Factory Fabrication of Power House Structure

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Fabrication & Supply of Factory Finished Fabricated Structure of Power House Structure (Columns, Bracings, Wall beams, Floor Beams, Trusses etc.) up-to Project Site, with supply of Raw material based on input design & detailed drawing provided by BHEL as specified in scope / BOQ of Unit#1 for 1x800 MW NTPC Sipat (Stage-III), Sipat, Dist-Bilaspur, Chhattisgarh, India.

BHARAT HEAVY ELECTRICALS LIMITED

TECHNICAL CONDITIONS OF CONTRACT (TCC)
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LIST OF ABBREVIATIONS AND THEIR DESCRIPTION

SL. No.	ABBREVIATION	DESCRIPTION
1	DC	Delivery Challan
2	IR	Inspection Report
3	MPI	Magnetic Particle Inspection
4	LPI	Liquid Penetrant Inspection
5	QP	Quality Plan
6	QCP	Quality Control Procedure
7	QWI	Quality Work Instructions
8	PO	Purchase Order
9	TC	Test Certificate
10	GST	Goods & Services Tax
11	CQP	Customer Quality Plan
12	TDC	Technical Delivery Condition
13	EPS	E-PROCUREMENT SYSTEM

Annexures

Sl No	Description	Remarks
1	Format for Details of PO/WO Executed by Vendor	Annexure-1
2	Declaration by Bidder	Annexure-1A
3	Customer approved Vendor List E-60, clause 19.1 of Customer GCC and QA approved supplier - steel	Annexure-2A, 2B & 2C
4	Vendor's Proposal Cum Evaluation Report- P4F1R0	Annexure-3
5	Vendor Questionnaire- P4F2R0	Annexure-4
6	BHEL Fabrication specification D-17	Annexure-5
7	Tentative Requirement of Factory	Annexure-A
8	Price Variation Clause	Annexure-B

1. **Project Information:**

Sl. No.	Description	Details
1	**Project Title**	1X800MW Sipat Super Thermal Power Station, Stage-III
2	**Customer**	National Thermal Power Corporation Limited (NTPC Limited)
3	**Location**	The project is located in Bilaspur district of Chhattisgarh, having latitude and longitude of 220 - 05' to 220 - 09' (N) and 820 -16' to 820 - 18' (E) respectively.
4	**Nearest Airport**	The nearest commercial airport, Raipur is about 150 Km from the project site.
5	**Access by Road/Major Cities**	The project site is approximately 20 Km from Bilaspur city and is approachable via Bilaspur – Baloda State Highway which passes through Sipat.
6	**Temperature**	The annual daily max temperature is 42.4 °C and annual daily minimum temperature is 13.8 °C
7	**Seismic Zone**	Zone-III
8	**Wind Speed**	39m/s

<table>
<tr><th></th><th>INSTRUCTIONS TO BIDDERS</th></tr>
<tr><td>1.1</td><td>The Bidder shall visit project site and acquire full knowledge and information about conditions prevailing at site and in & around the plant premises, together with site conditions, transportation routes, distance of site from proposed Shop, RTO rules, BHEL storage area/unloading area within the site premises, laydown area, project owner gate pass system, facilities in and around site, various distances, all the statutory, obligatory, mandatory requirements of various authorities and all information that may be necessary for preparing the bid and entering into the Contract. All costs for and associated with site visits shall be borne by the bidder.</td></tr>
<tr><td>1.2</td><td>The information given herein is for general guidance and shall not be contractually binding on BHEL/Owner. All relevant site data /information as may be necessary shall have to be obtained /collected by the Bidder.</td></tr>
<tr><td>1.3</td><td>No claim will be entertained by BHEL on ground of lack of knowledge and the contractor's rates shall be deemed to have taken this into account.</td></tr>
<tr><td>1.4</td><td>Bidders may fix up their site visit in consultation with below mentioned contact person:
<table>
<tr><td>Name:</td><td>Sh. Deepak Rathore</td></tr>
<tr><td>Designation:</td><td>AGM/PD</td></tr>
<tr><td>Location:</td><td>Sipat Project Site</td></tr>
<tr><td>Email:</td><td>deepak.rathore@bhel.in</td></tr>
<tr><td>Ph. No.</td><td>9644890007</td></tr>
</table></td></tr>
</table>

2.0	**Scope of Works:**
2.1	**Fabrication and Supply of Factory Finished Fabricated Structure to Project-Site with material, based on the Input Design & Detailed drawing Provided by BHEL for Power House Structure,** which includes procurement of material, fabrication of structure in a customer (NTPC) 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** or higher unless stated otherwise) Quality B0 (Fully killed), 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. **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 in columns, beams, gantry girders, roof trusses, space frames, portals, laced purlins, 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, 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, and/or on welds wherever specified including equipment, 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. BOQ as specified in scope for **1x800 MW NTPC Sipat (Stage-III).** The tender is divided into two Packages which shall be governed as per modality of award described in TCC. All the clauses shall be applicable on both the agencies separately (until otherwise explicitly mentioned). **Package-A**-This Package shall Consist of Main Power House structure from Grid-1 to 11 including columns, Aux. columns, tie beams, bracings, floors, cladding supporting structure, staircase, platform etc. complete with all the items as per the attached BOQ **Package-B**- This package shall consist of Main Power House structure from Grid-11/11A onwards to 15 including columns, Aux. columns, tie beams, bracings, Gantry girders, floors, cladding supporting structure, staircase, platform as per attached BOQ BHEL engineer decision shall be final for deciding the scope at interface/boundary places. Scope for all Gantry girders from Grid-1 to 15 is in package-B

Heaviest single component to handle is approx. 34 MT. Bidders should have facility/material handling at shop of suitable capacity to handle and fabricate single component of 35 MT. Tentative requirement for factory given under Annexure-A.

Package	Description	Total tonnage in scope in MT (approx.)
Package-A	Main Power House structure from Grid-1 to 11 including columns, Aux. columns, tie beams, bracings, floors, cladding supporting structure, staircase, platform etc. as per attached BOQ	4,596 MT
Package-B	Main Power House structure from Grid-11/11A onwards to 15 including columns, Aux. columns, tie beams, bracings, Gantry girders, floors, cladding supporting structure, staircase, platform as per attached BOQ	3,164 MT

For the purpose of award of this tender following is the modality:

Mode: Supply of fabricated structure of Package-A & B complete with all the items as per the attached BOQ, where all raw materials supply is in bidder scope. BOQ as mentioned in Sl.no. 8.1.1.

NOTE: Preparation of detailed drawing for fabrication is not in the scope of agency, in general and shall be provided by BHEL.

2.2

The entire quantum of work is covered under **BOQ cum Rate Schedules (BOQ mentioned in tender).**

Procurement and Fabrication: Procure raw materials as per Technical Delivery Condition (TDC) and fabricate components in accordance with BHEL drawings, quality plans, work instructions, and paint specifications. Execute any special processes, such as heat treatment or non-destructive testing (NDT) techniques like ultrasonic testing (UT) and radiographic testing (RT). Offering Jobs to the BHEL Authorized Inspection Agency (AIA), BHEL Quality Control, or customers for inspection if applicable, accompanied by all necessary supporting documentation, as per the applicable quality plan.

Delivery requirement: The items covered in the tender is to be dispatch progressively to site within the PO(s) delivery schedule. Vendors shall follow the fabrication and delivery sequence as per trial assembly required for the job.

2.3

After receipt of Purchase Order, Vendor shall discuss with Project Manager/Construction Manager of BHEL regarding starting of structural fabrication job. On receipt of approved detailed drawings, successful Vendor will start fabrication job in

	approved "**FABRICATION WORKSHOP / FACTORY**" in line with approved drawings, specifications and quality plan. Vendor shall mobilize further resources at workshop as per requirement to commence the job of fabrication, testing, shot blasting, painting etc. to match schedule of the project.
2.4	All incidental works, not specified but reasonably implied and necessary for completion of scope of work shall be in the scope of agency.
2.5	Receipt, Unloading, Stacking, stock keeping, watch & ward of the Material at Vendor's factory shall be in the scope of Vendor. Material shall be stored properly in order to avoid any foreign defect. Proper watch and ward for the Raw material supplied at vendor place shall be in the scope of Vendor.
2.6	Vendor shall have inhouse weigh bridge facility or third party tie up with weight bridge (preferably) within the factory vicinity of 5 KM. Such weighbridge capacity shall not be less than 40 MT. Weighment tolerance shall be 70 Kg for minimum truck load of 20 MT and above.
2.7	BHEL resident engineer shall duly verify the raw material received at Vendor's works. The record keeping of all the documents related to raw/finished material shall be in the vendor scope.
2.8	The total quantity of steel required for the job will be calculated from the approved fabrication drawings including lugs. In case any such sectional weights are not available in the above documents/BOQ, the manufacturer recommendation/BHEL Engineer instruction/Indian Standard Code recommendation shall be binding.
2.9	For all the materials which are procured by vendor, Vendor shall produce all relevant documents such as Material test certificate, LR copy, Inspection reports etc. for the materials procured. In case vendor fails to correlate the supplied material with documents from approved source, vendor shall replace the material at no cost to BHEL. BHEL reserves the right to reject any material, if not found satisfactory.
2.10	BHEL may post its own employees/representatives at the vendor premises for whom a proper office space with Desktop Computers/Laptop with Internet facility, drinking water, toilet facility etc. shall be provided by successful Vendor for official use. Further, suitable transportation facility shall be arranged by vendor for the BHEL employees/representatives for ''To and FRO'' movement from residing Location from nearby city to Fabrication Location.
2.11	Fabrication, welding, destructive/non-destructive test and any other tests as per approved Quality plan and/or NTPC/BHEL requirement, shall be the liability of vendor.
2.12	Straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, welding, alignment, temporary pre assembly- full length column height (Trial assembly-tier wise), edge preparation, preheating 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, DPT and MPT of Plates as applicable), rectification and correction of defective welding works, production of test plate, inspection and testing as per erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, etc. shall be in scope of vendor.
2.13	All Materials (Raw Materials, Paints, consumables etc.) shall be procured from the NTPC approved sources only as detailed in **Annexure-2A, 2B & 2C.** This clause shall be read along with clause 2.24.

2.14	Preassembly of columns (tier wise), Trial assembly of finished material at Vendor's works / factory as per BHEL instructions / approved drawings using Vendors T&P at his own cost. No separate cost will be paid for Trial Pre-assembly activity. Vendors may quote considering all such prerequisite activity as extra in their rate price. BHEL/ NTPC may visit Vendor's factory for inspecting the Trial Pre-assembly activity. Weight of the heaviest component is approx. 34 MT.
2.15	Delivering finished fabricated products from factory to Project site as per BOQ of rate schedule, specification, drawings and instructions of the Engineer. Fabrication as per approved BOM / detailed Drawings and Application of Paint as per specification and Transportation till site (FOR destination basis).
2.16	**Shop Works:**
2.16.1	The fabricated item shall be temporarily shop-erected/shop assembled complete or as directed by the Engineer so that accuracy of fit may be checked before dispatch. The parts shall be shop-erected/shop assembled with necessary arrangements 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 fabricated item shall be shop-erected/shop assembled in such a way as will facilitate the check of interchange ability.
2.16.2	Vendor must be possessing established fabrication work shop / factory equipped with all kinds of T&P's and other necessary requirement for supply of finished material as per specification at their own cost. Tentative requirement of Factory is stipulated in **Annexure - A**. All the equipment's, and T&Ps required for the supply of finished material as per the specifications/Drawings/Instructions of BHEL Engineer, shall be arranged by Vendor. BHEL shall not provide any kind of T&Ps, equipment required for execution of scope of work.
2.16.3	After award of work, BHEL at its own discretion on mutually agreed terms increase/decrease the quantum of work, depending upon the factors such as: Load on the vendor, Production capacity of the vendor, Project Requirements and rate of production/performance by the vendor etc.. The item rates & contract conditions shall remain unchanged for such works.
2.16.4	The work under this contract shall be carried out as per BOQ Cum Rate Schedule and in compliance of tender conditions including technical specifications and approved drawings/ documents. Conditions of TCC, GCC, SCC and other annexures shall also form part of this tender/contract for execution of the scope of work.
2.17	**Inspection/Testing of Fabricated items**
2.17.1	Separate storage area shall be allotted by Vendor for BHEL Material. Separate engineer and dedicated team shall be allocated by vendor for BHEL Contract.
2.17.2	Items covered under this contract shall be subjected to Inspection / Testing and Quality Surveillance. The inspection agency shall at reasonable times, have access to vendor's works & Quality control records. All reasonable facilities required for carrying out the inspection and testing efficiently, shall be provided by the vendor, free of cost. The method of inspection shall be as per BHEL/Customer Approved "Quality Plan" which shall form part of the contract.
2.17.3	The Vendor shall abide fully by all the clauses of Shop inspection and tests covered in Technical Specification and as per the approved MQP. BHEL reserves the right to

	consider any stage of inspection / test as a "Hold Point", beyond which work shall not proceed without acceptance of that stage.
2.17.4	The minimum Inspection / Testing requirements shall conform to relevant codes /standards as well as Statutory Regulations applicable, whether or not specifically mentioned in the specification, in addition to those normally carried out by the vendor.
2.17.5	Wherever Customer / Consultant "Hold Points" are indicated in the approved Quality Plan, an additional 10 days' notice, in addition to above, shall be given for Inspection / Testing.
2.17.6	Before sending written notice to the BHEL/NTPC's Inspection Agency for Inspection, the Vendor's own inspection staff should have fully inspected / tested the item and should produce interim inspection report to BHEL Resident Engineer for verification. If the visit of the Inspection Agency proves to be futile on account of the item not being ready for inspection / Testing or the same being rejected due to the reasons which could otherwise, have been detected during Vendor's own Inspection / Test, the cost incurred by Inspection Agency on such visits shall be borne by the vendor.
2.17.7	Approval or passing of Inspection / Test and thereby issue of the acceptance Certificates or waive of Inspection by the Inspection Agency shall not relieve the vendor of his responsibilities and obligations under the contract and also shall not bind BHEL to accept the item should it, on further tests after receipt at destination, erection / commissioning be found not complying with the BOQ/Drawings/BHEL Instructions/Contract.
2.17.8	All necessary documents such as test reports, test certificates, test curves, stress relieving charts, radio graphic films and other non-destructive tests, copies of the welding procedure, welder qualification certificates and other documents in support of adherence to Quality plan shall be furnished to the Inspection agency. The Quality Assurance document consisting of certified copies of all of the above complied sequentially by the vendor shall be sent to BHEL prior to dispatch.
2.17.9	The vendor shall provide test pieces as required by Inspection agency to enable them to determine the Quality of Material to be used under the contract. If any test piece fails to comply with the requirements the inspection agency may reject the whole material represented by the test piece.
2.17.10	In the event of inspection revealing poor quality of goods, BHEL shall be at liberty to specify additional Inspection / Test, required ascertaining Vendor's compliance with the equipment specification.
2.17.11	If considered necessary by BHEL Engineer or Engineer's representative, multiple pre-assemblies shall be fully tested at Vendor's work prior to packing and dispatch to site.
2.17.12	The affixing of Inspection Stamp on the item by the Inspection Agency is for the purpose of identification only and shall not be considered as a token of acceptance.
2.17.13	Unless the Inspection / Test is waived, the inspection agency shall attend the Inspection / Test within 15 days of the date of receipt of notice from the vendor, failing which the vendor may proceed with the Inspection / Test and shall forward duly certified copies of the Inspection / Test Reports to inspection agency. After successful completion of the Inspection / Test or receipt of Vendor's Test reports mentioned above, the Inspection agency shall issue the acceptance certificate within 15 days.
2.18	**Quality Plan**

2.18.1	The Quality Plan is a document, which presents in a tabular form the Quality control checks exercised by the vendor during the various stages of manufacturing and dispatch in order to meet the requirements of this specification. This plan details, step by step, the operations, components and characteristics being controlled, method of exercising such controls, the importance (criticality) of the control (critical major or minor) with respect to the functioning of the item the extent to which the controls are exercised (100% samples, one per heat, etc.). Acceptance norms for the characteristics, method of maintaining records thereof as a proof of having exercised the control successfully, the vendor is responsible for performing and witnessing the checks and for verifying the records thereof.
2.18.2	The Vendors shall furnish the Quality Plan for approval from BHEL/NTPC. In case, the Standard Quality plans provided by BHEL, the Vendor shall furnish his Quality Plan strictly in line with the same.
2.18.3	Copies of Vendor's/Vendor's Collaborators catalogues/ drawings/ standards/ specifications/ procedures etc. as mentioned in reference document of the Quality Plan shall be furnished for approval.
2.18.4	In the Quality Plan, the Vendor shall give in detail, the quality control checks exercised by him during the various stages of fabrication / manufacture such as: a) All bought out items and incoming material checks carried out at sources and on receipt. b) Process of manufacture/Fabrication i.e. welding, heat treatment etc. c) Manufacture/fabrication of various components, sub-assemblies and assembly. d) Final Inspection and Testing including Performance Test at shop. e) Surface preparation and painting. f) Packing, Marking (through hard punching with protective paint) and Dispatch.
2.18.5	**Inspection of packages shall be carried out by agency as per below Inspection category of packages:** a) Cat I: - Inspection shall be done jointly by NTPC, BHEL & Successful Vendor. b) Cat-II: - Inspection shall be done by BHEL & Successful Vendor. c) Cat-III: - Certificate of Compliance shall be furnished by Successful Vendor. **Please note, for Cat I & II items BHEL reserve the right to carry inspection by themselves or through nominated third party. For Inspection agency for various items, vendor may refer to Quality Plan. BHEL may jointly inspect the Cat-III items also.**
2.18.6	All welding shall be carried out in accordance with applicable codes or approved equal. Prior to starting the welding of the component, Welding procedure and Welder's qualification shall be approved by BHEL/NTPC. Welding consumables used shall be approved by the inspection agency.
2.18.7	Approved methods of radiographic, ultrasonic or other non-destructive testing as applicable shall be used for the NDT of the of components / assembly. **The component shall be produced again for the inspection after rectification of the defect. All defects shall be rectified by the vendor at no extra Cost to BHEL.**
2.19	**Material Dispatch Clearance Certificate (MDCC)**
2.19.1	When the tests have been satisfactorily completed at the vendor's works, the Inspection Agency shall issue a certificate to that effect within Seven (7) days after completion of

	tests, but if the tests were not witnessed by the Inspection Agency or his representative, the certificate would be issued within Seven (7) days of the receipt of the test certificates by the Inspection Agency.
2.19.2	Material Dispatch Clearance Certificate (MDCC) for Supply of Fabricated Structures shall be issued by Customer/BHEL before supply of finished material and it's the responsibility of vendor to arrange MDCC from BHEL/NTPC. BHEL/NTPC shall issue MDCC to the Vendor based on the QS Note/Report from the Inspection Agency.
2.19.3	Vendor shall not dispatch any material before issue of MDCC by BHEL. Lorry Receipt (LR)/Goods Receipt (GR) posting will be done only on receipt of Material Dispatch Clearance Certificate (MDCC). Wherever required, Vendors shall co-ordinate with the concerned official for MDCC.
2.19.4	The satisfactory completion of these tests or the issue of MDCC, shall not bind BHEL to accept the supply/equipment, should it, on further tests after erection, be found not to comply with the contract provisions.
2.20	**GENERAL INSTRUCTION FOR DISPATCH**
2.20.1	No equipment / material shall be dispatched without prior consent of BHEL. Vendor shall dispatch the equipment / material only after receipt of "Quality Report/ Quality Surveillance Note" and Material dispatch Clearance Certificate (MDCC) issued by BHEL/NTPC as per the categorization plan for the component.
2.20.2	Vendor shall notify in writing to site at least within 15 days in advance of shipment, the probable date, when the equipment /material shall be ready for dispatch.
2.20.3	**Immediately after the shipment is made, necessary shipping / transport documents shall be sent by the vendor in accordance with the instructions of BHEL. The shipping documents / transport documents shall comprise of the following:** a) Railway Receipt / Lorry Receipt as applicable b) Freight invoice c) FOR Invoice d) Packing List (No. of copies as required) e) Certificate of origin f) Letter to Insurer g) Quality Report/Quality surveillance note
2.20.4	The distribution procedure for the above documents shall be as per the "dispatch instructions". **1) Consignee Address:** Construction Manager / BHEL Site Office, BHEL 1x800 MW SIPAT STPS (STAGE-III), NTPC Sipat Project, P.O. Ujjwal Nagar, Sipat, District – Bilaspur, Chhattisgarh - 495555 Note: a. Consignee address in LR should be strictly as per above. b. Seller / vendor to note that to effect "Sale in Transit", BHEL shall issue "Delivery Note" to the Transporter for transferring the ownership from BHEL to customer (NTPC). c. Delivery note shall be carried by transporter along with other dispatch

documents.

2) **Road Permit Requirement:** As per requirement. To be arranged by vendor within the quoted rates.

3) **Mode of Dispatch:** By Road
Note: It is Seller / vendor responsibility to ensure availability of vehicle well in advance for dispatch of material to meet contractual delivery requirement and as per instruction of BHEL engineer.

4) **Transit Insurance:** Transit insurance from supplier's works/warehouse to BHEL site stores shall be arranged by BHEL.

Prior dispatch of each consignment, intimation shall be issued to Insurance agency/underwriter of BHEL about the value of consignment, dispatch details, along with one set of documents consisting of LR/RR copy, packing list / Challan indicating the items dispatched (with their weights). A copy of above should be sent to BHEL Sipat site office (address same as consignee address).

Upon dispatch of material, supplier has to immediately intimate insurance underwriter of BHEL, failing which transit loss if any, would be borne by supplier.

Vendor shall obtain details of Insurance agency & policy documents from BHEL prior to dispatch of consignment of Fabricated material to site.

Any shortages or damages during transit or transportation to site shall be made good/replenish by the Seller/Vendor at his costs, to meet the project schedule. Shortages shall be made good by vendor at his cost immediately. For damage during transit or transportation to site, an Insurance claim shall be lodged by BHEL and vendor shall provide all the details and relevant documents for lodging the Insurance claim. At the same time vendor shall make good the damage components without any extra cost to BHEL on priority basis, however, proceedings of Insurance after claim settlement, if any, shall be pass on to the vendor. In case, no proceedings or claim value received from Insurance due to any reasons including claim amount less than deductible franchise, the cost incurred in making damaged goods good shall be borne by vendor (as it is the sole responsibility of contractor to deliver defect and damage free material to BHEL site). In cases where Insurance claim could not be lodged or proceed due to delay or not providing necessary documents by vendor, the cost in making good the materials shall be borne by vendor.

5) Packing:

a. The packing shall be in conformity with specification and shall be such as to ensure prevention of damages, corrosion, deterioration, shortages, pilferage and loss in transit or storage.

	b. Loose pieces should be sent only by crate of appropriate size which is in the scope of Vendor. Dispatches of loose items i.e. up to 3m in Length and Individual weight less than 30kgs, should be packed in Crate and dispatch. c. Adequate packing shall be made by the Vendor to avoid any transit damages. The quoted rate shall be inclusive of this packing. d. Packing list shall be submitted as per standard format along with advance set of documents for claiming payment which shall also indicate: - i. Packing size. ii. Gross weight and net weight of each package. iii. Contents of the package with quantity of each item separately. **6) Transportation & Freight Charges:** a. All road dispatches shall be through the carriers. b. Owing to any reason, in case the seller / vendor has to resort to a mode of transport other than what was contemplated, to keep up the delivery / completion schedule incurring extra expenditure, such extra expenditure shall be borne by the seller / vendor. c. Any charge against ODC consignment shall be paid by BHEL as per Extra Rate Schedule. d. Freight charges shall be borne by the seller / vendor. **Any charges related to the transportation of fabricated material till site is to be borne by the seller / vendor and shall be within the quoted rates.**
2.20.5	**Dispatch Documents required (to be furnished by vendor):** **A: For customer billing**, the vendor shall provide the following documents to BHEL in 4 sets: 1. Copy of vendor Invoice 2. Copy of Packing List Indicating Quantity / Gross weight/Net Weight and NTPC approved BBU item no. wherever applicable against each item dispatched. 3. MDCC (Original BHEL/NTPC MDCC, if applicable). 4. Customer Hold Point (CHP) issued by BHEL/NTPC – Original (if applicable). 5. Insurance intimation copy. 6. Test certificate / Inspection Reports- Original. **B: For vendor payments**, the following documents are required in 4 sets (1 original + 3 Copies): 1. GST Compliance Invoice (1 Original + 2 copies). 2. Copy of insurance intimation letter / e-mail. (Intimation to Insurance agency to be sent on the same day of dispatch). 3. LR copy (consignee address shall be BHEL Project site).

	4. Packing List indicating item description/quantity/Net Weight (Design Weight) against each item dispatched – wherever applicable. 5. Original Material Dispatch Clearance Certificate (MDCC) issued by BHEL/BHEL's Customer. 6. Guarantee Certificate – Original. 7. Material Receipt certificate by BHEL/site. 8. Original Inspection report (IRs) – with relevant painting/protocols/SB remarks – Duly signed by BHEL QC inspector and fabricator with seal. 9. Material test Certificate (MTC) (for raw material supplied by Vendor). 10. Hold Point Clearance issued by BHEL/BHEL's Customer (if any). **In addition to the above, vendor may furnish mfg. clearance/drawing/documents approval date for the purpose of determining contractual delivery for expeditious processing of Invoices.** **C: Checklist for submission of Bills:** Vendor should ensure that the following documents are submitted for bill processing to avoid any delay in processing of payment: a) Invoice – duly signed by Vendor with seal. b) Invoice Annexures - duly signed by Vendor with seal. c) GST Invoice – Original for buyer and Duplicate for transporter copies d) Original Inspection Reports (IRs) – with relevant painting/SB remarks and ODC details (if applicable) - duly signed by BHEL QC inspector and Vendor with sign & seal.
2.21	**MATERIAL RECEIPT CERTIFICATE (MRC):** BHEL shall issue MRC (duly signed by the BHEL/NTPC Site Engineer) after receipt of the material and its physical verification at site generally within 5 days. Vendor shall take alternate action for rectification in case of any non-conformity observed during physical verification.
2.22	**SHORTAGES/DAMAGES:** Any shortages or damages during transit or transportation to site shall be made good/replenish by the Seller/Vendor at his costs immediately on priority basis to meet the project schedule. If required additional manpower and work in additional shifts shall be arranged by vendor to take up such jobs without any additional cost to BHEL.
2.23	**GUARANTEE FOR THE FINISHED GOODS* (Defect Liability of the fabricated material)** The Vendor shall warrant that the fabrications comply fully with the drawings and other technical conditions specified by BHEL. If the fabrications are found defective owing to faulty workmanship/incomplete work within a period of SIX months from the date of dispatch of last consignment, the Vendor shall do the necessary repair/rework or replace the defective items free of cost. Alternatively, the rework/replacement charges shall be recovered from any payables to vendor, if necessary repair/rework or replacement of defective items are not done within reasonable time specified by BHEL and has been carried out by BHEL. **Latent Defects Liability**: At the end of the Defects Liability Period, the Vendor's liability ceases except for latent defects. The contractor's liability for latent defects warranty shall be limited to a period of Six (6) months from the end of Defects Liability Period. For the purpose of this clause, the latent defects shall be the defects inherently lying within

<table>
<tr><td></td><td>the material or arising out of deficiency which do not manifest themselves during the Defects Liability Period mentioned above</td></tr>
<tr><td>2.24</td><td>RAW MATERIAL PROCUREMENT</td></tr>
<tr><td>2.24.1</td><td>Vendors shall procure consumables such as Paints, welding electrodes etc. from BHEL approved sources (Refer Annexure 2A, 2B & 2C). Raw materials- Structural Steel and others required for fabrication shall be procured by Vendor from Primary Steel producers as mention in Annexure-2C. However, NTPC (Plant owner) may allowed procurement of Structural Steel (Plate and Rolled sections) from authorized distributors/dealers/stockist of NTPC approved Steel producer (more than 1MTPA) ensuring proper traceability with the primary steel producer/NTPC-approved steel producer. Procurement of Raw materials shall be as per raw material specifications given in drawings and applicable Technical Delivery Conditions (TDC)/& Quality Work Instructions (QWI) and quantities as per Drawings which shall be issued by BHEL during execution. Vendor to always refer the updated Annexure 2A, 2B & 2C.</td></tr>
<tr><td>2.24.2</td><td>Modality on traceability in case Structural Steel procurement from Authorised Distributor/Dealer/Stockist. If Fabricator procure the Structural Steel from Authorised Distributor/Dealer/Stockist, then following modality on traceability shall be strictly followed:
<table>
<tr><th>Sl. No.</th><th>Step</th><th>Document</th></tr>
<tr><td>1.</td><td>Steel manufacturer to authorized distributor / Dealer/ Stockist</td><td>Valid Authorization letter with date from NTPC approved Steel manufacturer (more than 1 MTPA)</td></tr>
<tr><td>2.</td><td>Authorized distributor / Dealer/ Stockist to Fabricator</td><td>Invoice from Authorized Distributor / Dealer / Stockist in the name of Fabricator</td></tr>
<tr><td>3.</td><td>Material Test Certificate</td><td>In Name of Authorized Distributor / Dealer / Stockist</td></tr>
<tr><td>4.</td><td>Plates during Induction</td><td>BHEL ensure physical verification of heat number and identification</td></tr>
<tr><td>5.</td><td>Plate after cutting</td><td>BHEL to verify proper heat number transfer by fabricator to cut pieces</td></tr>
<tr><td>6.</td><td>Rolled sections during induction</td><td>BHEL will inspect verification of steel manufacturer name/logo embossing etc. randomly</td></tr>
</table></td></tr>
<tr><td>2.24.3</td><td>STEEL Specifications:
Agency has to procure the Structural Steel as per below technical specification basis:
The total quantity of steel required for the work will be calculated from the approved, fabrication drawings, lugs etc. The measurement for payment shall be based on the sectional weights as indicated in drawing.
<table>
<tr><th>S.N.</th><th>Name of Standard</th><th>Name of Section</th></tr>
</table></td></tr>
</table>

	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.	IS2062 E250GRA/250BR/ E350BR/ E350B0	Steel Structure
	8.	IS513D/IS513 P1CR2/ IS513 Gr.CR2/ IS1079D	Sheets
	9.	ASTMA36	Plate high thickness
	10.	IS:1363(P-1)/IS:1363(P-3)	Bolt & nut
	11.	IS:2016	Washer
2.24.4	Raw materials and paints are to be procured with relevant Test Certificate (TC)/reports and these have to be submitted/produced in original during inspection. Any test both destructive and non-destructive if required will have to be carried out by the Vendor at their own cost. Vendor also shall verify the materials & Test Certificate (TC) to comply with the applicable quality plan (QP). Vendor should refer the updated list of approved suppliers for raw material and consumables before procurement.		
2.24.5	Raw material invoice, Test certificate (TC) and Day Book entry (DB) should be submitted to BHEL PSER on weekly basis.		
2.24.6	Required equipment's for handling of raw materials/Work in Progress (WIP) & finished goods should be available at Vendor works.		
2.24.7	The system for storing and issuing materials shall be available with vendor for easy traceability.		
2.24.8	Raw materials are to be identified by its work order (W.O) number / Material code / Specification / grade by painting through stencilling / engraving.		
2.24.9	Periodic audit of system of purchasing, storing and issue, etc. will have to be carried out by the vendors. BHEL at its discretion shall audit the same.		
2.24.10	For raw material substitutions requested by Vendor, changes in the weight due to material substitution will be carried out by temporary Design Change Notification (DCN), if deemed fit by BHEL.		

