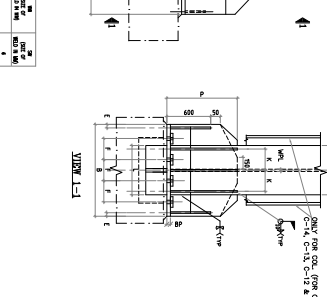
| | | | | |
|-----|--|---|--|--|
| V84 | 2-AC 300 BOX | |  | |
| V85 | 1-WEB, PLT 320X10 2-FLG PLT. 320X10 |  | | |
| V86 | 1-WEB, PLT 326X12 2-FLG PLT. 370X12 |  | | |
| V87 | 1-WEB, PLT 318X16 2-FLG PLT. 370X16 |  | | |

(-) BRACING TYP. ON COLUMN ISMC SH TOE TO WITH


| PLATE GIRDER DETAILS | | | | | |
|----------------------|------|-----|----|----|----|
| SPECIES | WOL. | D | TW | FT | WT |
| B-1 | 800 | 450 | 25 | 16 | |
| B-4 | 800 | 450 | 28 | 16 | |

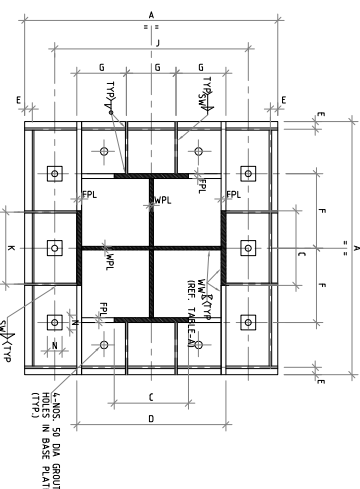
| B-C BAY GIRDER SCHEDULE | | | | |
|-------------------------|------|-----|-----|-----|
| SPAN | 11.0 | 12 | 13 | 14 |
| EL. +7.00 | | | | |
| EL. +5.750 | B-2 | B-2 | B-2 | - |
| EL. +5.750 | B-2 | B-2 | B-2 | B-2 |

[illegible][illegible][illegible]

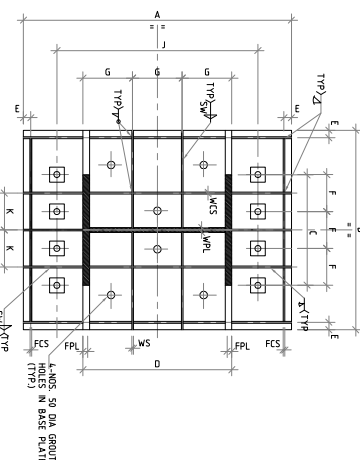
[illegible]

| BILL OF MATERIAL | | | | |
|------------------|-------------|-------------|-----|------|
| S/N | NUMBER | DESCRIPTION | QTY | UNIT |
| 1 | 10 mm x 1.5 | 520426-2500 | | |
| 2 | 17 mm x 1.5 | 520426-2500 | | |
| 3 | 17 mm x 1.5 | 520426-2500 | | |
| 4 | 20 mm x 1.5 | 520426-2500 | | |
| 5 | 20 mm x 1.5 | 520426-2500 | | |
| 6 | 25 mm x 1.5 | 520426-2500 | | |
| 7 | 25 mm x 1.5 | 520426-2500 | | |
| 8 | 30 mm x 1.5 | 520426-2500 | | |
| 9 | 30 mm x 1.5 | 520426-2500 | | |
| 10 | 30 mm x 1.5 | 520426-2500 | | |
| 11 | 30 mm x 1.5 | 520426-2500 | | |
| 12 | 30 mm x 1.5 | 520426-2500 | | |
| 13 | 30 mm x 1.5 | 520426-2500 | | |
| 14 | 30 mm x 1.5 | 520426-2500 | | |
| 15 | 30 mm x 1.5 | 520426-2500 | | |
| 16 | 30 mm x 1.5 | 520426-2500 | | |
| 17 | 30 mm x 1.5 | 520426-2500 | | |
| 18 | 30 mm x 1.5 | 520426-2500 | | |
| 19 | 30 mm x 1.5 | 520426-2500 | | |
| 20 | 30 mm x 1.5 | 520426-2500 | | |
| 21 | 30 mm x 1.5 | 520426-2500 | | |
| 22 | 30 mm x 1.5 | 520426-2500 | | |
| 23 | 30 mm x 1.5 | 520426-2500 | | |
| 24 | 30 mm x 1.5 | 520426-2500 | | |
| 25 | 30 mm x 1.5 | 520426-2500 | | |
| 26 | 30 mm x 1.5 | 520426-2500 | | |
| 27 | 30 mm x 1.5 | 520426-2500 | | |
| 28 | 30 mm x 1.5 | 520426-2500 | | |
| 29 | 30 mm x 1.5 | 520426-2500 | | |
| 30 | 30 mm x 1.5 | 520426-2500 | | |
| 31 | 30 mm x 1.5 | 520426-2500 | | |
| 32 | 30 mm x 1.5 | 520426-2500 | | |
| 33 | 30 mm x 1.5 | 520426-2500 | | |
| 34 | 30 mm x 1.5 | 520426-2500 | | |
| 35 | 30 mm x 1.5 | 520426-2500 | | |
| 36 | 30 mm x 1.5 | 520426-2500 | | |
| 37 | 30 mm x 1.5 | 520426-2500 | | |
| 38 | 30 mm x 1.5 | 520426-2500 | | |
| 39 | 30 mm x 1.5 | 520426-2500 | | |
| 40 | 30 mm x 1.5 | 520426-2500 | | |
| 41 | 30 mm x 1.5 | 520426-2500 | | |
| 42 | 30 mm x 1.5 | 520426-2500 | | |
| 43 | 30 mm x 1.5 | 520426-2500 | | |
| 44 | 30 mm x 1.5 | 520426-2500 | | |
| 45 | 30 mm x 1.5 | 520426-2500 | | |
| 46 | 30 mm x 1.5 | 520426-2500 | | |
| 47 | 30 mm x 1.5 | 520426-2500 | | |
| 48 | 30 mm x 1.5 | 520426-2500 | | |
| 49 | 30 mm x 1.5 | 520426-2500 | | |
| 50 | 30 mm x 1.5 | 520426-2500 | | |
| 51 | 30 mm x 1.5 | 520426-2500 | | |
| 52 | 30 mm x 1.5 | 520426-2500 | | |
| 53 | 30 mm x 1.5 | 520426-2500 | | |
| 54 | 30 mm x 1.5 | 520426-2500 | | |
| 55 | 30 mm x 1.5 | 520426-2500 | | |
| 56 | 30 mm x 1.5 | 520426-2500 | | |
| 57 | 30 mm x 1.5 | 520426-2500 | | |
| 58 | 30 mm x 1.5 | 520426-2500 | | |
| 59 | 30 mm x 1.5 | 520426-2500 | | |
| 60 | 30 mm x 1.5 | 520426-2500 | | |
| 61 | 30 mm x 1.5 | 520426-2500 | | |
| 62 | 30 mm x 1.5 | 520426-2500 | | |
| 63 | 30 mm x 1.5 | 520426-2500 | | |
| 64 | 30 mm x 1.5 | 520426-2500 | | |
| 65 | 30 mm x 1.5 | 520426-2500 | | |
| 66 | 30 mm x 1.5 | 520426-2500 | | |
| 67 | 30 mm x 1.5 | 520426-2500 | | |
| 68 | 30 mm x 1.5 | 520426-2500 | | |
| 69 | 30 mm x 1.5 | 520426-2500 | | |
| 70 | 30 mm x 1.5 | 520426-2500 | | |
| 71 | 30 mm x 1.5 | 520426-2500 | | |
| 72 | 30 mm x 1.5 | 520426-2500 | | |

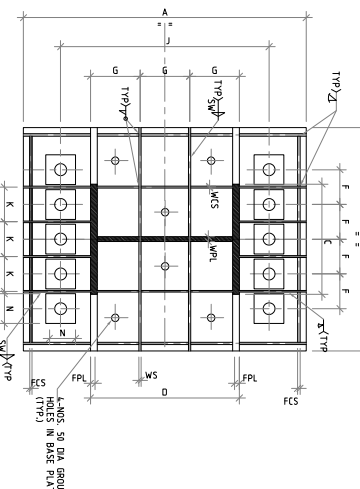
| | | | |
|---|--------------------------------|---------------------------|---|
| <div> <div>  </div> <div> NTPC <small>NATIONAL THERMAL POWER CORPORATION</small> </div> </div> | NAME Mr. A. K. Singh | DATE 10.08.2007 | REG. NO. 10.0807-001-304-INC-C-04 |
|---|--------------------------------|---------------------------|---|



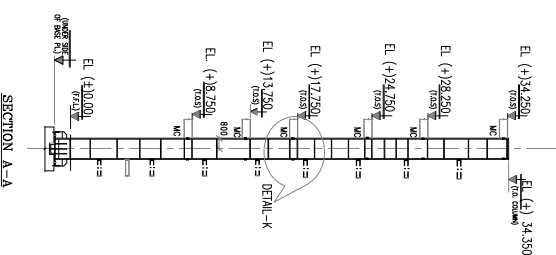
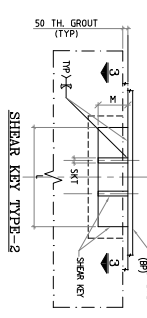
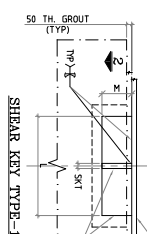
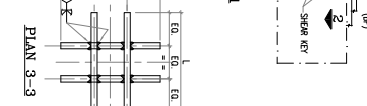
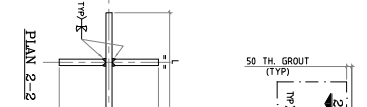
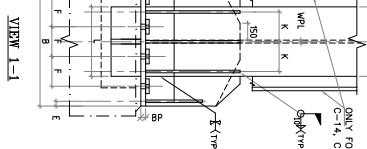
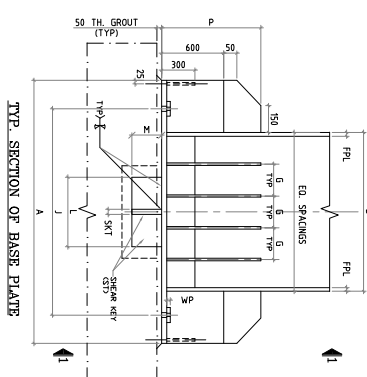
BASE PLATE MKD. BP1/BP2
(FOR COLUMN MKD. D-12, D-13, E-12, E-13, F-12, F-13, G-12, G-13, H-12, H-13, I-12, I-13, J-12, J-13, K-12, K-13, L-12, L-13, M-12, M-13, N-12, N-13, O-12, O-13, P-12, P-13, Q-12, Q-13, R-12, R-13, S-12, S-13, T-12, T-13, U-12, U-13, V-12, V-13, W-12, W-13, X-12, X-13, Y-12, Y-13, Z-12, Z-13)



BASE PLATE MKD. BP1/BP2
(FOR COLUMN MKD. I-13)



BASE PLATE MKD. BP3
(FOR COLUMN MKD. I-12, I-13)



BASE PL. SCHEDULE

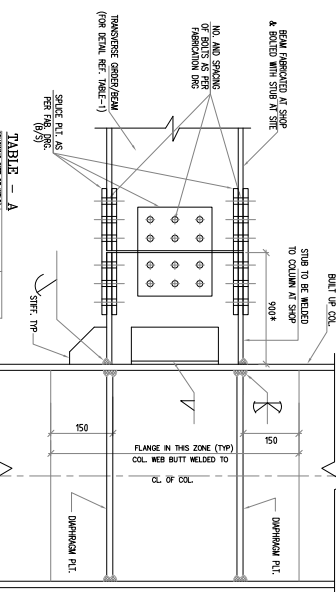
| GROUP | BP1 | BP2 | BP3 | BP4 | REMARKS |
|--|------|------|------|------|--|
| D-12, D-13, E-12, E-13, F-12, F-13, G-12, G-13, H-12, H-13, I-12, I-13, J-12, J-13, K-12, K-13, L-12, L-13, M-12, M-13, N-12, N-13, O-12, O-13, P-12, P-13, Q-12, Q-13, R-12, R-13, S-12, S-13, T-12, T-13, U-12, U-13, V-12, V-13, W-12, W-13, X-12, X-13, Y-12, Y-13, Z-12, Z-13 | 1600 | 1700 | 1800 | 1900 | BASE PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| A | 1600 | 1700 | 1800 | 1900 | BASE PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| B | 1600 | 1700 | 1800 | 1900 | BASE PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| C | 500 | 500 | 740 | 740 | COL. SIZE |
| D | 1000 | 1000 | 1000 | 1000 | COL. SIZE |
| E | 50 | 50 | 50 | 50 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| F | 625 | 625 | 325 | 280 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| G | 333 | 333 | 333 | 333 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| H | 1250 | 1300 | 1400 | 1450 | C/C OF BOLT |
| I | - | - | - | - | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| J | - | - | - | - | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| K | 500 | 500 | 325 | 280 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| L | 1000 | 1000 | 1000 | 1000 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| M | 150 | 150 | 150 | 150 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| N | 1 | 1 | 1 | 2 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| O | 120 | 120 | 120 | 200 | WASER PLATE |

BASE PL. SCHEDULE

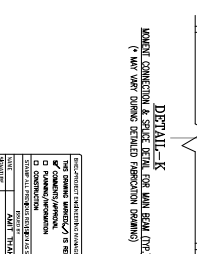
| GROUP | BP1 | BP2 | BP3 | BP4 | REMARKS |
|--|------|------|------|------|--|
| D-12, D-13, E-12, E-13, F-12, F-13, G-12, G-13, H-12, H-13, I-12, I-13, J-12, J-13, K-12, K-13, L-12, L-13, M-12, M-13, N-12, N-13, O-12, O-13, P-12, P-13, Q-12, Q-13, R-12, R-13, S-12, S-13, T-12, T-13, U-12, U-13, V-12, V-13, W-12, W-13, X-12, X-13, Y-12, Y-13, Z-12, Z-13 | 1600 | 1700 | 1800 | 1900 | BASE PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| A | 1600 | 1700 | 1800 | 1900 | BASE PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| B | 1600 | 1700 | 1800 | 1900 | BASE PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| C | 500 | 500 | 740 | 740 | COL. SIZE |
| D | 1000 | 1000 | 1000 | 1000 | COL. SIZE |
| E | 50 | 50 | 50 | 50 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| F | 625 | 625 | 325 | 280 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| G | 333 | 333 | 333 | 333 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| H | 1250 | 1300 | 1400 | 1450 | C/C OF BOLT |
| I | - | - | - | - | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| J | - | - | - | - | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| K | 500 | 500 | 325 | 280 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| L | 1000 | 1000 | 1000 | 1000 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| M | 150 | 150 | 150 | 150 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| N | 1 | 1 | 1 | 2 | REF. PL. WITH 4 NOS. 50 DIA. GROUT HOLES |
| O | 120 | 120 | 120 | 200 | WASER PLATE |

BILL OF MATERIAL

| S.NO. | MEMBER | WEIGHT | GROUP |
|--------------------------|--------------|--------|-------------|
| 1. | 10 THK. PLT. | 2.80 | IS2062-E350 |
| 2. | 12 THK. PLT. | 1.90 | IS2062-E350 |
| 3. | 16 THK. PLT. | 3.45 | IS2062-E350 |
| 4. | 20 THK. PLT. | 3.0 | IS2062-E350 |
| 5. | 25 THK. PLT. | 3.10 | IS2062-E350 |
| 6. | 28 THK. PLT. | 3.20 | IS2062-E350 |
| 7. | 32 THK. PLT. | 3.20 | IS2062-E350 |
| 8. | 36 THK. PLT. | 3.20 | IS2062-E350 |
| 9. | 40 THK. PLT. | 4.20 | IS2062-E350 |
| 10. | 45 THK. PLT. | - | IS2062-E350 |
| 11. | 50 THK. PLT. | 12.0 | IS2062-E350 |
| 12. | ISMC150 | 4.5 | IS2062-E250 |
| 13. | ISMC200 | 2.8 | IS2062-E250 |
| 14. | ISMC250 | 1.5 | IS2062-E250 |
| 15. | ISMC300 | 1.8 | IS2062-E250 |
| TOTAL TONNAGE - MT 665.0 | | | |



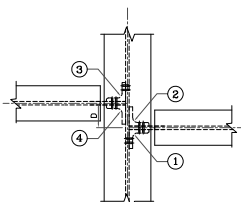
| TABLE - A | REMARKS |
|------------------|-------------|
| 1. 10 THK. PLT. | IS2062-E350 |
| 2. 12 THK. PLT. | IS2062-E350 |
| 3. 16 THK. PLT. | IS2062-E350 |
| 4. 20 THK. PLT. | IS2062-E350 |
| 5. 25 THK. PLT. | IS2062-E350 |
| 6. 28 THK. PLT. | IS2062-E350 |
| 7. 32 THK. PLT. | IS2062-E350 |
| 8. 36 THK. PLT. | IS2062-E350 |
| 9. 40 THK. PLT. | IS2062-E350 |
| 10. 45 THK. PLT. | IS2062-E350 |
| 11. 50 THK. PLT. | IS2062-E350 |
| 12. ISMC150 | IS2062-E250 |
| 13. ISMC200 | IS2062-E250 |
| 14. ISMC250 | IS2062-E250 |
| 15. ISMC300 | IS2062-E250 |



NTPC Limited

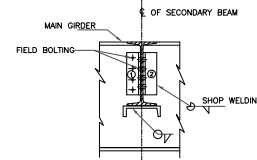
LARA SUPER THERMAL POWER PROJECT
2800MW STAGE-II

| REV. | DATE | BY | CHK | APP | REV. | DATE | BY | CHK | APP |
|------|------------|-----|-----|-----|------|------------|-----|-----|-----|
| 1 | 15/07/2021 | ... | ... | ... | 2 | 15/07/2021 | ... | ... | ... |



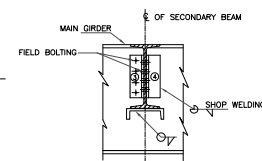
VIEW A-A

(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-1)



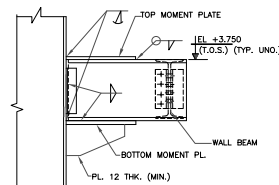
VIEW B-B

(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS
TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-1)

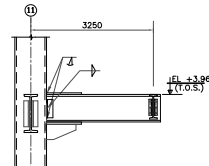


VIEW C-C

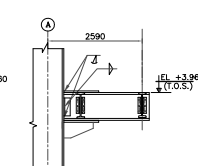
(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS
TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-1)



SECTION 2-2
BUCKET DETAIL WITHOUT KNEE
(MOMENT CONNECTION)



SECTION 3-3
(MOMENT CONNECTION)



SECTION 4-4
(MOMENT CONNECTION)

NOTES:-

1. ALL DIMENSIONS ARE IN MM & ELATIONS IN METERS UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL. 0.00 WHICH CORRESPONDS TO RL(+1) 209.50 M.
3. THIS DRAWING SHALL BE READ IN CONNECTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULES OF MATERIALS.
4. FOR OTHER NOTES AND C.D. DETAILS REF. DRG. PG-06-508-600-6002 (0607-001-315-PWC-C-0002)
5. SPECIFICATIONS DETAILS SHALL INDICATIVE ONLY. SIZE & THICKNESS OF GUSSETS, NUTS & DIA. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CORRESPONDING FABRICATION DRG.
6. FOR ORDRINGS OF BASE PL. REF. DRG. NO PG-06-508-611-0001 (0607-001-315-PWC-C-0001)
7. ALL ELEVATIONS ARE TO THE TOP OF STEEL (I.N.O.)
8. ALL BOLTED FIELD CONNECTIONS ARE TO BE DONE WITH HSFG BOLTS OF PROPERTY CLASS 8.8 (I.N)
9. FABRICATOR MUST CHECK THE WELD JOINTS GIVEN IN TABLE - A FOR DESIGN AND MAXIMUM OF DESIGN VALUE AND VALUE GIVEN TO BE USED.
10. ALL END CONNECTIONS FOR BRACINGS SHALL BE DESIGNED FOR FULL TENSILE STRENGTH OF MEMBERS
11. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH IS 2062. SHALL CONFORM TO GRADE DESIGNATION E-250 & STRUCTURAL STEEL PLATES SHALL CONFORM TO GRADE DESIGNATION E-360.

ENGINEERING REFERENCE DRAWINGS :-

1. PE-DG-508-100-M003 - TG EQUIPMENT PLAN AT GROUND FLOOR
(9587-001-110-PVM-F-049)
2. PE-DG-508-100-E002 - LAYOUT OF MV SWITCHGEAR ROOM
(9587-001-199-PVE-F-001)

CONSTRUCTION REFERENCE DRAWINGS :-

1. FE-008-008-612-0004 ----- CTR BLDG. - STRUCTURAL FRAMING ALONG A TO C ROW
(NTPC DOR, NO. 9587-001-315-PWC-C-0148)
2. FE-008-008-612-0016 ----- MPH BLDG. - DETAILS OF STAIRCASE A-B BAY. MKD. SC-
(NTPC DOR, NO. 9587-001-315-PWC-C-0149)
3. FE-008-008-612-0005 ----- PH BLDG. - CLADDING FRAMING ELEVATION ON AXIS A
(NTPC DOR, NO. 9587-001-315-PWC-C-0147)
4. FE-008-008-612-0015 ----- MPH BLDG. - DETAILS OF MISC. PLATFORMS & STAIRS
(NTPC DOR, NO. 9587-001-315-PWC-C-0152)

ERECTION SEQUENCE-1

1. ONE LEG OF ANGLE 2/4 SHALL BE WELDED WITH MAIN BEAM AT SHOP.
2. HOLES FOR BOLT SHALL BE DRILLED AT SHOP IN OTHER OUTSTANDING LEG OF ANGLE 2/4 AS PER FABRICATION DRAWING.
3. ANGLE 1/3 WILL HAVE HOLES DRILLED IN BOTH LEGS AT SHOP AS PER FABRICATION DRAWING AND SHALL BE SHIPPED LOOSE TO SITE.
4. AFTER PLACING SECONDARY BEAM IN POSITION WITH CRANE, BOTH ANGLE 1 & 2 SHALL BE BOLTED TO SECONDARY BEAM.
5. AFTER PLACING SECONDARY BEAM IN POSITION WITH CRANE, BOTH ANGLE 3 & 4 SHALL BE BOLTED TO SECONDARY BEAM.
6. OUTSTANDING LEG OF ANGLE 1/3 SHALL BE BOLTED TO MAIN BEAM.
7. PLEASE ENSURE THAT WHEN IT IS LESS THAN 500MM, SHEAR CLEAR ANGLE 2 & 4 SHALL NECESSARILY BE CONNECTED ON THE NEAR SIDE WITH WEBCES OF BOTH SECONDARY BEAMS.

ERECTION SEQUENCE-2




2. TWO LEGS OF T-BEAM SHALL BE WELDED WITH COLUMN AT SHOP.
2. HOLES FOR BOLT SHALL BE DRILLED AT SHOP IN OUTSTANDING LEG OF T-BEAM AS PER FABRICATION DRAWING.
3. AFTER PLACING SECONDARY BEAM IN POSITION WITH CRANE, OUTSTAND LEG OF T-BEAM SHALL BE BOLTED TO SECONDARY BEAM.

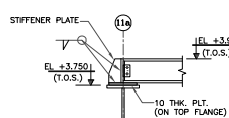
| BILL OF MATERIAL | | | |
|------------------|--------------|------------|--------------|
| S.NO. | MEMBER | WEIGHT(WT) | GRADE |
| 1 | ISM130 | 2.08 | IS2062 - E25 |
| 2 | ISM200 | 0.65 | IS2062 - E25 |
| 3 | ISM250 | 1.08 | IS2062 - E25 |
| 4 | ISM400 | 32.16 | IS2062 - E25 |
| 5 | ISM500 | 20.09 | IS2062 - E25 |
| 6 | ISM600 | 0.87 | IS2062 - E25 |
| 7 | 16 THK. PLT. | 10.16 | IS2062 - E35 |
| 8 | 20 THK. PLT. | 8.76 | IS2062 - E35 |
| 9 | 25 THK. PLT. | 14.36 | IS2062 - E35 |
| 10 | 28 THK. PLT. | 2.17 | IS2062 - E35 |
| 11 | 36 THK. PLT. | 16.02 | IS2062 - E35 |
| 12 | 40 THK. PLT. | 7.25 | IS2062 - E35 |
| 13 | 50 THK. PLT. | 4.95 | IS2062 - E35 |
| TOTAL | | 120.60 | (APPROX.) |

BEAM SCHEDULE

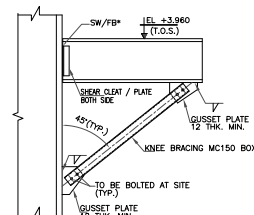
| PL ORDER DETAILS | BEAM MKD. | BEAM SECTION | | |
|---|-----------|----------------------|------------------------|-------------|
| | 4581 | MB 200 | | |
| | 4582 | MB 250 | | |
| | 4583 | MB 300 | | |
| | 4584 | MB 400 | | |
| | 4585 | MB 600 | | |
| | 4586 | FL ORDER | D - 500 FL PL - 250/16 | WEB PL - 16 |
| | 4587 | FL ORDER | D - 550 FL PL - 300/20 | WEB PL - 16 |
| | 4588 | FL ORDER | D - 550 FL PL - 300/40 | WEB PL - 28 |
| | 4589 | FL ORDER | D - 600 FL PL - 250/25 | WEB PL - 16 |
| | 30810 | FL ORDER | D - 600 FL PL - 300/50 | WEB PL - 40 |
| - ENL. WEB 3/16" PL. 1/4" MIN. PERIOD. - ENL. FL 3/16" PL. 1/4" MIN. PERIOD. - ALL DIMENSIONS SHALL BE IN INCHES. - ALL DIMENSIONS SHALL HAVE BEAM CONNECTION. | 45811 | FL ORDER | D - 700 FL PL - 300/20 | WEB PL - 20 |
| | 45812 | FL ORDER | D - 700 FL PL - 300/25 | WEB PL - 20 |
| | 45813 | FL ORDER | D - 700 FL PL - 300/36 | WEB PL - 20 |
| | 45814 | FL ORDER | D - 700 FL PL - 350/36 | WEB PL - 25 |
| | BKT-1 | 45842 + KNEE BRACING | | |

LEGEND:

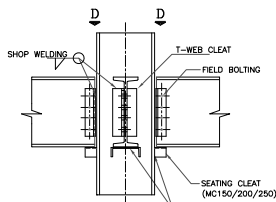
CL. = CENTRE LINE
EL. = ELEVATION
TYP. = TYPICAL
MC. = MOMENT CONNECTION
T.O.S. = TOP OF STEEL
SW. = SHOP WELDING
FB. = FIELD BOLTING
B.O.S. = BOTTOM OF STEEL
N.T.S. = NOT TO SCALE
T.O.P. = TOP OF PLATE
WP. = WEB PLATE
 = 40 THICK GRATING
 = REMOVABLE BEAM
 = REMOVABLE GRATING
PTF. = PLATE ON TOP FLANGE



SECTION 5-5

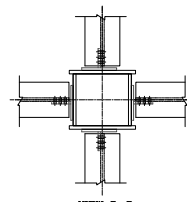


SECTION 6-6
TYP. BRACKET DETAIL WITH KNEE

(* TO BE DECIDED BY DETAILED
DETAILED FABRICATION DRAWING)

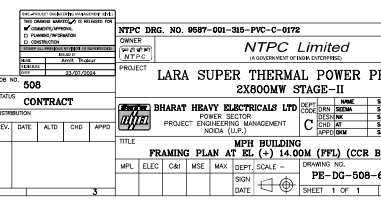
TYP. CONNECTION DETAIL OF
PRIMARY BEAM TO AUX. COL.

(REFER ERECTION SEQUENCE-2)

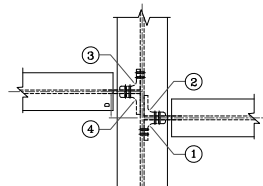


VIEW D-D

(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-2)

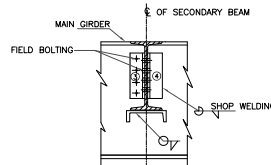


ALL DIMENSIONS ARE IN MM



VIEW A-A

(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-1)

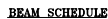


VIEW B-B

(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS
TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-1)

VIEW C

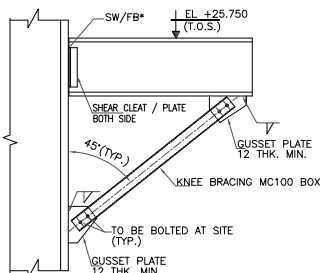
(DIA. & NO. OF BOLTS ARE INDICATIVE. ACTUAL DIA. & NO. OF BOLTS
TO BE REFERRED FROM CORRESPONDING FABRICATION DRG.)
(REFER ERECTION SEQUENCE-1)



| PL GIRDER DETAILS | BEAM MKD. | BEAM SECTION |
|-------------------|-----------|--|
| | 25581 | WB 200 |
| | 25582 | WB 600 |
| | 25583 | WB 600 |
| | 25584 | PL GIRDER D = 600 PL PL = 25016 WEB PL = 16 TH |
| | 25585 | PL GIRDER D = 600 PL PL = 25020 WEB PL = 16 TH |
| | 25586 | PL GIRDER D = 600 PL PL = 25025 WEB PL = 16 TH |
| | 25587 | PL GIRDER D = 600 PL PL = 25036 WEB PL = 20 TH |
| | 25588 | PL GIRDER D = 600 PL PL = 30016 WEB PL = 20 TH |
| | 25589 | PL GIRDER D = 700 PL PL = 30020 WEB PL = 16 TH |

~ BUILT UP GIRDERS SHALL BE PROVIDED WITH 8 TH WEB STIFF. PL AS PER S800.
 ALL SECONDARY BEAMS SHALL HAVE SHEAR CONNECTION.

SECTION 2-2
TYP. BRACKET DETAIL WITHOUT KNEE



SECTION 3-3

TYP. BRACKET DETAIL WITH KNEE
(* TO BE DECIDED BY DETAILER DURING DETAILED FABRICATION DRAWING)

| BILL OF MATERIAL | | | |
|------------------|--------------|------------|--------------|
| S.NO. | MEMBER | WEIGHT(MT) | GRADE |
| 1 | ISM100 | 0.07 | IS2062--E250 |
| 2 | ISM200 | 0.81 | IS2062--E250 |
| 3 | ISM500 | 34.07 | IS2062--E250 |
| 4 | ISM600 | 74.34 | IS2062--E250 |
| 5 | 16 THK. PLT. | 23.22 | IS2062--E350 |
| 6 | 20 THK. PLT. | 9.80 | IS2062--E350 |
| 7 | 25 THK. PLT. | 2.06 | IS2062--E350 |
| 8 | 36 THK. PLT. | 7.86 | IS2062--E350 |
| TOTAL | | 152.30 | (APPROX.) |

NOTES:-

- [illegible]

ENGINEERING REFERENCE DRAWINGS :-

1. PE-DG-508-100-MCO6 - TG EQUIPMENT PLAN AT UPPER FLOORS IN B-C BAY
(9587-001-110-PVM-F-052)

CONSTRUCTION REFERENCE DRAWINGS :-

1. PE-00-508-612-0004 ----- COR BLDG. - STRUCTURAL FRAMING ALONG A TO C ROW
(NTPC DGR. NO. 9587-011-315-PIVC-C-0146)
2. PE-00-508-612-0004 ----- COR BLDG. - STRUCTURAL FRAMING ALONG D TO I ROW
(NTPC DGR. NO. 9587-011-315-PIVC-C-0146)
3. PE-00-508-612-0019 ----- MPH BLDG. - DETAILS OF STAIRCASE MKD. SC-07
(NTPC DGR. NO. 9587-011-315-PIVC-C-0161)
4. PE-00-508-612-0011 ----- PH BLDG.-CLADDING FRAMING ELEVATION ON AXIS C
(NTPC DGR. NO. 9587-011-315-PIVC-C-0153)
5. PE-00-508-612-0015 ----- MPH BLDG. - DETAILS OF MISC. PLATFORMS & STAIRS
(NTPC DGR. NO. 9587-011-315-PIVC-C-0157)

ERECTION SEQUENCE-1

1. ONE LEG ANGLE 2" X 4" SHALL BE WELDED WITH MAIN BEAM AT SHOP.
2. HOLES FOR BOLT SHALL BE DRILLED AT SHOP IN OTHER OUTSTANDING LEG OF ANGLE 2" X 4" AS PER FABRICATION DRAWING.
3. ANGLE 1" X 3" WILL HAVE HOLES DRILLED IN BOTH LEGS AT SHOP AS PER FABRICATION DRAWING AND SHALL BE SHIPPED LOOSE TO SITE.
4. AFTER PLACING SECONDARY BEAM IN POSITION WITH CRANE, BOTH ANGLE 1 & 2 SHALL BE BOLTED TO SECONDARY BEAM.
5. AFTER PLACING SECONDARY BEAM IN POSITION WITH CRANE, BOTH ANGLE 3 & 4 SHALL BE BOLTED TO SECONDARY BEAM.
6. OUTSTANDING LEG OF ANGLE 1" X 3" SHALL BE BOLTED TO MAIN BEAM.
7. PLEASE ENSURE THAT WHEN 1" X 3" IS LESS THAN 500MM, SHARP CLEAR ANGLE 2" X 4" NECESSARILY BE CONNECTED ON THE NEAR SIDE WEAR FACES OF BOTH SECONDARY BEAMS.

LEGEND:

| | | | |
|--------|---------------------|--------|-----------------------|
| CL | = CENTRE LINE | T.O.P. | = TOP OF PLATE |
| EL | = ELEVATION | WP. | = WEB PLATE |
| TY | = TYPICAL | | = 40 THICK GRATING |
| MC | = MOMENT CONNECTION | | = REMOVABLE BEAM |
| T.O.S. | = TOP OF STEEL | | = REMOVABLE GRATING |
| SW | = SHOP WELDING | PTF. | = PLATE ON TOP FLANGE |
| FB | = FIELD BOLTING | | |
| B.O.S. | = BOTTOM OF STEEL | | |
| N.T.S. | = NOT TO SCALE | | |


FOR NTPC DRG. NO. 9587-001-315-PVC-C-017

| | |
|-------|--------------|
| OWNER | NTPC Limited |
|-------|--------------|

NTPC (A GOVERNMENT OF INDIA ENTERPRISE)

| | |
|---------|--------------------------|
| PROJECT | LARA SUPER THERMAL POWER |
|---------|--------------------------|


2X800MW STAGE-II

| | | | | | | |
|---|-------------------------------------|------|------|-----|-----|----|
|  | BHARAT HEAVY ELECTRICALS LTD | DEPT | CODE | DRN | SEC | NA |
| | | | | | | |

| | |
|--------------------------------|------------|
| POWER SECTOR | DESIGN NO. |
| PROJECT ENGINEERING MANAGEMENT | CHD AT |
| NOIDA (U.P.) | |

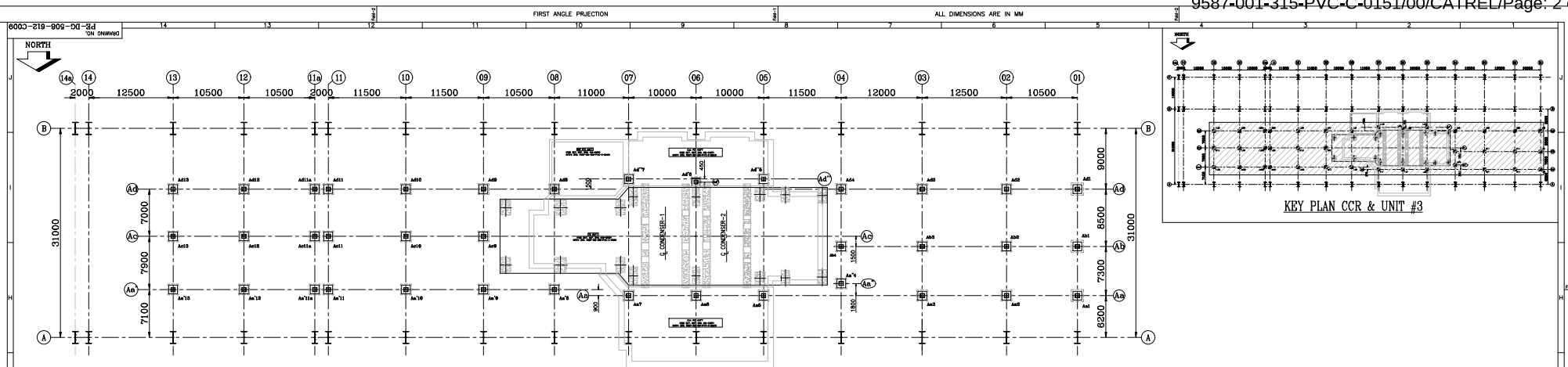
| | |
|-------|--------------|
| TITLE | MPH BUILDING |
|-------|--------------|

| FRAMING PLAN AT EL (+) 25.00M (FFL) | | | | | | | |
|-------------------------------------|---------|--------------|---------------|-------------|---------------|----------------|-------------|
| LAB. | EL. (M) | AREA (SQ. M) | PERIMETER (M) | NO. OF BARS | NO. OF JOINTS | NO. OF CORNERS | DRAWING NO. |