2.24.11	In case of non-procurement of materials within stipulated time period or in case if any Vendor refuses or fails to execute within the PO delivery or within mutually accepted / extended delivery date, PO will be cancelled by BHEL and shall be executed by BHEL (by alternate action) and Clause related to **BREACH OF CONTRACT AND TERMINATION OF CONTRACT** shall be applicable.
2.24.12	Duly accepted, Final Inspection report of a fabricated material shall be considered completion of fabrication activity. Fabrication of a material **Vendor has to submit 03 months rolling plan, for procurement of raw materials, in advance to BHEL**. Depending on the availability of drawings, asking rate of fabrication shall be prepared jointly between BHEL and contractor and contractor shall fabricate and despatch the materials as per the monthly plan.
2.25	**FABRICATION:**
2.25.1	Fabrication of components shall be as per BHEL's Drawings to be issued during Execution of work.
2.25.2	Fabrication of components shall also be according to the BHEL drawings, BHEL quality documents, customer approved quality plan, Technical Delivery Conditions (TDC). However, Vendor shall refer the latest version of Quality documents to be issued during execution of work.
2.25.3	Welding to be carried out by Qualified Welder and as per BHEL's approved Welding Procedure Specification (WPS).
2.25.4	Successful Vendor will have to submit the WPS for approval by BHEL (QC/WTC). Approval of WPS by BHEL will be done within 2 weeks from the date of submission of complete documents.
2.25.5	Vendor shall use Jigs & fixtures, Core Cutting Machine/ Magnetic Horizontal drilling machine to ensure hole to hole matching during assembly and Erection.
2.25.6	All consumables for welding as stipulated in the Drawings/QWIs/Welding procedures & any indirect materials required for fabrication is in Vendor's scope of work.
2.25.7	All the electrodes are to be procured using Welding Consumable Procurement Instruction (WCPI) which shall be provided during execution. Electrodes to be procured and used for fabrication shall be as per BHEL's approved WPS.
2.25.8	Proper sequence of welding shall be adopted to minimize distortion. The distortion of the finished jobs, if any, may be corrected by mechanical means / hot correction.
2.25.9	The surface of the welds shall be free from coarse ripples, overlaps, undercuts and abrupt ridges to avoid stress raisers.
2.25.10	Conducting MPI/LPI, other NDT & heat treatment wherever called for in the Drawings/ Quality Plans is in the scope of Vendor.
2.25.11	The requirement of NDE, extent and type of examination shall be as per respective product QP, if applicable.
2.25.12	The Ultrasonic Testing, Radiographic Testing, Furnace Heat Treatment (HT) and Stress Relieving as called for in the Drawings/QWI/PO/QCP are to be carried out by the Vendor.
2.25.13	All handling charges and other incidental charges till completion of fabrication & dispatch up to destination is in Vendor's scope.
2.25.14	Trial Assembly as called for in the Drawings / Quality plans / PO or by the Inspecting Authorities, is in Vendor's scope of work.

<table>
<tr><td>2.25.15</td><td>Ensure completeness of all final machining operations is in vendor's scope.</td></tr>
<tr><td>2.25.16</td><td>Providing the necessary facilities, gauges, instruments, etc. for carrying out the testing & inspection including customer/BHEL/BHEL nominated agency as per BHEL's QP/PO/Drawings and customer CHP, till obtaining of MDCC (wherever applicable).</td></tr>
<tr><td>2.25.17</td><td>Mechanical testing, if any, can be done at any of the NABL approved laboratory in case Vendor do not have their own facilities.</td></tr>
<tr><td>2.25.18</td><td>BHEL Drawings and Quality procedures to be followed and referred for marking & identification of interconnecting members to the satisfaction of BHEL inspectors, dismantling, related handling and movements of components as necessary.</td></tr>
<tr><td>2.25.19</td><td>Assembly is to be carried out on a level surface. Assembly has to be carried out as per BHEL Quality Plan/Customer Quality Plan (CQP) (as applicable). Any other item/s like temporary bolts etc. required for safe dispatch / packing materials required for the completion and the dispatch of the jobs is in the scope of Vendors.</td></tr>
<tr><td>2.26</td><td>QUALITY REQUIREMENTS</td></tr>
<tr><td>2.26.1</td><td>Supply of the components should strictly conform to dimensions and tolerances indicated in the Drawings, Quality Plan. Care must be taken to strictly adhere to the 'NOTE' given in the drawings. Vendor must ensure that dimensional deviations, if any, are recorded properly in the Dimension Record books and the same shall be made available to BHEL's Officials or their authorized agencies. All the Quality records are to be uploaded/provided by vendor. Any correction or revisions as advised by BHEL at post PO stages, shall be carried out by the Vendor, based on the revised drawings or interim inspection from BHEL extra cost implications, if any, shall be informed to BHEL before carrying out the job.</td></tr>
<tr><td>2.26.2</td><td>Only the right kind of electrodes shall be used as called for in the Drawings.</td></tr>
<tr><td>2.26.3</td><td>Any other work carried out other than the requirements of Drawings/QWIs shall have the prior written approval of BHEL.</td></tr>
<tr><td>2.26.4</td><td>Adequate facilities like welding equipment(s), baking oven, handling facilities and measuring instruments duly calibrated as called for by BHEL must be available with the Vendor for the manufacture/fabrication components. All the above basic fabrication equipment must be in working condition, and the same shall be made available for verification by BHEL officials or authorized agents of BHEL.</td></tr>
<tr><td>2.26.5</td><td>Only Class 1 measuring tapes shall be used. The instruments / gauges are to be calibrated at BHEL approved Lab or any NABL periodically as follows:
<u>Table-1</u>
<table>
<tr><th>SL. No.</th><th>Type</th><th>Periodicity</th></tr>
<tr><td>01</td><td>Measuring instruments/gauges</td><td>One Year</td></tr>
<tr><td>02</td><td>Limit gauges (E.g. Plug/ring)</td><td>One Year</td></tr>
<tr><td>03</td><td>Temperature, pressure gauges</td><td>6 Months</td></tr>
<tr><td>04</td><td>Measuring Steel tapes</td><td>Once</td></tr>
</table></td></tr>
<tr><td>2.26.6</td><td>The calibration status shall be displayed at the Vendor's works in a conspicuous location. Calibration can be performed at either BHEL approved labs or at any NABL approved labs, traceable to national standards.</td></tr>
</table>

2.26.7	Manufacturing, handling and testing facilities' requirement as specified by BHEL from time to time shall be made available by the Vendor.
2.27	**TRANSPORTATION**
2.27.1	The rates finalized shall include cost of transporting finished products from Vendor's Works to 1x800 MW NTPC Sipat site.
2.27.2	Vendor has to arrange for dispatch of the finished goods either in Trucks or Trailer/ Hydraulic axles for safe delivery of the goods through their transport carriers. In case of any Deviation/ discrepancy of the materials received at project site Vendor is responsible for correction or replacement activity. If the same is not rectified/replaced by the concerned Vendor within reasonable time as instructed by BHEL, then the same will be rectified /replaced by BHEL at the cost of default Vendor.
2.27.3	The transportation should be done using appropriate Vehicle/Trailer with all valid Documents complying to all the applicable rules and regulations.
2.27.4	Loading of finished goods on to the Truck / Trailer is in Vendor's scope.
2.27.5	Vendor should ensure sufficient Wooden Logs/Reapers are placed between jobs and trailer. Proper lashing of Jobs is to be done avoiding direct contact between the lashing chain and jobs.
2.27.6	After loading is completed as above, a photograph of loading is to be taken from multiple angles. The photographs as and when demanded by BHEL (concerned expeditor) is to be sent to BHEL (concerned expeditor) before dispatch of the vehicle.
2.27.7	In case, after reaching the destination/Project site, if any non-conformance is noticed by the way of improper loading/lashing of finished Goods, BHEL reserve the right to reject the material. Vendor should correct the non-conformances at his own cost.
2.27.8	In addition, BHEL may recover from the Vendor, the default amount arising due to improper loading of finished goods on vehicles as specified by BHEL officials at Unloading point.
2.27.9	Due to the unpredictable site condition at times, the loaded consignment dispatched by Vendor may have to wait for unloading for about 3-4 days (on an average) at site. The Vendor may keep this in mind while quoting. Unloading of consignment at project site, supplied by vendor, shall be in the scope of BHEL.
2.27.10	Unloading of material at the site, supplied by the Vendor, shall be in the scope of BHEL. BHEL shall complete the unloading within 48 to 72 hours from the time of trailer entry into the plant premises. If the material is not unloaded within 72 hours due to reasons not attributable to the Fabricator/Transporter, the Vendor shall be entitled to demurrage charges as follows: a. Demurrage charges for Trucks: ₹1,000 per day. b. Demurrage charges for all types of Trailers: ₹2,000 per day. Demurrage shall be applicable only if the delay exceeds 24 hours beyond the free period. Any delay of less than 24 hours beyond the free period shall not attract demurrage. **Example**: If a vehicle enters the site on March 2, 2025, at 10:00 AM, the free period (72 hours) lasts until March 5, 2025, at 10:00 AM.

	• If the vehicle exits at 4:00 PM on March 5, 2025 (6 hours late) → No demurrage will be charged. • If the vehicle exits at 11:30 PM on March 5, 2025 (13.5 hours late) → No demurrage will be charged. If the vehicle exits at 10:30 AM on March 6, 2025 (24 hours + 30 minutes late) → Demurrage for one full day (March 6) will be charged.
2.27.11	If the reporting period happened to be Sundays & Holidays, then the next working day at 9:00am will be considered as the date of reporting of vehicle.
2.27.12	Demurrage shall be paid based on the Gate Entry at Site / certification by BHEL site personnel – with signature & official seal.
2.27.13	As soon as the dispatches are made, Vendor have to upload/provide scanned copy of DC and GST Invoice in BHEL system.
2.27.14	At the time of dispatch to site, original BHEL Project site acknowledgement along with IR, DC, GST invoice and system generated online invoice along with other annexures have to be furnished for processing the invoice at BHEL.
2.28	**SURFACE PREPARATION, PAINTING AND STENCILLING**
2.28.1	Surface preparation & Painting shall be as per the quality documents and painting scheme with paints procured from BHEL approved paint Suppliers list. Vendor shall refer the latest version of Painting scheme and applicable quality documents during execution. Blasting, wherever required (as per Drawings/ Quality plans), is to be carried out by Vendor. Surface preparation and painting is to be done as per BHEL/Customer specifications.
2.28.2	Identification of Structures shall be hand punched and stencilled.
2.28.3	The Project name, Work Order No., Weight, and Erection mark number shall be legibly stencilled for identification and dispatch as may be advised. Machined surfaces shall be protected with rust preventive oil. Weldable areas are to be applied with weldable primer.
2.28.4	All supplied fabricated structures shall be marked with clearly identifiable erection mark numbers (through hard punching with protective paint) as shown in the fabrication/ detailed drawings. This will be duly verified at site during material receipt based on which MRC shall be prepared.
2.28.5	After painting and stencilling, suitable crating should be made, according to the job size,, as applicable.
2.28.6	If any complaint is received from site regarding poor quality of product including painting issues, the concerned Vendor shall be asked to rectify it within a reasonable time or else BHEL may arrange rectification through alternate agencies at the cost of the default Vendor. If a proper blasting and painting process is followed, then the painting should withstand severe / corrosive atmosphere. Moreover, Vendor cannot absolve its responsibility even beyond normal warranty period, irrespective of the fact that the product had been inspected by BHEL/QC/AIA. In order to avoid such penalties, Vendor is advised to follow the established process of blasting and painting as mentioned in BHEL approved quality documents. BHEL approved quality documents and procedures shall be shared during execution.
2.29	**INSPECTION**

2.29.1	Inspection at the Vendor works shall be done by BHEL Quality Control Department and/or by BHEL's customers and/or by an agency or person(s) authorized by BHEL. All facilities and equipment(s), calibrated instruments and standard gauges required for inspection shall be provided by the Vendor at their own cost.
2.29.2	BHEL representatives/authorized agents shall have free access to the Vendor's works at any time during the execution of the orders as well as for verification of requisite documents/materials.
2.29.3	Cost incurred by the Vendor for specimen preparation of production test coupon carried out at authorized agency as requested by BHEL shall not be reimbursed by BHEL.
2.29.4	The quality of paints used by Vendor shall be checked by BHEL at regular intervals. In case discrepancies with respect to BHEL's specification are noted, the job may be rejected, and appropriate action against the Vendor shall be initiated as per latest revision of BHEL Guidelines for Suspension of Business Dealings with Suppliers/Contractors/Vendors.
2.29.5	The works are deemed to have been completed and accepted, only after the inspector / Agency / Agencies accept / approve the Inspection Report (IR). IR has to be raised as per the format given in BHEL.
2.29.6	Acceptance of the product and delivery at site after inspection makes the Vendor eligible for payment. However, such acceptance after inspection by BHEL / AIA does not absolve the responsibility of the Vendor in ensuring the quality / performance of their product, even after the warranty period.
2.29.7	Quality documents such as dimension report, material TC, etc., against the PO placed and drawing shall be uploaded/provided by the Vendor.
2.29.8	BHEL representative from unit or Customer Quality (CQ) is authorized to carry out audits along with Third Party Inspection Agency (TPIA) at Vendor's works before clearing the items for dispatch wherever required.
2.29.9	Few extra rate schedules with prefixed rates have been identified for this tender enquiry. Rates for extra rate schedules as mentioned hereunder, shall be applicable over and above the basic fabrication rates (finalized for Main fabrication schedules), wherever applicable. Accepting the Pre-fixed rates by Vendor mentioned in Extra rate schedule is mandatory. • Fabrication of few items shall involve a combination of E350 grade with E250 or other grade of raw material. Differential Rate for E250/other grade of raw material including SAW Consumable are pre-fixed and it will be operated as an extra which shall be over and above the finalized rate as detailed in above table. • Vendor shall quote their rates considering the materials as E350 grade. Extra rates will be provided/deducted for E250 as per pre-fixed rates for extra rate schedule**.** • **For e.g.**: ✓ The DU weight of an Auto Welded beam is **14 MT (Quantity 1 Number).** ✓ Out of **14 MT**, **10 MT** is E350 & **4 MT** is E250. ✓ Rate finalized is **Rs. 20,000 per MT**.

The Payable amount shall be as follows:

a) Basic amount = Rs. 2,80,000
[Finalized Rate (**Rs. 20,000 / MT**) * Weight (**14 MT**)]

b) Discount/Deductable amount for E250 BR = (-) Rs. 15,600
[Prefixed Rate for *Extra RS02* (**Rs. 3900 per MT**) * Weight for E250 BR (**4 MT**)]

c) Total payable amount = Rs. 2,64,400 [a - b]

- **For any other grade of material used in placed in place of E350, subject to acceptance of BHEL/Customer, extra rates shall be paid/deducted accordingly.**

Above example is only for illustration purpose.

2.29.10

Extra rate Schedule

Sl. No	EXTRA RATE SCHEDULE	EXTRA RATE SCHEDULE DESCRIPTION	Rate
1	Extra RS02	Material cost differential between E350 B0/BR/GrA and E250 B0/BR/GrA including SAW Consumable cost differential used for E350-E350 material welding and E250-E250 material	**Rs 3,900 / MT**
2	ODRS1	Single ODC Freight Rate, if Length is more than 12.2 m upto 15 m or width ODC (more than 2.4 m up to 4m) or height ODC (more than 2.2 m up to 3m)	**Rs 1170 / MT**
3	ODRS2	Combination ODC Freight Rate, i.e combination of any 2 or 3 dimensions falling under ODC's Length above 12.2M up to 15M/ Width ODC (more than 2.4 m up to 4m) /Height ODC (more than 2.2 m up to 3m)	**Rs 1620 / MT**
4	ODRS3	Length ODC Freight Rate / MT over & above ODRS1 or ODRS2 for each meter increment and part thereof in the length above 15 M till 24 M Width ODC Freight Rate / MT over & above ODRS1 or ODRS2 for each 0.5 meter increment and part thereof in the width above 4 M. Height ODC Freight Rate / MT over & above ODRS1 or ODRS2 for each 0.5 meter increment and part thereof in the Height above 3 M.	**Rs 360 / MT**

2.29.11 Extra works, if any, carried out as per drawings / Quality plan / PO requirement shall qualify for extra payment, subject to approval of BHEL.

2.30	**PROGRESS REPORT**
2.30.1	The Vendor shall E-mail their completion plan and progress report from time to time as and when required by BHEL. **Vendor has to submit 03 months rolling plan, for procurement of raw materials, in advance to BHEL**.
2.30.2	The submission, receipt and acceptance of such reports shall not prejudice the rights of BHEL, under the contract, merely by reason of the fact that they have not taken notice of or objected to any information contained in such reports. Action as deemed fit would be taken if the progress of work is not satisfactory.
2.30.3	In the event of non-submission of completion plan and progress report, suitable action deemed fit shall be taken against such defaulting Vendor(s).
2.31	**ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP**
2.31.1	If any work has been executed with unsound, imperfect or bad workmanship or with materials of inferior quality, the Vendor shall on demand, in writing from BHEL specifying the work, materials/articles complained of, notwithstanding that the same may have been passed, certified and paid for, forthwith, rectify the work, so specified in whole or in part as the case may require, at their own cost. In the event of the Vendor's failure to do so within reasonable period, BHEL shall rectify or remove and re-execute the work at the cost of the default vendor.
2.31.2	BHEL will have general supervision and direction over the work. BHEL has the authority to stop the work, whenever such stoppage may be necessary to ensure the proper execution of the contract.
2.31.3	BHEL shall also have the authority to reject all the work, which does not conform to the specification, in their judgement is required, and to decide on matters which arise in the execution of the work.
2.31.4	BHEL reserves the right to suspend the work or part thereof at any time and no claim whatsoever on this account will be entertained. In case of any dispute, the fabricator may appeal to BHEL whose decision shall be final and binding.
2.31.5	Finished components supplied by Vendor shall be erected at site. Vendor shall be responsible for mismatch of components supplied by them, if any, noticed at site during erection. Any rework shall be carried out by Vendor at their cost, including transport, if necessary. In the event of the Vendor's failure to do so within the reasonable period, BHEL shall rectify or remove and re-execute the work at the cost of the default vendor.
2.31.6	To address any mismatches during erection stage, the Vendor shall arrange a technical person as per the instructions received from BHEL at erection site for proper co-ordination with various agencies so that problem is attended / rectified without any time gap. Vendor shall deploy adequate resources at erection site for coordination and rectification work (for the reason attributable to vendor) without any extra cost to BHEL.

3.1 TIME SCHEDULE

3.1.1 After receipt of Purchase Order, Vendor shall discuss with Construction Manager/ Project Manager regarding initial start of the work and shall submit a detailed plan for execution of work within the Contractual schedule.

3.1.2 Vendor shall deploy adequate resources as per requirement to commence the work of fabrication, testing, shot blasting, painting and dispatch to Project site etc. to match schedule of the project.

3.1.3 The Vendor shall complete all the works in the scope of this contract within the contract period. Pending points identified by the customer/BHEL, are to be liquidated during the contract period itself.

3.1.4 Based on the project requirement and availability of inputs, contractor may have to advance the start of fabrication activity of other area after getting clearance from Project Manager/Construction Manager.

3.1.5 Zero date and tentative schedule: - Date of release of first detailed drawing to vendor, shall be taken as the Zero Date of the contract. However, Vendor must start preparatory action on receipt of Purchase Order .

3.1.6 The vendor has to subsequently augment his resources in such a manner that the entire work is completed within contractual schedule. Fabrication of entire structures as per scope including surface preparation and application of finish paint shall be completed within the contractual schedule as mentioned hereunder, from the Work start date.

S.No.	Package	Contractual Schedule (Month) from Zero date
1.	**Package A:** Main Power House structure from Grid-1 to 11 including columns, Aux. columns, tie beams, bracings, floors, cladding supporting structure, staircase, platform etc. as per attached BOQ	11 Months
2.	**Package B:** Main Power House structure from Grid-11/11A onwards to 15 including columns, Aux. columns, tie beams, bracings, Gantry girders, floors, cladding supporting structure, staircase, platform as per attached BOQ	11 Months

3.1.7 Priority Schedule of important Structures:

Package-A:

SN	Area	Detail Area (with MA)	Area wise Tonnage	Delivery completion schedule from Zero date
1	Columns & Bracings (A,B,C Row) Grid 1 to 11	111-Columns-A row-MPH	466.00	5th Month
		112-Columns-B row-MPH	570.84	
		113-Columns-C row-MPH	523.15	
		211-Bracing-A row-MPH	112.4	
		212-Bracing-B row-MPH	124.03	
		213-Bracing-C row-MPH	110.74	
2	Aux. Columns Grid 1 to 11	123-Aux. Columns-MPH	237.46	5th Month
3	Floors(A,B,C Row) Grid 1 to 11	302-9m floor-AB Bay	484.69	8th Month
		303-9m floor-BC Bay	199.1	
		305-18m floor-AB Bay	447.03	
		306-18m floor-BC Bay	259.21	
		307-28m floor-BC Bay	217.31	
		308-40m floor-BC Bay	103.63	
4	Cladding supporting str./ Pipe Racks- Grid 1 to 11	401-Rooof Girder	370.29	10th Month
		402-Roof Purlin	175.58	
		403-Roof Bracing	37.7	
5	Staircases/Platforms/Misc. etc- Grid 1 to 11	701-Staircases Along A-Row	26.67	11th Month
		801-Oil Canal	30.92	
		Other Staircases/Platforms/Misc. etc	100	

Package-B:

SN	Area	Detail Area (with MA)	Areawise Tonnage	Delivery completion schedule from zero date
1	Columns & Bracings (A,B,C Row) Grid 11/11A to 15. Columns from Grid 11A to 15 and bracings from Grid-11 to 15	114-Columns-A row-CCR	243.16	5th Month
		115-Columns-B row-CCR	228.79	
		116-Columns-C row-CCR	349.19	
		214-Bracing-A row-CCR	63.3	
		215-Bracing-B row-CCR	62.61	
2	Aux. Columns – Grid 11/11A to 15	124-Aux. Columns-CCR	80.91	5th Month
3		309-4m floor-AC Bay-CCR	118.18	8th Month

	Floors(A,B,C Row) Grid 11/11A to 15	310-9m floor-AC Bay-CCR	208.98	
		312-13/14m floor-AI Bay-CCR	123.47	
		313-18m floor-AI Bay-CCR	269.78	
		314-25m floor-AI Bay-CCR	91.37	
		315-28.5m floor-AI Bay-CCR	103.14	
4	Gantry Girder- Grid 1 to 15	501-AB Bay Gantry Girder	176.78	6th Month
		511-AB Bay Gantry Girder-CCR	84.85	
5	Cladding supporting str./ Pipe Racks- Grid 11/11A to 15	411-Rooof Girder-CCR	170.15	10th Month
		412-Roof Purlin-CCR	70.37	
		413-Roof Bracing-CCR	17.1	
		Cladding supporting str./ Pipe Racks	359	
6	Staircases/Platforms/Misc. etc- Grid 11/11A to 15	Staircases/Platforms/Misc. etc	342	11th Month

3.1.8 Inputs for fabrication work such as Drawings/materials, shall be provided progressively.

3.1.9 Timely delivery is the essence of the Contract. Vendor shall ensure on-time procurement of raw material. Vendor shall ensure the timely procurement of raw materials well in advance based on fabrication drawings available considering procurement cycle time and coming month's jointly prepared and agreed monthly fabrication plan. Raw material procurement plan shall also be capture in monthly plans. Any deliberate delay in raw material procurement would be treated as breach of Contract. In case of such delay, BHEL shall be entitled for taking any of the following actions, at its discretion.

i. Diversion of part scope to another agency. Cost difference, if any shall be recovered from the defaulting vendor.
ii. Supply of raw material to vendor work. Cost towards raw material with 5% overheads shall be recovered from the agency.
iii. Short closure/ Termination of contract in line with breach of contract clause.

3.1.10 BHEL shall resolve the clarifications (w.r.t. Engg. drawings, Material substitutions, quality procedural clarifications) within 5 days from the date of such notification to BHEL by vendor. Any delays, if found, in raising query by vendor and affecting the achievement of planned target shall be considered for delay analysis.

3.1.11 Vendor has to engage adequate resources to meet BHEL's commitments to their customer as indicated from time to time. In the event the Vendor fails to respond to these requirements, BHEL shall take appropriate actions to meet customer's commitments in line with the provisions of General Conditions of Contract.

3.1.12 increase/decrease the quantum of work depending upon the factors such as: 'Load on the vendor', 'Production capacity of the vendor' and 'rate of production/performance by the vendor' etc. Accordingly, time schedule shall be adjusted on pro rata basis.

3.2 Package wise Bill of Quantities:

Item No	Description BOQ	UOM	Quantity Package-A	Quantity Package-B
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) and supply of Medium and High Tensile structural steel (**Grade designation E350 Quality B0 (Fully killed), conforming to IS 2062. Plates beyond 40mm thickness shall be vacuum degassed & furnace normalised and shall also be 100% ultrasonically tested as per ASTM–A578 level BS2)** 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, bunkers, silos, hoppers, 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, hand-rails etc., collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20° C for welding upto 20 mm & 100° C for welding over 20 mm and upto 63 mm & 120° 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, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column	MT	4596	3164

Item No	Description BOQ	UOM	Quantity Package-A	Quantity Package-B
	bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), all complete. (Rate shall be exclusive of surface preparation and primer). (Material shall be in Vendor scope)			
A2302	Extra over ST NO. A2301 for blast cleaning of steel structures to near white metal surface (Sa 2 1/2) finish of ISO 8501-1 with surface profile 40-60 Micron confirming to IS:1477 (Part I & II, latest revision) all complete as per specification. Providing and application of one coat of primer consisting of inorganic zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) minimum 70-micron total dry film thickness (DFT) all complete. (The primer coat shall be applied in shop immediately after blast cleaning by airless spray technique. Zinc dust composition and properties shall be Type-II as per ASTM D520-00).	MT	4596	3164
A2305	Providing and applying 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 on steel surfaces already having primer coats, of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete (This coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique.).	MT	4596	3164
B2305	Providing and applying Top 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 on steel surfaces already having primer coats of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete (This coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique.).	MT	4596	3164

Note:

1. The above quantities are tentative and may vary, BHEL reserves the right for allocation of tonnage to the agencies as per requirements.

2. Quantity Variation limit: Limited to +30% of Awarded Contract Value. No compensation/additional price shall be applicable in this case
3. No compensation shall be given to the Fabricator; in case of negative (minus side) quantity variation to any extent.
4. Tentative quantity for each package is mentioned hereunder:

S.No.	Package	Tentative Quantity (MT)
1	**Package A:** Main Power House structure from Grid-1 to 11 including columns, Aux. columns, tie beams, bracings, floors, cladding supporting structure, staircase, platform etc. as per attached BOQ	4,596 MT
2	**Package B:** Main Power House structure from Grid-11/11A onwards to 15 including columns, Aux. columns, tie beams, bracings, Gantry girders, floors, cladding supporting structure, staircase, platform as per attached BOQ	3,164 MT
	Total	7,760

Detailed L-2 Schedule which includes Raw material procurement, fabrication and delivery of fabricated structure, including inputs requirement dates from BHEL, shall be prepared and submitted by Vendor for approval of BHEL within 7 days from the date of Purchase Order.

In order to meet above schedule in general, and any other intermediate targets set, to meet customer/project schedule requirements, vendor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.

4.1 Terms of Payment: -

The progressive payment for supply on accepted price of contract value will be released as per the breakup given hereinafter: -

1) **For MSME (Micro, Small and Medium Enterprises) Suppliers:** 100% payment of net payable (after setting of recoveries, if any) against RA Bill as per Billing schedule/Price Bid shall be paid directly/ through Receivable Exchange of India Limited (RXIL), M1 Exchange, Invoicemart or DTX as per extant guidelines. Vendor may register themselves on TReDS platforms to obtain the intended benefit. Vendor to submit complete documents, as listed below. Further, payment duration for respective categories of suppliers shall be as below:

   a) **For MSE (Micro and Small Enterprises) Suppliers:** 100% payment of net payable (after setting of recoveries, if any) against RA Bill as per Billing schedule/Price Bid shall be paid **within 45 days** starting from the date of receipt of the complete documents, as listed below.

   b) **For Medium Enterprises Suppliers:** 100% payment of net payable (after setting of recoveries, if any) against RA Bill as per Billing schedule/Price Bid shall be paid **within 60 days OR** though irrevocable Indigenous Usance **LC with 120 Days** credit period starting from the date of receipt of the complete documents, as listed below.

2) **For Non-MSME Suppliers:** 100% payment of net payable (after setting of recoveries, if any) against RA Bill as per Billing schedule/Price Bid shall be paid **within 60 days OR** though irrevocable Indigenous Usance **LC with 120 Days** credit period starting from the date of receipt of the complete documents, as listed below.

A) List of Documents to be submitted by bidder.

a) GST Compliance Invoice (1 Original + 2 copies)

b) Copy of insurance intimation letter / e-mail. (Intimation to Insurance agency to be sent on the same day of dispatch.)

c) LR copy (consignee address shall be BHEL Project site)

d) Packing List indicating item description/quantity/Net Weight (Design Weight) against each item dispatched – wherever applicable.

e) Original Material Dispatch Clearance Certificate issued by BHEL/BHEL's Customer.

f) Guarantee Certificate – Original

g) Material Receipt certificate by BHEL/site.

h) Original Inspection report (IRs) – with relevant painting/protocols/SB remarks – Duly signed by BHEL QC inspector and fabricator with seal.

i) Material Test Certificate (MTC) (for raw material supplied by Vendor)

j) Hold Point Clearance issued by BHEL/BHEL's Customer (if any).

B) In case of LC Payment, List of Documents to be submitted by bidder in Bank are mentioned hereunder:

a) GST Compliance Invoice (1 original/ e-invoice + 2 photocopies).

b) Photocopy of LR (consignee address shall be BHEL Project site).

c) Photocopy of Material Dispatch Clearance Certificate issued by BHEL/BHEL's Customer.

d) Photocopy of insurance intimation letter / e-mail. (Intimation to Insurance agency to be sent on the same day of dispatch).

Note: Material Receipt certificate by BHEL/site shall be the final document required for acceptance of the RA Bills. (Through LC)

Note: In case of LC Payment:

a) The Charges against opening of LC/ its extension/amendment (if any) shall be borne by Vendor
b) LC shall normally be opened within 21-30 days from the date of PO in parts and negotiation period will be 14 days.

4.2 Retention amount:

4.2.1 Retention Amount shall be 5% of contract value and shall be furnished before the first RA Bill becomes due for payment. In case of increase in contract value, additional 5% of differential amount shall be submitted by Vendor before payment of next RA Bill due.

The Retention amount of 5% of the contract value may be accepted in the following forms:

i. Cash (as permissible under the extant Income Tax Act).
ii. Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
iii. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Vendor furnishing the security and duly endorsed/ hypothecated / pledged, as applicable, in favour of BHEL).
iv. Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act and in line with clause 1.12 of GCC. The Bank Guarantee format for Retention Amount shall be in the prescribed formats. The validity of BG shall be initially for the contract period & shall be extended up to acceptance of final bill if the final bill is not settled during the contract period.

v. Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Vendor, a/c BHEL).
vi. Insurance Surety Bonds.

4.2.2 On successful Vendor's request, the Retention Amount can also be recovered at the rate of 10% of the gross amount, progressively, from each of the running bills of the Vendor till the total amount of the required retention amount is collected.

In case, Vendor opts cash deduction from RA bills in the beginning & subsequently submit 5% of the Contract Value as Retention amount in any form as mentioned above, then refund of deducted retention amount may be permitted to Vendor.

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.