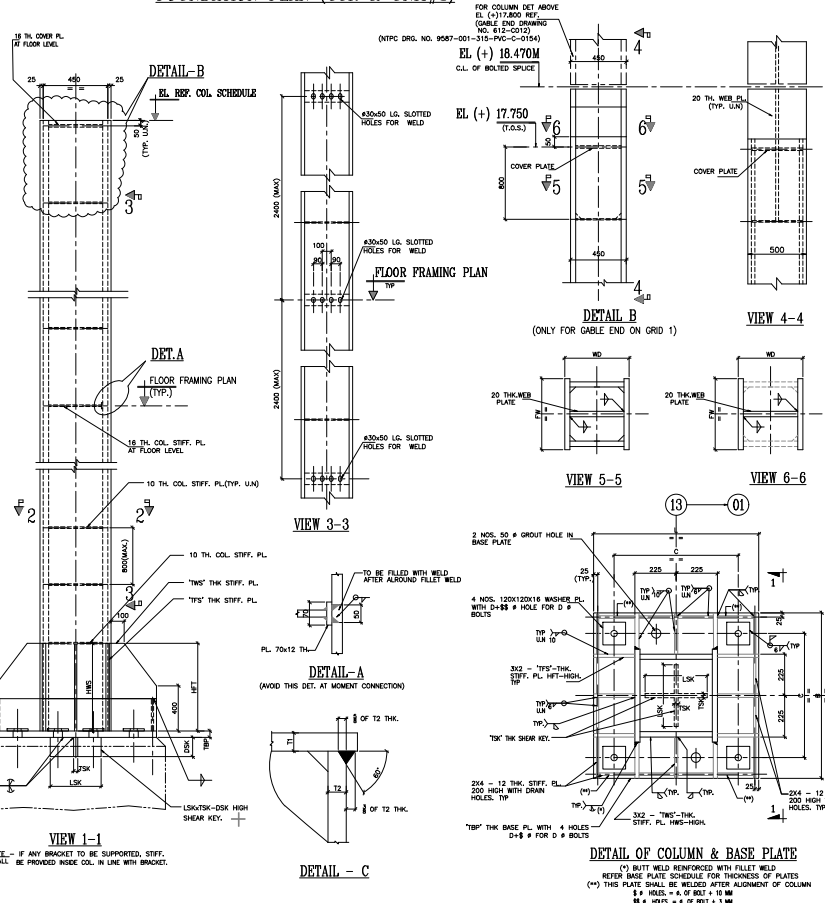
| | | | | | | |
|-----|-----|-----|-----|-----|--|-----------------------------|
| MPL | ELC | CRI | WSE | MAX | DEPT. SCALE = | DRAWING NO. PE-DG |
| | | | | | SIGN  | |

DATE:  SHEET 1 OF 1

FORMAT SIZE AO



FOUNDATION PLAN (CCR & UNIT#3)

[illegible]

| AUX COLUMN BASE PLATES (CCR & UNIT#3) | | | | | | | | | | |
|---------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| VALVE BRAND | VALVE SIZE | VALVE TYPE | VALVE SIZE | VALVE TYPE | VALVE SIZE | VALVE TYPE | VALVE SIZE | VALVE TYPE | VALVE SIZE | VALVE TYPE |
| A#13 | 1000 | 1000 | 725 | 12 | 800 | 600 | 25 | 4 | 16 | 200 150 |
| A#13 | 1000 | 1000 | 725 | 12 | 800 | 600 | 25 | 4 | 16 | 200 150 |
| A#13 | 1100 | 1100 | 775 | 12 | 800 | 600 | 32 | 4 | 16 | 200 150 |
| A#12 | 1200 | 1200 | 825 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#12 | 1300 | 1300 | 875 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#12 | 1400 | 1400 | 925 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#14 | 1000 | 1000 | 725 | 12 | 800 | 600 | 25 | 4 | 16 | 200 150 |
| A#14 | 1100 | 1100 | 775 | 12 | 800 | 600 | 32 | 4 | 16 | 200 150 |
| A#15 | 1000 | 1000 | 725 | 12 | 800 | 600 | 25 | 4 | 16 | 200 150 |
| A#15 | 1100 | 1100 | 775 | 12 | 800 | 600 | 32 | 4 | 16 | 200 150 |
| A#17 | 1000 | 1000 | 725 | 12 | 800 | 600 | 25 | 4 | 16 | 200 150 |
| A#17 | 1100 | 1100 | 775 | 12 | 800 | 600 | 32 | 4 | 16 | 200 150 |
| A#17 | 1200 | 1200 | 825 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1300 | 1300 | 875 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1400 | 1400 | 925 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1500 | 1500 | 975 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1600 | 1600 | 1025 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1700 | 1700 | 1075 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1800 | 1800 | 1125 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 1900 | 1900 | 1175 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2000 | 2000 | 1225 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2100 | 2100 | 1275 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2200 | 2200 | 1325 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2300 | 2300 | 1375 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2400 | 2400 | 1425 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2500 | 2500 | 1475 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2600 | 2600 | 1525 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2700 | 2700 | 1575 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2800 | 2800 | 1625 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 2900 | 2900 | 1675 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3000 | 3000 | 1725 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3100 | 3100 | 1775 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3200 | 3200 | 1825 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3300 | 3300 | 1875 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3400 | 3400 | 1925 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3500 | 3500 | 1975 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3600 | 3600 | 2025 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3700 | 3700 | 2075 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3800 | 3800 | 2125 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 3900 | 3900 | 2175 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4000 | 4000 | 2225 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4100 | 4100 | 2275 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4200 | 4200 | 2325 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4300 | 4300 | 2375 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4400 | 4400 | 2425 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4500 | 4500 | 2475 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4600 | 4600 | 2525 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4700 | 4700 | 2575 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4800 | 4800 | 2625 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 4900 | 4900 | 2675 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5000 | 5000 | 2725 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5100 | 5100 | 2775 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5200 | 5200 | 2825 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5300 | 5300 | 2875 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5400 | 5400 | 2925 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5500 | 5500 | 2975 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5600 | 5600 | 3025 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5700 | 5700 | 3075 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5800 | 5800 | 3125 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 5900 | 5900 | 3175 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6000 | 6000 | 3225 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6100 | 6100 | 3275 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6200 | 6200 | 3325 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6300 | 6300 | 3375 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6400 | 6400 | 3425 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6500 | 6500 | 3475 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6600 | 6600 | 3525 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6700 | 6700 | 3575 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6800 | 6800 | 3625 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 6900 | 6900 | 3675 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7000 | 7000 | 3725 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7100 | 7100 | 3775 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7200 | 7200 | 3825 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7300 | 7300 | 3875 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7400 | 7400 | 3925 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7500 | 7500 | 3975 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7600 | 7600 | 4025 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7700 | 7700 | 4075 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7800 | 7800 | 4125 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 7900 | 7900 | 4175 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8000 | 8000 | 4225 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8100 | 8100 | 4275 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8200 | 8200 | 4325 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8300 | 8300 | 4375 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8400 | 8400 | 4425 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8500 | 8500 | 4475 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8600 | 8600 | 4525 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8700 | 8700 | 4575 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8800 | 8800 | 4625 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 8900 | 8900 | 4675 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9000 | 9000 | 4725 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9100 | 9100 | 4775 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9200 | 9200 | 4825 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9300 | 9300 | 4875 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9400 | 9400 | 4925 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9500 | 9500 | 4975 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9600 | 9600 | 5025 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9700 | 9700 | 5075 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9800 | 9800 | 5125 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 9900 | 9900 | 5175 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |
| A#17 | 10000 | 10000 | 5225 | 12 | 800 | 800 | 32 | 4 | 16 | 200 150 |

| BILL OF MATERIAL | | | |
|------------------|--------------|--------|-------------|
| S.NO. | MEMBER | WEIGHT | GRADE |
| 1. | 12 THK. PLT. | 11.17 | IS2062-C350 |
| 2. | 16 THK. PLT. | 38.66 | IS2062-C350 |
| 3. | 20 THK. PLT. | 40.76 | IS2062-C350 |
| 4. | 25 THK. PLT. | 80.92 | IS2062-C350 |
| 5. | 32 THK. PLT. | 79.59 | IS2062-C350 |
| 6. | 36 THK. PLT. | 8.87 | IS2062-C350 |

NOTES:-

1. ALL DIMENSIONS ARE IN MM & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS SHOWN ON WHICH COORDINATE IS GIVEN IN THE DRAWING.
3. THIS DRAWING SHALL BE READ IN CONNECTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULES.
4. FOR OTHER NOTING AND DETAILS REF. DRAW. PE-00-508-800-4002
(0087-001-315-PWC-C-0002)
5. FOR DIMENSIONS AND DETAILS REF. INDICATIVE ONLY & KINDNESS OF GUESTS, N.O. & D.O. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CORRESPONDING FABRICATION DRAWING.
6. FOR GROUPING OF BASE, P.F. REF. NO. PE-00-508-811-0001
(0087-001-315-PWC-C-0030)
7. ALL ELEVATIONS ARE TO THE TOP OF STEEL (LUGS).
8. ALL BOLTED FIELD CONNECTIONS ARE TO BE BOLTS OF PROPERTY CLASS 8.8.
9. FABRICATOR MUST CHECK THE WELD SIZES GIVEN IN LUGS - FOR DESIGN AND MANUFACTURE OF THE LUGS. THE WELD SIZES ARE TO BE DESIGN SIZE.
10. ALL END CONNECTIONS FOR BRACINGS SHALL BE DESIGNED FOR FULL TENSILE STRENGTH OF MEMBERS.
11. STRUCTURAL STEEL BOLTED CONNECTIONS SHALL CONFORM TO GRADE DESIGNATION E-250 & STRUCTURAL

ENGINEERING REFERENCE DRAWINGS :-


| | |
|--|---|
| 1. PE-00-508-100-M003 (9587-001-110-PW-F-048) | - TO EQUIPMENT PLAN AT GROUND FLOOR |
| 2. PE-00-508-100-M004 (9587-001-110-PW-F-050) | - TO EQUIPMENT PLAN AT MEZZANINE FLOOR |
| 3. PE-00-508-100-M005 (9587-001-110-PW-F-051) | - TO EQUIPMENT PLAN AT OPERATING FLOOR |
| 4. PE-00-508-100-M006 (9587-001-110-PW-F-052) | - TO EQUIPMENT PLAN AT MISS FLOORS ABOVE OPERATING FLOOR IN BC BAY |
| 5. PE-00-508-100-M007 (9587-001-110-PW-F-053) | - CROSS SECTION OF MAIN PLANT (T.G. BUILDING) |

CONSTRUCTION REFERENCE DRAWINGS :-



| | |
|------------------------|---|
| 1. PE-008-508-612-C001 | - PH BUILDING: STRUCTURAL FRAMING ALONG A ROW (NTPC DRG. NO. - 9087-001-315-PVC-C-0142) |
| 2. PE-008-508-612-C002 | - PH BUILDING: STRUCTURAL FRAMING ALONG B ROW (NTPC DRG. NO. - 9087-001-315-PVC-C-0143) |
| 3. PE-008-508-612-C004 | - PH BUILDING: COR STRUCTURAL FRAMING ALONG A TO C ROW (NTPC DRG. NO. - 9087-001-315-PVC-C-0145) |
| 4. PE-008-508-612-C012 | - PH BUILDING: DETAILS OF GABLE END COLUMNS |

| (SHOWING SIZE OF WELD) PL. THICKNESS. | (SIZE OF WELD IN MM) | (SIZE OF WELD IN MM) |
|--|---|----------------------|
| 8 & 10 | DOUBLE BEVEL BUTT WELD WAVE REINFORCED Fillet WELD OF 4 MM THICK W/OUT REINFORCED. | 6 |
| 12 | | 8 |
| 16 & 20 | | 12 |
| 25 | | 14 |
| 28 & 32 | | 20 |
| 36 & 40 | | 22 |
| 45 & 50 | | 25 |

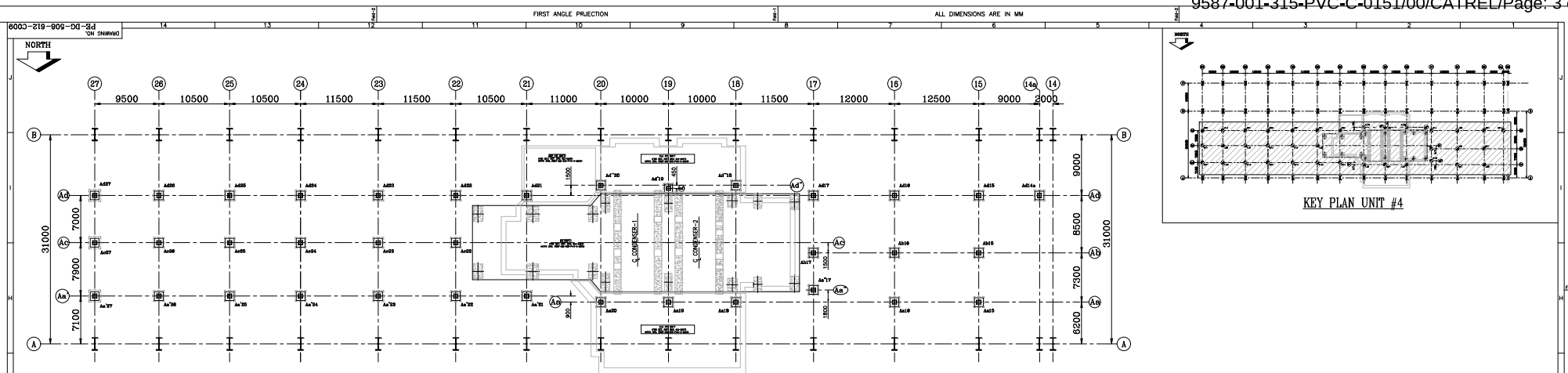
| | | |
|----------------|--------------------------|---|
| LEGEND: | | BSHL PROJECT ENGINEERING MANAGEMENT (CEM) THE EXAMING VOUCHER (V) IS VALIDATED FOR W/ COMPANY/INFORMATION C/ PLANNING/INFORMATION D/ CONSTRUCTION (CHECK ALL APPLICABLE SECTIONS AS SUPPLEMENTED) |
| 1. TOS | = TOP OF STEEL | |
| 2. BOS | = BOTTOM OF STEEL | |
| 3. TYP. | = TYPICAL | |
| 4. B/S | = BOTH SIDE | |
| 5. F/S | = FAR SIDE | |
| 6. N/S | = NEAR SIDE | |
| 7. UND | = UNLESS NOTED OTHERWISE | |
| 8. TH | = THICK | |
| 9. PL | = PLATE | |

| | |
|--|---|
| NTPC DRG. NO. 9587-001-315-PVC-C-0151 | |
| OWNER  | <i>NTPC Limited</i> <small>(A GOVT. OF INDIA ENTERPRISE)</small> |

| | |
|---------|----------------------------------|
| PROJECT | LARA SUPER THERMAL POWER PROJECT |
| | 2X800MW STAGE-II |

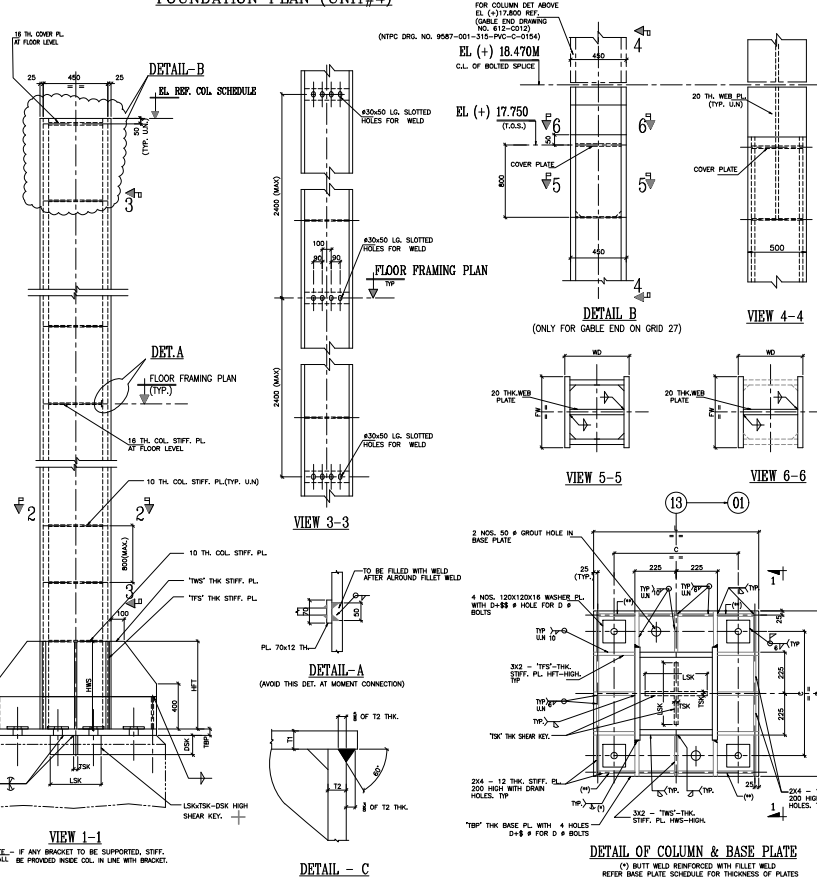
| | | | | | | | |
|--|------|---|---------------------------------------|-----|-------|---|---------------------|
|  BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NODA (U.P.) | | DEPT CODE WORK NO. DESIG. CHD AT APPOINTM | 54/- 54/- 54/- 54/- 22.08 | | | | |
| TITLE MPH BUILDING DETAILS OF INTERMEDIATE COLUMNS (CCR & Units) | | | | | | | |
| MPH | ELEC | CM | MSE | MAX | DEPT. | SCALE - | DRAWING NO. |
| | | | | | SIGN | | PE-DG-508-612-COC |
| | | | | | DATE |  | SHEET 1 OF 2 REV. 0 |

FORMAT SIZE



KEY PLAN UNIT #4

FOUNDATION PLAN (UNIT#4)

[illegible]

AUX COLUMN BASE PLATES (UNIT#4)

[illegible]

TABLE - A

| (SHOWING SIZE OF WELD) PL. THICKNESS. | (SIZE OF WELD IN MM) | (SIZE OF WELD IN IN) |
|--|---|----------------------|
| 8 & 10 | DOUBLE REVEAL BUTT WELD WITH REINFORCED FILLER WELD OF 6 MM THICK REINFORCER USED. | 6 |
| 12 | | 8 |
| 16 & 20 | | 12 |
| 25 | | 14 |
| 28 & 32 | | 20 |
| 36 & 40 | | 22 |
| 45 & 50 | | 25 |

BILL OF MATERIAL

| S.NO. | MEMBER | WEIGHT | GRADE |
|-----------------------|--------------|--------|-------------|
| 1. | 12 THK. PLT. | 10.03 | IS2062-E350 |
| 2. | 16 THK. PLT. | 43.76 | IS2062-E350 |
| 3. | 20 THK. PLT. | 17.86 | IS2062-E350 |
| 4. | 25 THK. PLT. | 73.97 | IS2062-E350 |
| 5. | 28 THK. PLT. | 7.03 | IS2062-E350 |
| 6. | 32 THK. PLT. | 55.71 | IS2062-E350 |
| 7. | 36 THK. PLT. | 44.34 | IS2062-E350 |
| TOTAL TONNAGE- MT 253 | | | |

NOTES:-

1. ALL DIMENSIONS ARE IN FEET & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
 2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS ELOO IN THE CONTRACT DOCUMENTS.
 3. THIS DRAWING SHALL BE READ IN CONNECTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
 4. FOR OTHER NOTES AND DETAILS REFER TO: SEE PE-00-50-000-000-0002
 (MS&T-001-315-PCW-0002)
 5. CONNECTION DETAILS SHOWN ARE INDICATIVE ONLY. SIZE & THICKNESS OF BUSHINGS, NUTS & DIA. OF CONNECTION BOLTS SHALL BE AS SHOWN IN THE CORRESPONDING FABRICATION DETAILED.
 6. FOR GROUTING OF BASE PLATE, REF. DOWEL NO. PE-00-50-000-611-0001
 (MS&T-001-315-PCW-0001)
 7. ALL ELEVATIONS ARE TO THE TOP OF STEEL (U.L.O.)
 8. ALL BOLTED FIELD CONNECTIONS ARE TO BE DONE WITH HPSB BOLTS OF PROPERLY CLASS & GRADE (A193) AND FABRICATION MATERIALS OVER THE ENTIRE LENGTH OF THE JOINT. A FAN DESIGN AND MARGINS OF DESIGN VALUE AND VALUE GAGE TO BE USED.
 9. ALL END CONNECTIONS FOR BRACINGS SHALL BE DESIGNED FOR FULL TENSILE STRENGTH OF MEMBERS.
 10. ALL CONNECTIONS FOR BOLTED BRACINGS SHALL BE DESIGNED TO RESIST TENSION & COMPRESSION.
 11. STEEL PLATES SHALL CONFORM TO GRADE DESIGNATION <=50.