4.2.3 **Refund of Retention Amount shall be as follows:**

Retention amount shall be released after successful completion of supply and along with last RA Bill. Retention amount shall be released after deduction all expenses/ other amounts due to BHEL under the contract/ other contracts entered into with them (Vendor) by BHEL.

4.3 Paying Authority shall be **Construction Manager, BHEL 1x800 MW, NTPC Sipat Project, District – Bilaspur, Chhattisgarh.**

4.4 Performance Security Clause:

a) Performance Security shall be 5% of Contract value within 15 days from the date of issuance of Purchase order.
b) In case of increase in contract value, additional 5% of differential/increased amount shall be submitted by Contractor before payment of next RA Bill due.
c) Performance Security may be accepted in the following forms: -
i. Cash (as permissible under the extant Income Tax Act).
ii. Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
iii. Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated / pledged, as applicable, in favour of BHEL).
iv. Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Performance Security Amount shall be in the prescribed formats. **The validity of BG shall be initially for the contract period (Including Extended Period) + Performance guarantee period of 6 months + 3 months claim period.** The BG shall be extended up to completion of Performance guarantee period + 3 months claim period from the date of supply of last consignment.
v. 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 Vendor, a/c BHEL).
vi. Insurance Surety Bonds.

d) 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.

e) Refund of Performance Security amount shall be released after completion of Performance Guarantee period and after deduction of all expenses/ other amounts due to BHEL under the contract/ other contracts entered into with them (Vendor) by BHEL.

5.0 WELDING, RADIOGRAPHY AND OTHER NON-DESTRUCTIVE TESTING, POST WELD HEAT TREATMENT

5.1 Welding:

5.1.1 Installation of equipment involves good quality welding, NDE checks, Post Weld Heat Treatment etc. Vendor's personnel engaged should have adequate qualification on the above works.

5.1.2 The method of welding will be indicated in the detailed drawing/documents. BHEL engineer will have the option of changing the method of welding as per site/customer requirement.

5.1.3 Before any welder is engaged on work, he shall be tested and qualified by BHEL/ Customer, though they may possess the previous certificate. BHEL reserves the right to reject any welder without assigning any reason. All the expenditure in testing/qualification of the contractor's welder shall be borne by contractor.

5.1.4 Unsatisfactory and continuous poor performance may result in discontinuation of concerned welder.

5.1.5 The welded surface shall be cleaned of slag and painted with primer paint to prevent rusting, corrosion. For these consumables like paint /primer etc. will be in the Vendor's scope.

5.1.6 Welding electrodes have to be stored in enclosures having temperature and humidity control arrangements. This enclosure shall meet BHEL specifications.

5.1.7 Welding electrodes, prior to their use, call for baking for specified period and will have to be held at specified temperature for specified period. Also, during execution, the welding electrodes have to be carried in portable ovens.

5.2 Non-Destructive Examination:

5.2.1 Vendor shall provide all resources and make all arrangements for the Radiographic Examination of welds for this work. For reasons of safety, invariably the radiography work will be carried out after the normal working hours and close of other site activities only. In this regard, the Vendor has to adhere to the safety rules / regulations laid by BARC authorities from time to time.

5.2.2 Radiography inspection of welds shall be performed in accordance with requirements and recommendation of BHEL engineer. The minimum quantum of radiographic inspection shall be as per provision of BHEL's documents. They may, however be increased depending upon the performance of the individual welder at the discretion of BHEL engineer/inspecting authority. Vendor shall also arrange the Ultrasonic Testing (UT) equipment with recording facility at his own cost. UT shall be done as per requirement of BHEL / Customer. Records of UT shall be produced & submitted to as per BHEL requirement.

5.2.3 All X-Ray / Gamma Ray films of weld joints shall be preserved properly and be handed over to BHEL.

5.2.4 The field welded joints shall be subjected to Dye-Penetrant/MPT/RT/ other Non-Destructive Examination as specified in the respective engineering documents/ as instructed by BHEL.

5.2.5 Where required, surface preparation, like smooth grinding of welded area, prior to RT/UT etc. shall be done. It may also become necessary to adopt inter-layer Radiography/MPT/UT depending upon the site/ technical requirement necessitating interruptions in continuity of the work and making necessary arrangements for carrying out the above work. The Vendor shall take all this into account in his offer. The required NDT method/procedure will be decided by BHEL engineer.

5.2.6 For carrying out Ultrasonic Testing of welding joints of large size, it will be necessary to prepare surface by grinding and buffing a smooth finish and contour as necessary. The Vendor's scope of work includes such preparation as incidental to work.

5.2.7 No separate payment for any NDE activities is envisaged. Accordingly, the offered rate shall be inclusive of cost of all NDE.

5.3 Heat Treatment:

5.3.1 For the purpose of temperature recording of stress relieving process, thermocouples have to be attached to the weld joint. The number of temperatures measuring points and locations shall be as per the standards of BHEL. Thermocouples have to be attached using capacitor discharge type portable thermocouple attachment unit. Vendor shall arrange sufficient number of thermocouple attachment units.

5.3.2 Vendor should provide temperature indicator/temperature recorder for measuring temperature during pre-heating for welding or for controlling temperature of metal for hot correction etc. The temperature recorders should be preferably of solid-state type.

5.3.3 Heat treatment may require to be carried out at any time (day or night) to ensure the continuity of the process. The Vendor shall make all necessary arrangements including labourer required for the same as per directions of BHEL.

5.3.4 In certain cases, only, the Pre-Heating of weld joints may be called for. Vendor has to comply the requirement as part of the work.

5.3.5 For weld joints of heavy structural sections, if heat treatment is required, the same shall be carried out as part of the work.

5.3.6 Checking effectiveness of stress relieving by hardness tests (by digital hardness tester or other approved test methods as per BHEL engineer's instruction) including necessary testing equipment's is within the scope of the work / specification.

5.3.7 Preheating, Inter-Pass Heating, Post Weld Heating and Stress Relieving after welding (as applicable) shall be performed by the Vendor in accordance with BHEL Engineer's instructions within the quoted rates. Where the electric resistance heating method is adopted Vendor shall make all arrangement including heating equipment with automatic recording devices, all heating elements, thermocouples and attachment units, graph sheets, thermal chalks, & insulating materials like mineral wool, asbestos cloth, ceramic beads, asbestos ropes etc, required for all heating and stress relieving works within the quoted rates.

5.3.8 All the recorded graphs for heat treatment shall be handed over to BHEL/ IBR /Inspection

authorities and due clearances shall have to be obtained.

5.3.9 Results of these processes shall be verified/ validated as per requirements of BHEL / client.

6.0 Preservation & Protection of Materials and Components

6.1 At all stages of work, Equipment's/Materials in the custody of Vendor will have to be preserved as per the instructions of BHEL. Necessary preservation agents including the primer & paint, for the above work shall be provided by the Vendor.

6.2 The Vendor shall make suitable security arrangements including employment of security personnel and ensure protection of all materials/ equipment in their custody and installed equipment's from theft/fire/pilferage and any other damages and losses.

6.3 Vendor shall be solely responsible for preservation and safety of material at their works. Vendor shall refurbish/replenish the material in case of any loss of material, without any cost to BHEL.

7.0 Exclusion in the scope of work

7.1 Supply of Permanent Erection Bolts.
7.2 Supply and fabrication of Electro Forged GI Gratings, MS Gratings.
7.3 Supply and fabrication of Stainless-Steel Items
7.4 Supply and fabrication of Handrail, Deck sheet & Cladding sheet.
7.5 Supply and fabrication of Space frames.

8.1 Price Bid Clause:

Bidder has to quote for '**Package A'** in price Bid.

8.1.1 **BOQ along with weightage for Package A is mentioned hereunder:**

ST NO	Item Description for Package-A	UoM	Qty	Wtg.
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) and supply of Medium and High Tensile structural steel (**Grade designation E350 Quality B0 (Fully killed), conforming to IS 2062. .Plates beyond 40mm thickness shall be vacuum degassed & furnace normalised and shall also be 100% ultrasonically tested as per ASTM –A578 level BS2.)**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, bunkers, silos, hoppers, 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, hand-rails etc., collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20^{o} C for welding upto 20 mm & 100^{o} C for welding over 20 mm and upto 63 mm & 120^{o} 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, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), all complete. .(Rate shall be exclusive of surface preparation and primer). (Material shall be in Vendor scope)	MT	**4,596**	0.92965104

ST NO	Item Description for Package-A	UoM	Qty	Wtg.
A2302	Extra over ST NO. A2301 for blast cleaning of steel structures to near white metal surface (Sa 2 1/2) finish of ISO 8501-1 with surface profile 40-60 Micron confirming to IS:1477 (Part I & II, latest revision) all complete as per specification. Providing and application of one coat of primer consisting of inorganic zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) minimum 70 micron total dry film thickness (DFT) all complete.(The primer coat shall be applied in shop immediately after blast cleaning by airless spray technique. Zinc dust composition and properties shall be Type-II as per ASTM D520-00).	MT	**4,596**	0.03130084
A2305	Providing and applying 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 on steel surfaces already having primer coats, of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete (This coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique.).	MT	**4,596**	0.01944606
B2305	Providing and applying Top 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 on steel surfaces already having primer coats of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete (This coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique.).	MT	**4,596**	0.01960207

8.2 Modality of award

i. The total scope of work is being divided into Two (02) packages. Packages shall be awarded to two different Agencies on price matching philosophy, as mentioned hereunder.

ii. **The subject tender shall be awarded in the following mode, w.r.t. extant policy/ guideline and statutory rules.**

a. **Bidders shall quote "Total Price" (excluding GST**) for '**Package-A**' in Rupees in VOL-II-Price-Bid at BHEL E-procurement Portal. Any other entry elsewhere in the offer of the bidder shall be treated as Null and Void.

b. Price bids of qualified bidders shall be evaluated for **'Package-A'**. Based on the "Total Price (exclusive of GST)" all qualified Bidders shall be aligned in order of Price Competitiveness (i.e. L-1, L-2, L-3 and henceforth).

c. **Package-A & Package-B shall be awarded as per following steps:**

Step-1: Package A will be awarded to L-1 Bidder (irrespective of whether L1 bidder is MSE or Non MSE), with acceptable L-1 rates to BHEL.

Step-2: For the award of **Package B**:

- **Case: I – L-1 Bidder is MSE.**
  Package B shall be counter offered to the other bidders in the order of Price Competitiveness on Finalized L-1 rates (i.e. L-2, L-3 and henceforth).

- **Case: II – L-1 Bidder is non -MSE.**
  (i) Purchase preference shall be given to MSE-MII bidders falling within 15% margin of purchase preference in the order of price competitiveness, 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.

  (ii) In case none of the MSE-MII bidders, falling within 15% margin of purchase preference, accepts to match the L1 rate, Package B shall be counter offered to remaining bidders in the order of price competitiveness.

  (iii) In case none of the MSE-MII bidders falls within 15% margin of purchase preference, Package B shall be counter offered to bidders in the order of price competitiveness.

  (iv) The bidder accepting the L1 rates shall be considered for awarding of Package B. The unit rates of Package A as derived from L-1 rates shall be applicable for unit rates of Package B and accordingly Total awarded value of Package B shall be calculated.

Step – 3: In case, none of the bidders agrees to match the finalized L-1 rates for Package-B, then BHEL, at its discretion reserves the right to 'not to award the Package-B' **or** 'award Package B to L-1 Bidder (to whom Package A is awarded) subject to the fulfilment of "annual production capacity" criteria for the execution of the package.

8.3 Instructions to the bidders

I. BHEL has pre-fixed the Weightage/Factor as detailed above in this chapter for deriving the Unit Rates. By multiplying BHEL pre-fixed Weightages / Factor and the total quoted prices; Total amount of individual items shall be derived. Unit Rate/Item Rate shall be arrived upon dividing the total amount of individual items and the weight of the individual item. Unit Rate/Item Rate thus arrived shall be rounded off to two decimal places.

II. Bidders to note that the subject tender is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived above.

III. For the convenience of bidders, BHEL has issued an excel sheet with all the requisite formulae as described above. However, the referred excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.

IV. **Delivery Terms:** Suppliers shall quote on F.O.R. Destination basis (including Freight, Packaging and Forwarding charges). Offers other than F.O.R. Destination Basis will not be accepted by BHEL.

V. **Liquidated Damages/Penalty:** LD shall be 0.5% of basic value of the undelivered / delayed portion per week of delay or part thereof subject to a maximum of 10% of the total contract value (i.e. excluding elements of taxes) and calculated at the end of the contract period/extended period. For this purpose, the period of delay shall be the delay attributable to the Fabricator for the completion of work as per contract. Contract Value for this purpose, shall be the total Purchase order value inclusive of Quantity Variation and exclusive of Extra Works, Supplementary/Additional Items & PVC, if any.

VI. **Short Closure:** BHEL may short close the contract at any stage of the contract/extended period without assigning any reasons to the bidder.

VII. Bidder shall necessarily submit the following details, along with bid document, in the given formats:

a. Duly Filled Vendor's Proposal and Evaluation Report. Format - P4F1R0 – Annexure-3.
b. Duly Filled Vendor Questionnaire. Format - P4F2R0 – Annexure-4.
c. Valid Factory Registration certificate.
d. Overall Organization Chart with Manpower details (Design, Manufacturing, Quality etc.).
e. Supply reference list indicating similar product supply order reference no., customer name, rating of product, date /year of supply, date / year of commissioning as applicable.
f. Source of Raw Material.
g. List of Qualified Welder and NDT personnel with Vendor.
h. List of Manufacturing Equipment available with vendor.
i. List of Testing Equipment available with vendor.
j. Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any.
k. Details of Outsourced Manufacturing Processes, if any.
l. Quality control exercised during receipt, in-process & final inspection.
m. Product Satisfactory performance feedback letter/End user Certificate.
n. Copy of ISO 9001 Certificate.
o. Compliance of Statutory requirements (As applicable).
p. The factory of the bidders shall be inspected by BHEL in line with the **TENTATIVE REQUIREMENT FOR FACTORY FOR FABRICATION OF STEEL STRUTURES** provided under **Annexure-A.** The bidders complying to all the necessary requirements as mentioned in the Annexure only shall be considered for the final inspection by BHEL and NTPC.
q. After inspection of the Factory by BHEL, a team of members comprising of BHEL & NTPC may visit fabrication shop for checking eligibility/competency of shop. Approval from BHEL/NTPC is required before start the fabrication job. In case of any discrepancy, Vendor shall comply as per BHEL/NTPC requirement at any stage of job.

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

9.2.7	Vendor has to ensure that invoice in respect of such services which have been provided/completed on or before end of the month should not bear the date later than last working day of the month in which services are performed.
9.2.8	Subject to other provisions of the contract, GST amount claimed in the invoice shall be released on fulfilment of all the following conditions by the Contractor: - a. Supply of goods and/or services have been received by BHEL. b. Original Tax Invoice has been submitted to BHEL. c. Contractor/ Vendor has submitted all the documents required for processing of bill as per contract/ purchase order/ work order. d. In cases where e-invoicing provision is applicable, vendor/contractor is required to submit invoice in compliance with e-invoicing provisions of GST Act and Rules made thereunder. e. Contractor has filed all the relevant GST return (e.g. GSTR-1, GSTR-3B, etc.) pertaining to the invoice submitted and submit the proof of such return along with immediate subsequent invoice. In case of final invoice/ bill, contractor has to submit proof of such return within fifteen days from the due date of relevant return. f. Respective invoice has appeared in BHEL's GSTR - 2A for the month corresponding to the month of invoice and in GSTR-2B of the month in which such invoices has been reported by the contractor along with status of ITC availability as "YES" in GSTR-2B. Alternatively, BG of appropriate value may be furnished which shall be valid at least one month beyond the due date of confirmation of relevant payment of GST on GSTN portal or sufficient security is available to adjust the financial impact in case of any default by the contractor. g. Contractor has to submit an undertaking confirming the payment of all due GST in respect of invoices pertaining to BHEL.
9.2.9	Any financial loss arises to BHEL on account of failure or delay in submission of any document as per contract/purchase order/work order at the time of submission of Tax invoice to BHEL, shall be deducted from contractor's bill or otherwise as deemed fit.
9.2.10	TDS as applicable under GST law shall be deducted from contractor's bill.
9.2.11	Contractor shall comply with the provisions of e-way bill wherever applicable. Further wherever provisions of GST Act permit, all the e-way bills, road permits etc. required for transportation of goods needs to be arranged by the contractor.
9.2.12	Contractor shall be solely responsible for discharging his GST liability according to the provisions of GST Law and BHEL will not entertain any claim of GST/interest/penalty or any other liability on account of failure of contractor in complying the provisions of GST Law or discharging the GST liability in a manner laid down thereunder.
9.2.13	In case declaration of any invoice is delayed by the vendor in his GST return or any invoice is subsequently amended/altered/deleted on GSTN portal which results in any adverse financial implication on BHEL, the financial impact thereof including interest/penalty shall be recovered from the Contactor's due payment.

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

Sl. No	Projects under state	GSTIN
1	Andhra Pradesh	37AAACB4146P7Z8
2	Bihar	10AAACB4146P1ZU
3	Chhattisgarh	22AAACB4146P1ZP
4	Gujarat	24AAACB4146P1ZL
5	Jharkhand	20AAACB4146P5ZP
6	Madhya Pradesh	23AAACB4146P1ZN
7	Maharashtra	27AAACB4146P1ZF
8	Orissa	21AAACB4146P1ZR
9	Telangana	36AAACB4146P1ZG

TENTATIVE REQUIREMENT FOR FACTORY FOR FABRICATION OF STEEL STRUTURES			
Sr. No	**Characteristic**		**Check List**
1	**License**	a	Availability of factory registration license, GST Registration and other statutory licenses/permissions etc.
2	**Quality management**	a	Availability of work instruction/procedures for critical activities & its implementations.
		b	ISO 9001:2008 or equivalent valid certification.
		c	Availability of Effective System of Internal Audit.
3	**Raw Material control**	a	Incoming raw material acceptance -MTC review records available
		b	Availability of material correlation/identification procedures & its implementations by hard punching with protective coating/by record keeping/painting etc.*
		c	Storage/stacking of raw material-in organized manner or elevated platform with proper identification.
4	**Material handling**	a	Availability of EOT crane/ Gantry Crane of required capacity to handle maximum Load required for movement. Heaviest single component will be approx. 34 MT.
		b	Availability of gantry cranes/Hydra/other handling equipment's capable to handle proposed heaviest component (if required other than EOT crane)
5	**Handling of weld consumables**	a	Availability of calibrated baking oven, holding oven & portable ovens (in sufficient quantities)
		b	Proper storage of weld consumables or racks & other controlled conditions.
		c	Weld consumables handling: Issue/return of electrodes from store properly documented/recorded.
6	**Welding qualification**	a	Availability of qualified WPS & PQR.
		b	Availability of sufficient no of qualified welders.
		c	Availability of welder performance monitoring/defect rate monitoring systems.
7	**Quality Records**	a	Randomly on verification of documents for one or two order executed, availability of proper quality related documents.
8	**Machinery**	a	Availability of sufficient no of SAW welding machines.
		b	Availability of sufficient number of GTAW welding machines.
		c	Availability of sufficient number of welding machinery-SMAW/GTAW/FCAE etc.

TENTATIVE REQUIREMENT FOR FACTORY FOR FABRICATION OF STEEL STRUTURES			
Sr. No	**Characteristic**		**Check List**
		d	Availability of CNC plasma/torchy cutting machines/profile cutting machines.
		e	Availability of PUG/Gas cutting machines
		f	Availability of radial drilling machine, lath Machine & rolling machine-capacity matching to proposed thickness & size of component.
		g	Availability of weld edge preparation/bevel end cutting machines
		h	Availability of CNC multi axis drilling machine-at least two axis drilling simultaneously and end milling machine-capacity matching to proposed size/thickness of component.
9	**Spare/Inspection Area**	a	Availability of said levelled floor for trail assembly adequate for proposed size of components with required material handling capacity
		b	Availability of sufficient size of covered shed with concrete platform for fabrication activities.
10	**NDT/HEAT treatment/hydro/ leak test facility**	a	Availability of Heat Treatment /Stress Relieving facility-outsourced to other agency/In house facility.
		b	Availability of Beam straightening machine
		c	Availability of DPT/MPI facility-in house /outsourced to other agency
		d	Availability of RT facility-in house/outsourced (as applicable)
		e	Availability of UT facility-in house/outsourced (however done inside vendors own works)
		f	Availability of RT film viewer/dark room, densitometer, reference photograph etc. if RT is done
11	**Professional qualification/quality manpower**	a	Availability of qualified & experience manpower for quality.
		b	Availability of qualified welding inspectors.
		c	Availability of DP/MPT Level II qualified personal.
		d	Availability of RT level II qualified personal if applicable.
		e	Availability of UT level II qualified personal if required.
		a	Availability of In house/outsourced testing facilities for chemical testing by Spectro/PMI.

TENTATIVE REQUIREMENT FOR FACTORY FOR FABRICATION OF STEEL STRUTURES			
Sr. No	**Characteristic**		**Check List**
12	**Testing facility**	b	Availability of In house/outsourced testing facilities like UTS% elongation/ben/impact testing /hardens etc.
		c	Availability of calibrated tape/laser beam instruments to measure long column length for proto /assembly
		d	Availability of calibrated weld gauge, Vernier, micrometer & measuring instruments
		e	Availability of calibration status of major equipments and measuring instruments.
13	**Surface cleaning & painting**	a	Availability of covered shot/grit blasting facility with air compressor, mechanism to segregate fine shot (Sievers) shots/grits re-collection mechanism, surface compactor/surface roughness meter etc.
		b	Availability of in-house painting facility (separate covered area) airless gun for painting etc.
		c	Availability of in-house testing facility, paint thickness & paint adhesion.

B.0 PRICE VARIATION COMPENSATION (PVC)

PVC shall be applicable for entire contract period and extended period if any. For balance items the awarded rates mentioned therein shall remain firm for entire contract period/extended period if any.

B.1.1 In order to take care of variation in cost of execution of work on either side, due to variation in the index of LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, PAINT MATERIALS, Price Variation Formula as described herein shall be applicable

B.1.2 85% component of Contract Value shall be considered for PVC calculations and remaining 15% shall be treated as fixed component. The basis for calculation of price variation in each category, their component, Base Index, shall be as under:

SL NO.	CATEGORY	INDEX/ AVERAGE MINIMUM WAGE	PERCENTAGE COMPONENT ('K') FABRICATION Material in Vendor scope
i)	LABOUR (ALL CATEGORIES)	'MONTHLY ALL-INDIA AVERAGE CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS' published by Labour Bureau, Ministry of Labour and Employment, Government of India. (Website: labourbureau.nic.in)	**17**
ii)	WELDING ROD	Name of Commodity: MANUFACTURE OF BASIC METALS Commodity Code: 1314000000	**5**
iii)	HIGH SPEED DIESEL	Name of Commodity: HSD Commodity Code: 1202000005	**2**
iv)	STEEL (Structural)	Name of Commodity: MILD STEEL: LONG PRODUCTS Commodity Code: 1314040000	**57**
V)	PAINT	Name of Commodity: PAINT Commodity Code: 1310050000	**4**

B.1.3 As per the 'MONTHLY WHOLE SALE PRICE INDEX' for the respective Commodity and Type, published by Office of Economic Adviser, Ministry of Commerce and Industry, Government of India. (Website: eaindustry.nic.in). Revisions in the index or commodity will be re-adjusted accordingly.

B.1.4 Payment/recovery due to variation in index shall be determined on the basis of the following notional formula in respect of the identified COMPONENT ('K') viz LABOUR, HIGH SPEED DIESEL OIL, WELDING ROD, CEMENT, STEEL, PAINT, MATERIALS.HSD

$$P = K \times R \times \frac{(X_N - Xo)}{Xo}$$

Where,

P = Amount to be paid/recovered due to variation in the Index for Labour, High Speed Diesel Oil, Welding Rod, Paint, Cement, Steel and Materials

K = Percentage COMPONENT ('K') applicable for Labour, High Speed Diesel Oil, Welding Rod, Paint, Cement, Steel and Materials

R = Value of work done for the billing month (Excluding Taxes and Duties if payable extra)

X_N = Revised Index for Labour, Revised Average Minimum Wages for Labour, Revised Index for High Speed Diesel Oil, Welding Rod, Paint, Cement, Steel and Materials for the billing month under consideration

Xo = Index for Labour, Average Minimum Wages for Labour, Index for High Speed Diesel Oil, Welding Rod, Paint Cement, Steel and Materials as on the Base date

B.1.5 PVC shall not be payable for Supplementary/Additional Items, Extra works. However, PVC will be payable for items executed under quantity variation of BOQ items under originally awarded contract.

B.1.6 Base date shall be the calendar month of the '**last date of bid submission**'.

B.1.7 The Vendor shall furnish necessary monthly bulletins in support of the requisite indices from the relevant websites along with his Bills.

B.1.8 The contractor will be required to raise the bills for price variation payments on a monthly basis along with the running bills irrespective of the fact whether any increase/decrease in the index for relevant categories has taken place or not. In case there is delay in publication of bulletins (final figure), the provisional values as published can be considered for payments and arrears shall be paid/recovered on getting the final values.

B.1.9 PVC shall be applicable for the entire original contract period plus the extended period, i.e. for the complete execution period, as follows:

i) PVC shall not be applicable for time extension provided for the delays solely attributable to the contractor. No PVC is payable during the period of Provisional Time Extension till grant of final time extension. Applicability of PVC will be decided at the time of grant of final time extension.

ii) **The total amount of PVC shall not exceed 15% of the cumulatively executed contract value**. Executed contract value for this purpose is exclusive of PVC, Supplementary/Additional Items and Extra works except items due to quantity variation.

iii) The vendor has to submit a **three-month rolling plan** for procurement of raw materials in advance to BHEL.
PVC shall be applicable **based on the indices of the running month** for the material fabricated in that month, considering **jointly monthly plan for the month**.

Any shortfall in the fabricated tonnage from **jointly monthly plan for the month**, due to reasons attributable to the vendor, shall be **earmarked/fixed** for PVC using the indices of the month in which the shortfall occurred.

If fabrication exceeds **jointly monthly plan for the month (excluding backlog)** in a given month, PVC **will** be applicable to the actual tonnage fabricated in that month.

Let's assume the following scenario for a vendor working under this clause:

Given Data:

- **Jointly monthly plan for a Month: 500 MT/month**
- **Price Variation Compensation (PVC):** Based on indices of the fabrication month

Case 1: Vendor achieves the jointly monthly plan (500 MT)

- Suppose in **March 2026**, the vendor fabricates 5**00 MT** as expected.
- The PVC will be calculated **based on March 2026 indices** for the full 500 MT.

Case 2: Vendor Fabricates More Than 500 MT (e.g., 600 MT)

- Suppose in **March 2026**, the vendor fabricates 60**0 MT** (without any backlog from previous months).
- The **PVC will be applicable to the entire 600 MT**, using the indices of **March 2026**.

Case 3: Vendor Fabricates Less Than 500 MT (e.g., 400 MT) Due to Its Own Reasons

- Suppose in **March 2026**, the vendor fabricates **only 400 MT** due to **internal delays**.
- Since the jointly monthly plan was (L2) **500 MT**, the shortfall of **100 MT** will be fixed for PVC using the **March 2026 indices**.
- Even if the vendor compensates for this shortfall in April, the **PVC for the shortfall will still be calculated using March indices**, not April's.

Case 4: Vendor Fabricates 400 MT in March but Completes Backlog in April

- Suppose in **March 2026**, the vendor fabricates 4**00 MT** (shortfall: 100 MT).
- In **April 2026**, the vendor fabricates 6**00 MT** (500 MT monthly plan + 100 MT backlog from March).
- **March 2026 PVC indices will still apply to the 100 MT shortfall**, while the remaining 500 MT of April's fabrication will be compensated using **April 2026 PVC indices.**

Annexure 1A

DECLARATION

With reference no CPC TENDER NO. BHEL/CPC/SPT/FAB_STR/26/066 for Fabrication and Supply of Factory Finished Fabricated Power House Structures for 1x800 MW NTPC Sipat (Stage-III) Project.

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

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

Annexure-1

Tender Enquiry No. BHEL/CPC/SPT/FAB_STR/26/066 for Fabrication and Supply of Factory Finished Fabricated Power House Structures for 1x800 MW NTPC Sipat (Stage-III) 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 ……/……		
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
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.	

SUB-SECTION–E-60

INDICATIVE VENDOR LIST

Disclaimer for Indicative Vendor List

1.1 Reasonable efforts have been made to collate the sub-vendors proposed by the various main contractors from time to time against different Projects/Packages and accepted by NTPC for various items. However, in case of error/omission, if any, and represented by the successful bidder this will be addressed during the execution of the contract based on the material evidence available with NTPC / Main Contractor.

1.2 The approved sub-vendor list drawn is not based on NTPC driven enlistment process but based on the sub- vendors proposed by various Main Contractors. As such, it is possible that some of the Suppliers/Manufacturers who may be involved in similar work/process may not be appearing in the list as such sub-vendors may not have been proposed by Main Contractors against NTPC Contracts.

1.3 In case the successful bidder chooses to propose additional sub-vendors with relevant experience after the award of the contract such sub-vendors will be considered in terms of Clause no: 19.1 of GCC, provided the proposals are received sufficiently in time: 90 days prior to ordering date of a Bought Out Items/Start of Manufacturing so as not to impede the progress of the contract.

1.4 Sub-vendors have been grouped under different categories of items. It is possible that an item characterized by certain specific features such as range and type required as per Main Contractor's design requirements may not be in the range of the listed sub-vendor's manufacturing process/capability. As such the main contractor to ascertain the vendor's capability to meet his specific requirements before considering a sub-vendor.

1.5 It is to be noted by the bidders that any shortfall in contract performance attributable to the sub-vendor listed will not absolve the contractor from his contractual obligations in any manner.

1.6 The approval was granted based on the evaluation of relevant capabilities and facilities possessed by the sub-vendor at the time of evaluation. Also, some of the sub-vendors may not be active. As such, the successful bidder is to carry out his own due diligence before considering the listed sub-vendor for subletting: the current status of the sub-vendor, the continued availability of productive resources including Human Resources.

1.7 The list of sub-vendors is periodically revised to include new sub-vendors. Such a revision may also see a deletion of certain sub-vendors who may have been disqualified on grounds of inadequate performance or banned in line with NTPC's banning policy. The then current list will be shared with the successful bidder immediately on award.

1.8 In the post award during detailed engineering, Main contractor to take up with sub vendors and ensure/verify approval conditions of NTPC/Owner before placing the orders.

एनटीपीसी NTPC	Project/ परियोजना :SIPAT SUPER THERMAL POWER PROJECT STAGE - III (1X800MW) Package/ पैकेज: EPC PACKAGES Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची	DOC. NO./ दस्तावेज सं.: REVISION NO : 00 DATE/ तिथि : 02.05.2023 SUB-SYSTEM उप-प्रणाली: QA-SG(MECH)

S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Provenness Clause (Refer Note-1)
1	RAPH	I			REFER SUB QR ITEM LIST Refer Note 1				STATIC COMPONENTS, ROTATING COMPONENTS, GUIDE/SUPPORT BEARINGS-NTPC APPROVED VENDORS	
2	FD, PA & ID FANS	I			REFER SUB QR ITEM LIST Refer Note 1				STATIC, ROTATING COMPONENTS AND BLADES - NTPC APPROVED VENDORS	
3	COAL MILL	I			REFER SUB QR ITEM LIST Refer Note 1				MILL COUPLING, PGB, GRINDING ROLLS, BULL RING SEGMENTS, MILL HOUSING, SEPARATOR AND OTHER MAIN COMPONENTS - FROM NTPC APPROVED SOURCES	
4	ESP	I			REFER SUB QR ITEM LIST Refer Note 1				COLLECTING ELECTRODE, EMITTING ELECTRODE - NTPC APPROVED VENDORS	
5	GRAVIMETRIC COAL FEEDERS	I			REFER SUB QR ITEM LIST Refer Note 1					
6	RECIRCULATION PUMP	I			REFER SUB QR ITEM LIST Refer Note 1					
7	AUXILIARY BOILER	I			REFER SUB QR ITEM LIST Refer Note 1					
8	ESP SUPPORT STRUCTURE (AUTO WELDED COLUMNS & ROOF BEAMS)	I			NTPC APPROVED SOURCES		A		REFER BOILER STRUCTURE LIST	
9	SEAMLESS TUBES	$			VALLOUREC & MANNESMANN TUBES	FRANCE, GERMANY	A		CS & AS T-11, T-22, T-23, T-91, T-92	
		$			TENNARIS GLOBAL SERVICES SA, URUGUAY	DALMINE, ITALY	A		CS & AS T-11, T-22	
		$			TENNARIS GLOBAL SERVICES SA, URUGUAY	SILCO, ROMANIA	A		CS & AS T-11, T-22, T-23, T-91	
		$			TENNARIS GLOBAL SERVICES SA,URUGUAY	NKK TUBES, JAPAN	A		CS & AS T-11, T-22, T-91	
		$			MAHARASHTRA SEAMLESS LTD	RAIGAD	A		CS HOT FINISHED OD:21.0 MM TO 168.3 MM WT: 2.0 MM TO 20.0 MM COLD FINISHED OD:19.0 MM TO 88.9 MM WT: 1.0 MM TO 12.0 MM	
		$			IBF S.P.A	ITALY	A		CS & AS T-11, T-12, T-22, T-91	
		$			JFE STEEL CORPORATION	JAPAN	A		CS & AS T-11, T-22, T-23, T-91, T-92	
		$			TUBOS REUNIDOS INDUSTRIAL, S.L.U	SPAIN	A		CS & AS T-11, T-22, T-23, T-91, T-92	

एनटीपीसी NTPC	Project/ परियोजना :SIPAT SUPER THERMAL POWER PROJECT STAGE - III (1X800MW) Package/ पैकेज: EPC PACKAGES Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची	DOC. NO./ दस्तावेज सं.: REVISION NO : 00 DATE/ तिथि : 02.05.2023 SUB-SYSTEM उप-प्रणाली: QA-SG(MECH)

S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Provenness Clause (Refer Note-1)
		$			JINDAL SAW LIMITED	NASHIK	A		CS & AS T-11, T-12, T-22 HOT FINISHED OD: 33.4 MM TO 168.3 MM WT: 3.5 MM TO 21.95 MM COLD FINISHED OD: 6.0 MM TO 140.0 MM WT: 0.8 MM TO 15.0 MM	
		$			REMI METALS GUJARAT LTD	BHARUCH	A		CS & AS T-11, T-12, T-22 HOT FINISHED OD: 28.6 MM TO 177.8 MM WT: 3.0 MM TO 28.0 MM COLD FINISHED OD: 9.0 MM TO 127.0 MM WT: 1.6 MM TO 20.0 MM	
		$			WAYMAN GORDAN	USA	A		CS,T11,T12,T22,T91	
		$			BENTELER STEEL/TUBE GMBH	GERMANY	A		CS,T-11, T23, T-22, T-91 & T-92	
		$			HEAVY METALS & TUBES LTD	AHMEDABAD	A		CS HOT FINISHED UP TO OD: 76.2 MM AND WT:12.0 MM	
		$			PRODUCTOS TUBULARES,	SPAIN	A		CS & AS T-11, T-22. T-23. T-91	
		$			ISMT	AHMEDNAGAR,BARAMATI	A		CS, T11, 12, 22 HOT FINISHED OD: 38.0 MM TO 273.0 MM WT: 3.5 MM TO 40.0 MM COLD FINISHED OD: 18.0 MM TO 140.0 MM WT: 1.5 MM TO 15.0 MM	
		$			NIPPON STEEL & SUMITOMO METAL CORPORATION	JAPAN	A		CS, T-11, T-22, T23, T-91, & T-92	
		$			BENTELER STEEL/TUBE GMBH	GERMANY	A		CS, T-11, T23, T-22, T-91 & T-92	
		$			BHEL SSTP	TRICHY	A		CS, T-11, T-12, T-22	
10	SEAMLESS TUBES(RIFFLED)	$			SALZGITTER MANNESAMANN PRECISION	FRANCE	A		CS	
11	SEAMLESS TUBES(SS)	$			KOBE SPECIALITY STEEL CO LTD	JAPAN	A		SS304, SS347H	
		$			SMST	ITALY	A		SS304, 347H, SUPER 304	
		$			TUBACEX	SPAIN	A		SS304, 347H, SUPER 304	
		$			PASCO SPL STEEL CO.	SOUTH KOREA	A		SS304, 347H, SUPER 304	
		$			NIPPON STEEL & SUMITOMO METAL CORPORATION	JAPAN	A		SS 304, SS347H, SUPER 304 OD UP TO 114.3 MM	
12	SEAMLESS PIPES	$			TENNARIS GLOBAL SERVICES SA, URUGUAY	DALMINE, ITALY	A		CS & AS P-11, P-22, P-91	

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		$			TENNARIS GLOBAL SERVICES SA, URUGUAY	SILCO, ROMANIA	A		CS & AS T-11, T-22, T-91 UPTO DIA 159 MM	
		$			TENNARIS GLOBAL SERVICES SA,URUGUAY	NKK TUBES, JAPAN	A		CS & AS T-11, T-22, T-91	
		$			VALLOUREC & MANNESMANN TUBES	FRANCE, GERMANY	A		CS & AS P-11, P-22, P-91. P-92	
		$			TUBOS REUNIDOS INDUSTRIAL, S.L.U	SPAIN	A		CS & AS P-11, P-22, P-91	
		$			ISMT	AHMEDNAGAR, BARAMATI	A		CS, T11, 12, 22 HOT FINISHED OD: 38.0 MM TO 273.0 MM WT: 3.5 MM TO 40.0 MM COLD FINISHED OD: 18.0 MM TO 140.0 MM WT: 1.5 MM TO 15.0 MM	
		$			REMI METALS GUJARAT LTD	BHARUCH	A		CS & AS T-11, T-12, T-22 HOT FINISHED OD: 28.6 MM TO 177.8 MM WT: 3.0 MM TO 28.0 MM COLD FINISHED OD: 9.0 MM TO 127.0 MM WT: 1.6 MM TO 20.0 MM	
		$			VALCONVY TRUB CHOMUTOV,	CZECH REPUBLIC	A		CS & P-12 & P-22	
		$			ARCELORMITTAL TUBULAR PRODUCTS ROMAN S.A	ROMANIA	A		CS	
		$			WAYMAN GORDAN	USA	A		CS & AS P-11, P-22, P-91	
		$			MAHARASHTRA SEAMLESS LTD	RAIGAD	A		CS HOT FINISHED OD:219.1 MM TO 355.6 MM WT: 6.35 MM TO 35.1 MM COLD FINISHED OD:19.0 MM TO 88.9 MM WT: 1.0 MM TO 12.0 MM	
		$			PRODUCTOS TUBULARES,	SPAIN	A		CS & AS P-11, P-12, P-22, P-91	
		$			NIPPON STEEL & SUMITOMO METAL CORPORATION	JAPAN	A		CS & AS P-11, P-22, P-91 & P-92	
		$			TENNARIS GLOBAL SA, URUGUAY	NKK TUBES, ITALY	A		P-91, P-22, P-11, P12, CS	
		$			JINDAL SAW LIMITED	NASHIK	A		CS, T11, 12, 22 HOT FINISHED OD: 33.4 MM TO 168.3 MM WT: 3.5 MM TO 21.95 MM COLD FINISHED OD: 6.0 MM TO 140.0 MM WT: 0.8 MM TO 15.0 MM	
		$			IBF S.P.A	ITALY	A		P-92, P-91, P-22, P-11, P12, CS	
		$			JFE STEEL CORPORATION	JAPAN	A		P-92, P-91, P-22, P-11, P12, CS	
		$			BHEL SSTP	TRICHY	A		CS	
		$			BENTELER STEEL/TUBE GMBH	GERMANY	A		P-11, P-22, P-91, P-92 UP TO OD 160 MM	

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		$			RINGMILL SPA	ITALY	A		CS OD UP TO 914 MM & WT UP TO 102 MM & AS P-91	
		$			FORGIATURA MORANDINI SRL	ITALY	A		CS & AS P-11, P-22, P-91 & P-92	
13	PLATES AND ROLLED SECTION (CS & AS EXCLUDING CS- IS:2062 GRADES)	$			INDUS STEEL	BELGIUM	A		CS-SA515 AS UP T0 GR-91	
		$			ILSENBURGER GROBBLECH	GERMANY	A		CS-SA 299, SA515, BS EN 10025, AS UP TO GRADE 91	
		$			DILLINGER-GTSVENTES	GERMANY	A		CS-SA 299, SA515, BS EN 10025, A36, AS UP TO GRADE 91	
		$			SIJ ACRONI D.O.O., SLOVENIA	SLOVENIA	A		CS- SA515, BS EN 10025, A36, AS UP TO GRADE 91	
		$			THYSSENKRUPP	GERMANY	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22	
		$			INDUSSTEEL LOIRE	FRANCE	A		CS-SA 299, SA515; AS UP TO GRADE 22	
		$			ARCELLOR MITAL NIPPON STEEL (Formerly ESSAR Steel)	HAZIRA	A		CS- SA515, BS EN 10025, A36, AS GRADE 12 &22	
		$			VOESTALPINE GROBBLECH GMBH	AUSTRIA	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22	
		$			SAIL	BHILAI/SALEM	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22	
		$			NIPPON STEEL	JAPAN	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22	
		$			POSCO	SOUTH KOREA	A		CS- SA515 BS EN 10025 A36, AS UP TO GRADE 22	
		$			REINER BRACH GMBH & CO.	GERMANY	A		CS- SA 299 SA515 BS EN 10025 A36, AS UP TO GRADE 22	
		$			LLYODS STEEL INDUS LTD	INDIA	A		ALLOY STEEL PLATES AS PER A-204 & A-387 UPTO THICKNESS OF 40MM FOR STRUCTURAL STEEL APPLICATION , IN NON-PRESSURE PARTS.	
14	PLATES & ROLLED SECTION (CS-IS 2062 STRUCTURAL STEEL GRADES)	$			REFER TO SUB-VENDORS MENTIONED IN THE TECHNICAL SPECIFICATIONS SEC-VI, PART-B		A			
15	PLATES(SS)	$			OUTOKUMPU	SWEDEN	A		SS PLATES UP TO 20 MM THK	
		$			INDUSSTEEL	BELGIUM	A		GRADE-304,309,310,316	

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		$			JSL STAINLESS	JAIPUR	A		LINER SS 304	
		$			INDUSSTEEL LOIRE	FRANCE	A		GRADE-304,309,310,316	
		$			SAIL	BHILAI/SALEM	A		GRADE-304,309,310,317	
		$			COLUMBUS STAINLESS STEEL	SOUTH AFRICA	A		GRADE-304,309,310,318	
16	SEPARATOR & STORAGE TANK	I			ALSTOM	USA	A			
		I			BHEL	TRICHY	A			
		I			GE INDIA	DURGAPUR	A			
		I			DOOSAN	SOUTH KOREA	A			
		I			L&T-MHPS BOILERS PVT LTD	HAZIRA	A			
17	HEADERS AND SUCTION MANIFOLDS	I			ALSTOM	USA	A			
		I			BHEL	TRICHY	A			
		I			GE INDIA	DURGAPUR	A			
		I			DOOSAN	CHENNAI	A			
		I			DOOSAN VINA	VIETNAM	A			
		I			L&T-MHPS BOILERS PVT LTD	HAZIRA	A			
18	SPIRAL WATER WALLS	I			BHEL	TRICHY	A			
		I			GE INDIA	DURGAPUR	A			
		I			ALSTOM	USA	A			
		I			DOOSAN	CHENNAI	A			
		I			DOOSAN VINA	VIETNAM	A			
		I			DOOSAN	SOUTH KOREA	A			
19	TUBULAR PRODUCTS(COILS & PANELS) EXCLUDING SPIRAL WALLS	I			GE INDIA	DURGAPUR	A			
		I			BHEL	TRICHY	A			
		I			ALSTOM	USA	A			
		I			DOOSAN	CHENNAI	A			
		I			DOOSAN VINA	VIETNAM	A			
		I			DOOSAN	SOUTH KOREA	A			
		I			L&T-MHPS BOILERS PVT LTD	HAZIRA	A			
		I			MHI	JAPAN	A			
20	CRITICAL PIPING /PCP(MS, CRH, HRH, FW) AND BOILER PIPING	I			BHEL	TRICHY, THIRUMAYAM	A			
		I			GE INDIA	DURGAPUR	A			
		I			DOOSAN	SOUTH KOREA	A			

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		I			BHR	GERMANY	A			
		I			DEE DEVELOPMENT	PALWAL	A			
		I			BENTEC	USA	A			
		I			L&T PIPING CENTRE	HAZIRA	A			
		I			SEONGHWA IND CO LTD	SOUTH KOREA	A			
21	MISC HP PIPING EXCLUDING CRITICAL PIPING(CS, AS UP TO GRADE 91)	I			BHEL	TRICHY	A			
		I			GE INDIA	DURGAPUR	A			
		I			DOOSAN	SOUTH KOREA	A			
		I			BHR	GERMANY	A			
		I			DEE DEVELOPMENT	PALWAL	A			
		I			BENTEC	USA	A			
		I			L&T PIPING CENTRE	HAZIRA	A			
		I			SEONGHWA IND CO LTD	SOUTH KOREA	A			
		I			PAL ENGG	YAMUNANAGAR	A			
22	MISC HP PIPING EXCLUDING CRITICAL PIPING(CS, AS UP TO GRADE 22)	I					A		ABOVE MENTIONED PIPING VENDORS ARE ALSO ACCEPTABLE	
		I			ISGEC	YAMUNANAGAR	A		UP TO GRADE 22	
		I			UNITECH MACHINES LTD	SAHARANPUR	A		ONLY FOR CS GRADE	
		I			BEND JOINTS PVT LTD	BHOPAL	A		ONLY FOR CS GRADE	
		I			SEAM INDUSTRIES PVT LTD	NAGPUR	A		ONLY FOR CS GRADE	
		I			S&G	PALWAL	A		CS & AS UP TO GRADE 22 (EXCEPT BOILER PIPING & CRITICAL PIPING)	
		I			FLASH FORGE	VISAKHAPATNAM	A		ONLY FOR CS GRADE	
23	MIXING SPHERES	I			GE INDIA	DURGAPUR	A			
		I			BHEL	TRICHY	A			
		I			ALSTOM	USA	A			
		I			DOOSAN	SOUTH KOREA	A			
24	COAL BURNER ASSY & SOFA/OFA PORT/AA PORT	I			ALSTOM	USA	A			
		I			BHEL	TRICHY	A			
		I			DOOSAN	SOUTH KOREA	A			

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		I			L&T-MHPS PVT LTD	HAZIRA	A			
		I			DEE DEE ENGINEERING ENTERPRISES	TRICHY	A			
25	AIR COOLED OIL GUN ASSEMBLY	I			BHEL	TRICHY	A			
		I			SIGMA POWER	TRICHY	A			
		I			DOOSAN	SOUTH KOREA	A			
26	HFO/LFO PUMPS									
		I			ALEKTON	CHENNAI	A			
		I			UT PUMPS	FARIDABAD	A			
		I			ROTO PUMPS LTD.	GREATER NOIDA	A			
		I			ALLWEILER INDIA PVT.LTD.	GERMANY	A			
		I			BOURMANN	GERMANY	A			
		I			TUSHACO PUMPS PVT LTD/ALLWEILER INDIA PVT.LTD.	DAMAN	A			
		I			LEISTRITZ PUMPEN GmbH	GERMANY	A			
		I			KRAL	AUSTRIA	A			
27	SOOT BLOWERS(LRSB, WALL DESLAGGER, ROTARY BLOWER, TEMP PROBE)	I			BHEL	TRICHY	A			
		I			CLYDE BERGMANN	NOIDA	A		UNDER THE SUPERVISION OF M/S CLYDE BERGMANN, GERMANY	
		I			CLYDE BERGEMANN	GERMANY	A			
		I			DIAMOND POWER SPECIALITY LTD	SCOTLAND	A			
		I			DAIEYOUNG MACHINERY	KOREA	A			
28	ELECTRIC HOIST WITH TROLLEY, UNDERSLUNG CRANE	I					A		MAIN BOIS E.G. HOOK, MOTORS AND CRITICAL C&I ITEMS TO BE FROM NTPC APPROVED SOURCES	
		I			CONSOLIDATED HOISTS	SATARA	A		EOT CRANES UPTO 40 MT & HOISTS ABOVE 35 MT	
		I			REWA INDUSTRIES	FARIDABAD	A		EOT CRANES UPTO 25 MT	
		I			GRIP ENGINEERS	HYDERABAD	A		HOIST UPTO 40 MT	
		I			POWER BUILD PVT LTD,	V V NAGAR	A		HOIST UPTO 10 MT	
		I			UNIVERSAL HOIST	THANE	A		HOIST UPTO 20 MT	
		I			ARMSEL MHE PVT LTD	BANGALORE	A		UP TO 20 MT	

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		I			ANUPAM INDUSTRIES	VITHAL, UDYOGNAGAR	A		EOT CRANES UPTO 50 MT	
		I			TRACTOR TRIFOR	FARIDABAD	A		HOIST UPTO 35 MT	
		I			CONSOLIDATED HOISTS	PUNE	A		HOISTS UPTO 20 MT	
		I			DYNAMECH CRANES	THANE , MUMBAI	A		UP TO 20 MT	
		I			HERCULES HOIST LTD.	MUMBAI	A		HOIST UPTO 30 MT	
		I			NAMSUNG MACHINERY	SOUTH KOREA	A		UP TO 25 MT	
		I			CENTURY CRANES	PALWAL	A		EOT CRANES UP TO 30 MT	
		I			MUKUND	PUNE	A			
		I			Mangla Hoist	India (Greater Noida)	A		UPTO 10 MT	
29	LP CONDENSATE PUMP	I			ITT GOULD	USA	A			
		I			FLOW SERVE	USA	A			
		I			SULZER	NAVI MUMBAI	A			
		I			CLYDE PUMPS	GHAZIABAD	A			
		I			PUMPSENSE FLUID ENGG. PVT. LTD	HOWRAH	A			
30	SCANNER AIR FAN	I			ANDREW YULE CO. LTD	NADIA	A			
		I			ACCEL	AHMEDABAD	A			
		I			PATEL AIRTEMP (I) LTD	GANDHINAGAR	A			
		I			BHEL	RANIPET	A			
		I			CB DOCTOR(IMM)	AHMEDABAD	A			
		I			AIROCHEM ENGINEERING COMPANY	KOLHAPUR	A			
		I			FLAKEWOOD INDIA	CHENNAI	A			
		I			TLT ENGG. PVT. LTD.,	MEHSANA	A			
31	SEAL AIR FAN	I			CB DOCTOR & CO.	AHMEDABAD	A			
		I			ACCEL	AHMEDABAD	A			
		I			TLT INDIA PVT. LTD.,	MEHSANA	A			
		I			PATEL AIRTEMP (I) LTD.,	GANDHINAGAR	A			
		I			BHEL	RANIPET	A			
		I			ANDREW YULE CO. LTD.,	KALYANI NADIA	A			
		I			FLAKTWOOD	SWEDEN	A			
		I			FLAKEWOOD INDIA	CHENNAI	A			
		I			DRAFT AIR/CHICAGO BLOWERS	AHMEDABAD	A			
		I			REITZ INDIA	CHENNAI	A			

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		I			Howden Solyvent (India) Pvt. Ltd	Kanchipuram	A			
		I			NADI AIR TECH P LTD	CHENNAI	A			
32	FURNACE MAINTENANCE PLATFORM(SKY CLIMBER)	I			NY SKYMAN INT. SA	BELGIUM	A			
		I			NV SKCLIMBER EUROPE SA	BELGIUM	A			
		I			DAEO PRECISION IND CO LTD	SOUTH KOREA	A			
33	QUICK ERECT FURNACE SCAFFOLDING	II			BSL	UK	A			
		II			INSTANT UPRIGHT	IRELAND	A			
		II			EASTMAN IMPEX	LUDHIANA	A		CARBON STEEL SCAFFOLDING	
		II			BSL	HARIDWAR	A			
		II			ARUFASE	SPAIN	A			
34	METALLIC EXPANSION JOINT FOR DUCTS	I			FLEXATHERM EXPANLLOW PVT LTD	VADODARA	A			
		I			FLEXICAN BELLOWS & HOSES PVT LTD	VADODARA	A			
		I			KAY ENGINEERING WORKS	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			RAVI STRUCTURALS	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			MARUTI FABRICATORS	TANJORE	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			K B TECHNOLOGIES	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			AURORA SHAPERS	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	

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		I			FLEXICAN DURGA FAB(P) LTD	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			SRI DURGA STRUCTURALS	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			REGIONAL ENGINEERING ENTERPRISES	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			SRI RANGA INDUSTRIES	TANJORE	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			ANNAI VAILANKANNI ENGINEERING INDUSTRIES	TANJORE	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			ANNAI VAILANKANNI FABRICATORS UNIT-II	TANJORE	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			ANNAI VAILANKANNI FABRICATORS UNIT-II	TRICHY	A		MANUFACTURE OF STRAIGHT PIECES ONLY (CORNER PIECES FROM NTPC APPROVED SOURCES.)	
		I			MECHWELL INDUSTRIES	NASHIK	A			
35	METALLIC EXPANSION JOINT FOR PIPES	I			METALLIC BELLOWS	CHENNAI	A		UP TO 2200 NB	
		I			LONESTAR	CHENNAI	A		UP TO 2200 NB	
		I			FLEXICON BELLOWS & HOSES	VADODARA	A		UP TO 2200 NB	
		I			FLEXATHERM EXPANLLOW PVT LTD	VADODARA	A		UPTO 2000 NB	
36	LIGHT BONDED MINERAL WOOL	II			PUNJSTAR INSULATION FIBRE COMPANY	BHILAI	A			
		II			SHREERAM EQUITECH	DURG	A			
		II			GOENKA ROCKWOOL (INDIA) LTD	RAIPUR	A			
		II			LLOYDS INSULATION	BHILAI	A			

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		II			THERMOCARE ROCKWOOL PVT LTD	RAJNANDGAON	A			
		II			MINWOOL ROCK FIBRES LTD	RAJNANDGAON	A			
		II			LAPINUS ROCKWOOL LTD	GWALIOR	A			
		II			ROCKWOOL INDIA	MEDAK AP	A			
		II			DHANBAD ROCKWOOL INSULATION PVT LTD	DHANBAD	A			
		II			MINSULATE MFG CO. LTD	JAMSHEDPUR	A			
		II			POLYBOND PROJECTS PVT LTD	DURG	A			
		II			HI-TECH ROCK FIBRE LTD	RAJNANDGAON	A			
		II			ROCKWOOL INDUSTRIES	BHILAI	A			
		II			JAMSHEDPUR MINERAL WOOL	JAMSHEDPUR	A			
		II			ROXUL ROCKWOOL	DAHEJ	A			
37	CLH & VLH	I			BHEL	TRICHY	A			
		I			MID AMERICA	USA	A			
		I			MANNESMANN	GERMANY	A			
		I			ITT	GERMANY	A			
		I			PIPE SUPPORTS	UK / THAILAND	A			
		I			UNISON	SOUTH KOREA	A			
		I			PIPE HANGER SUPPORTS PVT LTD	TANJAVORE	A			
		I			GILLARDINI	ITALY	A			
		I			LISEGA	GERMANY	A			
		I			WOOKWANG	SOUTH KOREA	A			
		I			BERGEN PIPE SUPPORTS INDIA	CHITTOR	A		CLH UP TO C8-32 RANGE(MAXIMUM LOAD 39.70T). IN CASE OF CLH BEYOND THE RANGE OF C7-27(OF SUPPLIER CATALOGUE) THE SAME SHALL BE SOURCED FROM M/S PIPE SUPORTS, UK/THAILAND.	
		I			SANWA TAKI	JAPAN	A			
		I			MH	SPAIN	A			
		I			BROWICK	UK	A			
		I			CARPENTER PATTERSON	UK	A			

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		I			CARPENTER PATTERSON INDIA PVT LTD	VELLORE	A		MAXIMUM LOAD: 23877 KG AND MAXIMUM DISPLACEMENT: 220 MM AND UNDER THE SUPERVISION OF M/S CARPENTER PATERSON, UK.	
		I			AAA SUPPORTS PVT LTD	VADODARA	A		MAXIMUM LOAD: 1.5MT AND MAXIMUM DISPLACEMENT: 250MM	
		I			CARPENTER & PATTERSON	RANIPET	A		SUBJECT TO CONDITIONS AND THE INVOLVEMENT OF THEIR PRINCIPALS	
38	CONVENTIONAL VALVES (GATE, GLOBE & CHECK)	I			VELAN INC.	CANADA	A		SINGLE STAGE DRAIN VALVES (FORGED), SIZE UPTO 50MM NB, CLASS UPTO 2680 FOR POWER CYCLE PIPING APPLICATION.	
		I			LEADER VALVES LTD.	JALANDHAR	A		CC NRV UP NB 800, 150# FOR STG PKG.	
		I			BHEL	TRICHY	A			
		I			CRESCENT VALVES	MUMBAI	A		UPTO NB 300 CL 600	
		I			VELAND VALVE CORP.	USA	A		GATE V/V 2-34" CL 900-4500 CAST STEEL GATE V/V 18-48" CH50-800	
		I			VELAN	UK	A		1) GLOBE V/V 1/4"-2" C14500 (2) BONNETLESS GLOBE V/V 1/2-2.5" CI 150-500)	
		I			L&T VALVES	COIMBATORE	A		UP TO CLASS 4500 & GRADE 91	
		I			TRILLIUM FLOW	HUBLI	A		UPTO NB 300 & CL-600, FORGED UPTO NB 50 CL 800	
		I			FOURESS ENGG. INDIA LTD.,	THANE	A		(1) 10"X600 # GATE/GLOBE/CHECK VALVES (2) 16"X300# GATE/GLOBE/CHECK VALVES (3) 24"X150# GATE/GLOBE/CHECK VALVE (4) 2"X800 # FS GATE/GLOBE/CHECK (LIST) AS PER BS5352 (B) GATE GLOBE/CHECK VALVES FOR 700# TO 1500#	
		I			NITTON VALVES INDIA PVT. LTD.,	AURANGABAD	A		(1) GATE VALVE: UPTO36" CLASS 600 WCB/WCC (2) GLUBE VALVE: UPTO 16" CLASS 300 WCB/WCC (3) CHECK VALVE : UPTO 12" CLASS 600 WCB/WCC & WC6	

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		I			SAMSHIN LTD.,	SOUTH KOREA	A		(1) GATE - 450 NB 3900 SPL CL SA 217 C12A (GR 91) (2) GLOBE (CAST) - 200 NB 3900 SPL, CL FOR SA 217C12 (G 91) (3) GLOBE (FORGED GR 92) - 50 NB 4500 CL GR SA182 F 92 (4) CHECK (CAST) - 200 NB 3500 SPL CL FOR SA 217C12A (GR91) (5) CHECK (FORGED GR 92) - 50 NB 4500 CL GR SA 182 F 92 (5) ANGLE (FORGED80 NB)	
		I			TOA VALVE ENGGINERING INC.	JAPAN	A		CONVENTIONAL VALVES (1) GATE VALVES UPTO SIZE 16", CLASS 4500 UPTO C12A/F91 (2) GATE VALVES UPTO SIZE 26" CLASS 2500 UPTO C12A (3) CHECK VALVES UPTO SIZE 14" CLASS 2500 UPTO C12A (4) GLOBE VALVES UPTO SIZE 3" CLASS 4500 UPTO C12A (5) GLOBE VALVES UPTO SIZE 10" CLASS 1500 & 4" CLASS 2500 UPTO F91	
		I			FOURESS ENGG. INDIA LTD.	THANE	A		(1) 10"X600 # GATE/GLOBE/CHECK VALVES (2) 16"X300# GATE/GLOBE/CHECK VALVES (3) 24"X150# GATE/GLOBE/CHECK VALVE (4) 2"X800 # FS GATE/GLOBE/CHECK (LIST) AS PER BS5352 (B) GATE GLOBE/CHECK VALVES FOR 700# TO 1500#	
		I			BABCOCK VALVES	SPAIN	A		(1)CAST GATE VALVE (CS) VALVE CLASS UPTO 2500SPL & SIZE UPTO 10" (2)CAST GLOBE VALVE (CS) CLASS UPTO 2500SPL & SIZE UPTO 3 INCH (3) FORGED GLOBE VALVE (CS) CLASS UPTO 1500 & SIZE UPTO 1" (4) FORGED GLOBE VALVE (CS) CLASS UPTO TO 800 & SIZE UPTO 1.5"	

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		I			FORBES MARSHALL PVT LTD	PUNE	A		CONVENTIONAL VALVES :CAST GATE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 10 INCH CAST GLOBE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 3 INCH	
		I			BABCOCK WILCOX ESPANOLA	SPAIN	A		CONVENTIONAL VALVES -CAST GATE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 10 INCH CAST GLOBE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 3 INCH	
		I			HP VALVES OLDENZAAL B V	NETHERLAND	A		CONVENTIONAL VALVES -CAST GATE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 10 INCH CAST GLOBE VALVE (CS) CLASS UP TO 2500SPL & SIZE UP TO 3 INCH	
		I			Aruna Industrial Products Pvt. Ltd.	MADURAI	A		REFER APPROVAL CONDITION	
39	SAFETY VALVES(SPRING TYPE)	I			DRESSER INDUSTRIES	USA	A			
		I			SAMPELL AG	GERMANY	A			
		I			TYCO (PENTAIR VALVES & CONTROLS	USA	A			
		I			FUKUI SEISAKUSHO CO LTD	JAPAN	A			
		I			RIENEKE GMBH	GERMANY	A		HYDRAULIC TYPE	
		I			BOPP & REUTHER	GERMANY	A		HYDRAULIC TYPE	
		I			MIEWA CORPORATION	JAPAN	A		(1) SAFETY VALVE SIZE 1/2" TO 6" & 150 TO 4500 CLASS	
		I			BHEL	TRICHY	A			
		I			PENTAIR SANMAR LTD	PUDUKOTTAI	A		AUX STEAM SYSTEM: UP TO 6" SIZE AND CLASS UP TO 600	
		I			FAINGER LESER VALVES P LTD	AURANGABAD	A		SIZE(INELT/OULET): 200/300 MM APPLICABLE TO MAX DESIGN TEMPERATURE:474 DEG C & PRESSURE:47 KG	
40	ELECTROMATIC RELIEF VALVE (ERV)	I			VALVES TECHNOLOGIES	USA	A		(A) 1.5"X3" CLASS 3100- F91 MATERIAL (B) 2.5"X4", CLASS 1500-F91 MATERIAL	
		I			FUKUI SEISAKUSHO CO LTD	JAPAN	A			