ENGINEERING REFERENCE DRAWINGS :-

1. PE-DG-508-100-M003
(9587-001-110-PNM-F-048) - TO EQUIPMENT PLAN AT GROUND FLOOR
2. PE-DG-508-100-M004
(9587-001-110-PNM-F-050) - TO EQUIPMENT PLAN AT MEZZANINE FLOOR
3. PE-DG-508-100-M005
(9587-001-110-PNM-F-051) - TO EQUIPMENT PLAN AT OPERATING FLOOR
4. PE-DG-508-100-M006
(9587-001-110-PNM-F-052) - TO EQUIPMENT PLAN AT MISC FLOORS ABOVE
OPERATING FLOOR IN MC BAY
5. PE-DG-508-100-M007
(9587-001-110-PNM-F-053) - CROSS SECTION OF MAIN PLANT (T.G. BUILDING)

CONSTRUCTION REFERENCE DRAWINGS :-

1. PE-DG-508-612-C001 - PH BUILDING: STRUCTURAL FRAMING ALONG A ROW
(NTPC DRG. NO. 9587-001-315-PVC-C-0142)
2. PE-DG-508-612-C002 - PH BUILDING: STRUCTURAL FRAMING ALONG B ROW
(NTPC DRG. NO. 9587-001-315-PVC-C-0143)
3. PE-DG-508-612-C004 - PH BUILDING: COR STRUCTURAL FRAMING ALONG A T
(NTPC DRG. NO. 9587-001-315-PVC-C-0145)
4. PE-DG-508-612-C012 - PH BUILDING: DETAILS OF GABLE END COLUMNS
(NTPC DRG. NO. 9587-001-315-PVC-C-0154)

LEGEND:

1. TOS = TOP OF STEEL
2. BOS = BOTTOM OF STEEL
3. TYP. = TYPICAL
4. B/S = BOTH SIDE
5. F/S = FAR SIDE
6. N/S = NEAR SIDE
7. UNO = UNLESS NOTED OTHERWISE
8. TH. = THICK
9. PL. = PLATE

| | |
|---|--------------|
| BHEL PROJECT ENGINEERING MANAGEMENT (C) | |
| THIS DRAWING MARKED <input checked="" type="checkbox"/> IS RELEASED | |
| <input checked="" type="checkbox"/> COMMENTS/APPROVAL <input type="checkbox"/> PLANNING/INFORMATION <input type="checkbox"/> CONSTRUCTION | |
| STAMP ALL PREVIOUS REVISION AS SUPERSEDED | |
| DRAWN BY: | |
| NAME | AMET THAKUR |
| SIGNATURE | |
| DATE | 22 JUNE 2004 |

NYPC DRG. NO. 9587-001-315-PVC-C-015

| | |
|-------|--|
| OWNER | NTPC Limited <small>A GOVERNANCE OF INDIA ENTERPRISE</small> |
|-------|--|

PROJECT LARA SUPER THERMAL POWER PROJECT

| | |
|--|--|
| | LARA SUPER THERMAL POWER PROJECT 2X800MW STAGE-II |
|--|--|

| | | | | | |
|---|------|--------|------|--------|--------|
|  BHARAT HEAVY ELECTRICALS LTD POWER SECTOR | DEPT | | NAME | SIGN | DATE |
| | CODE | DRN | WKS | SA/- | 20.06. |
| | | DESIGN | SA/- | 18.06. | |

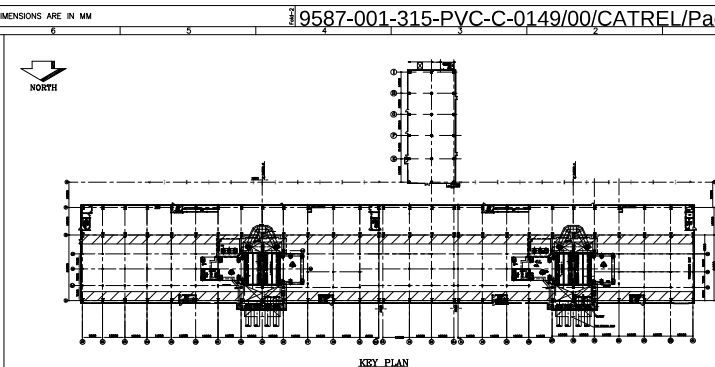
| | | | | | | |
|----|---|--|---|----------|------|-------|
| PD | | POWER SECTOR PROJECT ENGINEERING MANAGEMENT Noida (U.P.) | C | DESIGN | 56/- | 18.00 |
| | | | | CHD AT | 56/- | 21.00 |
| | | | | APPD/DEM | 56/- | 22.00 |

| | |
|-------|---|
| TITLE | <u>MPH BUILDING</u> DETAILS OF INTERMEDIATE COLUMNS (UNIT#4) |
|-------|---|

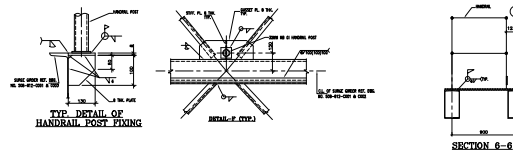
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|-----|------|-----|-----|-----|-------|---------|----------------------------------|
| NPL | ELEC | C&M | MSE | MAX | DEPT. | SCALE = | DRAWING NO. PE-DG-508-612-COC |
|-----|------|-----|-----|-----|-------|---------|----------------------------------|

| | | | | | | | | | |
|--|--|--|--|--|--|------|---|-------------------|--------|
| | | | | | | SIGN | | PE-DG-508-612-C00 | |
| | | | | | | DATE | | SHEET 2 OF 2 | REV. 0 |

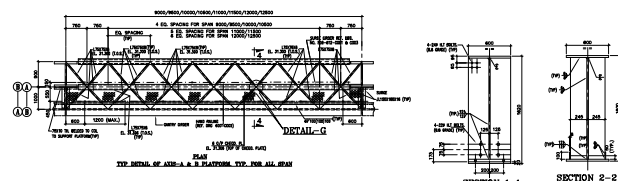
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|--------|------|
|--------|------|



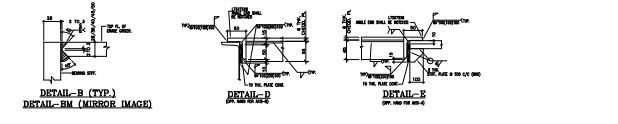
KEY PLAN



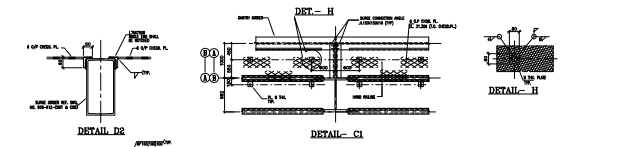
| BILL OF MATERIAL | | | |
|------------------|--------------|--------|-----------|
| S.NO. | MEMBER | WEIGHT | QTY |
| 1. | 178X75H | 14.53 | (53040) |
| 2. | 25 THK. P.T. | 124.35 | (53040) |
| 3. | 28 THK. P.T. | 107.78 | (53040) |
| 3. | 32 THK. P.T. | 28.26 | (53040) |
| 3. | 36 THK. P.T. | 14.82 | (53040) |
| 4. | 40 THK. P.T. | 82.00 | (53040) |
| 4. | 45 THK. P.T. | 20.35 | (53040) |
| 4. | 50 THK. P.T. | 35.35 | (53040) |
| TOTAL WEIGHT | | 468 | (APPROX.) |



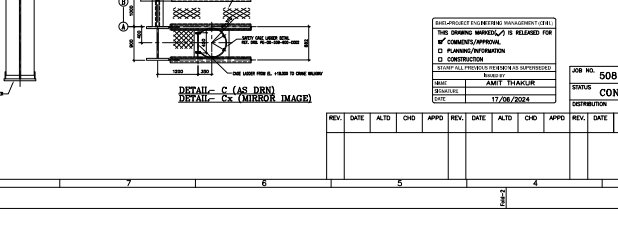
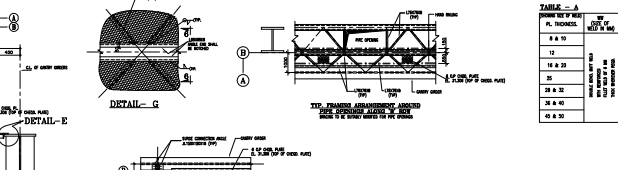
TYP. SECTION SHOWING SURGE
CONNECTION AT COL. B ROW



SECTION 5A-5A



ALL OF THESE APPLICANTS ARE



NOTES:-

- [illegible]

ENGINEERING REFERENCE DRAWINGS :-

- | | |
|--|---|
| 1. PE-00-008-001-A001 (0867-001-110-PW-B-396) | - ORANGE CLEARANCE DIAGRAM OF TO WALL |
| 2. PE-00-008-100-M003 (0867-001-110-PW-F-048) | - TO EQUIPMENT PLAN AT GROUND FLOOR |
| 3. PE-00-008-100-M004 (0867-001-110-PW-F-049) | - TO EQUIPMENT PLAN AT MEZZANINE FLOOR |
| 4. PE-00-008-100-M005 (0867-001-110-PW-F-050) | - TO EQUIPMENT PLAN AT OPERATING FLOOR |
| 5. PE-00-008-100-M005 (0867-001-110-PW-F-051) | - TO EQUIPMENT PLAN AT OPERATING FLOOR |
| 6. PE-00-008-100-M006 (0867-001-110-PW-F-052) | - TO EQUIPMENT PLAN AT MISC FLOORS ABOVE OPERATING FLOOR IN BG BAY |
| 7. PE-00-008-100-M006 (0867-001-110-PW-F-053) | - CROSS SECTION OF MAIN PLANT (T.S. BUILDING) |

CONSTRUCTION REFERENCE DRAWINGS

1. PE-00-508-612-0006 - PH BUILDING DETAILS OF ROOF GIRDERS
(9587-001-315-PVC-C-0148)
2. PE-00-508-612-0001 - PH BLDG-STRUCTURAL FRAMING ALONG A ROW (UNIT-3)
(9587-001-315-PVC-C-0050)
3. PE-00-508-612-0002 - PH BLDG-STRUCTURAL FRAMING ALONG B ROW (UNIT-3)
(9587-001-315-PVC-C-0051)



LEGEND:

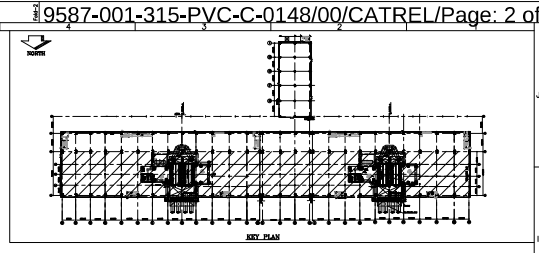
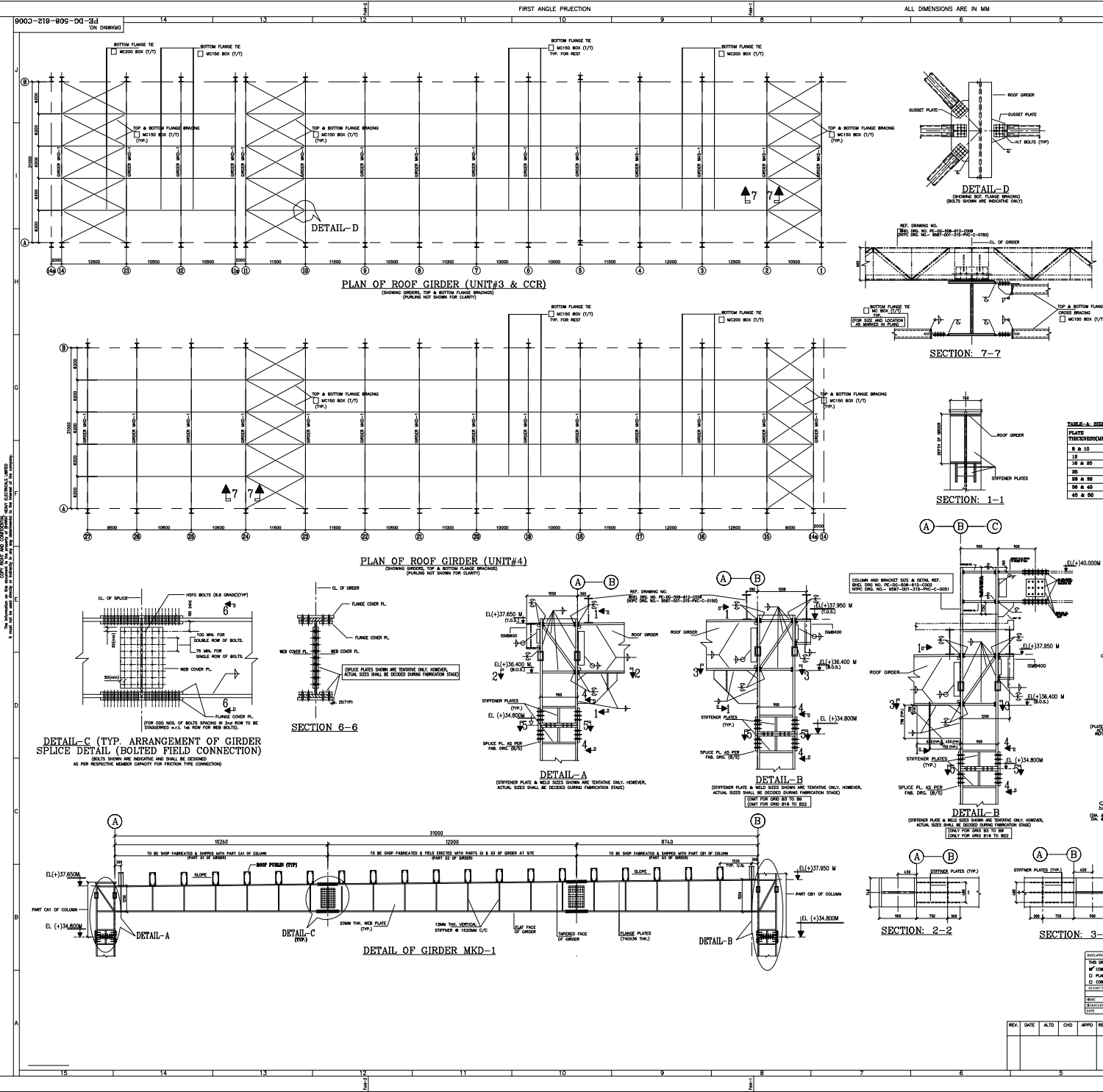
1. TOS = TOP OF STEEL
2. BOS = BOTTOM OF STEEL
3. TYP. = TYPICAL
4. B/S = BOTH SIDE
5. F/S = FAR SIDE
6. N/S = NEAR SIDE
7. UNO = UNLESS NOTED OTHERWISE
8. TH. = THICK
9. PL. = PLATE
10. FH = FIX HOLES
11. SH = SLOTTED HOLES

| POURING RATE OF MELT PL. THICKNESS | 250 C SIZE OF MELT IN MM | 250 C SIZE OF MELT IN MM |
|---------------------------------------|-----------------------------------|-----------------------------------|
| 8 to 10 | | 8 |
| 12 | | 8 |
| 16 to 20 | | 12 |
| 25 | | 16 |
| 28 to 32 | | 20 |
| 36 to 40 | | 22 |
| 45 to 50 | | 25 |

| | |
|---|-------------|
| BHEL-PROJECT ENGINEERING MANAGEMENT (CIVIL) | |
| THIS DRAWING MARKED <input checked="" type="checkbox"/> IS RELEASED FOR | |
| <input checked="" type="checkbox"/> COMMENTS/ APPROVAL | |
| <input type="checkbox"/> PLANNING/ INFORMATION | |
| <input type="checkbox"/> CONSTRUCTION | |
| STAMP ALL PREVIOUS RELEASES AS SUPERSEDED | |
| DRAWN BY | |
| ISSUED | AMIT THAKUR |
| SIGNATURE | |

| | |
|---------|----------|
| JOB NO. | 508 |
| STATUS | CONTRACT |

| | |
|--|-----------------------------------|
| NTPC DRG. NO. 0567-001-315-PVC-C-0149 | |
| OWNER POWER CORP. OF INDIA NTPC LTD. | |
| PROJECT LARA SUPER THERMAL POWER PROJECT 2X800MW STAGE-II | |
| APPROVED BY  B. HARSHVARDHAN DIRECTOR (P.E.) PROJECT ESTIMATION & MANAGEMENT NTPC LTD. NTPC LTD. | |
| TITLE MPH BUILDING GA AND DETAILS OF AB JAY GALLERY CHAIRS | |
| MPH. ELEC. CDR. MISC. MARK | DRAWING NO. PE-DG-508-B12-C007 |
| SIGN DATE | SHEET OF REV. G. |
|  | |



BILL OF MATERIAL

| S.NO. | MEMBER | WEIGHT | GRADE |
|--------------------------------|--------------|--------|-------------|
| 1. | ISM 150 | 72.10 | IS2062-E250 |
| 2. | ISM 200 | 10.95 | IS2062-E250 |
| 3. | 20 THK. PLT. | 187.44 | IS2062-E350 |
| 4. | 36 THK. PLT. | 376.00 | IS2062-E350 |
| TOTAL TONNAGE MT 647 (APPROX.) | | | |

- NOTES:-**
- ALL DIMENSIONS ARE IN MM & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
 - ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL. 0.00 M WHICH CORRESPONDS TO RL (+) 209.50 M.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
 - FOR OTHER NOTES AND STD. DETAILS REF. DRG. PE-DG-508-600-0002
 - CONNECTION DETAILS SHOWN ARE INDICATIVE ONLY. SIZE & THICKNESS OF GUSSETS, NO. & DIA. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CORRESPONDING FABRICATION DRG.
 - FOR GROUTING OF BASE PL. REF. DRG. NO PE-DG-508-611-0001
 - ALL ELEVATIONS ARE TO THE TOP OF STEEL (U.N.O.)
 - ALL BOLTED FIELD CONNECTIONS ARE TO BE DONE WITH HSG BOLTS OF PROPERTY CLASS 8.8 (U.N.)
 - FABRICATOR MUST CHECK THE WELD SIZES GIVEN IN TABLE - A FOR DESIGN AND MAXIMUM OF DESIGN VALUE AND VALUE GIVEN TO BE USED.
 - ALL END CONNECTIONS FOR BRANCHES SHALL BE DESIGNED FOR FULL TENSILE STRENGTH OF MEMBERS.
 - STRUCTURAL STEEL BOLTED SECTIONS SHALL CONFORM TO GRADE DESIGNATION E-250 & STRUCTURAL STEEL PLATES SHALL CONFORM TO GRADE DESIGNATION E-350.