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		I			SAMPELL AG	GERMANY	A			
		I			DRESSER INDUSTRIES	USA	A			
		I			MIEWA CORPORATION	JAPAN	A		SIZE UPTO 65MM & UPTO 4500 CLASS	
41	PLUG VALVE	I			FLOW SERVE INDIA CONTROLS	KANCHIPURAM	A		SIZE: 25 TO 300 MM, CLASS 150 & 300	
		I			3Z CORP.	SOUTH KOREA	A			
		I			HAWA VALVES	MUMBAI	A		UP TO 10" SIZE AND 300 CLASS	
42	BOILER STRUCTURE & FABRICATION ITEMS(MAIN & AUX COLUMNS, CEILING GIRDERS, BUILT-UP BEAMS, BRACINGS & BUCKSTAY), COAL BUNKER	I			M/S. BHEL	TIRUCHIRAPALLI	A		MAIN & AUX COLUMNS, CEILING GIRDERS, BUILT-UP BEAMS	
		I			CAPACITE	WADA, PALGHAR	A		(WELDED & BOLTED TYPE)BOILER PRIMARY STRUCTURES (CEILING GIRDER, MAIN COLUMNS, AUX. COLUMN, BOXES, BUCKSTAY, BRACING, MILL BAY STRUCTURE APH SUPPORT STRUCTURE ETC.)	
		I			SALEM AUTOMECH (INDIA) PVT. LTD.,	SALEM	A		BOILER STRUCTURES, I.E. CEILING GIRDER	
		I			DIAMOND ENGINEERING (CHENNAI) PVT LTD., CHENNAI	KANCHIPURAM	A		FABRICATION OF BOILER STRUCTURES -AWB UNIT-2 FABRICATION OF BOILER STRUCTURES-CEILINER GIRDER, AWB, COLMNS ETC. - BOILER STURCTURES-FABRICATION, TRIAL ASSEMBLY, BLASTING(AWB, COLUMNS, CEILING GIRDER ETC.)	
		I			SALEM AUTOMECH UNIT-I & UNIT-II	SALEM	A		CEILING GIRDERS	
		I			QUALITY ENGG.WORKS	TRICHY	A		CEILING GIRDERS	
		I			INDOFAB	TRICHY	A		CEILING GIRDERS	
		I			SANTHI ENGG. UNIT-II	PUDUKKUDI	A		CEILING GIRDERS	
		I			MASTERFAB UNIT-II	DEVARAYANERI	A		CEILING GIRDERS	

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		I			ARCEOR MITTAL DHAMM PROCESSING PVT LTD	RANIPET	A		(WELDED & BOLTED TYPE)BOILER PRIMARY STRUCTURES (WITHOUT CEILING GIRDER) I.E.MAIN COLUMNS, AUX. COLUMN, BOXES, BUCKSTAY, BRACINGS, MILL BAY STRUCTURE, APH SUPPORT STRUCTURE ETC.)	
		I			JSW SEVERFIELD STRUCTURES LTD	BELLARY	A		(WELDED & BOLTED TYPE) BOILER PRIMARY STRUCTURES (WITH OUT CEILING GIRDER) I.E, MAIN COLUMNS, AUX. COLUMN, BOXES, BUCKSTAY, BRACINGS, MILL BAY STRUCTURE, APH SUPPORT STRUCTURE ETC.)	
		I			ATMASTCO (P) LTD	DURG	A		(WELDED & BOLTED TYPE) BOILER PRIMARY STRUCTURES (WITHOUT CEILING GIRDER) I.E.MAIN COLUMNS, AUX. COLUMN, BOXES, BUCKSTAY, BRACINGS, MILL BAY STRUCTURE, APH SUPPORT STRUCTURE ETC. DUCTS)	
		I			ANG INDUSTRIES	SITARGANJ	A		FABRICATION AND SUPPLY WELDED TYPE BOILER STRUCTURES I.E. MAIN COLUMNS (PLUS AND BOX), AUTO WELDED BEAMS AND BRACINGS.	
		I			INDIANA GRATINGS PVT LTD	PURANDAR	A		FACTORY FABRICATED CIVIL STRUCTURE POWER HOUSE (TG BUILDING) STRUCTURAL ITEM (MAX SINGLE PIECE SIZE UPTO 15MT) (WELDED & BOLTED TYPE)	
		I			ESSAR HEAVY ENGINEERING SERVICES, (A UNIT OF ESSAR PROJECTS INDIA LTD)	SURAT	A		FABRICATION AND SUPPLY OF BUCKSTAYS	
		I			SIMPLEX ENGINEERING & FOUNDRY WORKS PVT LTD	BHILAI	A		(WELDED & BOLTED TYPE) BOILER PRIMARY STRUCTURES (WITH OUT CEILING GIRDER) I.E, MAIN COLUMNS, AUX. COLUMN, BOXES, BUCKSTAY, BRACINGS, MILL BAY STRUCTURE, AP	

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		I			SIMPLEX ENGG & FOUNDRY WORKS	UNIT 2, BHILAI	A		CEILING GIRDERS	
		I			SEAM INDUSTRIES LIMITED	NAGPUR	A		WELDED STRUCTURE UPTO 15T.FABRICATION AND SUPPLY OF BUNKERS & BUNKER STRUCTURES, BUCKSTAYS AND DUCTS.	
		I			SHIVAM HITECH STEELS PVT. LTD	BHILAI	A		HORIZONTAL BRACE/CIRCULAR HOLLOW SECTION ,BUCKSTAY,DUCTS	
		I			ENESTEE ENGINEERING LTD.,	NAGPUR	A		FABRICATION & SUPPLY OF BUNKERS & BUNKER STRUCTURES ,BUCKSTAY,DUCTS	
		I			SSV ENGINEERS PVT. LTD.,	PUNE	A		COAL SILOS, BUCKSTAY, DUCTS	
		I			ALLIANCE INTEGRATED METALIKS LTD.,	RAJPURA	A		BOILER PRIMARY STRUCTURES (EXCLUDING CEILING GIRDER)	
		I			TECHNOFAB MANUFACTURING LTD.	CHENNAI	A		FABRICATION AND SUPPLY OF BUNKER, BUNKER STRUCTURE, TP'S & CONVEYER GALLERIES,DUCTS	
		I			BABY ENGINEERING PVT. LTD.,	THUVAKUDI	A		BOILER PRIMARY STRUCTURES (EXCLUDING CEILING GIRDER) (WELDED & BOLTED TYPE)	
		I			COREFAB PROJECTS PVT LTD.,	BHILAI	A		FABRICATION & SUPPLY OF BOILER PRIMARY STRUCTURES - MAIN & AUX. COLUMNS, BUILT UP BEAM, BUCKSTAYS, BRACINGS, MILL BAY STRUCTURE AND APH SUPPORT STRUCTURE (EXCLUDING CEILING GIRDERS),DUCTS (WELDED & BOLTED TYPE)	
		I			MIURA INFRASTRUCTURE PVT. LTD	BHILAI-	A		BOILER PRIMARY STRUCTURE - MAIN & AUX. COLUMNS, BUILT UP BEAMS, BOXES, BUCKSTAY, BRACINGS, MILL BAY STRUCTURE, APH SUPPORT STRUCTURE (EXCLUDING CEILING GIRDERS) UPTO MAXIMUM SINGLE PIECE WEIGHT OF 30 MT (WELDED & BOLTED TYPE)	

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		I			METALFAB HIGHTECH PVT LTD.	NAGPUR	A		FABRICATION AND SUPPLY OF BUCKSTAYS ,DUCTS,(WELDED & BOLTED TYPE), COAL BUNKER	
		I			WHEELS INDIA LTD.	WARDHA	A		MANUFACTURING OF WELDED TYPE STRUCTURES I.E. AUTOWELDED BEAMS BRACING AND COLUMNS (UPTO 15T) ,BUCKSTAY,DUCTS(WELDED & BOLTED TYPE)	
		I			NOVOTECH PROJECTS (I) PVT LTD	KOLKATA	A		BUNKER STRUCTURE, TPS & TRESTLES	
		I			JINDAL STEEL & POWER LTD. (JSPL)	RAIGARH	A		PRIMARY STRUCTURE & CEILING GIRDER (WELDED & BOLTED TYPE)	
		I			AJANTHA FABRICATOR WORKSUNIT-II	PUDUKKOTTAI	A		BOILER PRIMARY STRUCTURES-COLUMNS, BEAMS, BRACINGS AND CEILING GIRDERS (WELDED & BOLTED TYPE)	
		I			FEEDERS LIOYDS	SIKANDRABAD	A		PRIMARY STRUCTURE - MAIN COLUMNS, AUX COLUMNS, BUILT UP BEAMS, BOXES, BUCKSTAY (WELDED & BOLTED TYPE)	
		I			L&T HEAVY FORGING & SPECIAL STEEL	HAZIRA	A		CEILING GIRDER	
		I			VASAN INDUSTRIES	PUDUKKOTTAI	A		BOILER PRIMARY STRUCTURES(WELDED AND BOLTED TYPE)	
		I			REGIONAL ENGINEERING WORKS	THUVVAKKUDY	A		BOILER PRIMARY STRUCTURE(WELDED AND BOLTED TYPE)	
		I			VRINDA ENGINEERS	PANAGARH, WB	A		COAL BUNKERS	
		I			GREAT INDIA FABRICATORS	YAMUNANAGAR	A		BOILER PRIMARY STRUCTURES EXCLUDING CEILING GIRDER(WELDED AND BOLTED TYPE), LIMITATIONS AS PER APPROVAL CONDITIONS	
		I			Goodluck Steel Tubes	Sikenderabad	A		Buckstay	
		I			GEW	Sikenderabad	A		Buckstay	
		I			JSPL	Angul	A		Boiler Primary Structure (Excluding Ceiling Girder)	
		I			L&T Limited ECC Workshop	Kanchheepuram	A		Boiler Primary Structure (Excluding Ceiling Girder)	

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		I			JSPL	Raipur	A		Primary Structure -Ceiling Girder -Sub to approval condition	
		I			Steel Infra Solutions Private Limited(SISCOL)	Bhilai	A		Boiler Primary Structure (Excluding Ceiling Girder) and column directly supporting ceiling girders-Sub to approval condition	
43	ELECTRO FORGED GRATINGS	II			INDIANA GRATINGS PVT. LTD	PUNE	A			
		II			KARDEANAND UDYOG	PUNE	A			
		II			PREMIER POWER PRODUCTS LTD	HOWRAH	A			
		II			BHOLA RAM STEEL PVT. LTD	PATNA	A			
		II			PINAX STEEL INDUSTRIES PVT LTD	PATNA	A			
		II			GREATWELD STEEL GRATING PVT. LTD	PUNE	A			
		II			VIN FAB ENGG. PVT LTD.,	MUMBAI	A			
		II			Ratan Project & Engineering	Howrah	A			
44	TANKS & VESSELS(IBD, CBD, FLASH TANK ETC)	I			KPHE	SOUTH KOREA	A			
		I			SV TANKS & VESSELS	MUMBAI	A			
		I			PROGEN SYS TECH LTD	CHENNAI	A		UP TO 4 KSC PR	
		I			FAB TECH	PUNE	A			
		I			UNITECH MACHINES LTD	SAHARANPUR	A		UP TO 10 KSC PR	
		I			SEAM IND P LTD	NAGPUR	A		UP TO 10 KSC PR	
		I			SHAKTI HI TECH CONST PVT LTD	CHENNAI	A		UP TO 10 KSC PR	
		I			SOUTHERN HEAVY ENGG & FAB PVT LTD	CHENNAI	A		UP TO 10 KSC PR	
		I			ALTECH INFRASTRUCTURE(I) PVT LTD	ALWAR	A		UP TO 16 KSC PR	
		I			SEAM INDUSTRIES PVT LTD	NAGPUR	A		UP TO 16 KSC PR	
45	SOOT BLOWER PRESSURE REDUCING VALVES & BLOCK	I			REFER QA C&I LIST		A			
46	FITTINGS(GRADE 91/92)	I			PETROL RACCORD SPA	ITALY	A		FORMED AND FORGED FITTINGS 91/92 GRADE	

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		I			BOKOYOUNG METAL CO.	SOUTH KOREA	A		FORGED FITTINGS AS PER SA-182 F92 GRADE (REDUCERS, NOZZLE, HALF COUPLING ETC.)	
		I			TF TECH CO. LTD	SOUTH KOREA	A		FORGED FITTINGS AS PER SA-182 F92 GRADE (REDUCERS, NOZZLE, HALF COUPLING ETC.)	
		I			FLASH FORGE	VIZAG	A		P91 FORMED/FORGED UPTO DIA 273MM & THICK 30MM	
		I			BGH EDELSTAHL SIEGEN GMBH	GERMANY	A		MANUFACTURE AND SUPPLY OF FORGED FITTINGS OF CS, AS AND SS GRADES	
		I			ERNE FITTINGS GMBH	AUSTRIA	A		P-91 FORMED	
		I			GAM RACCORDI SPA	ITALY	A		P-91 FORMED	
		I			TECHNO FORGE SPA	ITALY	A		P-91 FORMED	
		I			MEGA SPA	ITALY	A		92 GRADE FITTINGS (FORGED)	
		I			BASSI LLUIGI SPA	ITALY	A		P-91 FORGED/WELDED	
		I			IBF SPA	ITALY	A		FORMED AND FORGED FITTINGS/P92 GRADE	
		I			ALLIED INT. (TACTUBI RACCORDI SPA, VIA ROMA 150, 29027 PODENZANO)	ITALY	A		P-91 FORMED	
		I			BRUCK STRASSE 16 ENSHEIM	GERMANY	A		P-91 FORGED/WELDED	
		I			SUNGKWANG BEND CO. LTD.,	SOUTH KOREA	A		FITTINGS OF P91 AND OF MTERIAL OTHER THAN P91 OF BOILER	
		I			TK CORPN. FORGITAL	S KOREA	A		FORMED FITTINGS (ELBOW, TEES, REDUCERS ETC.) OF 92 GRADE.	
		I			FORGITAL	ITALY	A		MANUFACTURING AND SUPPLY OF GRADE 91 FORTGINGS (HOLLOW FORGINGS/MATCHING PIECES WITH 508MM DIA X 75MM THICKNESS STUBS WITH OD 245MM.	
		I			DEE DEVELOPMENT	PALWAL	A		GRADE 91 WITH SIZE/TYPE LIMITATIONS	
		I			CHW FORGE	GHAZIABAD	A		GRADE 92 WITH SIZE/TYPE LIMITATIONS	
		I			FORGIATURA MORANDINI SRL	ITALY	A		GRADE 92 FORGED FITTINGS(REDUCERS, TEES & Y-PIECES)	

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		I			BHARAT FORGE, PUNE	PUNE	A		GRADE 92 FORGED FITTINGS(REDUCERS, TEES & Y-PIECES)	
		I			BOKYOUNG METAL CO.LTD	SOUTH KOREA	A		GRADE 92 FORGED FITTINGS(REDUCERS, NOZZLE, HALF COUPLING)	
		I			VIAR SPA	ITALY	A		SEAMLESS FORGED Y-PIECE UP TO GRADE 91	
		I			DEE DEVELOPMENT	PALWAL	A		GRADE 92 WITH SIZE/TYPE LIMITATIONS	
		I			Goodluck Engineering Co.	Dadri	A		Forged Fittings (91/92 grade)	
47	AUX PRDS SYSTEM (INCLUDING CONTROL VALVE)	I			REFER C&I LIST					
48	CHEMICAL DOSING SYSTEM (SKID ASSY) FOR SG SCOPE INCLUDING AUX BOILER	I			POWER PIPING	TRICHY	A			
		I			V K PUMPS	MUMBAI	A			
		I			MILTON ROY	CHENNAI	A			
		I			TECHNO CONSULTANTS	MUMBAI	A			
		I			POSITIVE METERING SYSTEM	NASIK	A			
		I			PSI ENGG SYSTEM	CHENNAI	A			
		I			Prorites Equipments Pvt. Ltd.	Pune	A		LP Chemical Dosing System (NaOH/Ammonia/Hydrazine)	
49	SG CW BOOSTER PUMP/ ECW PUMP	I			KBL	WADI	A			
		I			WPIL LTD	GHAZIABAD	A			
		I			SAM TURBO	COIMBATORE	A			
		I			KSB	PUNE	A			
		I			BEST & CROMPTON ENGG LTD	CHENNAI	A			
		I			JYOTI LTD	BARODA	A			
		I			FLOWMORE	GHAZIABAD	A			
50	COAL BUNKER	I					A		REFER BOILER STRUCTURE LIST	
51	LUBE OIL SYSTEM FOR MILLS	I			LINCOLN HELIOS	BANGALORE	A			
		I			T A HYDRAULICS	HYDERABAD	A			
		I			CENLUB INDUSTRIES	FARIDABAD	A			
		I			BHEL	HYDERABAD	A			

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		I			BIJUR DELIMON INDIA PVT LTD	PUNE	A			
		I			UNIQUE ENGINEERING ENTERPRISE P LTD	HYDERABAD	A			
		I			SOUTHERN LUB	BANGALORE	A			
52	CERAMIC LINED BEND COAL PIPES	II			BHEL EDN	BANGALORE	A			
		II			BMW	HATHRAS/ROURKEE	A			
		II			CARBORANDUM UNIVERSAL	HOSUR	A			
		II			BHEL IP	JAGDISHPUR	A			
53	KNIFE EDGE GATE VALVES AT MILL OUTLET AND BURNER INLET	II			GALAXY CONTROLS PVT LTD	CHENNAI	A		UP TO SIZE 26'	
		II			ORBINOX INDIA PVT LTD	COIMBATORE	A		UP TO SIZE 30"	
		II			BRAY CONTROLS	CHENNAI	A		UP TO SIZE 28"	
		II			JASH ENGG LTD	INDORE	A		UP TO SIZE 30"	
54	VIS FOR FANS	I			GERB	BANGALORE	A			
55	LOS FOR FD, PA & ID FANS	I			PSI ENGG	CHENNAI	A			
		I			CENLUB	FARIDABAD	A			
		I			LINCOLN HELIOS	BANGALORE	A			
		I			BHEL	RANIPET	A			
		I			SOUTHERN LUBRICATION	BANGALORE	A			
		I			TA HYDRAULICS	HYDERABAD	A			
56	GATES AND DAMPERS	I			BACHMANN	FARIDABAD	A			
		I			FOURESS INDIA	BANGALORE	A			
		I			INDIRA DAMPERS	RANIPET	A			
		I			KAMAL ENGG	YAMUNANAGAR	A			
		I			BACHMANN	CHENNAI	A		GUILLOTINE GATE(2700 MM HEIGHT)	
		I			DAMPER TECHNOLOGY INDIA PVT LTD	COIMBATORE	A			
		I			Flexatherm Expanllow Pvt.Ltd	Block No-400/B, Karjan, Vadodara	A		Gates & Dampers(Flow Area/Cross-sectional area upto 5600mm X 5600mm)	
57	PA Fans	I			Bharat Heavy Electrical Limited	Ranipet	A			
		I			L&T- Howden Private limited	Hazia	A			

एनटीपीसी NTPC	Project/ परियोजना :SIPAT SUPER THERMAL POWER PROJECT STAGE - III (1X800MW) Package/ पैकेज: EPC PACKAGES Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची	DOC. NO./ दस्तावेज सं.: REVISION NO : 00 DATE/ तिथि : 02.05.2023 SUB-SYSTEM उप-प्रणाली: QA-SG(MECH)

S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Provenness Clause (Refer Note-1)
		I			TLT-Turbo GmBH	Germany	A			
		I			Howden	Denmark	A			
58	ID Fans	I			Bharat Heavy Electrical Limited	Ranipet	A			
		I			TLT Turbo GmBH	Germany	A			
		I			L&T Howden Private Limited	Hazira	A			
		I			Howden	Denmark	A			
59	FD Fan	I			Bharat Heavy Electrical Limited	Ranipet	A			
		I			L&T Howden Private Limited	Hazira	A			
		I			TLT-Turbo GmBH	Germany	A			
		I			Howden	Denmark	A			
60	Coal Pulverisers	I			BHEL	Hyderabad	A			
		I			L&T MHPS Boilers Pvt. Ltd.(LMB) (Incl. Manufacturing Facility of L&T)	Hazira	A			
		I			Loesche Energy system India pvt ltd.	Chennai	A			
		I			Doosan Heavy Industries & Construction Co. Ltd	South Korea	A			
61	Raw Coal Feeders	I			Bharat Heavy Electricals Limited	Trichy	A			
		I			Schenck Process (Stock Redler India Private Limited, India)	Bengaluru	A			
		I			Merrick Industries Pvt. Ltd., India	Bengaluru	A			
		I			Yamato Scale	Japan	A			
		I			FLSmidth	Haryana	A			
62	Boiler Start Up Drain Re-Circulation Pump	I			Torishima Pump Mfg Co. Ltd.,	Japan	A			
		I			Hayward Tyler Limited	UK	A			
		I			KSB AG	Germany	A			
63	Air Pre-Heaters	I			Bharat Heavy Electricals Limited	Ranipet	A			
		I			L&T Howden Private Limited	Hazira	A			
		I			Arvos India Pvt.LTd.	Chennai	A			
64	Auxiliary Boiler	I			ISGEC John Thampson (IJT)	Yamuna Nagar	A			
		I			Thermax Babcock & Wilcox Ltd.	Pune	A			

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S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Provenness Clause (Refer Note-1)
		I			Bharat Heavy Electricals Limited & BHEL (HVPB)	Trichy, Vizag	A			
65	ESP	I			Bharat Heavy Electricals Limited	Ranipet	A			
		I			Larsen & Toubro Limited	India	A			
		I			GE Power India	India	A			
	Main Contractor approved sources									
1	ALUMUNIUM CLADDING	III			Main Contractor approved sources					
2	NON IBR PIPING / LP PIPING - PRESSURE UP TO 10 KSC	III			Main Contractor approved sources					
3	CASTABLE REFRACTORY	III			Main Contractor approved sources					
4	POURABLE INSULATION	III			Main Contractor approved sources					
5	STEEL STRUCTURE FOR DUCTS, FURNACE ENCLOSURE, GUIDE, STAIRS & LADDERS, HANDRAILS, PLATFORMS	III			Main Contractor approved sources					
6	SILENCERS	III			Main Contractor approved sources					
7	COAL PIPES & BENDS (WITHOUT CERAMIC LINERS)	III			Main Contractor approved sources					
8	FITTINGS(CS, SS & AS UP TO GRADE 22)	III			Main Contractor approved sources					
9	ELECTRIC HOIST WITH TROLLEY, UNDERSLUNG CRANE < 05 TON CAPACITY	III			Main Contractor approved sources					
10	DUCTS	III			Main Contractor approved sources					
11	AIR RECEIVER TANK	III			Main Contractor approved sources					
12	COUPLING FOR FANS	III			Main Contractor approved sources					
13	SCAPH	III			Main Contractor approved sources					
14	OXYGEN DOSING SYSTEM	III			Main Contractor approved sources					
15	CE & DE SUSPENSION ASSEMBLY WITH RAPPING(MECHANICAL) MECHANISM	III			Main Contractor approved sources					
16	PERFORATED GD PLATE/SCREEN	III			Main Contractor approved sources					
17	ESP SUPPORT STRUCTURE (COLUMNS & ROOF BEAMS MANUFACTURED FROM ROLLED SECTIONS), CASING	III			Main Contractor approved sources					
18	ESP- MECH SAFETY INTERLOCK	III			Main Contractor approved sources					
19	Spray header for FGD	III			Main Contractor approved sources					
20	Mist eliminators for FGD	III			Main Contractor approved sources					

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S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	Provenness Clause (Refer Note-1)
21	STEEL STRUCTURE FOR DUCTS, FURNACE ENCLOSURE, GUIDE, STAIRS & LADDERS, HANDRAILS, PLATFORMS	III			Main Contractor approved sources					
22	HANGER & SUPPORTS(OTHER THAN CLH & VLH) RIGID HANGERS	III			Main Contractor approved sources					
23	SNUBBERS	III			Main Contractor approved sources					
24	Oil Preheater & Pressuring Skid	III			Main Contractor approved sources					

NOTE -1 : For final Sub-QR approval , document required to be submitted as per Sub-QR requirements given in the specification.

NOTE-2: Vendors under 'A' are approved and accepted by NTPC with/without conditions in the past. Similar conditions as the case may be for the vendor shall be applicable for this project and tied up in the quality plan.

NOTE-3: Predespatch inspection for Alloy/SS Grades needs to be tied up by Main contractor or Third-party inspection agency as required.

NOTE-4 : ($) Review of Mill TC for Raw Material to be done by NTPC and shall be included in the QP of corresponding equipment.

NOTE-5: Raw Material for 91 and above Grade Material Fittings to be from NTPC approved sources as per Raw Material vendor List.

NOTE-6:For Motorized/Pneumatic actuated valves the suppliers for actuators shall be from NTPC approved list, Refer NTPC C&I list.

LEGENDS/ संकेतिका

SYSTEM SUPPLIER/SUB-SUPPLIER APPROVAL STATUS CATEGORY /प्रणाली आपूर्तिकर्ता / सब –वेंडर की स्वीकृति की स्थिति की श्रेणी (SHALL BE FILLED BY NTPC एनटीपीसी द्वारा भरा जाएगा)

A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter "A" in the list along with the condition of approval, if any./ इन मदों के लिए प्रस्तावित वेंडर एनटीपीसी को स्वीकार्य है। अनुमोदन की शर्त, , यदि कोई हो, के साथ-साथ पत्र "क" में इंगित किया जाए ।

DR – For these items "Detailed required" for NTPC review. To be identified with letter "DR" in the list. एनटीपीसी द्वारा इन मदों की समीक्षा के लिए "विस्तृत ब्यौरे की आवश्यकता" होगी। सूची में "DR" पत्र में इंगित किया जाना चाहिए।

QP/INSPN CATEGORY: क्यूपी / निरीक्षण की श्रेणी:

CAT-I / श्रेणी- I: For these items the Quality Plans are approved by NTPC and the final acceptance will be on physical inspection witness by NTPC. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है और एनटीपीसी द्वारा अंतिम स्वीकृति भौतिक निरीक्षण के दौरान उपलब्ध गवाह के आधार पर दी जाएगी।

CAT-II / श्रेणी- II: For these items the Quality Plans approved by NTPC. However no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on the basis review of documents as per approved QP. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है। हालाँकि एनटीपीसी द्वारा कोई भौतिक निरीक्षण नहीं किया जाएगा। एनटीपीसी द्वारा अंतिम स्वीकृति अनुमोदित क्यूपी के अनुसार दस्तावेजों की समीक्षा के आधार पर दी जाएगी।

CAT-III/ श्रेणी-III : For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.

UNITS/WORKS इकाईयां / कार्य: Place of manufacturing/ निर्माण का स्थान Place of Main Supplier of multi units/works/बहु- इकाइयों / कार्यों के मुख्य सप्लाइर का स्थान.

एनटीपीसी NTPC एक महारत्न कम्पनी	PROJECT : SIPAT-III (1X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL	REVISION NO : 00 DATE :02.05.2023 SUB SECTION: QA-TG(MECH)

Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status	SS Detail Sub.SCH	SS Approval SCH	Remark	Package Applicable	Provenness Clause (Refer Note-1)
1	HP/IP Outer Casing Casting (1.25Cr & 2.25Cr)	I				Voestalpine	Austria	A					
						JCFC	Japan	A					
						JSW	Japan	A					
						GE	Poland	A					
						Kobe Steel	Japan	A					
						Starwire	Faridabad	A					
						Sande Stahlguss GmBH	Germany	A					
						ISGEC	Muzaffarnagar	A			Weight upto 38 T, 1.25 Cr Grade		
						LMB Heavy Casting Unit	Hazira	A					
						BHEL-CFFP	Haridwar	A					
2	HP/IP Inner Casing Casting including Turbine admission valves (9 Cr)	I				Voestalpine	Austria	A					
						JCFC	Japan	A					
						JSW	Japan	A					
						GE	Poland	A					
						Kobe Steel	Japan	A					
						Starwire	Ballabhgarh	A			Weight Upto 22T		
						Sande Stahlguss GmBH	Germany	A					
						Gruppo Cividale	Italy	A			Weight Upto 20T		
						LMB Heavy Casting Unit	Hazira	A					
						BHEL-CFFP	Haridwar	A					
						Sande Groditz	Germany	A			Weight Upto 20T		
3	HP/IP Inner & Outer Casing including Turbine admission valves Machining	I				LMTG	Hazira	A					
						MHPS	Japan	A					
						FUZI ELECTRIC	Japan	A					
						ROSSEL DUSO	Venice	A					
						Toshiba works	Japan	A					
						TJPS	Chennai	A					
						GE	Sanand	A					
						BRUNO PRESEZZI	Italy	A					
						NUGO ROMANO	Italy	A					
						BHEL (HEEP)	Haridwar	A					
						Siemens	Germany	A					
						GMW	Germany	A					
						Sharp	Pune	A			HP/IP Inner Casing		
						BILFINGER MAS.GMBH	Austria	A			Previous Name:MCE		
4	HP/IP/LP Turbine shaft Forging	I				JCFC (Japan Casting & Forging Corp.)	Japan	A					
						SAARSCHMIEDE	Germany	A					
						JSW	Japan	A					
						Pacific Steel Mfg Co Ltd	Japan	A					
						Schmiedewerke Gröditz	Germany	A					
						Buderus Edelstahl	Germany	A					
						Cruesot Forge	France	A					
						Kobe Steel	Japan	A					
						SDF	Italy	A					
						Siemens	Germany	A					
						Franco Tosi	Italy	A			HP/IP		
						BHEL (HEEP)	Haridwar	A					
						ROSSEL DUSO	Italy	A					

एनटीपीसी NTPC एक महारत्न कम्पनी	PROJECT : SIPAT-III (1X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL	REVISION NO : 00 DATE :02.05.2023 SUB SECTION: QA-TG(MECH)

Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status	SS Detail Sub.SCH	SS Approval SCH	Remark	Package Applicable	Provenness Clause (Refer Note-1)
5	Turbine shaft machining	I				BRUNO PRESEZZI	Italy	A			HP/IP		
						NUGO ROMANO	Italy	A					
						MCE MAP (Voist Alpine)	Austria	A			HP		
						GE	Poland/ Switzerland/ France/ Sanand	A					
						Toshiba	Japan	A					
						TJPS	Chennai	A					
						MHPS	Japan	A					
						LMTG	Hazira	A					
						FUZI ELECTRIC	Japan	A					
6	HP/IP/LP Stationary & Moving Blades Bar stock	I				Böhler	Austria	A					
						Bohler Schmiedetechnik	Germany	A					
						WELZEWERKE REVENE	Germany	A					
						DIODO	Japan	A					
						Hitachi	Japan	A					
						Starwire	Ballabhgarh	A					
						Gloria Material Technology Corp	Taiwan	A					
						Acciaierie Valbruna S.p.a.	Italy	A					
						BGH Edelstahl GmbH	Germany	A					
						Carpenter Technology Co.	USA	A					
						Daido	Japan	A					
						Sz-metal Ravne D.o.o.	Slovenia	A					
						Einsal	Germany	A					
						Walzwerke Einsal	Switzerland	A					
						Nichia Tanko Co Ltd	Japan	A			LP Blades		
7	HP/IP/LP Stationary & Moving Blades Machining(From Bar)	I				SET	Hungary	A					
						MHPS	Japan	A					
						Leistritz-Numberg	Germany	A					
						Energietechnik Einsal	Germany	A					
						Prawest	Germany	A			FOR LP STATIONARY BLADES		
						ZEMA	Italy	A			FOR LP STATIONARY BLADES		
						LMTG	Hazira	A					
						GE	Switzerland/ Germany/ Sanand	A					
						Enem Excel	Hyderabad	A					
						TJPS	Chennai	A					
						Toshiba	Japan	A					
						BHEL (HEEP)	Haridwar	A					
						Siemens	Germany	A					
						QTPL	Bangalore	A			For Guide Blades		
						AZAD ENGG	Hyderabad	A					
8	LP Forged Blades(Drop)-Material	II				MHPS	Japan	A					
						GE	Switzerland	A					
						Leistritz Turbinenkomponenten	Germany	A					
						SMB SA	Switzerland	A			For L1 stage(Last but one) blades		
						C-BLADE SPA	Italy	A					