- ENGINEERING REFERENCE DRAWINGS:-**
- PE-DG-508-100-M005 (9587-001-110-PW-F-049) - TO EQUIPMENT PLAN AT GROUND FLOOR
 - PE-DG-508-100-M004 (9587-001-110-PW-F-050) - TO EQUIPMENT PLAN AT MEZZANINE FLOOR
 - PE-DG-508-100-M005 (9587-001-110-PW-F-051) - TO EQUIPMENT PLAN AT OPERATING FLOOR
 - PE-DG-508-100-M006 (9587-001-110-PW-F-052) - TO EQUIPMENT PLAN AT MISC FLOORS ABOVE
 - PE-DG-508-100-M007 (9587-001-110-PW-F-053) - CROSS SECTION OF MAIN PLANT (I.E. BUILDING)

- CONSTRUCTION REFERENCE DRAWINGS:-**
- PE-DG-508-612-C008 (9587-001-315-PVC-C-0100) - MPH BLDG. - ROOF PURLIN DETAILS
 - PE-DG-508-611-C004 (9587-001-315-PVC-C-0038) - MPH BLDG. (AB BAY) - G.A. & R.CC DETAILS OF METAL DECK ROOF
 - PE-DG-508-612-C001 (9587-001-315-PVC-C-0050) - MPH BLDG.-STRUCTURAL FRAMING ALONG A ROW (UNIT-3)
 - PE-DG-508-612-C002 (9587-001-315-PVC-C-0051) - MPH BLDG.-STRUCTURAL FRAMING ALONG B ROW (UNIT-3)
 - PE-DG-508-612-C012 (9587-001-315-PVC-C-0154) - MPH BLDG. - DETAILS OF CABLE END COLUMNS
 - PE-DG-508-612-C013 (9587-001-315-PVC-C-0147) - MPH BLDG.-CLADDING FRAMING ELEVATION ON AXIS A
 - PE-DG-508-612-C016 (9587-001-315-PVC-C-0152) - MPH BLDG.-CLADDING FRAMING ELEVATION ON AXIS B

- LEGEND:**
- TOP OF STEEL
 - BOS = BOTTOM OF STEEL
 - TYP = TYPICAL
 - B/S = BOTH SIDE
 - F/S = FAR SIDE
 - N/S = NEAR SIDE
 - UNO = UNLESS NOTED OTHERWISE
 - TH = THICK
 - PL = PLATE
 - 1/2 = 1/2 TO 1/2

TABLE - A: SIZE OF WELD

| PLATE THICKNESS (mm) | WELD SIZE (mm) | WELD SIZE (mm) |
|----------------------|----------------|----------------|
| 8 & 10 | 8 | 8 |
| 12 | 8 | 10 |
| 14 & 16 | 10 | 12 |
| 18 & 20 | 12 | 14 |
| 22 & 24 | 14 | 16 |
| 26 & 28 | 16 | 18 |
| 30 & 32 | 18 | 20 |
| 34 & 36 | 20 | 22 |
| 38 & 40 | 22 | 24 |
| 42 & 44 | 24 | 26 |
| 46 & 48 | 26 | 28 |
| 50 & 52 | 28 | 30 |

VIEW: 4-4

| CL. OF COLUMN | CL. OF GIRDER | CL. OF BRACE |
|---------------|---------------|--------------|
| CL. OF COLUMN | CL. OF GIRDER | CL. OF BRACE |

SECTION: 5-5

| CL. OF COLUMN | CL. OF GIRDER | CL. OF BRACE |
|---------------|---------------|--------------|
| CL. OF COLUMN | CL. OF GIRDER | CL. OF BRACE |

CONTRACT

| NO. | DATE | REV. | BY | CHKD. | APPD. |
|-----|------------|------|-------------|-------|-------|
| 1 | 15/06/2004 | | AMIT KISHOR | | |

DETAIL OF ROOF GIRDERS

| MPL | ELEC | CHD | MSE | MAX | NO. | DATE | REV. | BY | CHKD. | APPD. |
|-----|------|-----|-----|-----|-----|------|------|----|-------|-------|
| | | | | | | | | | | |

NTPC DRG. NO. 9587-001-315-PVC-C-0148

OWNER: NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)

PROJECT: LARA SUPER THERMAL POWER PROJECT
2X800MW STAGE-II

DESIGNER: BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
ROOM (L.L.C.)

DATE: 15/06/2004

NO.: 508

CONTRACT:

REVISIONS:

| NO. | DATE | REV. | BY | CHKD. | APPD. |
|-----|------------|------|-------------|-------|-------|
| 1 | 15/06/2004 | | AMIT KISHOR | | |

TITLE: MPH BUILDING
DETAIL OF ROOF GIRDERS

SCALE: 1/20

SHEET: 2 OF 2

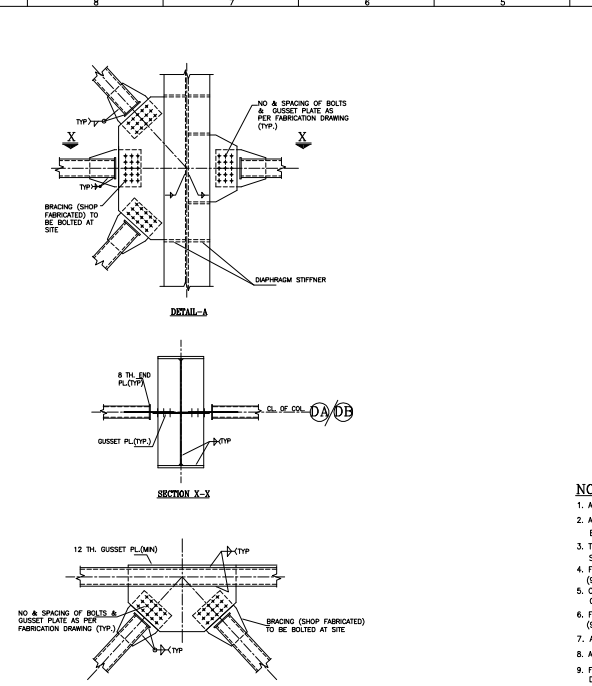
DATE: 15/06/2004

REV.: 1

BY: AMIT KISHOR

CHKD.:

APPD.:



NO. & SPACING OF BOLTS
& GUSSET PLATE AS
PER FABRICATION DRAWING
(TYP.)

BRACING (ISHOP
FABRICATED) TO
BE BOLTED AT
SITE

TYP

TYP

DIAPHRAGM STIFFENER

DETAIL - C

1. ALL DIMENSIONS ARE IN INCH & ELEVATIONS IN FEET UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL. 0.00 WHICH CORRESPONDS TO RL (+) 209.50 M.
3. THIS DRAWING SHALL BE READ IN CONNECTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULES OF THE WORK.
4. FOR OTHER NOTES AND DET. DETAILS REF. DG. PG-DE-508-600-0002 (0087-001-115-PVC-G-0002) (PG-DE-508-600-0001) (PG-DE-508-600-0003)
5. FOR CONNECTION DETAILS SEE DETAIL NO. 1000 OF THE DRAWING.
6. FOR GROTINGS OF BASE PL. REF. SHOWN IN CONNECTIONS FABRICATION DG. (0087-001-115-PVC-G-0003)
7. ALL ELEVATIONS ARE TO THE TOP OF STEEL (U.N.O.)
8. ALL BOLTED FIELD CONNECTIONS ARE TO BE DONE WITH HSG. BOLTS OF PROPERTY CLASS 8.8 (U.N)
9. FABRICATOR MUST CHECK THE WELD SIZES GIVEN IN DESIGN FOR A TENSILE AND MAXIMUM OF DESIGN VALUE AND VALUE GIVEN TO BE USED.
10. ALL LENGTH OF MEMBERS SHALL BE GIVEN IN TABLE FOR FULL TENSILE AND DESIGN VALUE.
11. STRUCTURAL STEEL BOLTED CONNECTIONS SHALL CONFORM TO GRADE DESIGNATION E-250 & STRUCTURAL STEEL PLATES SHALL CONFORM TO GRADE DESIGNATION E-350.

| | | | |
|-----|--|----------------|---|
| 1. | 98B7-001-31S-PVC-C-024D-(FC-DG-006-616-0001) | -MALL & BUNKER | BAY - G.A. OF COLUMN FOUNDATIONS |
| 2. | 98B7-001-31S-PVC-C-024E-(FC-DG-006-616-0004) | -MALL & BUNKER | BAY - R.C.G. DETAILS OF FEEDER FLOOR |
| 3. | 98B7-001-31S-PVC-C-024F-(FC-DG-006-616-0005) | -MALL & BUNKER | BAY - R.C.G. DETAILS OF TRIPPER FLOOR |
| 4. | 98B7-001-31S-PVC-C-024H-(FC-DG-006-616-0008) | -MALL & BUNKER | BAY - R.C.G. DETAILS OF TRIPPER FLOOR |
| 5. | 98B7-001-31S-PVC-C-024J-(FC-DG-006-616-0007) | -MALL & BUNKER | BAY - BASE PLATE DETAILS |
| 6. | 98B7-001-31S-PVC-C-024T-(FC-DG-006-616-0010) | -MALL & BUNKER | BAY - FRAMING PLAN OF FEEDER FLOOR |
| 7. | 98B7-001-31S-PVC-C-024V-(FC-DG-006-616-0011) | -MALL & BUNKER | BAY - FRAMING PLAN OF FEEDER FLOOR |
| 8. | 98B7-001-31S-PVC-C-024W-(FC-DG-006-616-0012) | -MALL & BUNKER | BAY - FRAMING PLAN OF BUNKER ROOF |
| 9. | 98B7-001-31S-PVC-C-025Q-(FC-DG-006-616-0013) | -MALL & BUNKER | BAY - FRAMING PLAN OF BUNKER ROOF |
| 10. | 98B7-001-31S-PVC-C-025R-(FC-DG-006-616-0014) | -MALL & BUNKER | BAY - DETAIL OF SUPPORT BEAMS |
| 11. | 98B7-001-31S-PVC-C-025U-(FC-DG-006-616-0015) | -MALL & BUNKER | BAY - DETAILS OF BUNKERS & SUPPORTING DETAILS |




1. TOS = TOP OF STEEL
2. BOS = BOTTOM OF STEEL
3. TYP. = TYPICAL

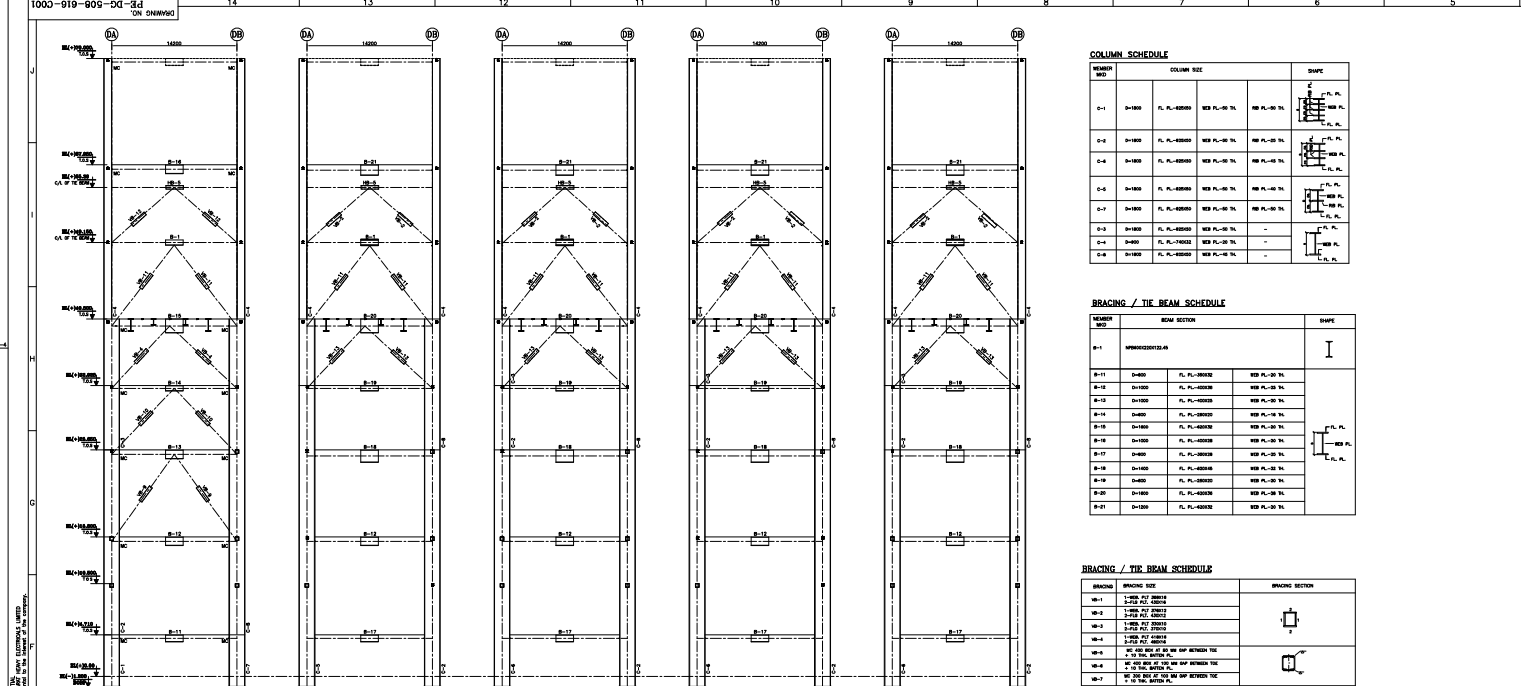
| (SHOWING SIZE OF WELD) PL. THICKNESS. | NW (SIZE OF WELD IN MM) | SW (SIZE OF WELD IN MM) |
|--|-------------------------------|-------------------------------|
| 8 & 10 | 6 | 6 |
| 12 | 8 | 8 |
| 16 & 20 | 12 | 12 |
| 25 | 14 | 14 |
| 28 & 32 | 20 | 20 |
| 36 & 40 | 20 | 20 |
| 45 & 50 | 25 | 25 |

TOTAL QUANTITY OF STRUCTURAL STEEL : 3200 MT (APPROX FOR UNIT-1)

| | |
|---|-------------|
| THIS PROJECT ENGINEERING DOCUMENT (DWG) THIS DRAWING INTENDED <input checked="" type="checkbox"/> IS RELEASED FOR <input checked="" type="checkbox"/> COMMENTS/REVISION <input type="checkbox"/> PLANNING/INFORMATION <input type="checkbox"/> CONSTRUCTION | |
| RECAP ALL PROVISIONS THROUGH AN SUPERVISOR | |
| REVIEW BY | |
| NAME | AMIT THAKUR |
| ORGANIZATION | |
| DATE | 14/06/2024 |

| | |
|---------|----------|
| JOB NO. | 508 |
| STATUS | CONTRACT |

| | | | | |
|---|--|---|--|--|
| NTPC DRG. NO. | | 0587-001-315-PVC-C-0248 | | |
| OWNER | | | | |
|  NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE) | | | | |
| PROJECT | | | | |
| LARA SUPER THERMAL POWER PROJECT 2X800MW STAGE-II | | | | |
|  BHARAT HEAVY ELECTRICALS LTD POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA (U.P.) | DEPT DIVISION CHD PROJECT | NAME DRN 178 17.00 MW CHD HT 2X800 MW | SIGN DATE 10.04.2003 10.04.2003 14.04.2003 14.04.2003 | |
| | TITLE MILL & RUNNER BAY | | | |
| | GA & RC DETAILS OF COLUMNS & FOUNDATIONS - UNIT#148 | | | |
| | MFL ELEC CIVIL MECH MAX | DEPT SCALE 1:1000 DRAWING NO. PE-DG-508-REV-0008 | | |
| | SIGN DATE  | SHEET 1 OF 2 REV. 0 | | |



THIS DRAWING IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

ELEVATION ON GRID 101

ELEVATION ON GRID 102

ELEVATION ON GRID 103

ELEVATION ON GRID 104

ELEVATION ON GRID 105

BRACING / TIE BEAM SCHEDULE

| BRACING | BRACING SIZE | BRACING SECTION |
|---------|----------------|-----------------|
| WB-1 | 1-WB A7 200x10 | |
| WB-2 | 1-WB A7 200x10 | |
| WB-3 | 1-WB A7 200x10 | |
| WB-4 | 1-WB A7 200x10 | |
| WB-5 | 1-WB A7 200x10 | |
| WB-6 | 1-WB A7 200x10 | |

TABLE - A

| W (SHOWING SIZE OF WELD PL THICKNESS) | W (SIZE OF WELD IN MM) | W (SIZE OF WELD IN MM) |
|---------------------------------------|------------------------|------------------------|
| 8 & 10 | 8 | 8 |
| 12 | 12 | 12 |
| 16 & 20 | 16 | 16 |
| 25 | 25 | 25 |
| 28 & 32 | 28 | 28 |
| 36 & 40 | 36 | 36 |
| 45 & 50 | 45 | 45 |

NOTE: WELDED END PLATE CONNECTIONS SHALL BE WELDED TO THE TENSION FLANGE OF THE BEAM.