एनटीपीसी NTPC एक महारत्न कम्पनी	PROJECT : SIPAT-III (1X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL	REVISION NO : 00 DATE :02.05.2023 SUB SECTION: QA-TG(MECH)

Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status	SS Detail Sub.SCH	SS Approval SCH	Remark	Package Applicable	Provenness Clause (Refer Note-1)
						BOHLER	Austria	A					
						PIETRO ROSA	Italy	A					
9	LP Forged Blades(Drop) Machining	I				MHPS	Japan	A					
						C Blade	Italy	A					
						Sumitomo (Manfg. by Sumiju Precision Forgings)	Japan	A					
						PIETRO ROSA	Italy	A					
						Leistritz Turbinenkomponenten	Germany	A					
						Bohler	Austria	A					
						Toshiba	Japan	A					
						ALSTOM	Switzerland	A					
						AZAD ENGG	Hyderabad	A					
10	LP Cast Blades(material) & Machining	I				Zollern	Germany	A					
						Consolidated Precision Product	Belgium	A			Previous Name:ESCO		
						Formetal (cismocisco)	Italy	A			For casting		
						Juergens	Germany	A			For casting		
						GE Power Systems	Germany	A					
						IPCL	Bhavnagar	A					
						EXCEL HITECH	Ghaziabad	A			For casting		
						AK ALLOYS	Ahmedabad	A					
						PTC	Lucknow/ Mehsana	A					
						AMBE ENGG-	Ghaziabad	A			For Machining only		
11	LP Hollow Blades	I				Binder	Switzerland	A					
						Prime Hi-Tech Engineering Limited	Naidupet, AP	A					
12	LP Inner/Outer casing Fabrication	I				LMTG	Hazira	A					
						BHEL (HEEP)	Haridwar	A					
						SHARP	Pune	A					
						Shape Engg.	Haridwar	A					
						GE	Croatia/ Shahabad	A					
						D&N	Germany	A					
						KCP	Chennai	A					
						ISGEC(Weight upto 38T)	Yamunanagar	A					
13	LP Inner casing Casting (GGG40)	I				GE Power sp. Z.o.o	Poland	A					
						L&T	Kansbahal	A					
						FWH Freidrich Wilhems-Hute GmBH	Germany	A					
						Heidenheimer Giessen GmBH	Germany	A					
						Pilsen Steel	Czech	A					
						Buderus Spezialguss GmBH	Germany	A					
14	LP Inner/Outer casing Machining	I				LMTG	Hazira	A					
						BHEL (HEEP)	Haridwar	A					
						TJPS	Chennai	A					
						MHPS	Japan	A					
						SHARP	Pune	A					
						LONE STAR	Chennai/ Cheyyar	A					

एनटीपीसी NTPC एक महारत्न कम्पनी	PROJECT : SIPAT-III (1X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL	REVISION NO : 00 DATE :02.05.2023 SUB SECTION: QA-TG(MECH)

Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status	SS Detail Sub.SCH	SS Approval SCH	Remark	Package Applicable	Provenness Clause (Refer Note-1)
15	LP Crossover Pipe	I				Hatec	Germany	A					
						Rohr-und Anlagenbau (ROBA)	Germany	A					
						Seonghwa	S Korea	A					
						Dee Development	Ballabhgarh	A					
						HKR	S Korea	A					
						Babylon	Germany	A					
						Eichhoff	Germany	A					
						LMTG	Hazira	A					
						Mech engineers	Valsad	A					
16	Electro-Hydraulic Actuators	I				MHPS	Japan	A					
						GE	Germany	A					
						Horst Thiele	Germany	A					
						Bosch Rexroth	Germany	A					
						MOOG	Japan	A					
17	Hydraulic Power Pack Unit	I				Bosch Rexroth	Germany	A					
						Bosch Rexroth	Ahmedabad	A					
						Hydac	Germany	A					
						Hydac	Coimbatore	A					
18	Actuator & Valve For CRH-NRV & QC-NRV	I				Weir	USA	A					
						Cesare Bonetti	Italy	A					
						BABCOCK	Spain	A					
						ADAMS	Germany	A					
						BHEL	Trichy	A			Upto 850NB & Class upto 900 special		
						SEMPELL	Germany	A					
19	HP/IP/LP Shaft Seals	II				TPT	S Korea	A					
						Starwire	Ballabhgarh	A			For INGOTS		
						Kolhapur Steel	Kolhapur	A					
						Silbitz Guss	Germany	A					
						StahlgussSaar	Germany	A					
						GE	Sanand	A					
						PMT	Pune	A					
						Wellbore	Ahmedabad	A					
						Bharat Forge	Pune	A					
						Indo air	Ahmedabad	A					
						Toshiba	Japan	A					
20	TG Bearings	I				GE	Germany	A			For Thrust Bearing		
						Kingburry	USA	A					
						Omega	Bhopal	A					
						Eurobearing	Italy	A					
						John Crane Bearing	Germany	A					
						BHEL (HEEP)	Haridwar	A					
						Wuakesha Bearing	UK	A					
						Euro Bearings	Faridabad	A					
						Kingsburry	USA	A					
21	MOP/EOP	I				Allweiler	Germany	A					
						ABB	Switzerland	A					
						Bosch Rexroth	Germany/ Switzerland	A					
						Toshiba	Japan	A					

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						Ebara Yoshikura Hydrotec Ltd.	Japan	A					
22	Jacking Oil Pump	I				Bosch Rexroth	Germany /Switzerland	A					
						Allweiler	Germany	A					
						Leistritz	Germany	A					
						MITTEN MANUFACTURING, INC	USA	A					
						PARKER HANIFIN	Japan	A					
						Allweiler	Daman	A					
23	Oil Purification Unit	I				Facet	Spain	A			Coalescer Type		
						Pall Corporation	USA	A			For control fluids		
						Alfa Laval	Pune	A			Centrifuge Type		
						Hilliard	USA	A			Coalescer Type		
						Kaydon Filtration	USA	A			Coalescer Type		
						Westfalia Separator India Pvt.Ltd.	Germany/ Bangalore	A					
						Rotring	Germany	A					
						Rockfin Group	Poland	A					
24	Duplex Oil Filter With Oil Changeover Valve	I				Hydac	Germany	A					
						Boll & Kirch	Germany	A					
						Rockfin	Poland	A					
25	Turbine Integral Piping	I				BHEL Piping Center	Chennai	A					
						Unitech	Saharanpur	A					
						Bend Joints	Bhopal	A					
						Pal Engineering	Yamunanagar	A					
						Seonghwa	S Korea	A					
						L&T Piping Center	Hazira	A					
						Dee Development	Ballabhgarh	A					
26	Oil Module including Central Lubrication System	I				Kelag	Switzerland	A					
						VDL Delmas	Germany	A					
						Hydac India Pvt. Ltd.	Coimbatore	A					
						AEL	Germany	A					
						Flenco	Italy	A					
						Hydac	Germany	A					
						King Dynamics	Switzerland	A					
						Southern Lubrication	Bangalore	A					
						ENPRO	Pune	A					
27	Thermal Insulation	II				Eugen Arnold GmbH	Germany	A					
						Heinrich Tapp GmbH	Germany	A					
						Lloyds Insulation	India	A					
						Minwool Rock Fibre	Bhilai	A					
						Thermocare	Rajnandgaon	A					
						Dhanbad Rockwool Insulation	Dhanbad	A					
						Minsulate Manufacturing Co.	Jamshed	A					
						MHI	Japan	A					
						THERMAL ENGG INTERNATIONAL (TEI)	USA	A					
						TJPS	Chennai	A					

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28	Condenser (water cooled) (Sub QR Item)	I				TOSHIBA CORPORATION LTD	Japan	A					
						LMTG	Surat	A					
						BHEL	Haridwar	A					
						ABFPL	Sanand	A					
						GE	Switzerland	A					
29	Condenser Fabricator (water cooled)	I				ISGEC	Yamunanagar	A					
						GE Power india Ltd.	Durgapur	A					
						Godrej & Boyce Manufacturing Company Ltd.	Mumbai	A					
						TEMA India Ltd.,	Thane	A					
30	HP Heaters (Sub QR Item)	I				TOSHIBA CORPORATION LTD	Japan	A					
						TJPS	Chennai	A					
						SPX Heat Transfer Inc. (Erstwhile Yuba Heat Transfer)	USA	A					
						GE	France	A					
						ABFPL	Sanand	A					
						BHI	S Korea	A					
						THERMAL ENGG INTERNATIONAL	USA	A					
						HOLTEC	USA	A					
						L&T	Hazira	A					
						BHEL	Hyderabad	A					
31	LP/HP Heater Fabricator	I				ISGEC	Yamunanagar	A					
						Godrej & Boyce Manufacturing Company Ltd.	Mumbai	A					
						TEMA India Ltd.,	Thane	A					
32	LP Heaters (Sub QR Item)	I				TOSHIBA CORPORATION LTD	Japan	A					
						TJPS	Chennai	A					
						SPX Heat Transfer Inc. (Erstwhile Yuba Heat Transfer)	USA	A					
						GE	Switzerland	A					
						ABFPL	Sanand	A					
						BHI	S Korea	A					
						THERMAL ENGG INTERNATIONAL	USA	A					
						BHEL	Hyderabad	A					
						L&T	Hazira	A					
						HOLTEC	USA	A					
33	Condensate Extraction Pump (CEP) (Sub QR Item)	I				KSB	Chinchwad, Pune	A					
						BHEL	Hyderabad	A					
						SULZER Pumps	Mumbai	A					
						Clyde Pumps India pvt. Ltd.	Ghaziabad	A					
34	Condenser Air Evacuation Pumps (Sub QR Item)	I				GARDNER Denver/Nash	Germany	A					
						GARDNER Denver/Nash	Pune	A					
						Tsurumi pumps	Japan	A					

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						Edwards	UK	A					
35	Deaerator (Sub QR Item)	I				TJPS	Chennai	A					
						BHEL	Hyderabad	A					
						BGR	Chennai	A					
36	Deaerator Fabricator	I				Godrej	Mumbai	A					
						ISGEC	Yamunagar	A					
						Altech	Bhiwadi	A					
						TEMA India Ltd.,	Mumbai	A					
						BGR Energy System Ltd.	Chennai	A					
37	Booster Pump	I				KSB	Germany	A					
						KSB	Pune	A					
						Sulzer Pumps	Mumbai	A					
						Sulzer	UK	A					
						Flowserve	Switzerland	A					
						FLOWSERVE	Coimbatore	A					
						Flowserve	Spain	A					
						Hitachi	Japan	A					
						Ebara Corporation	Japan	A					
						MHI	Japan	A					
						BHEL	Hyderabad	A					
38	Boiler Feed Pump (BFP) (Sub QR Item)	I				Ebara Corporation	Japan	A					
						Flowserve	Spain	A					
						KSB	Germany	A					
						KSB	Pune	A					
						Mitsubishi Heavy Industry	Japan	A					
						HITACHI PLANT TECHNOLOGY	Japan	A					
						BHEL	Hyderabad	A					
						Sulzer Pumps	Mumbai	A					
						SULZER	UK	A					
40	Drive Turbine for BFP	I				Siemens	Germany	A					
						Hitachi	Japan	A					
						GE Thermodyne	France	A					
						GE India Industrial Pvt. Ltd.	Pune	A					
						Toshiba	Japan	A					
						TJPS	Chennai	A					
						Power machines(Kaluga)	Russia	A					
						BHEL	Hyderabad	A					
						MHI	Japan	A					
						Skoda	Czech republic	A					
41	HP Bypass Valves (Sub QR Item)	I				CCI	Sweden/ Switzerland/ Czech Republic	A					
						CCI	Chittor,AP	A					
						Bomafa	Germany	A					
						Bomafa	Ahmedabad	A					
42	LP Bypass Valves (Sub QR Item)	I				CCI	Sweden/ Switzerland/ Czech Republic	A					

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42	LP Bypass Valves (Sub QR Item)	I				CCI	Chittor,AP	A					
						BOMAFA	Ahmedabad	A					
						BOMAFA	Germany	A					
43	Condensor On-load Tube cleaning system (COLTCS) (Sub QR Item)	I				GEA BGR	Chennai	A					
						Multitex Filtration	Greater Noida	A					
44	Hydraulic Coupling for BFP	I				Voith	Hyderabad	A					
						Voith	Germany	A					
45	Hangers & Supports; Pipe Support components including Spring Hangers	I				Pipe Support	Chennai	A					
						Lisega	Germany	A					
						Lisega	Ahmedabad	A			Load upto to 100KN		
						Seonghwa	S Korea	A					
						Pipe supports	UK	A					
						GILLARDINI	Italy	A					
						BERJEN	Chittor,AP	A					
						NHK SPRIING	Japan	A					
						Yamashita Seisakusho Co. Ltd	Japan	A					
						MHI	Japan	A					
						SANWA TEKKI CORPORATION	Japan	A					
						CARPENTER AND PETERSON	UK	A			CLH Upto 30 T AND VLH Upto 32 T		
						CARPENTER & PATERSON INDIA PRIVATE LTD.	Vellore	A			CLH Upto 23.8T & VLH Upto 20.7T		
						AAA Supports Private Limited	Vadodara	A			For CLH, VLH and Rigid supports Max. Load 1.5 MT		
						Carpentor & Patterson	USA/Thailand	A					
46	Metallic Expansion Joint	I				Lonestar	Chennai	A			For size up to NB9200		
						Flexicon	Vadodara	A			For size upto 2200NB		
						Witzemann	Germany	A					
						Munro & Miller	UK	A					
						Flexatherm	Vadodara	A			For size upto 2200NB		
						Bird Precision	UK	A					
						Metallic Bellows	Chennai	A			For size up to 1600 NB		
						M B Metallic Bellows	Chennai	A			For size upto 2200NB		
						Athulya Bellows and Engineering Pvt. Ltd	Vadodara	A			For size up to NB 3400		
						HKR	S Korea	A					
47	HP Piping -Fabrication (Based on Design and Drawings of Qualified Vendor)	I				BHR	Germany	A					
						Seonghwa	S Korea	A					
						Finow	Germany	A					
						TOSHIBA	Japan	A					
						BHEL	Piping Center, Chennai &Thirumayam	A					
						L&T	Hazira	A					
						Dee development	Ballabhgarh	A					
						Bendtec	USA	A					
						Wyman-Gordon	USA	A					

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48	HP Pipes and Fittings (Mills)	II				Sumitomo	Japan	A					
						Tenaris	Italy	A					
						V&M	Germany	A					
						V&M	France	A					
						IBF	Italy	A					
						SUNGWANG BEND	S Korea	A			UP TO 24INCH IN CS/AS MATERIAL		
						Productos Tubulares	Spain	A					
						JFE	Japan	A					
						Bentler	Germany	A					
						TK CORPORATION	S Korea	A			UP TO 24INCH IN CS MATERIAL		
						TUBOS REUNIDOS	Spain	A					
						MEGA	Italy	A			For Fittings Only		
						Petrol Raccord,	Italy	A			UP TO 24INCH IN CS MATERIAL & UP TO 18 INCH IN AS MATERIAL		
						Benkan Japan KK	Japan	A			UP TO 24INCH IN CS MATERIAL		
49	Elastomer Large Bellows or Flexibles Rubber Bellows	I				Cori Engineers Pvt. Ltd.	Chennai	A			UP TO 2700 NB		
						SRM Ecoflex	Kolkata	A			UP TO 2700 NB		
50	Heater Drains Recovery Pumps (Drip Pump)	I				KSB	Germany	A					
						Nasosenergomash	Ukraine	A					
						Sulzer Pumps	Mumbai	A					
						KSB	Pune	A					
						Hyundai	S Korea	A					
						KBL	Pune	A					
						Flowserve	Coimbatore	A					
51	Debris Filter/ Self Cleaning Strainer	I				GEA-BGR	Chennai	A					
						Multitex	Gr.Noida	A					
52	LP Pipes & Fittings (CS & SS)	I				Remi	Tarapur,India	A			SS		
						Apex	Alwar	A			SS (up to 150NB)		
						Ratnamani	Ahmedabad	A			SS		
						ISMT	India	A			CS (up to 400 NB)		
						Maharashtra Seamless Ltd.	Maharashtra	A			CS (up to 400 NB)		
						Tube Products Incorporate	Ahmedabad	A					
						TK Corporation	S Korea	A					
						Dee development	Palwal	A					
						Jindal Saw	India	A			CS (up to 400 NB)		
						Tata	India	A			ERW		
						Surya	India	A			ERW		
						JINDAL PIPES LTD	India	A			ERW		
						WELSPUN	India	A			ERW		
						Lalit Pipes & pipes Ltd.,	Thane	A			EFW Pipes		
						Ratnamni Metals and Tubes Ltd.,	Gandhinagar	A			EFW Pipes		
53	Butterfly Valves (* Also for steam services)	I				Fouress Engg. *	Bangalore	A			upto 2600 NB		
						IL *	Palakkad	A			upto 2200 NB		
						BHEL *	Bhopal, India	A					
						Kriloskar Bros. Ltd	Pune	A					
						L&T	Chennai	A					
						Trillium Flow	Hubli	A					
						Tyco	Halol	A					

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						L&T	Coimbatore	A					
						Intervalve	Pune	A					
54	Valves (gate/ globe/check) for LP application	I				L&T	Chennai/ Coimbatore	A					
						Velan	Canada/ Coimbatore	A					
						KSB	Germany/ Coimabtore	A					
						ToA	Japan	A					
						Fouress Engg	Aurangabad	A					
						Trillium Flow	Hubli	A					
						Crane	USA	A					
						Samshin	S Korea	A					
						KBL	Pune	A					
						Weir	UK	A					
						Leader	Jalandhar	A					
						BHEL	Trichy	A					
						Pentair (Tyco Sempel)	Trichy	A					
						HP Valves(Key Valves Technology)	Netherlands	A					
						IL	Palakkad	A					
						Steel Strong	Mumbai	A					
55	HP Feedwater Heaters Automatic (String Bypass) Isolation Valves	I				KSB	Germany	A					
						Tyco Sempell	Germany	A					
						Strack	Germany	A					
						BHEL	Trichy	A					
						Weir Valves & Controls UK Ltd.	UK	A					
56	Water Steam Cycle HP Valves	I				KSB	Germany /Coimbatore	A					
						L&T	Chennai	A					
						L&T	Coimbatore	A					
						Velan	Coimbatore	A			up to 2inch, #4500 (up to P92 grade)		
						HP Valves	Netherlands	A			Previous Name:Key Valves Technology		
						Weir Valves & Controls UK Ltd.	UK	A					
						BHEL	Trichy	A					
						Crane	USA	A					
						Samshin	S Korea	A					
						Pentair(Tyco Sempell)	Germany	A					
						Velan	Canada	A					
						ToA	Japan	A					
						Tyco	USA	A					
57	Safety Valves	I				BHEL	Trichy	A					
						Dresser	USA	A					
						Tyco	USA	A					
						Babcock	Spain	A					
						Flainger	Germany	A					
						Bopp & Reuther	Germany	A					

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						Flainger	Nasik	A					
						Reineke	Germany	A					
						Valve Technology	USA	A					
58	Forged Seel Valves up to 2" , Class 800 (FCS/FSS)	I				KSB	Coimbatore	A					
						Leader	Jallandhar	A					
						L&T	Chennai	A					
						Velan	Canada	A					
						Fouress Engg	Ahmadnagar	A					
						Trillium Flow	Hubli	A					
						Velan	Canada	A					
						Steel Strong	Mumbai	A					
						L&T	Coimbatore	A					
59	Condenser Tubes	I				Plymouth	USA	A					
						Ratnamani	Kutchh	A					
						Neotiss Limited	Medak,AP	A			Remarks:Formerly Vallourec Heat exchanger Tubes Ltd/ CST Valinox Ltd.		
						REMI Edelstahl Tubulars Ltd.	Tarapur	A					
						Shin han Metal	S Korea	A					
						Valtimat	France	A					
						Nippon Steel Corp.	Japan	A					
						Ratnadeep Metal & Tubes Ltd	Mehsana	A					
						Maxim Tubes	Gandhinagar	A					
						Scholler Werke GmbH	Germany	A					
60	HP/LP Heater tubes	I				Plymouth	USA	A					
						Ratnamani	Kutchh	A					
						Ratnamani	Mehsana	A					
						Valtimat	France	A					
						Nippon Steel Corp.	Japan	A					
						Scholler Werke	Germany	A					
						Heavy Metals and Tubes	Gandhinagar	A					
						Shin han Metal	S Korea	A			LP Heater		
						Apex	Alwar	A			LP Heater		
						Ratnadeep Metal & Tubes Ltd	Mehsana	A			LP Heater		
						REMI Edelstahl Tubulars Ltd.	Tarapur	A					
						Neotiss Limited	Medak,AP	A			Remarks:Formerly Vallourec Heat exchanger Tubes Ltd/ CST Valinox Ltd.		
61	Hydrogen Generation Plant (Sub-QR Item)	I				Proton Energy Systems	USA	A					
						MVS ENGINEERING LIMITED	New Delhi	A			Bi-polar type, 2x6NM3/Hr		
						SUKAN ENGG. PVT. LTD	Mumbai	A			Bi-polar type, 2x6NM3/Hr		
						Eastern Electrolyzer Limited	Noida	A			Bi-polar type, 2x6NM3/Hr		
						Teledyne Energy System Inc.	USA	A					
						AIROX NIGEN EQUIPMENTS LTD	Ahmedabad	A			Bi-polar type, 2x6NM3/Hr		
						Electrolyser Corporation	Canada	A					
						BOC	Kolkata	A					
Main Contractor Approved Sources(Note-3)													
1	Turbine Bearing Pedestal	I				Main Contractor Approved Sources							

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2	**Chemical Dosing System**	**I**				Main Contractor Approved Sources							
3	**Vapour Exhauster With Motor**	**II**				Main Contractor Approved Sources							
4	**Drain Cooler & Misc Tanks**	**II**				Main Contractor Approved Sources							
5	**Oxygen/NAOH Dosing System**	**II**				Main Contractor Approved Sources							
6	**Misc Items like Internals of equipments(if not covered in MQP) & Consumables like paints, gaskets etc.**	**III**				Main Contractor Approved Sources							

NOTE - 1 : For final Sub-QR approval , document required to be submitted as per Sub-QR requirements given in the specification.

NOTE-2: Vendors under 'A' are approved and accepted by NTPC with/without conditions in the past. Similar conditions as the case may be for the vendor shall be applicable for this project and tied up in the quality plan.

NOTE-3: Main contractor approved sub vendors evaluated / assesesed as per Main contractor Quality Management System is acceptable.

Note-4: The items not covered in the above list shall be mutually discussed & agreed for Item categorisation & sub-vendor control.

LEGENDS/ संकेतिका

* - Inspection category will be decided during vendor evaluation.

1.0 SYSTEM SUPPLIER / SUB SUPPLIER APPROVAL STATUS CATEGORY प्रणाली आपूर्तिकर्ता / सब –वेंडर की स्वीकृति की स्थिति की श्रेणी

A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter "A" in the list along with the condition of approval, if any./ इन मदों के लिए प्रस्तावित वेंडर एनटीपीसी को स्वीकार्य है। अनुमोदन की शर्त, , यदि कोई हो, के साथ-साथ पत्र "A" में इंगित किया जाए ।

2.0 QP INSPECTION CATEGORY : क्यूपी / निरीक्षण की श्रेणी:

CAT - I : For those items the Quality Plans are approved by Customer and final acceptance will be on physical inspection witness by Customer.इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है और एनटीपीसी द्वारा अंतिम स्वीकृति भौतिक निरीक्षण के दौरान उपलब्ध गवाह के आधार पर दी जाएगी।

CAT - II : For those items the Quality Plans are approved by Customer. However no physical inspection shall be done by Customer. The final acceptance by Customer shall be on the basis of review of documents. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है। हालाँकि एनटीपीसी द्वारा कोई भौतिक निरीक्षण नहीं किया जाएगा। एनटीपीसी द्वारा अंतिम स्वीकृति अनुमोदित क्यूपी के अनुसार दस्तावेजों की समीक्षा के आधार पर दी जाएगी।

CAT - III :For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.

UNITS/WORKS : Place of manufacturing- Place of main supplier of multi units/works.

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1	AIR BLOWERS -LOBE TYPE > = 5KW	I			SWAM PNEUMATIC	NOIDA	A			WTP,CPU,AHP
					EVEREST BLOWERS PVT LTD	BAHADURGARH	A		UP TO 40 HP (APPROX 1600 CUM/HR)	
					KAY INTERNATIONAL	SONEPAT	A		UP TO 4800 CUM/HR	
					KULKARNI POWER TOOLS	SHIROL	A		UP TO 2500CUM/HR	
					USHA COMPRESSORS	AHMEDABAD	A		UP TO 60 HP (APPROX 2000CUM/HR)	
2.A	EOT CRANE & ELECTRIC HOIST >5 MT	I (> 10T) / III (>5T UP TO 10T)			REVA INDUSTRIES	FARIDABAD	A		UP TO 60 MT	WTP,CT.AC&VENTILATION,CHP,LHP&GHP,AHP, CW , FDPS
					EDDY CRANE	PUNE	A		UPTO 10 MT	
					CONSOLIDATED HOIST	SATARA /PUNE *	A		SATARA UP TO 20 MT,*PUNE FOR ELECTRIC HOIST UPTO 15 MT	
					ELECTROTHERAPHY	RISHRA	A		UPTO 15 MT FOR ELECTRIC HOIST ONLY	
					HERCULES HOIST	RAIGAD	A		UPTO 15 MT FOR ELECTRIC HOIST ONLY	
					TUBRO FERGUSSON	KOLKATA	A		UP TO 20MT FOR EOT, UP TO 5 MT FOR FOR ELECTRIC HOIST	
					PRAYAS ENGG (PBL)	V V NAGAR	A		UPTO 10 MT FOR ELECTRIC HOIST ONLY	
					ALPHA SERVICES	ALWAR	A		SINGLE GIRDER EOT CRANE & ELECTRIC HOIST UPTO 15 MT ONLY. GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE.	
					CENTURY CRANE ENGINEERS PVT. LTD	BALLABHGARH	A		UP TO 25 MT	

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					ARMSEL	BANGALORE	A		UPTO 10 MT EOT & UPTO 15 MT ELECTRIC HOIST	
					TRACTEL TIRFOR	PALWAL	A		UPTO 15 MT FOR ELECTRIC HOIST AND UPTO 10 MT FOR EOT	
					MILLARS INDIA	KARAMSAD	A		UP TO 25 MT	
					AVON CRANES	GURGAON	A		UP TO 25 MT	
					GRIP ENGINEERS	HYDERABAD	A		50 MT (GEARBOX FROM NTPC APPROVED SOURCES FOR EOT CRANE).	
					GRIP ENGINEERS	FARIDABAD	A		UPTO 20 MT ELECTRIC HOIST ONLY	
					CRANEX	GHAZIABAD	A		UP TO 140 MT FOR EOT ONLY	
2.B	GANTRY CRANE >5T	I (> 10T) / III (>5T UP TO 10T)			REVA INDUSTRIES	FARIDABAD	A		UP TO 60 MT	CW
					UNIQUE INDUSTRIAL HANDLERS PVT LTD	NASHIK	A		UP TO 165 MT	
					ANUPAM INDUSTRIES LTD.	ANAND	A		UP TO 60MT	
					SMACO ENGINEERING PVT. LTD	THANE	A		UP TO 60MT	
					MANGLA HOIST	GREATER NOIDA	A		UP TO 10MT	
					CB DOCTOR VENTILLATOR PVT LTD	AHMEDABAD	A		up to 50000 CMH	WTP,CT.AC&VENTILATION,CHP,LHP&GHP,AHP
					HOWDEN SOLYVENT FLAKT INDIA PVT LTD,	CHENNAI	A		up to 125000 CMH	

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3	FAN- AXIAL TYPE > = 5KW	I			C DOCTOR &CO PVT LTD	KOLKATA	A		up to 50000 CMH	
					KRUGER VENTILATION INDUSTRIES (I) PVT LTD	SHAHPUR, THANE	A		Up to 6000 CMH	
					NADI AIRTECHNICS PVT LTD	CHENNAI	A		Up to 15000 CMH	
					ADVANCE VENTILATION PVT LTD	KUNDALI. SONEPAT	A		up to 40000 CMH	
					SK SYSTEMS PVT LTD	KUNDALI PHASE-II, SONEPAT, HARYANA	A		up to 50000 CMH	
					Patel Airflow	Ahemdabad	A		up to 40000 CMH	
					ALMONAROD (P) LIMITED	CHENNAI	A		Up to 14000 CMH	
					STEEL AUTHORITY OF INDIA LIMITED	ROURKELA	A			CW,CT,MUW
					WELSPUN	ANJAR	A		SAW UPTO 2600 NB	
					WELSPUN	BHARUCH	A		SAW UPTO 1300 NB	
					MAN INDUSTRIES	INDORE	A		SAW UPTO 1400 NB	
					SAMSHI	VADODARA	A		SAW 450 TO 2540 NB	
					MUKAT TANKS & VESSELS	TARAPUR	A		SAW 200 TO 1200 NB	
					MUKAT PIPES	RAJPURA	A		SAW UPTO 1800 NB	

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4	PIPES-MS- (BLACK/ GI) AS PER IS IS:3589 >1000NB	I			LALIT PIPES AND PIPES LTD	THANE	A		SAW 350 TO 1400 NB	
					RATNAMANI	CHATRAL	A		SAW 600 TO 2600 NB	
					RATNAMANI	KUTCH	A		SAW 400 TO 3600 NB	
					PSL HOLDINGS LIMITED	DAMAN	A		SAW 450 TO 1600 NB	
					PSL INTERNATIONAL LTD.	CHENNAI	A		SAW 450 TO 1600 NB	
					PSL LIMITED	KUTCH	A		SAW 450 TO 1600 NB	
					PSL LIMITED	VISAKHAPATNAM	A		SAW 450 TO 1600 NB	
					JCO PIPES	CHHINDWARA	A		SAW UPTO 1600 NB	
					SURYA GLOBAL STEEL TUBE LTD	ANJAR	A		SAW UP TO 2032 OD	
					JINDAL SAW LTD	BELLARY	A		SAW UP TO 3632 OD , THICKNESS 16 MM	
					CAPACITE STRUCURES PVT LTD	THANE	A		406.4 MM TO 3874 MM OD	
5	PIPES & FITTINGS-GRP	I			EPP COMPOSITES PVT LTD	RAJKOT	A		UP TO 900MM	WTP,CT
					GRAPHITE INDIA	NASIK	A		UP TO 1000MM	
					SHRIRAM SEPL COMPOSITES LTD	CHENNAI	A		UP TO 1100MM	

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					BALAJI FIBER REINFORCE PVT LIMITED	VADODARA	A		UP TO 650MM	
					MEGHA FIBRE GLASS INDUSTRIES PVT LTD	MEDAK	A		UP TO 900MM	
6	SERVICE VESSEL-CPU & OTHER PR VESSELS >= 10 BAR WORKING PRESSURE	I			DRIPLEX WATER ENGINEERING INTERNATIONAL PVT LIMITED	BHADARBAD	A			WTP,CPU,CAS,CHP, LHP&GHP,AHP
					BGR ENERGY SYSTEMS LTD (ENVIRONMENTAL ENGG. DIV.)	PONNERI	A		UPTO 3000MM DIA & THICKNESS UPTO 28 MM	
					ISHAN EQUIPMENTS PRIVATE LIMITED	VADODARA	A		UPTO 2900 MM DIA & THICKNESS UPTO 28 MM	
					JASMINO POLYMERTECH PVT LTD	TALOJA	A		DIA 2800MM, THICNKESS 25MM DESIGN PRESSURE UP TO 47.5 KSC	
					MAHIMA UDYOG	HARIDWAR	A		DIA UP TO 2900 MM , THICKNESS UPTO 29 MM	
					BELCO POLLUTION CONTROL PVT LTD	GREATER NOIDA	A		UPTO 3200MM DIA & THICKNESS UPTO 30 MM	
					KIRLOSKAR BROTHERS LTD	KIRLOSKARWADI	A			WTP,CW, CPU,FDPS,CHP, LHP &GHP,AC & VENTILATION,MUW, AHP
					WILO MATHER & PLATT	PUNE	A			
					WILO MATHER & PLATT	KOLHAPUR	A			
					SAM TURBO	COIMBATORE	A		FLOW UP TO 1500 CUM/HR AND POWER RATING UP TO 425 KW	
					FLOWMORE LTD	GHAZIABAD	A			
					BEST AND CROMPTON	CHENNAI	A			

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7	PUMPS- HORIZONTAL & VERTICAL CENTRIFUGAL -UP TO 300KW	(UP TO 60 KW CAT-II , ABOVE 60 KW CAT-I)			JYOTI LTD	VADODARA	A			
					WPIL	GHAZIABAD	A			
					KISHORE PUMPS	PUNE	A		UPTO 500M3/HR ONLY RUBBERLINED PUMPS ALSO	
					GRUNDFOS PUMPS INDIA PVT LTD	CHENNAI	A		HORIZONTAL UP TO 30 KW ONLY AND VERTICAL UP TO 45 KW ONLY (FOR APPLICATIONS WHERE NPSH IS NOT REQUIRED)	
					SINTECH PRECISION	GHAZIABAD	A		HORIZONTAL UP TO 400 KW MOTOR RATING AND VERTICAL UP TO 30 KW MOTOR RATING	
					KSB	PUNE	A			
					KSB	NASHIK	A			
					FLOWSERVE INDIA CONTROLS PVT LTD	COIMBATORE	A		HOIZONTAL CENTRIFUGAL PUMP UP TO 75 KW ONLY	
					SU MOTOR	MUMBAI	A		HORIZONATL UPTO 500M3/HR ONLY RUBBERLINED PUMPS AND VERTICAL CENTRIFUGAL PUMPS UP TO 100CMH ONLY	
					BHARAT PUMPS AND COMPRESSORS	NAINI	A		FLOW UP TO 2200 M3/HR AND HEAD UP TO 60 MWC	
					FLOWMORE LTD	GHAZIABAD	A			WTP, CW
					KIRLOSKAR BROTHERS LIMITED	KIRLOSKARWADI	A			
					WPIL LTD	KOLKATA	A			
					WPIL LTD	GHAZIABAD	A			

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8	PUMPS -VT -UP TO 300KW	I			JYOTI LTD	VADODARA	A			
					XYLEM WATER SOLUTIONS INDIA PVT LTD	VADODARA	A			
					FLOWSERVE INDIA CONTROLS PVT LTD	COIMBATORE	A		UP TO 1025 KW	
					SINTECH PRECISION	GHAZIABAD	A			
					WILO MATHER & PLATT	PUNE	A			
9.A	VALVE-DUAL PLATE CHECK > 600MM OR CLASS > 300 (VALVE- DUAL PLATE CHECK UP TO 600MM & CLASS 300: CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			ADVANCE VALVE PVT LTD	GR. NOIDA	A		DUAL PLATE CHECK VALVES CI UPTO 1000 NB CLASS 125, DUPLEX SS UP TO 600NB CLASS 600.	WTP,CW, CPU,FDPS,CAS,LP PIPING
					LEADER VALVES	JALANDHAR	A		UP TO 900MM CLASS 150 , SS 200NB CLASS#300	
					R & D MULTIPLE	VALSAD	A		CI/ CS UP TO 800NB PN 10	
9.B	VALVE-BALL > 100 MM OR CLASS > 800; (VALVE- BALL UP TO 100 MM & CLASS 800:CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			SWIMS TECHNOLOGIES	HUBLI	A		SS BALL VALVES UP TO 500MM AND CLASS #600, CS BALL VALVES UP TO 250 MM AND CLASS# 900, CS/ SS BALL	WTP, CPU,FDPS,CAS,FOH,CHP,LHP&GHP,AHP
					MICRO FINISH VALVES PVT. LTD.	HUBLI	A		400NB CLASS#600 AND UP T0 600NB CLASS#300	
					FLOW CHEM INDUSTRIES	KALOL	A		100NB CLASS#600,200NB CLASS#300, 50 NB CLASS#800	
					L&T VALVES LIMITED	COIMBATORE	A		UPTO 150NB, CLASS #150/300, AND UPTO 50NB, CLASS #800	
					PRECISSION ENGG CO VALVES PVT LTD	NASIK	A		FCS UP TO 50NB CLASS 800, CCS UP TO 400NB CLASS 150.	
					BELGAUM AQUA VALVE PVT LTD	BELGAON	A		FCS UP TO 50NB CLASS 800, CCS UP TO 200NB CLASS 150.	

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					G M ENGINEERING PRIVATE LTD	RAJKOT	A		UP T0 400 NB AND CLASS #600	
9.C	VALVE-BUTTERFLY > 600MM OR CLASS>150 (VALVE-BUTTERFLY UP TO 600MM & CLASS 150::CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			INTERVALVE POONAWALA LTD	PUNE	A		SGI / CI / D2 1400MM PN10, SGI / CI 1000MM PN16,CS/SS 500MM PN16, SS 400MM CLASS#300, MS FABRICATED	WTP, CW,CT,CPU,FDPS,CAS , AC& VENTILATION, MUW,CHP, LHP&GHP,LP PIPING,AHP
					SWIMS TECHNOLOGIES	HUBLI	A		CI/ DI BUTTERFLY VALVE UP TO 1000MM AND PN16 AND UP TO 1800MM AND PN10,CCS UP TO	
					PENTAIR VALVES	HALOL	A		FOR SS UP TO 500 NB PN-10, CI- UP TO 900NB PN-10, UP TO 500NB PN-16, 450MM CLASS#300., MS FABRICATED	
					FOURES ENGINEERING	BANGALORE	A		CAST SGI/CI/ MS FABRICATED- UP TO 1200 PN-10, UP TO 350 PN-16 ,2400 MM PN6/CLASS150	
					KIRLOSKAR BROTHERS LTD	KONDHAPURI	A		CAST SGI/CI/CS 1400 MM PN16 , SS 300 MM PN16 , 1800MM CLASS 150, MS FABRICATED 900 NB PN40,MS	
					R & D MULTIPLE	VALSAD	A		CAST SGI/CI/MS FABRICATED- UP TO 1800 MM PN-10/CLASS # 75, ,1100MM PN25,1400MM CLASS#150 ,MS	
					ADVANCE VALVES PVT LTD	GREATER NOIDA	A		METAL SEATED, TRIPLE ECCENTRIC, SS BFV OF SIZE UPTO 100NB, AND PRESSURE RATING UPTO CLASS #300.	
					BRAY CONTROLS INDIA PVT. LTD	KANCHIPURAM	A		UPTO 450 MM AND CLASS#600	
					INSTRUMENTATION LTD.	PALAKKAD	A		UPTO 2200NB CLASS # 75	
					HAWA ENGINEERS	AHMEDABAD	A		CI/ CS & FABRICATED UPTO 1200MM, CLASS #150, SS UPTO 250MM, CLASS#150	
					CRANE PROCESS FLOW	SATARA	A		UP TO 900MM PN10	
					L & T VALVES LIMITED	COIMBATORE	A		UP TO 900MM CLASS 150	
					DEMBLA VALVES	THANE	A		UP TO 2200MM CLASS#75	

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9.D	VALVE-CONVENTIONAL GATE / GLOBE / CHECK > 600NB OR CLASS > 300	II			LEADER VALVES	JALANDHAR	A		CS GATE 600MM CLASS#600, SS GLOBE 600MM CLASS#600, CS CHECK 600MM AND CLASS#600	WTP, CW,CT,CPU,FDPS,CAS , AC& VENTILATION, MUW,CHP, LHP&GHP,LP PIPING,AHP
					HAWA ENGINEERS	AHMEDABAD	A		FCS / FSS 50 NB CLASS 800.	
					FOURES ENGINEERINGS	THANE	A		400NB CLASS 600 AND 50NB CLASS 800.	
					BHEL IVP	GOINDWAL	A		GATE UP TO 300 NB CLASS 600. GLOBE 250 NB CLASS 400, CHECK 150NB CLASS 600.	
					HITECH ENGG PVT LTD	AHEMDABAD	A		50 NB CLASS 800.	
					KSB PUMPS LTD	COIMBATORE	A		300NB CLASS 2500.	
					NITON VALVES INDIA PVT LTD	NAVI MUMBAI / AURANGABAD	A		CS GATE 900 NB CLASS 600, CHECK 300 NB CLASS 600.	
					L&T VALVES LIMITED	COIMBATORE	A		650 MM CLASS 600, 50 NB CLASS 800.	
					SWIMS TECHNOLOGIES	HUBLI	A		CONVENTIONAL CCS GATE / GLOBE / CHECK VALVES UP TO 600MM AND CLASS # 1500, CSS GATE/ GLOBE/	
9.E	VALVE- DIAPHGRAGM TYPE	I			CRANE PROCESS FLOW	SATARA	A		UP TO 300NB PN10	WTP,CPU
					SWIMS TECHNOLOGIES	HUBLI	A		UPTO 250 NB - PN 10, 350MM PN6	
					PROCON ENGINEERS	MUMBAI	A		UPTO 200 NB AND PN 10/CLASS #150	
9.F	VALVE-PLUG > 100 MM OR CLASS > 800(VALVE- PLUG UP TO 100 MM & CLASS 800:CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			SWIMS TECHNOLOGIES	HUBLI	A		SOFT SEATED 400MM AND CLASS #150, 300NB CLASS#300	WTP,CPU,CHP, LHP&GHP, FOH,AHP
					XOMOX SANMAR	TRICHY	A		UP TO 600MM AND CLASS#300	

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					FLOWSERVE INDIA CONTROLS	CHENNAI	A		METALLIC SEATED 400NB CLASS#150, 300NB CLASS #300, 50NB CLASS #800	
10	PUMP -SUBMERSIBLE>= 30KW	I			KSB	NASHIK	A		130 KW	WTP,CT, CPU,CHP, LHP&GHP, FOH,AHP.LP PIPING,FDPS
					KIRLOSKAR BROTHERS LTD	KIRLOSKARWADI	A			
					AQUA MACHINERY	AHMEDABAD	A		UP TO 235 KW	
					WPIL	GHAZIABAD	A			
11	RUBBER EXPANSION JOINT>=1600NB (RUBBER EXPANSION JOINT < 1600NB: CAT-II & MAIN CONTRACTOR APPROVED SOURCES)	I			CORI ENGINEERS PVT LTD	CHENNAI	A		UPTO 2800 MM	ACW, ECW, CW,CT
					SRM EXOFLEX PVT LTD	KOLKATA	A		UPTO 2800 MM	
11.A	DRIFT ELIMINATOR-PVC	I			M/s Cooldeck	Daman	A			CT
		I			M/s MM Aqua	Gurgaon	A			CT
11.B	FILLS (Trickle Grid /Moduler/Splash)	I			M/s Enexio Power cooling solutions ,	Thiruvallur(TN)	A		NF20	CT
12	FAN ASSEMBLY-COOLING TOWER	I			PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A		WITH SOLID FAN BLADES 288" AND 336 " DIA, WITH FOAM CORED FAN BLADES WITH 10METERS AND 10.97 METERS	CT
					PAHARPUR COOLING TOWERS LTD	BHASA	A		60" TO 288" FAN DIA	
					PAHARPUR COOLING TOWERS LTD	KOLKATA	A		60" TO 288" FAN DIA	

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					M/s MAYA FANS AIR ENGG PVT LTD,	DEWAS	A		UP TO 11 METER FAN DIA	
					AMALGAMATED INDUSTRIAL COMPOSITES PVT LTD	NASHIK	A		UP TO 11 METER FAN DIA	
13	GEAR BOX -COOLING TOWER	I			PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A			CT
					PAHARPUR COOLING TOWERS LTD	KOLKATA	A			
					NEW ALLENBERRY WORKS	KOLKATA	A			
					ELECON ENGINEERING	VALLABH VIDYANAGAR	A			
					PREMIUM ENERGY TRANSMISSION LTD.	FALTA	A			
14	DRIVE SHAFT-CARBON FIBRE -COOLING TOWER	II			M/S EUROFLEX TRANSMISSION (INDIA) PVT LTD	HYDERABAD	A			CT
					PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A			
					M/s AMALGAMATED INDUSTRIAL COMPOSITES PVT LTD	NASHIK	A			
					NORTH STREET COOLING TOWERS	GHAZIABAD	A			
15	DRIVE SHAFT SS-COOLING TOWER	II			PAHARPUR COOLING TOWERS LTD	SAHIBABAD	A			CT
					PAHARPUR COOLING TOWERS LTD	KOLKATA	A			
					NORTH STREET COOLING TOWER	GHAZIABAD	A			

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16	PUMP-CW PUMP	I			KIRLOSKAR BROTHER'S LIMITED	KIRLOSKARWADI	A		BOTH CV & VT TYPE VT Upto 43000 CUM/H and VT Upto 30000 CUM/H	CW
					WPIL LTD	KOLKATA	A		BOTH CV & VT TYPE	
					FLOWSERVE INDIA CONTROLS PVT LTD	COIMBATORE	A		CV TYPE ONLY	
					FLOWMORE LTD	GHAZIABAD	A		VT TYPE ONLY	
					XYLEM WATER SOLUTIONS INDIA PVT LTD	VADODARA	A		VT TYPE ONLY	
					JYOTI LTD	VADODARA	A		VT TYPE ONLY.	
17	ELECTRO HYDRAULIC ACTUATOR FOR CW PUMP DISCHARGE BUTTERFLY VALVE	I			BOSCH REXROTH (INDIA) PVT LTD	SANAND	A		HYDRAULIC POWER PACK AND HYDRAULIC CYLINDER (320 MMM BORE DIA) , ACCUMUATOR FORM	CW
					HYDAC (INDIA) PVT. LTD	COIMBATORE	A		HYDRAULIC POWER PACK-HYDAC COIMBATORE, HYDRAULIC CYLINDER - HYDAC BANGLORE, ACCU MULATOR	
18	IMPELLER CASTING - CW PUMP	II			ISGEC	MUZAFER NAGAR	A		FINISHED CASTING UP TO 4.0 MT APPROX	CW
					THE KOLHAPUR STEEL LTD,	KOLHAPUR	A		FINISHED CASTING UP TO 4.0 MT APPROX	
					WESTERN PRECICAST PVT LTD	SANGLI	A		FINISHED CASTING UP TO 3.5 MT APPROX	
					HINDUSTAN UDYOG LIMITED	NAGPUR	A		FINISHED CASTING UP TO 3.0 MT APPROX	
					HI-MET CORPORATION	S.KOREA	A		FINISHED CASTING UP TO 3.0 MT APPROX	
					TULIP CASTING	KOHLAPUR	A		WEIGHT UPTO 3.0 MT , DIA 1600 MM	

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					MATHER FOUNDARY LTD	UK	A		FINISHED CASTING UP TO 3.6 MT APPROX	
19	SHAFT-FORGING -CW PUMP	II			GORADIA SPECIAL STEELS LTD	KHAPOLI	A			CW
					BHARAT FORGE	PUNE	A			
					CFFP,BHEL	HARIDWAR	A		UP TO DIAMETER 290MM AND LENGTH APPROX. 3000MM, GRADE SS410	
20	THRUST BEARING FOR CW PUMP	I			MICHEL	BANGLORE	A			CW
					KMP	GREATER NOIDA	A			
21	DELUGE VALVE WITH TRIMS	I			HD FIRE	THANE/JALGAON	A			FDPS
					CARRIER	GURGAON	A		FOR PISTON TYPE DELUGE VALVE ONLY	
22	INERT GAS EXTINGUISHING SYSTEM	II			ANSUL	USA	A			FDPS
					KIDDE (GINGEKERR)	UK	A			
					NAFFCO	UAE	A			
					MINIMAX Gmbh & Co. KG	GERMANY	A			
					TOTAL WALTHER	GERMANY	A			
					NOHMI BOSAI	JAPAN	A			

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23	ALARM VALVE WITH TRIMS	II			HD FIRE	THANE	A			FDPS
					HD FIRE	JALGAON	A			
24	FOAM SYSTEM(BLADDER TYPE)	I			HD FIRE	JALGAON	A			FDPS
					FIRETECH	RATNAGIRI	A			
25	FIRE TENDER	I			WADIA BODY BUILDERS	AHEMDABAD	A			FDPS
					AAREL INDUSTRIES	INDORE	A			
					AMBALA COACH	AMBALA	A			
					VIJAY FIRE	UMBERGAON	A			
					MARATHON ELECTRIC MOTOR(I) LTD	KOLKATA	A		UP TO 50000 CMH	AC& VENTILATION, CHP, LHP&GHP,,AHP
					HOWDEN SOLYVENT FLAKT INDIA PVT LTD,	CHENNAI	A		UP TO 200000 CMH	
					ALMONAROD (P) LIMITED	CHENNAI	A		UP TO 60000 CMH	
					PATEL AIRFLOW	VATWA, AHMEDABAD	A		UP TO 250000 CMH	
					CB DOCTOR VENTILATOR PVT LTD	AHMEDABAD	A		UP TO 150000 CMH	
					WOLTER VENTILATORS INDIA (P) LTD	BHIWADI,	A		UP TO 200000 CMH	

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26	CENTRIFUGAL FAN (≥ 5KW) MOTOR FROM NTPC ACCEPTED SOURCE	I			C DOCTOR &CO PVT LTD	KOLKATA	A		UP TO 250000 CMH	
					SUVIDHA AIR ENGINEERS	AHMEDABAD	A		UP TO 190000 CMH	
					SUBURBAN INDUSTRIAL WORKS PVT. LTD	KOLKATA	A		UP TO 100000 CMH	
					KRUGER VENTILATION INDUSTRIES (I) PVT LTD	THANE	A		UP TO 90000 CMH	
					SOLYVENT FLAKT	KOLKATA	A		UP TO 200000 CMH	
					ADVANCE VENTILATION PVT LTD	SONEPAT	A		UP TO 250000 CMH	
					SK SYSTEMS PVT LTD	SONEPAT	A		UP TO 250000 CMH	
27	DIESEL ENGINE	I			CUMMINS	PUNE	A		Up to 2000 KVA	DG SET,FDPS
					PERKINS	AURANGABAD	A		UP to 313 HP	
					GREAVESS COTTON	AURANGABAD	A		Up to 1750 KVA	
28	3 LPE COATED PIPE	I			SAIL	ROURKELA	A			MUW
					RATNAMANI	KUTCH	A		UP TO 1100 NB	
					PSL LTD	KUTCH/ VIZAC	A		UP TO 1100 NB	
					TRANTER INDIA	PUNE	A		HT PLATES & GASKETS FROM TRANTER SWIDEN/USA.HT PLATES FROM HISKA JAPAN	ECW

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29	PLATE HEAT EXCHANGER	I			ALPHA LAVAL	SATARA	A		HT PLATES & GASKETS FROM ALPHA LAVAL SWIDEN	
					IDMC	ANAND	A		HT PLATES & GASKETS FROM SONDEX DENMARK	
					SONDEX INDIA	VADODARA	A		HT PLATES FROM SONDEX DENMARK/INDIA (MODEL S188)	
30	DI(Ductile Iron) PIPE & FITTINGS	I			JINDAL SAW(J161)	KUTCH	A		UP T0 DN 900 CLASS K7 & K9	MUW
					JAI BALAJI(J156)	BARDWAN	A		UP T0 DN 900 CLASS K7 & K9	
					ELETRO STEEL	KOLKATA	A			
31	AIR COPMRESSOR: OIL FREE CENTRIFUGAL COMPRESSOR	I			NGERSOLL RAND INDIA	AHEMDABAD	A		Capacity Upto 60 NM3/Minute @ Pr 8 bar	CAS
					KIRLOSKAR PNEUMATIC COMPANY LTD	PUNE	A		Capacity up to 45.3 Nm3/min and pressure rating up to 9.3 kg/cm2	
32	SCREW TYPE AIR COMPRESSORS	I			ATLAS COPCO	Pune (Dapodi)	A			CAS, CHP, LHP, GHP, MRHS, AHP
		I			INGERSOL RAND INDIA	AHMEDABAD	A		UPTO MODELSH 300 (36 NM3/MIN) . AIR ENDS FROM GHH RAND - GERMANY & OTHER COMPONENTS FROM IR'S GLOBAL SOURCES ASSEMBLY & TESTING AT INGERSOL-AHMEDABAD	
		I			ELGI	COIMBATORE	A		UPTO 2830 CFM, AIR ENDS FROM HITACHI- JAPAN. ASSEMBLY AND TESTING AT ELGI COIMBATORE.	
		I			KIRLOSKER PNEUMATIC COMP LTD	PUNE	A		FLOW CAPACITY 45.3 NM3/MIN , AND PRESSURE RATING 9.3 KG/CM2	

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33	AIR DRYER	I			SUMMITS HYGRONICS	COIMBATORE	A		FOR REFRIGERANT DRYER, 11893 M3/HR , REGENERATIVE DRYERS BLOWER REACTIVATED TYPE 2123 M3/HR AND REGENERATIVE DRYERS HOC TYPE 5820 M3/HR	CAS
					MELLCON ENGRS PVT LTD	GR NOIDA	A		Refrigerant type 60 m3/hr & REGENERATIVE DRYERS HOC TYPE 2548 M3/HR	
					DELAIR INDIA LTD	GURGAON	A		Refrigerant type 7500 m3/hr & REGENERATIVE DRYERS HOC TYPE 3000 M3/HR	
					SUMESH PETROLEUM	VADODARA	A		100 CFM(169 M3/HR) & 7 KG/CM2	
					TRIDENT PNEUMATIC PVT LTD	COIMBATORE	A		Refrigerant type 10000 m3/hr & REGENERATIVE DRYERS BHR TYPE 1000 M3/HR	
34	SCREW CHILLER	II			KIRLOSKAR CHILLER	PUNE	A		UP TO 350TR	AC& VENTILATION
					DAIKIN	NEEMRANA	A		UP TO 185 TR	
					BLUE STAR (COMPRESSOR FROM HANBEL-TAIWAN)	WADA	A		SCREW CHILLER UP TO 282TR	
35	Mettalic Expansion Bellows	II			MB METTALIC BELLOWS	CHENNAI	A			MRHS
					SUR Industries	KOLKATA	A			
					LONE STAR	CHENNAI	A			
36	Conveying Compressor (Reciprocating)	I			KIRLOSKAR PNEUMATICS	PUNE	A			MRHS
					INGERSOLL RAND	AHEMDABAD	A			

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					ATLAS COPCO(CHICAGO PNEUMATIC BRAND)	PUNE	A			
37	ALLOY CAST IRON PIPE, FITTINGS AND LINER	I			CRAWLEY & RAY	KOLKATA	A			MRHS, AHP
					ALLIED FOUNDRIES	BELGAUM	A			
					PARAMOUNT CASTINGS	NAGPUR	A			
					NORTHERN ALLOY	BHAVNAGAR	A			
					MENON METALLIK	KOLHAPUR	A			
					KOLHAPUR STEEL	KOLHAPUR	A			
					AQUA ALLOY	KOLHAPUR	A			
					MARTO PEARL	HYDERABAD	A			
					R.R.L	HOWRAH	A			
					CONCAST ENGINEERING	BURDWAN, WB	A			
					NATRAJ IRON & CASTINGS	DHANBAD	A			
					ABHIPRIYA BUSINESS	PANT NAGAR	A			
					MELCO	FARIDABAD	A			

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38	DRY ASH UNLOADING CHUTE	I			MACAWBER BEEKAY	KESHWANA	A			AHP
					MINING AND MATERIAL HANDLING EQUIPMENT	KOLKATA	A			
					DCL	HYDERABAD	A			AHP,MRHS
39	BAG FILTER / SILO VENT FILTER	II			FLAKT	KOLKATA	A			
					ORIENT FANS (ACCO)	KOLKATA	A			
					THERMAX	PUNE	A			
					RIECO	PUNE	A			
					MELCO	FARIDABAD	A			
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
					TAP ENGINEERING	KANCHEEPURAM	A			
40	REFRIGERANT TYPE DRYER	I			SUMMITS HYGRONICS	COIMBATORE	A		Upto 11893 m3/hr	AHP
					TRIDENT	COIMBATORE	A		Upto 10000 m3/hr	
					MELLCON	GREATER NOIDA	A		Upto 7250 m3/hr	

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					DELAIR	GURGAON	A		Upto 7500 m3/hr	
					ATLAS COPCO	BELGIUM	A		Upto model FD 1200. ASSEMBLY AND TESTING AT PUNE	
41	VACUUM PUMP [WATER SEAL RING TYPE]	I			KAKATI KARSHAK	HYDERABAD	A			AHP
					AEROMATIC	AHEMDABAD	A		Size Upto 200 MM , Capacity 3924 m3/hr	
42	BASALT LINE PIPE & FITTING	I			DECCAN MECHANICAL & CHEMICAL	BARAMATI	A			AHP
					ENVIRO ABRASION	PUNE	A		CAST BASALT LINERS FROM SCHOLTEN GmbH-GERMANY	
					TURBO ENGINEERS	COIMBATORE	A		CAST BASALT LINERS FROM KALENBORN - GERMANY/POLAND OR EUTIT - Czech Republic	
					GOENKA CAST ENGINEERING(I) PVT LTD	DURG	A		UP TO 350 NB	
					BMW STEEL	ROORKEE	A		UP TO 550 NB	
43	SLURRY DUTY KNIFE GATE VALVE	I			BRAY CONTROLS INDIA PVT LTD, VAAS KNIFE GATE VALVE DIVISION	CHENNAI	A		UPTO PN 10 RATING	AHP
					FOURESS ENGINEERING	BANGALORE	A		UPTO PN 10 RATING	
					ORBINOX	COIMBATORE	A		UPTO PN 16 RATING	
					WEIR MINERALS	BANGALORE	A		UPTO 12" PN 10 RATING	
					BRAY CONTROLS INDIA PVT LTD, VAAS KNIFE GATE VALVE DIVISION	CHENNAI	A			

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44	FLY ASH DUTY KNIFE GATE VALVE	I			FOURESS ENGINEERING	BANGALORE	A			AHP
					ORBINOX	COIMBATORE	A			
					JASH SCHUTTE	INDORE	A			
45	CAST IRON PIPE	II			ELECTROSTEEL	CHENNAI	A		UPTO 450 NB	AHP
					KESORAM	KOLKATA	A		UPTO 350 NB	
					IISCO	KULTI	A			
					KAPILANSH DHATU UDYOG	NAGPUR	A		APPROVED UPTO 300 NB.	
					KUSHA LAVA	VIJAYWADA	A		FOR NON STD. SIZE	
46	ASH SLURRY PUMP	I			SAM INDUSTRIAL PUMPS	COIMBATORE	A			AHP
					WEIR MINERALS	AUSTRALIA	A		MANUFACTURING AT WEIR MINERALS BANGALORE	
47	AIR LOCK FEEDER VESSEL / BOTTOM ASH OVERFLOW TANK/MIXING TANK/COARSE ASH TANK/ AIR OIL CONVERTOR TANK, AIR INTAKE VALVE	II			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A		AIR OIL TANK- ASANSOLE , AIR INTAKE VALVE - KUMARDUBHI	
					MACAWBER BEEKAY	KESHWANA	A			
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			

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48	BOTTOM ASH HOPPER / BUFFER HOPPER/DUST COLLECTOR	I			MELCO	FARIDABAD	A		ONLY FOR BUFFER HOPPER AND DUST COLLECTOR	AHP
					MACAWBER BEEKAY	KESHWANA	A			
49	CLINKER GRINDER	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARD HUBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			
50	FLY ASH HOPPERVALVE/ASH INTAKE VALVE/FLY ASH DIFFUSER / DRIVE ARRANGEMENT FOR CLINKER GRINDER	II			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARD HUBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			
51	FLUIDIZING PAD / FLUSHING APPARATUS	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARD HUBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			

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52	FLY ASH STORAGE SILO/HCSD SILO	I			MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			AHP
					MACAWBER BEEKAY	KESHWANA	A			
53	FEED SUMP / VACUUM BREAKER	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
54	FLY ASH HEADER VALVE/BRANCH HEADER VALVE / AIR INTAKE VALVE /EQUALISING VALVE /PLUG GATE FOR SUMP ISOLATION	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	KUMARDHUBI	A			
					L&T	KANSBAHAL	A			
					MACAWBER BEEKAY	KESHWANA	A			
55	HYDROMIX DUST CONDITIONER/ROTARY FEEDER	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
					L&T	KANSBAHAL	A			
					EXPONENTIAL ENGINEERING	PUNE	A			

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56	JET PUMP / JETTING NOZZLE	I			MELCO	FARIDABAD	A		JET PUMP / JETTING NOZZLE	AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A		JET PUMP / JETTING NOZZLE	
					L&T	KANSBAHAL	A		JET PUMP	
					MACAWBER BEEKAY	KESHWANA	A		JET PUMP / JETTING NOZZLE	
57	COLLECTOR TANK / AIR WASHER / WETTING HEAD / SURGE / SETTLING TANK	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
58	PLATE VALVE AT DYKE END	I			MELCO	FARIDABAD	A			AHP
					MCNALLY SAYAJI	ASANSOL/KUMARDHUBI	A			
					MACAWBER BEEKAY	KESHWANA	A			
59	DESSICANT TYPE AIR DRYER	I			DELAIR	GURGAON	A			AHP
					INDCON	DELHI	A			
					MELLCON	GREATER NOIDA	A			
					SUMMITS HYGRONICS	COIMBATORE	A			

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					TRIDENT	COIMBATORE	A			
60	STACKER RECLAIMER & RECLAIMER	I			MCNALLY	KUMARDHUBI / ASA	A			CHP
					L&T	KANCHEEPURAM	A			
					THYSSENKRUPP	PUNE	A			
					ELECON	V V NAGAR	A			
					TRF	JAMSHEDPUR	A			
					SANDVIK	PUNE	A			
					PROMAC	BANGALORE	A			
					THYSSENKRUPP	HYDERABAD	A		* Hyderabad works approved for some of assemblies for Stacker Reclaimer - Counter Weight Boom, Box and Bucket	
61	WAGON TIPPLER & SIDE ARM CHARGER	I			ELECON	V V NAGAR	A			CHP
					FAMAK S.A. (IN ASSOCIATIONWITH	POLAND	A			
					L & T	KANSBAHAL	A			
					THYSSENKRUPP	PUNE	A			
					TRF	JAMSHEDPUR	A			