ELEVATION ON GRID 106 ELEVATION ON GRID 107 ELEVATION ON GRID 108 ELEVATION ON GRID 109 ELEVATION ON GRID 110

15 14 13 12 11 10 9 8 7 6 5

NOTES:-

1. ALL DIMENSIONS ARE IN MM & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL. 0.00 M WHICH CORRESPONDS TO RL(+) 209.50 M.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
4. FOR OTHER NOTES AND S.D.TS. REF. DRG. PE-DG-508-600-0002
(0587-001-315-INC-C-0003)
5. CONNECTION DETAILS SHOWN ARE INDICATIVE ONLY. SIZE & THICKNESS OF GUSSETS, NUTS, & DIA. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CORRESPONDING FABRICATION DRG.
6. FOR GRADING OF BASE RL. REF. DRG. NO PE-DG-508-611-0001
(0587-001-315-INC-C-0030)
7. ALL ELEVATIONS ARE TO THE TOP OF STEEL (U.N.O.)
8. ALL BOLTED FIELD CONNECTIONS ARE TO BE DONE WITH HSGF BOLTS OF PROPERTY CLASS 8.8. (U.N)
9. FABRICATOR MUST CHECK THE WELD SIZES GIVEN IN TABLE -A FOR DESIGN AND MAXIMUM OF DESIGN VALUE AND VALUE GIVEN TO BE USED.
10. ALL CONNECTIONS FOR BRANCHES SHALL BE DESIGNED FOR FULL TENSILE STRENGTH OF MEMBERS.
11. STRUCTURAL STEEL BOLTED SECTIONS SHALL CONFORM TO GRADE DESIGNATION E-250 & STRUCTURAL STEEL PLATES SHALL CONFORM TO GRADE DESIGNATION E-350.

| | | | | |
|-----|--|---------------|-----|--------------------------------------|
| 1. | 9587-001-315-PWC-0240-(PG-DO-508-616-C001) | MILL & BUNKER | BAY | C.A. OF COLUMN FOUNDATIONS |
| 2. | 9587-001-315-PWC-0240-(PG-DO-508-616-C002) | MILL & BUNKER | BAY | R.C.T. OF FEEDER FLOOR |
| 3. | 9587-001-315-PWC-0243-(PG-DO-508-616-C003) | MILL & BUNKER | BAY | R.C.T. OFS OF TRIPPER FLOOR |
| 4. | 9587-001-315-PWC-0243-(PG-DO-508-616-C004) | MILL & BUNKER | BAY | R.C.T. OFS OF TRIPPER FLOOR |
| 5. | 9587-001-315-PWC-0245-(PG-DO-508-616-C005) | MILL & BUNKER | BAY | BASE PLATE DETAILS |
| 6. | 9587-001-315-PWC-0247-(PG-DO-508-616-C010) | MILL & BUNKER | BAY | FRAMING PLAN OF FEEDER FLOOR |
| 7. | 9587-001-315-PWC-0248-(PG-DO-508-616-C011) | MILL & BUNKER | BAY | FRAMING PLAN OF TRIPPER FLOOR |
| 8. | 9587-001-315-PWC-0249-(PG-DO-508-616-C012) | MILL & BUNKER | BAY | FRAMING PLAN OF TRIPPER FLOOR |
| 9. | 9587-001-315-PWC-0250-(PG-DO-508-616-C013) | MILL & BUNKER | BAY | FRAMING PLAN OF BUNKER ROOF |
| 10. | 9587-001-315-PWC-0251-(PG-DO-508-616-C014) | MILL & BUNKER | BAY | C.A. OF BUNKERS & SUPPORTING DETAILS |

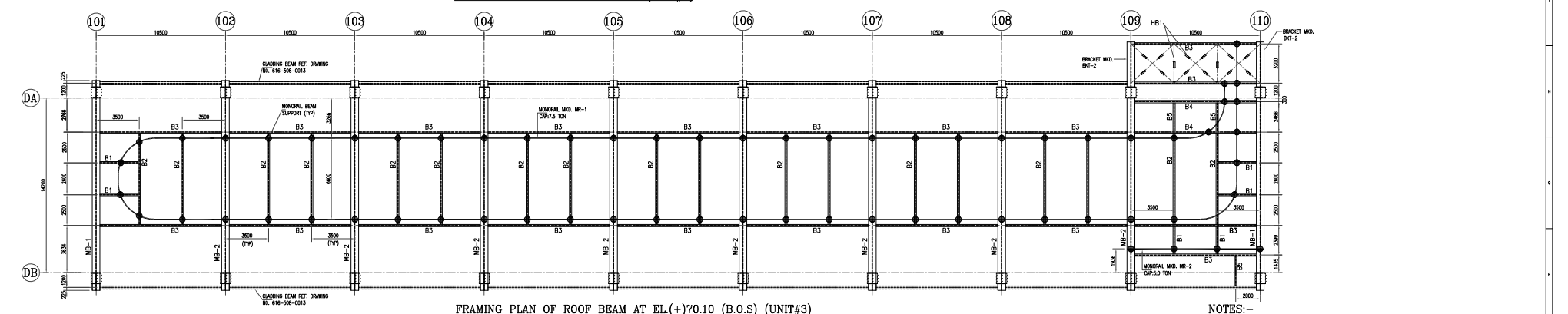
01 0007 001 010 110 0 0000 010 000 000 010 0010

1. TOS = TOP OF STEEL
2. BOS = BOTTOM OF STEEL
3. TYP. = TYPICAL

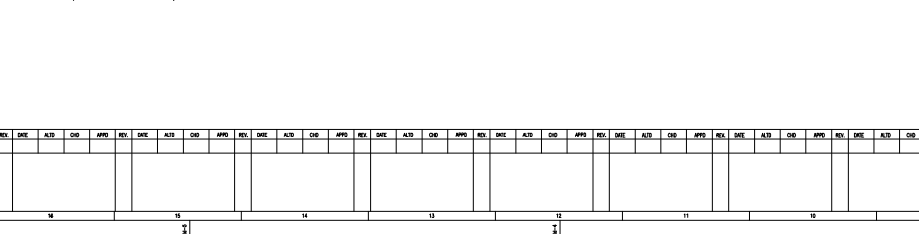
| | |
|---------|----------|
| JOB NO. | 508 |
| STATUS | CONTRACT |

| DISTRIBUTION | | | | |
|--------------|-----|------|------|-----|
| PRO | REV | DATE | ALTD | CHD |

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
| | | | | | |



FRAMING PLAN OF ROOF BEAM AT EL.(+)70.10 (B.O.S) (UNIT#3)



DETAIL —

DETAIL-X

STRUCTURAL STEEL = 2x175= 3507

1. ALL DIMENSIONS ARE IN MM & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS RL+420.00 M WHICH CORRESPONDS TO RL+1029.500 AMSL.
3. THE DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
4. FOR OTHER NOTES AND DET. DETAILS REF. DIRG. PE-050-0008-0000-00002
(NTPC DIRG. NO. NTPC NO. 6567) AND PE-050-0008-0000-00002.
5. CONNECTION DETAILS SHOWN ARE CORRE IN ACCORDANCE WITH PRACTICE OF GUJSTTS, NO. & DIA. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CONNECTIONS FABRICATION DRG.
6. ALL ELEVATIONS ARE TO THE TOP OF STEEL (U.S.G.O).
7. ALL BOLTED FIELD CONNECTIONS SHALL BE SHOWN WITH HSFR BOLTS (UNF).
8. STRUCTURAL STEEL ROLLED SECTIONS SHALL CONFORM TO GRADINATION E-250 & STRUCTURAL STEEL PLATES SHALL CONFORM TO GRADINATION E-350.

1. BHEL DWG NO. PE-DG-508-100-M001 (NTPC DWG NO. 9587-001-301-POC-F-001) - PLOT PLAN
2. BHEL DWG NO. IS-1-GA-767-116-M032 (NTPC DWG NO. 9587-001-155-PVM-B-032)
- LOAD DATA FOR BUNKER FLOORS OF UNIT#3 & 4 (SH-1 TO SH-4)

1. SHEL NO. 01-FC-00-508-014-0204 (NTPC DMC NO.9587-001-315-PVC-C-0247)
-BUNNER BAY - FRAMING PLAN OF TRIPPER FLOOR

2. SHEL NO. 01-FC-00-508-016-0004 (NTPC DMC NO.9587-001-315-PVC-C-0248)
-BUNNER'S BAY - R.C.C. OF FLOOR OF TRIPPER FLOOR

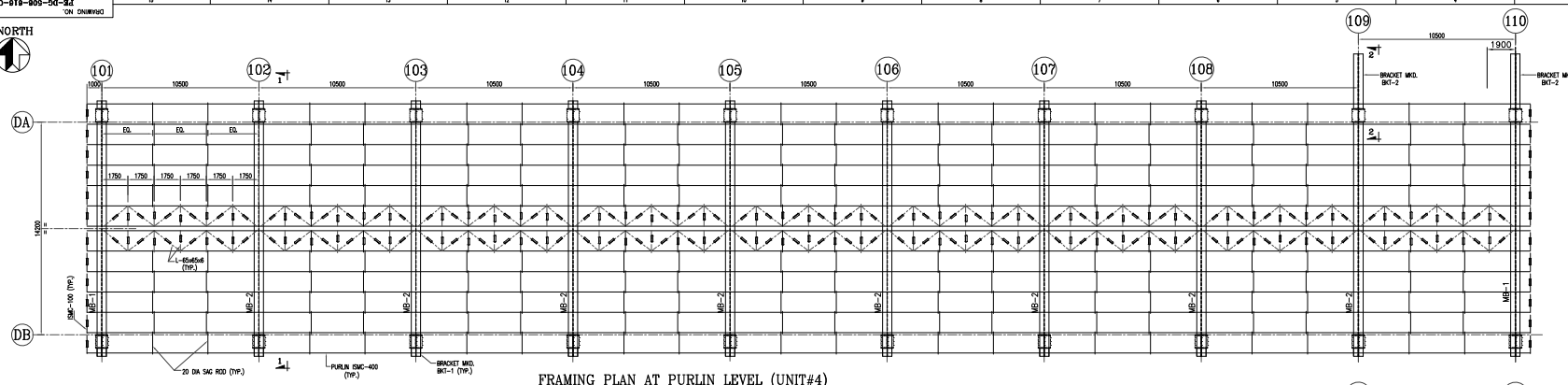
3. SHEL NO. 01-FC-00-508-016-0011 (NTPC DMC NO.9587-001-315-PVC-C-0249)
-BUNNER BAY - FRAMING PLAN OF TRIPPER FLOOR

4. SHEL NO. 01-FC-00-508-016-0005 (NTPC DMC NO.9587-001-315-PVC-C-0243)
-BUNNER'S BAY - R.C.C. OF TRIPPER FLOOR

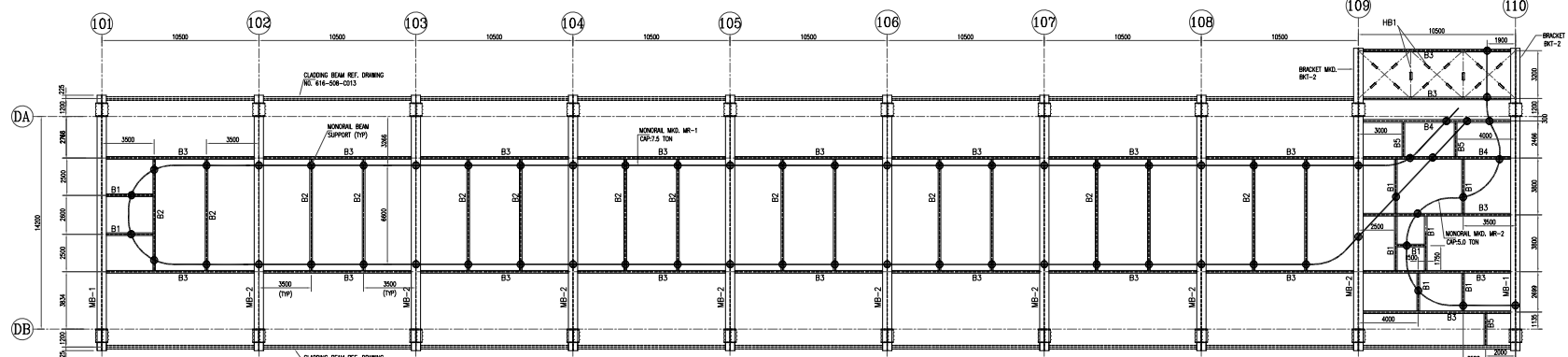
5. SHEL NO. 01-FC-00-508-016-0007 (NTPC DMC NO.9587-001-315-PVC-C-0246)
-BUNNER'S BAY - LONGITUDINAL FRAMING PLAN

6. SHEL NO. 01-FC-00-508-016-0008 (NTPC DMC NO.9587-001-315-PVC-C-0245)
-BUNNER'S BAY - TRANSVERSE FRAMING ARRANGEMENT

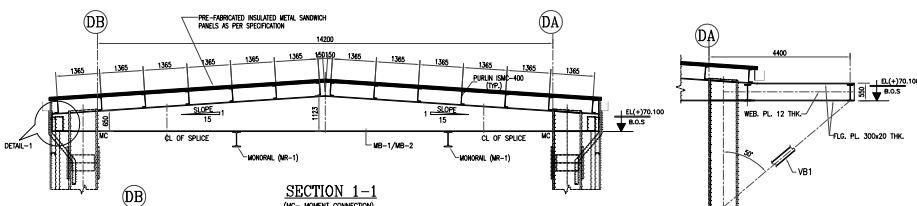
7. SHEL NO. 01-FC-00-508-016-0014 (NTPC DMC NO.9587-001-315-PVC-C-0251)
-BUNNER'S BAY - C/L OF FRAMING ARRANGEMENT SUPPORTING DECK



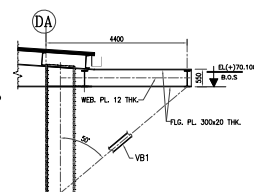
FRAMING PLAN AT PURLIN LEVEL (UNIT#4)



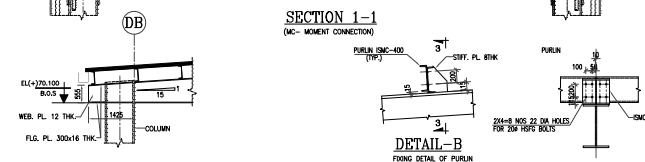
FRAMING PLAN OF ROOF BEAM AT EL.(+70.10 (B.O.S) (UNIT#4)



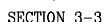
SECTION 1-1



SECTION 2-2



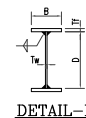
DETAIL-B



DETAIL-A
(T. OF BRACKET MKD. BKT-1)

SCHEDULE OF MEMBERS

| DESIGN- SECTION | SECTION | | | | | REMARKS |
|--------------------|----------------------|-----|----|----------------|---|----------------|
| | BUILT UP SECTION | | | | SECTIONS | |
| | Ø | B | T | T ₁ | | |
| B1 | — | — | — | — | NPR 400x192x77.6 | I |
| B2 | — | — | — | — | NPR 450x192x92.38 | I |
| B3 | 500 | 250 | 12 | 25 | | REF DET - I |
| B4 | 500 | 300 | 12 | 25 | | |
| B5 | — | — | — | — | ISM300 | I |
| MR1 | — | — | — | — | NPR 450x192x77.6 + CORN BUTTIN FLANGE TO WEL 8 196 | I |
| MR2 | — | — | — | — | NPR 450x192x77.6 + CORN BUTTIN FLANGE TO WEL 8 196 | I |
| MR1 | REFER SECTION I-1 | 400 | 16 | 20 | | WELDED SECTION |
| MR2 | REFER SECTION I-1 | 400 | 16 | 20 | | |
| VB1 | — | — | — | — | 2-SECTION(Ø) Ø86 12 000 | I |
| H81 | — | — | — | — | 2L 800x80 | I |



DETAIL-X

NOTES:—

1. ALL DIMENSIONS ARE IN M & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL(+0.00) M WHICH CORRESPONDS TO RL(+209.50) ABOVE M.S.L.
3. THE CONTRACT SHALL BE FOR THE SUPPLY OF MATERIALS WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF MATERIALS.
4. FOR OTHER NOTES AND DTS, DETAILS REF. DRG. 001-208-600-6002 (NTPC DRG NO. NTPC NO. 9887-001-153-PVC-C-0001).
5. CONNECTION DETAILS SHALL BE IN ACCORDANCE WITH THE THICKNESS OF GUSSETS, NO. & DIA. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CORRESPONDING FABRICATION DRG.
6. ALL ELEVATIONS ARE TO THE TOP OF STEEL (U.N.O.).
7. ALL BOXED FIELD CONNECTIONS SHALL BE DONE WITH HEFT BOLTS (U.N).
8. ALL STEEL ROLLED SECTIONS SHALL BE DONE TO GRADE DESIGNATION E-250 & STRUCTURAL STEEL PLATES SHALL CONFORM TO GRADE DESIGNATION E-350.


































ENGINEERING REFERENCE DRAWINGS :-

1. BHEL DWG NO. PE-DG-508-100-M001 (NTPC DWG NO. 9587-001-301)

2. BHEL DWG NO. IS-1-GA-767-116-M032 (NTPC DWG NO. 9587-001-155-PVM-B-032)
- LOAD DATA FOR BUNKER FLOORS OF UNIT#3 & 4 (SH-1 TO SH-4)

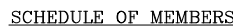
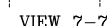
CONSTRUCTION REFERENCE DRAWINGS

1. BHEL DWG NO. PE-008-508-814-020 (NTPC DWG NO.9587-001-315-PVC-C-0247)
-RUNNER BAY - FRAMING PLATE FOR TRIPPER FLOOR
2. BHEL DWG NO. PE-008-508-814-004 (NTPC DWG NO.9587-001-315-PVC-C-0248)
-RUNNER'S BAY - R.C.C. OTIS OF TRIPPER FLOOR
3. BHEL DWG NO. PE-008-508-814-001 (NTPC DWG NO.9587-001-315-PVC-C-0246)
-RUNNER BAY - FRAMING PLATE OF TRIPPER FLOOR
4. BHEL DWG NO. PE-008-508-814-002 (NTPC DWG NO. 9587-001-315-PVC-C-0243)
-RUNNER BAY - R.C.C. OTIS OF TRIPPER FLOOR
5. BHEL DWG NO. PE-008-508-814-007 (NTPC DWG NO. 9587-001-315-PVC-C-0245)
-RUNNER'S BAY - LINDING PLATE OF TRIPPER FLOOR
6. BHEL DWG NO. PE-008-508-814-006 (NTPC DWG NO. 9587-001-315-PVC-C-0246)
-RUNNER'S BAY - TRANSVERSE FRAMING ARRANGEMENT.
7. BHEL DWG NO. PE-008-508-814-014 (NTPC DWG NO. 9587-001-315-PVC-C-0251)
-RUNNER'S BAY - G.I. OF RUNNER SUPPORTING RAILS.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| DATE: 26.07.2024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | |
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SECTION A-A



| DESIGN- NO. | SECTION | | | | | REMARKS |
|----------------|--------------------------------------|-----|----|----|----------|-----------|
| | BUILT UP SECTION | | | | SECTIONS | |
| | D | B | Tw | Tt | | |
| B1 | - | - | - | - | MB-500 | I |
| B2 | MB 500 + F.L. PL. 150 x 8 THK. (TOP) | | | | | REF DET - |
| B3 | 850 | 350 | 12 | 28 | | REF DET - |
| B3A | 850 | 400 | 12 | 25 | | |
| B4 | - | - | - | - | MB-500 | |
| B5 | - | - | - | - | MB-300 | I |
| B6 | - | - | - | - | MB-400 | |
| B7 | 850 | 300 | 12 | 25 | | |
| B8 | 700 | 250 | 12 | 25 | | |
| B9 | 350 | 350 | 10 | 12 | | REF DET - |
| BCT-1 | 500 | 250 | 12 | 16 | | |



DETAIL-A



DETAIL-B

NOTES:-

1. ALL DIMENSIONS ARE IN MM & ELEVATIONS IN METERS UNLESS STATED OTHERWISE.
2. ALL ELEVATIONS ARE REFERRED TO THE FINISHED FLOOR LEVEL OF POWER HOUSE BUILDING AS EL+0.000 M WHICH CORRESPONDS TO RL+209.500 AMS M.S.L.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
4. FOR OTHER NOTES AND STD. DETAILS REF. DRG. PE-DG-508-600-0002 (NTPC DRG NO. NTPC NO. 9587-001-315-PVC-C-0001)
5. CONNECTION DETAILS SHOWN ARE INDICATIVE ONLY. SIZE & THICKNESS OF GUSSETS, NDS & DIA. OF CONNECTION BOLTS ETC. SHALL BE SHOWN IN CORRESPONDING FABRICATION DRG.
6. ALL ELEVATIONS ARE TO TOP OF STEEL (U.A.O.)



ENGINEERING REFERENCE DRAWINGS :-

1. BHEL DWG NO. PE-DG-508-100-M001 (NTPC DWG NO. 9587-001-301-POC-F-001) - PLOT PLAN
2. BHEL DWG NO. IS-1-GA-767-116-M032 (NTPC DWG NO. 9587-001-155-PVM-B-032)
- LOAD DATA FOR BUNKER FLOORS OF UNIT#3 & 4 (SH-1 TO SH-4)


CONSTRUCTION REFERENCE DRAWINGS

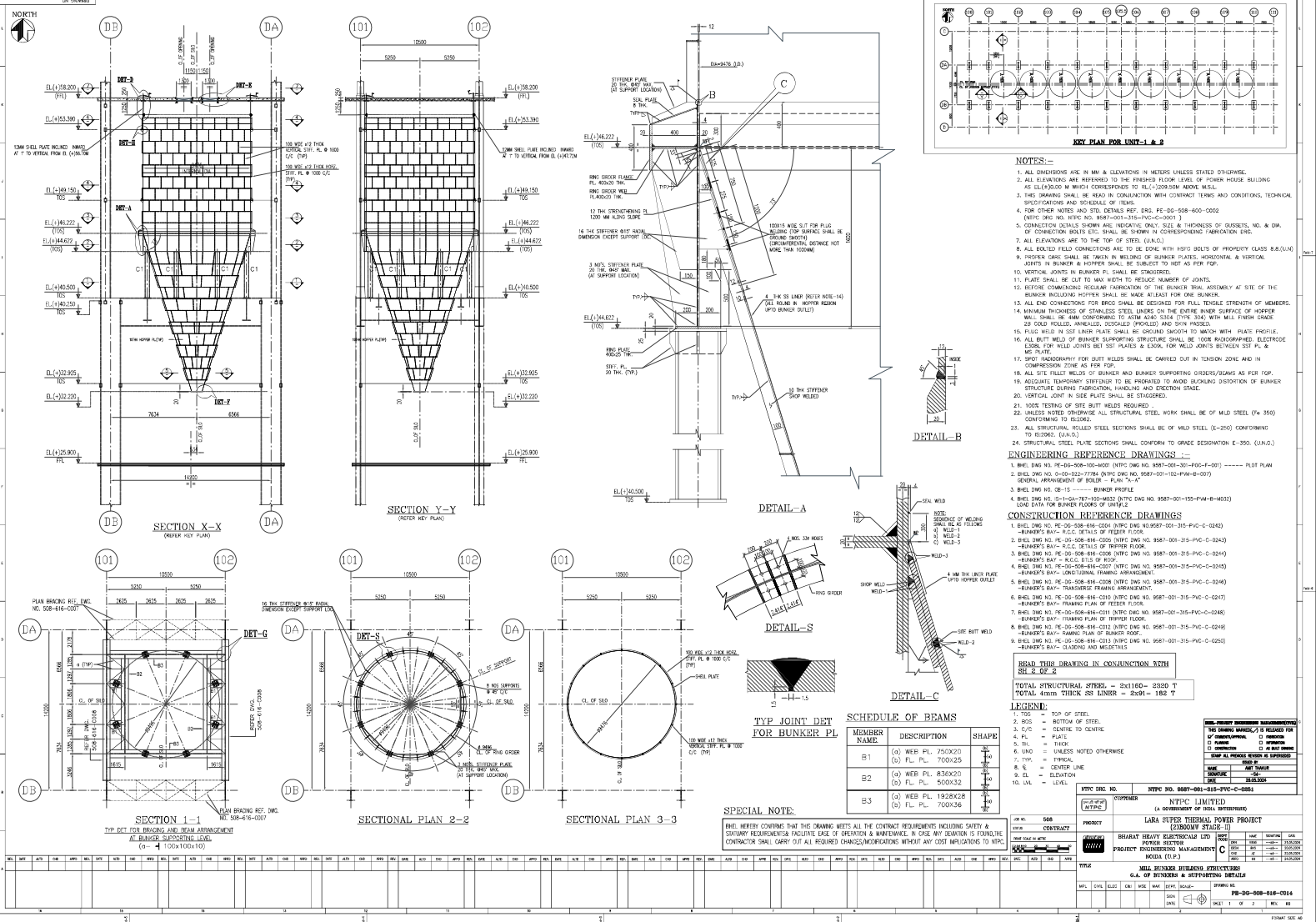
1. BULKER DWG. NO. PG-008-508-616-000 (NTPC DWG NO. 9587-001-315-PVC-C-0247)
 -BUNKER BAY - FRAMING PLAN OF FEEDER FLOOR
2. BULKER DWG. NO. PG-008-508-616-0005 (NTPC DWG NO. 9587-001-315-PVC-C-0242)
 -BUNKER'S BAY - R.C.C. DTLS OF FEEDER FLOOR
3. BULKER DWG. NO. PG-008-508-616-0004 (NTPC DWG NO. 9587-001-315-PVC-C-0243)
 -BUNKER'S BAY - R.C.C. DTLS OF TRIPPER FLOOR
4. BULKER DWG. NO. PG-008-508-616-0002 (NTPC DWG NO. 9587-001-315-PVC-C-0248)
 -BUNKER BAY - FRAMING PLAN OF BUNKER
5. BULKER DWG. NO. PG-008-508-616-0006 (NTPC DWG NO. 9587-001-315-PVC-C-0249)
 -BUNKER'S BAY - R.C.C. DTLS OF BUNKER FLOOR
6. BULKER DWG. NO. PG-008-508-616-0003 (NTPC DWG NO. 9587-001-315-PVC-C-0245)
 -BUNKER'S BAY - LONGITUDINAL FRAMING ARRANGEMENT.
7. BULKER DWG. NO. PG-008-508-616-0008 (NTPC DWG NO. 9587-001-315-PVC-C-0246)
 -BUNKER'S BAY - TRANSVERSE FRAMING ARRANGEMENT.
8. BULKER DWG. NO. PG-008-508-616-0004 (NTPC DWG NO. 9587-001-315-PVC-C-0251)
 -BUNKER'S BAY - G.F. BUNKER'S SUPPORTING DETAILS.

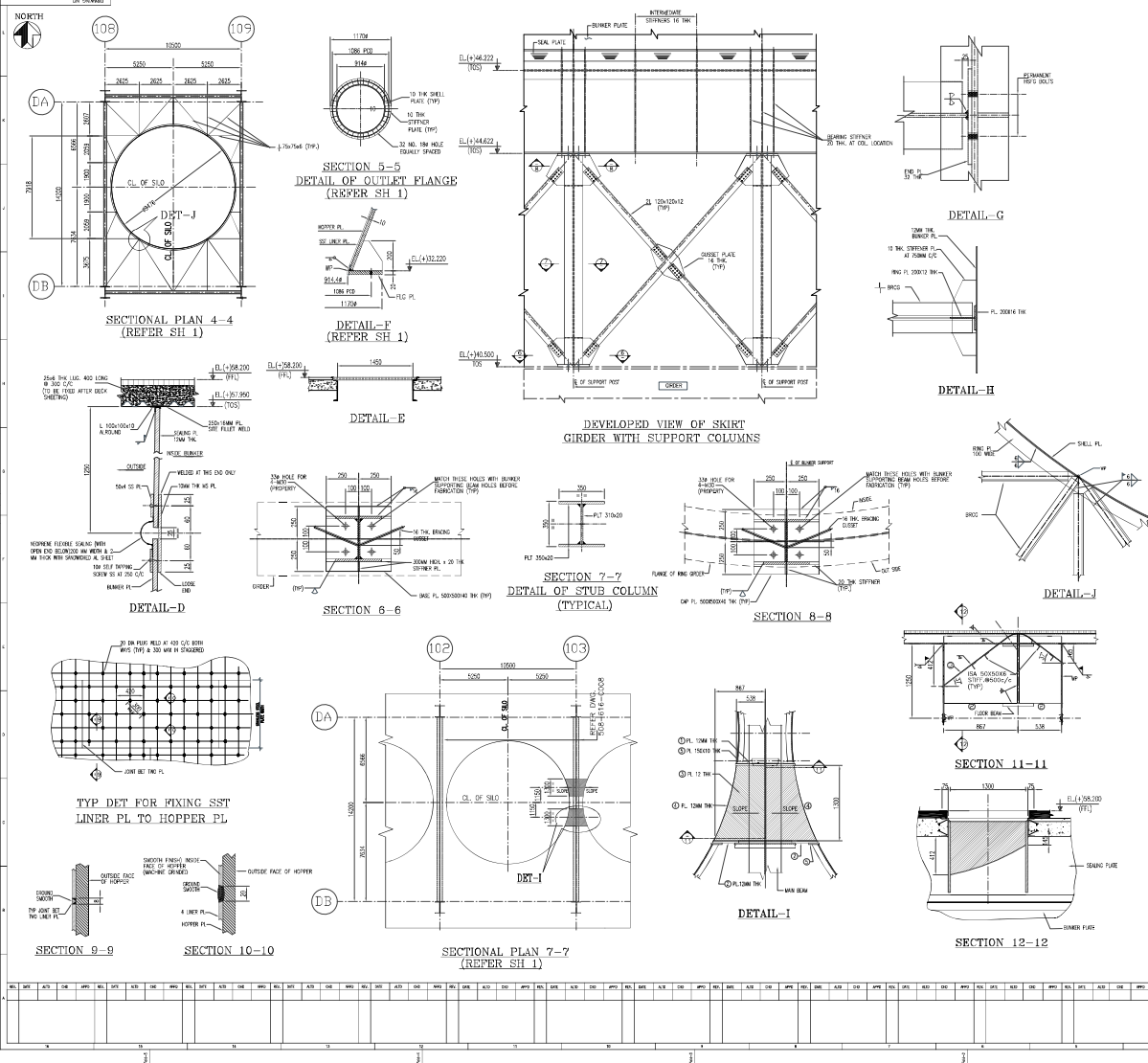
| | |
|---|----------------------|
| BRIEF-PROJECT ENGINEERING MANAGEMENT (BPEM) | |
| THIS DRAWING MARKED (✓) IS RELEASED FOR | |
| <input checked="" type="checkbox"/> | COMMENTS/APPROVAL |
| <input type="checkbox"/> | PLANNING/INFORMATION |
| <input type="checkbox"/> | CONSTRUCTION |
| STAMP ALL PREVIOUS REVISIONS AS SUPERSEDED | |
| ISSUED BY | |
| NAME | AMIT THAKUR |
| SIGNATURE | -SD- |
| DATE | 06.07.2024 |

| NTPC DRG. NO. | | 9567-061-315-PYC-C-0246 | | | | | | | | | | | | | | | | | | | | | |
|---|------|---|--|----|------|-----------|------|----|-----|----|------------|----|-----|----|------------|----|-----|----|------------|----|------|----|------------|
|  | | <p align="center">CUSTOMER</p> <p align="center">NTPC LIMITED</p> <p align="center">(A GOVERNMENT OF INDIA ENTERPRISE)</p> | | | | | | | | | | | | | | | | | | | | | |
| PROJECT | | <p align="center">LARA SUPER THERMAL POWER PROJECT</p> <p align="center">(2X800MW STAGE-II)</p> | | | | | | | | | | | | | | | | | | | | | |
|  | | <p align="center">BHARAT HEAVY ELECTRICALS LTD</p> <p align="center">POWER SECTOR</p> <p align="center">PROJECT ENGINEERING MANAGEMENT</p> <p align="center">NOIDA (U.P.)</p> | | | | | | | | | | | | | | | | | | | | | |
| | | <p align="center">ESTD 1962</p> <p align="center">C</p> | <table border="1"> <thead> <tr> <th>SR</th> <th>NAME</th> <th>SIGNATURE</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>SEN</td> <td>HC</td> <td>03.07.2004</td> </tr> <tr> <td>02</td> <td>SEN</td> <td>HC</td> <td>03.07.2004</td> </tr> <tr> <td>03</td> <td>SEN</td> <td>HC</td> <td>03.07.2004</td> </tr> <tr> <td>04</td> <td>APPC</td> <td>HC</td> <td>03.07.2004</td> </tr> </tbody> </table> | SR | NAME | SIGNATURE | DATE | 01 | SEN | HC | 03.07.2004 | 02 | SEN | HC | 03.07.2004 | 03 | SEN | HC | 03.07.2004 | 04 | APPC | HC | 03.07.2004 |
| SR | NAME | SIGNATURE | DATE | | | | | | | | | | | | | | | | | | | | |
| 01 | SEN | HC | 03.07.2004 | | | | | | | | | | | | | | | | | | | | |
| 02 | SEN | HC | 03.07.2004 | | | | | | | | | | | | | | | | | | | | |
| 03 | SEN | HC | 03.07.2004 | | | | | | | | | | | | | | | | | | | | |
| 04 | APPC | HC | 03.07.2004 | | | | | | | | | | | | | | | | | | | | |

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| JOB NO. | 508 | | | |
| STATUS | CONTRACT | | | |
| POND SCALE IN METRE | | | | |
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| REV. | DATE | ALT. | CHD | APP. |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|--|-------|--|------|--|-----|--|-----|--|---|--|-------|--|---|--|---------------------------|--|---------|--|---|--|--|--|--|--|--|--|--|--|
| TITLE | | | | | | | | | | MILL & BUNKER BAY (UNIT # 3 & 4) | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | FRAMING PLAN OF TRIPPER FLOOR | | | | | | | | | | | | | | | | | | | |
| MPL | | CIVIL | | ELEC | | C&I | | MSE | | MAX | | DEPT. | | SCALE:- | | DRAWING NO. | | | | | | | | | | | | | |
| | | | | | | | | | | | | SIGN | |  | | PE-DG-506-618-C011 | | | | | | | | | | | | | |
| | | | | | | | | | | | | DATE | | | | SHEET 2 OF 2 | | REV. NO | | | | | | | | | | | |
| 3 | | | | | | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | |

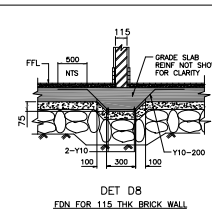




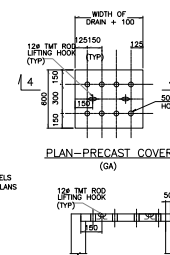
FOR NOTES REFER SHEET 1 OF 2

READ THIS DRAWING IN CONJUNCTION WITH
SH 1 OF 2

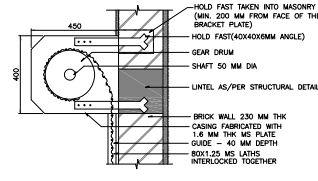
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| NTPC CIRC NO. 0087-001-315-PVC-C-0251 CUSTOMER: NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) | | PROJECT: LARA SUPER THERMAL POWER PROJECT (CARBOONY STAGE-II) HILARY HEAVY ELECTRICAL LTD. (EPC) POWER RECTOR PROJECT ENGINEERING MANAGEMENT MOIDA (C.P.) | |
| NTPC CIRC NO. 0087-001-315-PVC-C-0251 CUSTOMER: NTPC LIMITED (A GOVERNMENT OF INDIA ENTERPRISE) | | PROJECT: LARA SUPER THERMAL POWER PROJECT (CARBOONY STAGE-II) HILARY HEAVY ELECTRICAL LTD. (EPC) POWER RECTOR PROJECT ENGINEERING MANAGEMENT MOIDA (C.P.) | |
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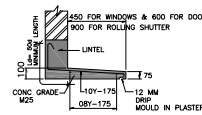
DET D8
FDN FOR 11.5 THK BRICK WALL



SECT 4-4



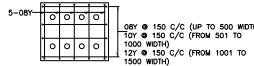
DET-B



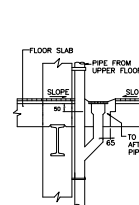
DET OF CHAJJA
WITHOUT FASCIA

| SI NO | DRAIN WIDTH | THICKNESS (T) |
|-------|--------------|---------------|
| 1 | UP TO 500 | 60 |
| 2 | 500 TO 1000 | 75 |
| 3 | 1000 TO 1500 | 100 |

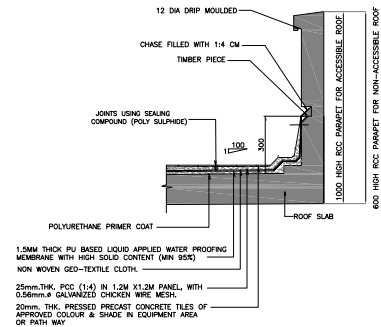
PLAN-PRECAST COVER
(REINF)
(CENTERLY PLACED)



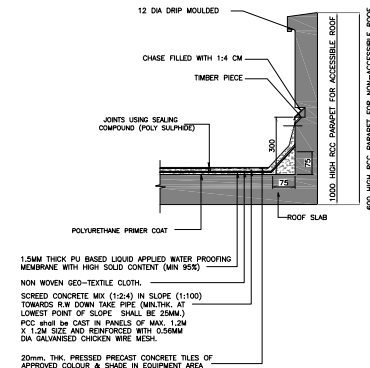
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH CONTRACT TERMS AND CONDITIONS, TECHNICAL SPECIFICATIONS AND SCHEDULE OF ITEMS.
2. ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES, UNLESS STATED OTHERWISE..

[illegible]

DET OF FLOOR DRAIN

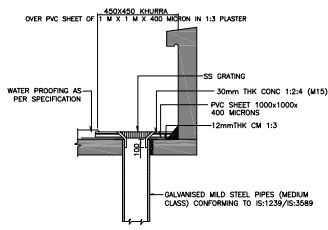


WATERPROOFING FOR ROOF HAVING STRUCTURAL SLOP
(ROOF SLOPE 1 IN 100)



WATERPROOFING FOR ROOF HAVING NO STRUCTURAL SLOPE

NOTE : 15MM THICK CEMENT SAND MORTAR (1:4)
PLASTER SHALL BE PROVIDED ON TOP OF BARE ROOF
SLAB IF REQUIRED FOR LEVELLING THE TOP SURFACE.




DETAIL-X OF RAIN WATER PIPE

| NOMINAL DIA OF RADP (d) 'mm' | SLAB OPENING IN 'mm' |
|---------------------------------------|----------------------------|
| 150 | 175 |


| TYPE OF RAIN WATER DOWN TAKE PIPES | BUILDING/ STRUCTURE |
|------------------------------------|---------------------|
| GALVANISED MILD STEEL PIPES | POWER HOUSE BLDG. |
| UPVC PIPES | OTHER BUILDINGS |

| | |
|--|----------|
| कार्ड नं०- JOB NO. | 512 |
| स्थिति STATUS | CONTRACT |
| सूत्रांक नमूना में PRINT SCALE IN METRE | |
| 0248810 25 30 45 60 | |

| | |
|---|--------------------------|
| ग्राहक ड्राइंग संख्या CUSTOMER DRAWING NO. | 1150-001-315-PVC-C-0151A |
| ग्राहक/CUSTOMER | एन टी पी सी लिमिटेड |

| | |
|---|--|
|  | <p>एन टी पी सी लिमिटेड N T P C LIMITED</p> |
| परियोजना | 2x800 मेगावाट स्फिरीली सप्लर थर्मल पावर परियोजना चरण-III |

| | | | | | |
|------------|---|--|-----------|-----|------|
| PROJECT | 2x800MW SINGRAULI SUPER THERMAL POWER PROJECT STAGE-III | | | | |
| DESIGN NO. | भारत हेवी इलेक्ट्रिकल लिमिटेड BHARAT HEAVY ELECTRICALS LTD | | DEPT CODE | REV | DATE |

| | | | | | | |
|---|--------------------------------|---|-------------------|----|-----|------------|
|  | पॉवर सेक्टर/POWER SECTOR | C | प्रमुख/Chief | MR | -86 | 05.07.2024 |
| | परियोजना अभियंता/प्रबंधन | | सहायक/Asst. Engr. | MR | -86 | 05.07.2024 |
| | PROJECT ENGINEERING MANAGEMENT | | सहायक/Asst. Engr. | MR | -86 | 05.07.2024 |
| | नोएडा (उ.प्र.)/NOIDA (U.P.) | | सहायक/Asst. Engr. | MR | -86 | 05.07.2024 |

| | | | | | | |
|---|-----|---------|-------|-------|-----|-----------------------------|
| शीट/TITLE | | | | | | POWER HOUSE BUILDING |
| GENERAL NOTES AND STANDARD DETAILS FOR ARCHITECTURAL WORKS | | | | | | |
| आवृत्ति | शीट | प्रकल्प | स्थान | मालिक | अंक | ड्राफ्ट्समैन / स्टेशनरी |

| | | | | | | | | | |
|------|-------|------|-----|------|-----|-----------|---|-------------------------|---|
| MPIL | CIVIL | ELEC | C&I | NISE | MAX | DEPT. | SCALE | SHEET NO. / DRAWING NO. | |
| | | | | | | WEEK SIGN | | PE-DG-512-600-C003 | |
| | | | | | | DATE | | 1 OF 1 | 0 |

Jul 05, 2024 - 10:09am RD फॉर्मेट: खाली आकार: A

CORPORATE QUALITY ASSURANCE

VENDOR'S PROPOSAL CUM EVALUATION REPORT

| ANNEXURE- 4 | | | | | | | | | | (P4F1R0) | | | |
|--|---|-------------------|---|---|---|-----------------------------------|---------------------------|---|------------------------------|----------|---------------------------|--------------|--|
| *Supplier has to submit all the documents as per the annexures cited here and naming philosophy must be as prescribed in this document | | | | | | | | | | | | | |
| Ref No: | | | | | | Date: | | | | | | | |
| i. | Main Contractor | | Bharat Heavy Electricals Limited | | | | | | | | | | |
| ii. | Project | | 2X800 MW Singrauli Project | | | | | | | | | | |
| iii. | Package Name | | Main Power House Structure fabrication and Supply | | | | Package No | | | | | | |
| iv. | Proposed Item/Scope of Sub-contracting | | | Main Power House Structure fabrication and Supply | | | | | | | | | |
| v. | Item covered under | Schedule-1 | | | | As per contract clause No- | | | | | | | |
| | | Schedule-2 | | | | | | | | | | | |
| vi. | If item is Schedule-1 and proposed sub-vendor is indigenous, Main Contractor to explain how the contractual provisions will be fulfilled | | | | | | | | | | | | |
| vii. | Name and Address of the proposed Sub-vendor's works: - | | | | | | | | | | | | |
| viii. | PO placement date/ Start of manufacturing (if self-manufactured) as per L2 network | | | | | | | | Under evaluation | | | | |
| ix. | Item Description (Type/Size/Rating/Scope of Sub-Contracting) | | Total quantity of proposed item envisaged in this package (Nos/ Running Meters/ Kgs/ Tons etc) | | Quantity proposed to be procured from proposed sub-vendor (Nos/ Running Meters /Kgs /Tons etc) | | | Timeline for quantity requirements as per project schedule & whether the proposed Sub-vendor equipped with adequate capacity to supply proposed order quantity in time | | | | | |
| | Main Power House Structure fabrication and Supply | | 30071 MT | | 16521 MT | | | 26 Months contract period; Sub vendor is equipped to supply the proposed quantity. | | | | | |
| x. | Supply experience of the proposed sub-vendor (including supplies to Main Contractor, if any) for similar item/scope of sub-contracting, for last 3 years (Note:- Only relevant experience details w.r.t. proposed item/scope of subcontracting to be brought out here) | | | | | | | | | | | | |
| | Project/Package | | Customer Name | | Supplied Item (Type/Rating/Model /Capacity/Size etc) | | PO ref no/date | | Supplied Quantity | | Date of Supply | | |
| | | | | | | | | | | | | | |
| We confirm that as per our assessment, the proposed sub-vendor has requisite capabilities & supply experience and is suitable for supplying the proposed item/scope of sub-contracting. | | | | | | | | | | | | | |
| Name : | | | Desig: | | | Contact No: | | | Sign: | | | Date: | |

Company's Seal/Stamp:-

| | |
|--|--|
| | <p align="center">CORPORATE QUALITY ASSURANCE</p> <p align="center">VENDOR QUESTIONNAIRE</p> |
|--|--|

| | | | | | |
|--|--|---|--|--|--|
| ANNEXURE-5 | | (P4F2R0) | | | |
| <p>*Supplier has to submit all the documents as per the annexures cited here and naming philosophy must be as prescribed in this document</p> | | | | | |
| i. | Item/Scope of Sub-contracting | Main Power House Structure fabrication and Supply | | | |
| ii. | Address of the registered office | Details of Contact Person (Name, Designation, Mobile, Email) | | | |
| iii. | Name and Address of the proposed Sub-vendor's works where item is being manufactured | Details of Contact Person: (Name, Designation, Mobile, Email) | | | |
| iv. | Annual Production Capacity for proposed item/scope of sub-contracting | | | | |
| v. | Annual production for last 3 years for proposed item/scope of sub-contracting | <table border="1"> <tr> <td></td> <td></td> <td></td> </tr> </table> | | | |
| | | | | | |
| vi. | Details of proposed works | | | | |
| 1. | Year of establishment of present works | | | | |
| 2. | Year of commencement of manufacturing at above works | | | | |
| 3. | Details of change in Works address in past (if any) | | | | |
| 4. | Total Area | | | | |
| | Covered Area | | | | |
| 5. | Factory Registration Certificate | (Details to be attached as Annexure – F2.1) | | | |
| 6. | Design/ Research & development set-up (No. of manpower, their qualification, machines & tools employed etc.) | Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design (Details to be attached as Annexure – F2.2) (if applicable) | | | |
| 7. | Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc.) | (Details to be attached as Annexure – F2.3) | | | |

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| | <p align="center">CORPORATE QUALITY ASSURANCE</p> <p align="center">VENDOR QUESTIONNAIRE</p> |
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|-----------------------------|--|--|-----------------------|--------------------------|-----------------------|
| 8. | After sales service set up in India, in case of foreign sub-vendor <i>(Location, Contact Person, Contact details etc.)</i> | <i>Applicable / Not applicable</i> <i>(Details to be attached as Annexure – F2.4)</i> | | | |
| 9. | Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any. | <i>(Details to be attached as Annexure – F2.5)</i> | | | |
| 10. | Sources of Raw Material/Major Bought Out Item | <i>(Details to be attached as Annexure – F2.6)</i> | | | |
| 11. | Quality Control exercised during receipt of raw material/BOI, in-process, Final Testing, packing | <i>(Details to be attached as Annexure – F2.7)</i> | | | |
| 12. | Manufacturing facilities <i>(List of machines, special process facilities, material handling etc.)</i> | <i>(Details to be attached as Annexure – F2.8)</i> | | | |
| 13. | Testing facilities <i>(List of testing equipment)</i> | <i>(Details to be attached as Annexure – F2.9)</i> | | | |
| 14. | If manufacturing process involves fabrication then- <div> <div>List of qualified Welders</div> <div>List of qualified NDT personnel with area of specialization</div> </div> | <i>(Details to be attached as Annexure – F2.10)</i> <i>(if applicable)</i> | | | |
| 15. | List of out-sourced manufacturing processes with Sub-Vendors' names & addresses | <i>Applicable / Not applicable</i> <i>(Details to be attached as Annexure –F2.11)</i> <i>(if applicable)</i> | | | |
| 16. | Supply reference list including recent supplies | <i>Details to be attached as Annexure – F2.12</i> <i>(as per format given below)</i> | | | |
| Project/ package | Customer Name | Supplied Item (Type/Rating/Model /Capacity/Size etc) | PO ref no/date | Supplied Quantity | Date of Supply |
| | | | | | |
| 17. | Product satisfactory performance feedback letter/certificates/End User Feedback | <i>(Details to be attached as Annexure - F2.13)</i> | | | |

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| | <p align="center">CORPORATE QUALITY ASSURANCE</p> <p align="center">VENDOR QUESTIONNAIRE</p> |
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| 18. | Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product (similar or higher rating) Note: - Reports need not to be submitted | Applicable / Not applicable <i>(Details to be attached as Annexure – F2.14)</i> <i>(if applicable)</i> |
| 19. | Statutory / mandatory certification for the proposed product | Applicable / Not applicable <i>(Details to be attached as Annexure – F2.15)</i> <i>(if applicable)</i> |
| 20. | Copy of ISO 9001 certificate (if available) | (Details to be attached as Annexure – F2.16) |
| 21. | Product technical catalogues for proposed item (if available) | (Details to be attached as Annexure – F2.17) |

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| | | | | | | | |
| Name: | | Desig: | | Sign: | | Date: | |

Company's Seal/Stamp:-

| Price Bid for Fabrication and Supply of Factory Fabricated Structures of Power house, CCR and Mill Bunker Structures at 2X800 MW Singrauli TPS | | | | | | |
|--|---|-----|--------|---------------|---------------|--------------|
| Total Price towards Execution of works of Package-A | | | | | | |
| | Description | UOM | Qty | Average Rates | Amount | Weightage |
| 2300 | STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge. | | | | | |
| A2301 | Fabrication (shop fabricated in customer approved shop as per specification including painting as per applicable corrosivity class mentioned in specification), of Medium and High Tensile structural steel (Grade designation E350/E250 or higher unless stated otherwise) Quality B0 (Fully killed), conforming to IS 2062. Plates beyond 12mm thickness and up to 40mm thickness shall be normalized rolled. Plates beyond 40mm thickness shall be vacuum degassed & furnace normalised and shall also be 100% ultrasonically tested as per ASTM –A578 level BS2. The fabrication can be with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non-destructive and special testing which shall cover the conductance of Radiography Testing, Ultra sonic Testing of welds, RT, UT, DPT and MPT of Plates as per ASTM A435, and/or on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete, rectification and correction of defective welding works, production test plate, inspection and testing, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification, dismantling and removal of all temporary structures, assembly of the structures at factory for testing etc. of Unit#1 and Unit#2 where most of the raw material supply is in BHEL scope. Grade of Steel: E250/E350/Square and Rectangular Tubular Sections. | | | | | |
| A2301 a | Grade of Steel: E250/E350/Square and Rectangular Tubular Sections (Material shall be in BHEL scope) | MT | 15,021 | ₹ 0.00 | | 0.5849595475 |
| A2301 b | Grade of Steel: E250/E350/Square and Rectangular Tubular Sections (Material shall be in Vendor scope) | MT | 1,500 | ₹ 0.00 | | 0.2254006928 |
| A2302 | Extra over ST NO. A2301 for blast cleaning of steel structures to near white metal surface(Sa 2 1/2) and applying coat of two component moisture curing zinc (ethyl) Silicate primer (solid by volume Minimum 60+/-2% & zinc dust % on dry film minimum 80 %). Zinc dust composition and properties shall be Type-II as per ASTM D520-00. Primer of minimum 70 micron DFT shall be applied over shot blast cleaned surface including touch-up painting etc all complete. Primer coat shall be applied in Shop immediately after blast cleaning by airless spray technique. | MT | 16,521 | ₹ 0.00 | | 0.0843777402 |
| A2305 | Providing and applying (with airless spray technique) intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT to be applied after an interval of minimum 24 hours (from the application of primer coat by airless spray technique.) and of approved make including protection and cleaning, scaffolding etc. all complete as per specification for all structures . | MT | 16,521 | ₹ 0.00 | | 0.0524207191 |
| B2305 | Providing and applying Finish coat of two-pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level 2 (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT shall be applied after an interval of minimum 10 hours (from the application of sealer coat), Colour and shade of the coat shall be as approved by the Employer) over steel sections already having intermediate coats including protection and cleaning, scaffolding etc. all complete as per specification for all structures . | MT | 16,521 | ₹ 0.00 | | 0.0528413005 |
| | | | | | ₹ 0.00 | 1.0000000000 |

| 2X800 MW Singrauli TPS | | | |
|----------------------------------|---|--------------|-----------|
| Summay (Un-Priced Rate Schedule) | | | |
| SI No | Description | Total Amount | Weightage |
| 1 | Fabrication and Supply of Factory Finished Fabricated Structure of Power House, Common Control Room, Mill Bunker Structure (Columns, Bracings, Wall beams, Floor Beams, Trusses etc.) up-to Project Site, based on input design & detailed drawing provided by BHEL and where most of the raw material supply is in BHEL scope, and as specified in scope / BOQ of Unit#1 and Unit#2. for 2x800 MW NTPC Singrauli (Stage-III), Shakti Nagar, Uttar Pradesh State India. | | 100% |

Item Wise BoQ

Tender Inviting Authority: BHARAT HEAVY ELECTRICALS LIMITED, CENTRAL PROCUREMENT CELL (CPC), BHEL-PSHQ, Noida

Scope of Work: Fabrication and Supply of Factory Finished Fabricated Structure of Power House, Common Control Room, Mill Bunker Structure (Columns, Bracings, Wall beams, Floor Beams, Trusses etc.) up-to Project Site, based on input design & detailed drawing provided by BHEL and where most of the raw material supply is in BHEL scope, and as specified in scope / BOQ of Unit#1 and Unit#2. for 2x800 MW NTPC Singrauli (Stage-III)

Tender Enquiry No: BHEL/CPC/SGL/FAB_STR/25/034

| | |
|--|--|
| Name of the Bidder/ Bidding Firm / Company : | |
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PRICE SCHEDULE

(DOMESTIC TENDERS - RATES ARE TO BE GIVEN IN RUPEES (INR) ONLY)

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

1.Taxes & Duties shall be as per Chapter - IX of Technical Conditions of Contract (TCC) of tender.

2. Modality of award shall shall be as per Clause No. 8.2 of TCC.

3. BOQ along with weightage for Package A is mentioned at 8.1of Chapter IX of TCC.

4. Against Column no. 7 below, Bidders are requested to Quote Total price (excluding taxes) towards execution of work of Package A (sl.no. 1.01).

| NUMBER # | TEXT # | NUMBER # | TEXT # | NUMBER # | NUMBER # | TEXT # |
|----------------------|--|---------------|-----------|---|---|-----------------------|
| Sl. No. | Item Description | Quantity | UOM | TOTAL Price In Figures To be entered by the Bidder in Rs. P | TOTAL AMOUNT Without Taxes col (13) = (4) x (7) in Rs. P | TOTAL AMOUNT In Words |
| 1 | 2 | 4 | 5 | 7 | 13 | 15 |
| 1.01 | Total price towards execution of work of Package A (refer BOQ S.No. 8.1): Fabrication and Supply of Factory Finished Fabricated Structure of Power House, Common Control Room, Mill Bunker Structure (Columns, Bracings, Wall beams, Floor Beams, Trusses etc.) up-to Project Site, based on input design & detailed drawing provided by BHEL and where most of the raw material supply is in BHEL scope, and as specified in scope / BOQ of Unit#1 and Unit#2. for 2x800 MW NTPC Singrauli (Stage-III). Majority of raw material is in BHEL scope, refer BOQ for details. | 1.00 | Package A | | 0.00 | INR Zero Only |
| Total in Figures | | | | | 0.00 | INR Zero Only |
| Quoted Rate in Words | | INR Zero Only | | | | |