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					PROMAC	BANGALORE	A			
62	APRON FEEDER WITH DRIBBLE CONVEYOR (	I			THYSSENKRUPP	HYDERABAD	A		UPTO 2400 TPH	CHP
					L&T	KANSBAHL	A		UPTO 2200 TPH	
					ELECON	VV NAGAR	A		UPTO 2200 TPH	
					TRF	JAMSHEDPUR	A		UPTO 2400 TPH Extended Warranty of 3 years over & above of contractual warranty on parts	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 2200 TPH	
63	RING GRANULATOR	I			PENNSYLVANIA CRUSHERCORPORA	USA	A		UP TO 1760 TPH	CHP
					AMERICAN PULVERISER	USA	A		UPTO 1875 TPH	
					THYSSENKRUPP	PUNE	A		UP TO 2035 TPH	
					TRF	JAMSHEDPUR	A		UP TO 1800 TPH TRF shall give extended warranty of 5 years over & above Contractual	
					L&T	KANSBAHAL	A		UP TO 1600 TPH	
					ELECON	V V NAGAR	A		UP TO 1320 TPH	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 1000 TPH	
					TECHNO VIBRAZIONI	ITALY	A		UPTO 1875 TPH	

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64.A	VIBRATING SCREEN FEEDER	I			ELECON	V V NAGAR	A		UP TO 1320 TPH	CHP
					GENERAL KINEMATICS	USA	A		UP TO 2000TPH	
					THYSSENKRUPP	PUNE	A		UP TO 2035 TPH	
					TRF	JAMSHEDPUR	A		UP TO 1800 TPH TRF shall give extended warranty of 5 years over & above Contractual	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 1210 TPH	
64.B	VIBRATING FEEDER	I			TECHNO VIBRAZIONI	ITALY	A		UPTO 1875 TPH	CHP
					ELECON	V V NAGAR	A		UP TO 1320 TPH	
					GENERAL KINEMATICS	USA	A		UP TO 2000TPH	
					THYSSENKRUPP	PUNE	A			
					TRF	JAMSHEDPUR	A		UP TO 1800 TPH TRF shall give extended warranty of 5 years over & above Contractual	
					MCNALLY SAYAJI	KUMARDHUBI	A		UPTO 1210 TPH	
					INTERNATIONAL COMBUSTION	NAGPUR	A			
					Electro Zavod	Kolkata	A		UPTO 400TPH	
					Elektromag Joest	Vapi	A		UP TO 750 TPH	

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65	TRAVELLING TRIPPER	I			BENGAL TOOLS	KOLKATA	A			CHP
					THYSSENKRUPP	PUNE / HYDERABAD	A			
					ELECON	V V NAGAR	A			
					MBE	KUMARDHUBI	A			
					TRF	JAMSHEDPUR	A			
					HMTC	KOLKATA	A			
					L & T - MACNIL	CHENNAI	A			
					L & T	KANSBAHAL	A			
					L & T - EWL	KANCHEEPURAM	A			
					PHOENIX CONVEYOR BELT	KOLKATA	A		FABRIC BELT UPTO 2200 MM WIDTH, STEEL CORD BELT (FR GRADE UPTO 2400 MM WIDTH)	
					IMASS S.A	GREECE	A		FABRIC BELT UPTO 2400 MM WIDTH , STEEL CORD BELT (FR GRADE UPTO 2400 MM WIDTH	
					MRF	CHENNAI	A		FABRIC BELT UPTO 1600 MM WIDTH	
					SEMPELTRAN NIRLON	MUMBAI	A		FABRIC BELT UPTO 1600 MM WIDTH	
					HINDUSTAN RUBBER	SILVASA	A		FABRIC BELT UPTO 1600 MM WIDTH	

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66	FABRIC BELTING(FR GRADE) / STEEL CORD BELTING(FR GRADE)	I			NORTHLAND RUBBER	SONEPAT	A		FABRIC BELT UPTO 2200 MM WIDTH.	CHP, LHP/GHP
					SOMI CONVEYOR	JODHPUR	A		FABRIC BELT UPTO 2000 MM WIDTH	
					RAVASCO TRANSMISSION LTD.	VAPI	A		FABRIC BELT UPTO 2200 MM WIDTH	
					ORIENTAL RUBBER	PUNE	A		FABRIC BELT UPTO 2200 MM WIDTH , STEEL CORD BELT (FR GRADE UPTO 2000 MM WIDTH)	
					FORECH	CHENNAI	A		FABRIC BELT UPTO 2000 MM WIDTH , STEEL CORD BELT (FR GRADE UPTO 2200 MM WIDTH)	
					CAMOPLAST	KOREA	A		STEEL CORD FR GRADE UPTO 2400 MM WIDTH	
					YOKOHAMA	JAPAN	A		FABRIC BELT UPTO 2400 MM WIDTH , STEEL CORD BELT (FR GRADE UPTO 2400 MM WIDTH)	
67	IDLERS	I			ELECON	V V NAGAR	A			CHP , LHP/GHP
					MBE	KUMARDHUBI	A			
					KALI	KUMBAKONAM	A			
					AMPS	JAMSHEDPUR	A			
					A.ADAK	HOWRAH	A			
					BTL EPC	KOLKATA	A			
					V V N MFG	V V NAGAR	A		Upto 150 NB Dia	

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					THYSSENKRUPP	HYDERABAD / PUNE	A			
					PROMAC	BANGALORE	A			
					L & T - EWL	KANCHEEPURAM	A			
					ROLLWELL	HINDUPUR	A			
					TRF	JAMSHEDPUR	A			
68	PULLEYS	I			ELECON	V V NAGAR	A			CHP, LHP/GHP
					PROMAC	BANGALORE	A			
					MBE	KUMARDHUBI	A			
					BTL EPC	KOLKATA	A			
					TNS HEAVY	CHENNAI	A			
					KALI	THIRUBUVANAM	A			
					THYSSENKRUPP	HYDERABAD / PUNE	A			
					L & T - EWL	KANCHEEPURAM	A			
					V V N MFG	V V NAGAR	A		Upto 800 NB Dia	

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					ROLLWELL	HINDUPUR	A			
					TRF	JAMSHEDPUR	A			
69	HELICAL GEARBOX	I			SHANTI GEARS	COIMBATORE	A		Upto size 560	CHP, LHP/GHP
					ELECON	V V NAGAR	A			
					SIEMENS (FLENDER)	KHARAGPUR	A			
					PREMIUM TRANMISSION LTD	PUNE/FALTA	A		Up to size 710 / 450	
					SIEMENS (FLENDER)	GERMANY	A			
					NEW ALLENBURY WORKS	KOLKATA	A			
70	PLANETARY GEARBOX	I			ELECON	V V NAGAR	A			CHP,LHP/GHP
					SIEMENS (FLENDER)	GERMANY	A			
					MOVENTAS	GERMANY	A			
					DANA MOTION SYSTEMS ITALIA S.r	ITALY	A		(Earlier name - BREVINI)	
					MAGTORQ	HOSUR	A		Upto 11 KW	
					SEW EURODRIVE GMBH & CO.	GERMANY	A			

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71	FLUID COUPLING (SCOOP AND TRACTION TYP	I			FLUIDOMAT	DEWAS	A		Scoop type upto SC-1330	CHP,LHP/GHP
					PTL	AURANGABAD	A		SCOOP TYPE UPTO PST 1150	
					ELECON	V V NAGAR	A		Scoop type upto model ESC 760. 1. As part of Type test M/s Elecon will demonstrate Scoop tube in & Scoop	
					VOITH	HYDERABAD	A		SCOOP TYPE UPTO SVNL 1330	
72	SLEW RING	III			TITANUS	SOUTH AFRICA	A			CHP, LHP/GHP
					IMO	GERMANY	A			
					SKF	FRANCE	A			
					ROTHE ERDE	GERMANY	A			
					LIEBHERR	GERMANY	A			
73.A	COAL SAMPLER SYSTEM	I			EAST MAN CRUSHER	KOLKATA	A		WITH JEFFREY CRUSHER AND EASTMAN MAKE CRUSHER	CHP
					ERIEZ MAG EUROPE LTD	UK	A			
					SIEVE TECHNIK	GERMANY	A		MANUFACTURING OF PRIMARY & SECONDARY SAMPLER AN BOTLLE COLLECTOR AT MULTOTEC SA	
					THERMO RAMSAY INC	USA	A			
					ADVANCE SYSTEMS SAMPLING	KOLKATA	A		WITH JEFFREY CRUSHER AND ADVANCE MAKE CRUSHER	

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73.B	LIMESTONE SAMPLING SYSTEM	I			EAST MAN CRUSHER	KOLKATA	A		WITH JEFFREY CRUSHER AND EASTMAN MAKE CRUSHER	LHP/GHP
					ERIEZ MAG EUROPE LTD	UK	A			
					SIEVE TECHNIK	GERMANY	A		MANUFACTURING OF PRIMARY & SECONDARY SAMPLER AN BOTLLE COLLECTOR AT MULTOTEC SA	
					THERMO RAMSAY INC	USA	A			
					ADVANCE SYSTEMS SAMPLING	KOLKATA	A		WITH JEFFREY CRUSHER AND ADVANCE MAKE CRUSHER	
74	HYDRAULIC POWER PACK	I			EATON POWER	PUNE	A			CHP, LHP/GHP
					BOSCH-REXROTH	AHMEDABAD	A			
					MAHA HYDRAULICS	CHENNAI	A			
					L & T HYDRAULICS	BANGALORE	A		EXCEPT FOR STACKER RECLAIMER	
					Hydac	COIMBATORE	A			
75	HYDRAULIC CYLINDER	I			VELJAN	HYDERABAD	A			CHP, LHP/GHP
					WIPRO	BANGALORE	A			
					EATON POWER	PUNE	A			
					L & T HYDRAULICS	BANGALORE	A			

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S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी (NOTE-1)	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण	Remarks/ टिप्पणी	Applicable Systems
					BOSCH-REXROTH	AHMEDABAD	A			
					Hydac	COIMBATORE	A			
76	HYDRAULIC MOTOR	I			POCLAIN HYDRAULICS	FRANCE	A			CHP , LHP/GHP
					BOSCH-REXROTH AB (FORMERLY H	SWEDEN	A			
					PARKER CALZONI	ITALY	A			
					MAHA HYDRAULICS	CHENNAI	A		UP TO 100 LITRE CAPACITY	
					KAWASAKI	UK	A			
77	HAMMER MILL CRUSHER FOR LIME STONE HANDLING SYSTEM	I			INTERNATIONAL COMBUSTION	NAGPUR	A			LHP/GHP
					MCNALLY SAYAJI	BARODA	A			
					MCNALLY SAYAJI	KUMARDHUBI	A			
					ELECON	V V NAGAR	A			
					THYSSENKRUPP INDUSTRIES INDIA	PUNE	A			
					ECOMAN	BARODA	A		UPTO 150TPH	
					INDIANA GRATINGS PVT. LTD.	PUNE	A			

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800 MW) Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)	DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 26.06.2023 PAGE/ पृष्ठ :	

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					JINDAL STEEL & POWER LTD.	RAIGARH	A			
					BABY ENGG. PVT. LTD.	TRICHY	A			
					REGIONAL ENGG. WORKS	TRICHY	A			
					AJANTHA FABS	MATHURA	A			
					CAPACITE STRUCTURES LTD.	THANE	A			
					MIURA INFRASTRUCTURE PVT. LTD.	BHILAI	A			
					SHIVAM HITECH STEELS PVT. LTD	BHILAI	A			
					TECHNOFAB MANUFACTURING LTD.	CHENNAI	A			
					JSW SEVERFIELD STRUCTURES LTD(JSSL)	BELLARY	A			
					ALLIANCE INTEGRATED METALIKS LTD(AIML)	RAJPURA	A			
					ATMASTCO PVT LTD	DURGAPUR	A			
					APEX BUILDSYS LTD	NAGPUR	A			
					COREFAB PROJECTS PVT LTD	BHILAI	A			
					KOTHARI CHEMICALS	BHILAI	A			

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800 MW) Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)				DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 26.06.2023 PAGE/ पृष्ठ :				
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78	SHOP FABRICATED STRUCTURE	I			FEDDERS LLOYD CORPORATION LTD	SIKANDRABAD	A			CHP/LHP/GHP
					ARCELOR MITTAL DHAMM PROCESSING PVT LTD	RANIPET	A			
					ARTSON ENGINEERING	NASIK	A			
					ARTSON ENGINEERING	NAGPUR	A			
					HEAVY ENGINEERING WORKS	REWA, MP	A			
					ARCELORMITTAL NIPPON STEEL INDIA LTD	CHENNAI	A			
					TRIDENT FABRICATORS PVT LTD	ROURKELA	A			
					GREAT INDIA STEEL FABRICATORS	YAMUNA NAGAR	A			
					METALFAB HITECH	NAGPUR	A			
					SUPERTECH INDIA	G.NOIDA	A			
					GOODLUCK STEEL	SIKANDRABAD	A			
					BTL	KOLKATA	A			
					BTL	DURGAPUR	A			
					AMIYA COMMERCE	KOLKATA	A			

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					NAMDHARI INDUSTRIAL	LUDHIANA	A			
					THYSSENKRUPP INDUSTRIES INDIA	HYDERABAD	A			
79	Steel Cord Pipe Conveyor (FR Grade)	I			Phonix Cnoveyor belt	Kolkata	A		Upto 2400 MM B/w	
					Oriental Rubber	Pune	A		Upto 2000 MM B/w	
					Forech India Pvt Ltd	Cheyyar	A		Upto 2200 MM B/w	
80	PIPE-SS ASTM A 312	II			REMI	TARAPUR	A		ERW UPTO 400 NB,SEAMLESS UP TO 200NB	
					RATNAMANI	MEHSANA	A		ERW UPTO 500 NB, SEAMLESS UPTO 50 NB ONLY	
					RATNAMANI	KUTCH	A		ERW UPTO 400 NB, SEAMLESS UPTO 50 NB ONLY, ARC WELDED UP TO 450NB	
					BHANDARI FOILS & TUBES LIMITED	DEWAS	A		ERW UP TO 300NB	
					APEX	BEHRORE	A		ERW UPTO 400 NB, SEAMLESS UPTO 50 NB.	
					PRAKASH STEELAGE	SILVASA	A		ERW UP TO 203NB	
					SHUBHLAXMI METALS AND TUBES	UMBERGAON	A		SEAMLESS UP TO 150MM and ERW UP to 250 NB Sch 40S	
81	PIPE-CS SEAMLESS, ASTM A 106	II			ISMT	AHMADNAGAR	A		UPTO 273 MM OD	
					ISMT	BARAMATI	A		UPTO 273 MM OD	

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800 MW) Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)	DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 26.06.2023 PAGE/ पृष्ठ :	

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81	PIPE-CS SEAMLESS-ASTM A 106	II			REMI	BHARUCH	A		UPTO 177.8 MM OD	
					MAHARASHTRA SEAMLESS	RAIGAD	A		UPTO 500 NB	
82	HCSD PUMP	I			WEIR MINERALS	NETHERLANDS	A			
					ABEL	GERMANY	A			
					FELUWA	GERMANY	A			
ITEM WITH MAIN CONTRACTOR / BIS APPROVED SOURCES.										
1	BRANCH PIPE , COUPLING & NOZZLE (SS & GM	II			BIS APPROVED SOURCES WITH VALID BIS LICENSE					FDPS
2	FIRE EXTINGUISHER	II			BIS APPROVED SOURCES WITH VALID BIS LICENSE					FDPS
3	WATER MONITOR	II			BIS APPROVED SOURCES WITH VALID BIS LICENSE					
4	PIPES-MS- (BLACK/ GI) AS PER IS:1239 & IS:3589 UPTO 1000 NB	II			(BIS MARKED, MANUFACTURERS WITH VALID BIS LICENSE)					WTP,CW,CT,CPU,FDPS,AC&VENTILATION, CHP,LHP&GHP,AHP
5	FIRE HOSE	II			BIS APPROVED SOURCES WITH VALID BIS LICENSE					FDPS
6	HYDRANT VALVE	II			BIS APPROVED SOURCES WITH VALID BIS LICENSE					
7	PIPES FOR IDLERS IS 9295	III			BIS APPROVED SOURCES WITH VALID BIS LICENSE					FDPS
8	BLOWERS -CENTRIFUGAL >=5KW	II			MAIN CONTRACTOR APPROVED SOURCES					WTP

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800 MW) Package/ पैकेज : EPC Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)			DOC. NO./ दस्तावेज सं.: REV. NO.: DATE/ तिथि : 26.06.2023 PAGE/ पृष्ठ :				
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9	ClO2 GENERATOR	II			MAIN CONTRACTOR APPROVED SOURCES					WTP
10	JOINT /FITTING COATING MATERIAL(SLEEVE) FOR 3 LPE PIPES	II			MAIN CONTRACTOR TO PROPOSED VENDOR FOR NTPC APPROVAL					MUW
11	PIPING FABRICATION -HP>300PSI	II			MAIN CONTRACTOR APPROVED SOURCES					WTP,CPU
12	PUMP-METERING/DOSING	II			MAIN CONTRACTOR APPROVED SOURCES					WTP,CPU
13	PUMP - PP- ACID/ ALKALI UNLOADING	II			MAIN CONTRACTOR APPROVED SOURCES					WTP,CPU
14	PUMPS-SCREW TYPE	II			MAIN CONTRACTOR APPROVED SOURCES					WTP,CPU,FOH
15	RUBBER LINING OF TANKS/ VESSELS/ PIPES/ VALVES/FITTINGS	II			MAIN CONTRACTOR APPROVED SOURCES					WTP,CPU
16	RO PRESSURE TUBE	II			MAIN CONTRACTOR APPROVED SOURCES					WTP
17	TUBE SETTLER MEDIA	II			MAIN CONTRACTOR APPROVED SOURCES					WTP
18	WRAPPING & COATING MATERIAL -ANTI CORROSIVE TAPE	II			MAIN CONTRACTOR APPROVED SOURCES					CW,CT,LP PIPING, FDPS
19	FAN CYLINDER SEGMENTS-FRP-COOLING TOWER	II			MAIN CONTRACTOR APPROVED SOURCES					CT
20	FILLS (PVC)	II			MAIN CONTRACTOR APPROVED SOURCES					CT
21	SHAFT-CARDON TYPE-CW PUMP	II			MAIN CONTRACTOR APPROVED SOURCES					CW
22	DUST EXTRACTION SYSTEM	I			MAIN CONTRACTOR's APPROVED SOURCES				BOIs SHALL BE FROM NTPC APPROVED SOURCES	CHP, LHP/GHP

एनटीपीसी NTPC	**Project/ परियोजना : SIPAT-III (1X800 MW)** **Package/ पैकेज : EPC** **Supplier/ आपूर्तिकर्ता:** **Contract No./ अनुबंध सं.:**	**INDICATIVE LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL** क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची **SUB-SYSTEM उप-प्रणाली: BOP SYSTEMS (MECHANICAL)**				**DOC. NO./ दस्तावेज सं.:** **REV. NO.:** **DATE/ तिथि : 26.06.2023** **PAGE/ पृष्ठ :**				
S. N. **क्र.सं.**	**Item / मद**	**QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.**	**QP No. / क्यूपी. सं.**	**QP Sub. Schedule** क्यूपी उप.अनुसूचि	**Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता**	**Place/ स्थान**	**Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी (NOTE-1)**	**Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण**	**Remarks/ टिप्पणी**	**Applicable Systems**
23	DUST SUPPRESSION SYSTEM (PLAIN WATER)	I			MAIN CONTRACTOR's APPROVED SOURCES				BOIs SHALL BE FROM NTPC APPROVED SOURCES	CHP, LHP/GHP
24	DUST SUPPRESSION SYSTEM (DRY FOG)	I			MAIN CONTRACTOR's APPROVED SOURCES				BOIs SHALL BE FROM NTPC APPROVED SOURCES	CHP, LHP/GHP
Note-1 Items for which Sub-QR is enviisaged, vendors are accepted subject to Sub-QR clearance from NTPC Engg.										
A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter “A” in the list along with the condition of approval, if any./ इन मदों के लिए प्रस्तावित वेंडर एनटीपीसी को स्वीकार्य है। अनुमोदन की शर्त, , यदि कोई हो, के साथ-साथ पत्र "क" में इंगित किया जाए ।										
DR – For these items “Detailed required” for NTPC review. To be identified with letter “DR” in the list. एनटीपीसी द्वारा इन मदों की समीक्षा के लिए "विस्तृत ब्यौरे की आवश्यकता" होगी। सूची में "DR" पत्र में इंगित किया जाना चाहिए।										
QP / INSPECTION CATEGORY:										
CAT-I / श्रेणी- I: For these items the Quality Plans are approved by NTPC and the final acceptance will be on physical inspection witness by NTPC. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है और एनटीपीसी द्वारा अंतिम स्वीकृति भौतिक निरीक्षण के दौरान उपलब्ध गवाह के आधार पर दी जाएगी।										
CAT-II / श्रेणी- II: For these items the Quality Plans approved by NTPC. However no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on the basis review of documents as per approved QP. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है। हालाँकि एनटीपीसी द्वारा कोई भौतिक निरीक्षण नहीं किया जाएगा। एनटीपीसी द्वारा अंतिम स्वीकृति अनुमोदित क्यूपी के अनुसार दस्तावेजों की समीक्षा के आधार पर दी जाएगी।										
CAT-III/ श्रेणी-III : For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.										
UNITS/WORKS इकाईयां / कार्य: Place of manufacturing/ निर्माण का स्थान Place of Main Supplier of multi units/works/बहु- इकाइयों / कार्यों के मुख्य सप्लाइर का स्थान.										
FORMAT NO./ प्रारूप सं: QS-01-QAI-P-1B/F1-R0 Engg. Div. / QA&I										

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800MW) Package/ पैकेज: EPC PACKAGES Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची	DOC. NO./ दस्तावेज सं.: REVISION NO : 00 DATE/ तिथि : 09.05.2023 SUB-SYSTEM उप-प्रणाली: QA-ELEC

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1	GENERATOR	CAT I								
					BHEL	Haridwar	A			
					Siemens	Germany	A			
					GE	Sanand	A			
					GE	POLAND	A			
					MELCO	JAPAN	A			
					LMTG	Hazira	A			
					Hitachi	Japan	A			
					Toshiba	Japan	A			
					TJPS	Chennai	A			
2	IPBD	CAT I								
					BHEL	Rudrapur	A			
					C&S ELECTRIC	Haridwar	A			
3	Power Transformers	CAT I								
					ABB	Sweden	A		Up to 765 KV Class	
					ABB	Vadodara	A		Up to 765 KV Class	
					Toshiba	Japan	A		Up to 765 KV Class	
					CG Power & Industrial Solutions Ltd	Mandideep	A		Up to 765 KV class	
					BHEL	Bhopal	A		Up to 400 KV Class	
					Siemens	Mumbai	A		Up to 400 KV Class	
					GE T&D India Limited	Naini	A		Up to 400 KV Class	
					GE T&D India Limited	Vadodara	A		Up to 765 KV Class	
					TELK	Angamally	A		Up to 400 KV Class	
4	Shunt Reactor	CAT I								
					ABB	Sweden	A		Up to 765 KV Class	
					ABB	Vadodara	A		Up to 765 KV Class	
					Toshiba	Japan	A		Up to 765 KV Class	
					CG Power & Industrial Solutions Ltd	Mandideep	A		Up to 765 KV class	
					BHEL	Bhopal	A		Up to 400 KV Class	
					Siemens	Mumbai	A		Up to 400 KV Class	
					GE T&D India Limited	Vadodara	A		Up to 765 KV Class	
					GE T&D India Limited	Naini	A		Up to 400 KV Class	
5	Auxiliary Oil Filled Transformers	CAT I								
					BHEL	Jhansi	A		Up to 220 KV Class	
					Indotech Transformers	Chennai	A		Up to 16 MVA, 11 KV Class	
					Kanohar	Meerut	A		Upto 16 MVA, 33 KV Class	
					Kirloskar Electric Company Limited	Mysore	A		Up to 16 MVA, 33 KV Class	
					Schneider	Vadodara	A		Up to 50MVA, 132 KV Class	
					Transformers & Rectifiers Ltd.	Ahmedabad	A		Upto 90 MVA, 132 KV Class	
					Voltamp	Savli	A		Up to 3.5 MVA, 33 KV Class	
6	LT Switchgear -Floor mounted Draw out type indoor switchgear Panel (MCC etc.)	CAT I								
					Schneider (formerly L&T)	Mumbai / Coimbatore/ Ahmednagar	A			
					C&S Electric	Noida / Haridwar	A			
					Schneider	Nasik	A		ACB from Schneider, France	
					Siemens	Kalwa	A		Conditions apply	
					Schneider	Vadodara	A			
7	LT Switchgear - Floor mounted Fixed type indoor LT Switchgear Panel (ACDB / DCDB)	CAT I								
					Schneider (formerly L&T)	Mumbai / Coimbatore/Ahmednagar	A			
					C&S Electric	Noida/ Haridwar	A			
					Schneider	Nasik	A			

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					Siemens	Kalwa	A			
					Schneider	Vadodara	A			
8	11KV/3.3KV Switchgear- (MV Switchgear Panel)	CAT I								
					BHEL	Bhopal	A		Upto 33KV	
					Megawin	Salem	A		Upto 33KV	
					Schneider Electric India (Formerly L&T)	Ahmednagar	A		Upto 33KV	
					Siemens	Mumbai	A		Upto 33KV	
					ABB	Nasik	A		Upto 33KV	
					Schneider (Salt lake works)	Kolkata	A		Upto 11KV	
					Schneider	Vadodara	A		Upto 11KV	
8.1	Fast Bus Transfer panel along with relay	CAT I								
					Aartech	Parwanoo	A		conditions apply	
					ABB	Vadodara	A		conditions apply	
					SEL	Delhi	A		conditions apply	
9	HT Motor									
9.1	HT Motors (CW PUMP MOTOR)	CAT I								
					WEG	BRAZIL	A		UPTO 3405KW,11KV	
					HYOSUNG	S.KOREA	A		UPTO 2800KW,6.6KV	
					BHEL	BHOPAL	A			
9.2	HT MOTORS (BFP Motor)	CAT I								
					HYOSUNG	SOUTH KOREA	A		UPTO 11KV 13.5 MW	
					BHEL	BHOPAL	A		RQP	
					HYUNDAI	SOUTH KOREA	A		UPTO 11KV 17 MW	
9.3	HT MOTORS (ID Fan Motors)	CAT I								
					HYOSUNG	SOUTH KOREA	A		UPTO 11KV 13.5 MW	
					WEG	HOSUR	A		UPTO 11KV 14 MW	
					BHEL	BHOPAL	A		RQP	
					HYUNDAI	SOUTH KOREA	A		UPTO 11KV 17 MW	
					TMEIC	BENGALURU	A		UPTO 11 KV 5000 KW	
9.4	HT MOTOR FOR OTHER EQUIPMENTS	CAT - I								
					HYOSUNG	KOREA	A		UPTO 11KV 13.5 MW	
					WEG	BRAZIL	A		UPTO 11KV 2150 KW	
					WEG	HOSUR	A		UPTO 11KV 14 MW	
					BHEL	BHOPAL	A		RQP	
					HYUNDAI	KOREA	A		UPTO 11KV 17 MW	
					TECO	TAIWAN	A		UPTO 11KV 12 MW	
					TMEIC	JAPAN	A		UPTO 11KV 14 MW	
					CONVERTEAM	FRANCE	A		UPTO 11KV 18 MW (*DOCUMENTS FOR NAME CHANGE TO GE CONVERTEAM SHALL BE SUBMITTED FOR APPROVAL)	
					ABB	VADODARA	A		UPTO 6.6KV 2500 KW 11KV 2000 KW FOR PUMP/ FAN/ COMPRESSOR UPTO 6.6KV 750KW FOR MILL, UPTO 6.6 KV 1300KW FOR CRUSHER WITH SCOOP COUPLING	
					IJLIN	KOREA	A		UPTO 11KV 2900 KW, 6.6KV 2500 KW	
					JYOTI	VADODARA	A		UPTO 6.6 KV 2250 KW EXCEPT CRUSHER & MILL APPLICATION	
					MARATHON	KOLKATA	A		RQP, UPTO 6.6 KV 1300 KW FOR CRUSHER WITH SCOOP COUPLING & 11 KV 1600 KW FOR OTHER APPLICATION EXCEPT CRUSHER & MILL	
					CGL (D5 INDUSTRIAL AREA)	MANDIDEEP	A		UPTO 1650 KW 6.6 KV, 1350 KW 11 KV FOR PUMP, FAN, COMPRESSOR. UPTO 3.3 kV 335 kW WITH FLEXIBLE COUPLING FOR MILL APPLICATION	
					CGL(PLOT 9)	MANDIDEEP	A		UPTO 11 KV 4MW FOR PUMP/FAN/COMPRESSOR	
					CG ELECTRIC SYSTEM	HUNGARY	A		UPTO 3.3 KV 1100 KW	

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					TMEIC	BENGALURU	A		UPTO 11 KV 5000 KW	
10	H.T. CABLE upto 33KV	CAT I								
					Apar Industries	Umbergaon	A			
					Gemscab	Bhiwadi	A			
					Gupta Power	Kashipur	A			
					Havells India Ltd.	Alwar	A			
					KEC International	Vadodara	A			
					KEI Industries	Bhiwadi	A			
					Krishna Electrical Industries Ltd	Gwalior	A		Up to 11KV only	
					Polycab Wires Pvt. Ltd	Daman	A			
					Sri ram Cables	Bhiwadi	A		Up to 11KV only	
					Tirupati Plastomatics	Jaipur	A		Up to 11KV only	
					Torrent Cable Ltd	Nadaid	A			
					CMI	Baddi	A			
					Universal Cable Ltd.	Satna	A			
11	1.1 KV LT Power Cables (Type- XLPE Insulated, PVC sheathed (incl FRLS)	CAT I								
					Advance Cable	Bengaluru	A			
					Apar Industries Ltd	Umbergaon	A			
					Cords Cables	Bhiwadi	A			
					CMI	Baddi	A			
					Delton Cable Ltd	Faridabad	A			
					Dynamic Cables	Jaipur	A			
					Gemscabs Industries	Bhiwadi	A			
					Gupta Power Cables	Khurda	A			
					Havells India Ltd.	Alwar	A			
					KEC International	Silvassa , Mysore	A			
					KEI Industries	Bhiwadi	A			
					Paramount Cable	Khushkhera	A			
					Polycab Wires Pvt. Ltd	Daman	A			
					Ravin Cables	Pune	A			
					Special Cables	Rudrapur	A			
					Suyog Cables	Vadodara	A			
					Thermocables	Hyderabad	A			
					Tirupati Plastomatics	Jaipur	A			
					Torrent Cable Ltd	Nadiad	A			
					Universal Cable Ltd.	Satna	A			
12	LT Control Cable 1.1 KV, Type - PVC (incl FRLS)	CAT II							For cable total quantity above 10 km per size/type- Cat-III	
					Advance Cable	Bengaluru	A			
					Apar Industries Ltd	Umbergaon	A			
					Cords Cables	Bhiwadi	A			
					CMI	Faridabad	A			
					CMI	Baddi	A			
					Delton Cable Ltd	Faridabad	A			
					Elkay Telelink	Faridabad	A			
					Gemscabs Industries	Bhiwadi	A			
					Goyoline Fibres (I) Ltd	Daman	A			
					Gupta Power Cables	Khurda	A			
					Havells India Ltd.	Alwar	A			
					KEC International	Silvassa , Mysore	A			
					KEI Industries	Bhiwadi	A			
					Paramount Cable	Khushkhera	A			
					Polycab Wires Pvt. Ltd	Daman	A			
					Ravin Cables	Pune	A			
					Special Cables	Rudrapur	A			

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					Suyog Cables	Vadodara	A			
					Thermocables	Hyderabad	A			
					Tirupati Plastomatics	Jaipur	A			
					Torrent Cable Ltd	Nadiad	A			
					Universal Cable Ltd.	Satna	A			
13	EHV Cables	CAT I								
					Iljin Electric	South Korea	A		For 132KV & 220 KV only	
					KEC International	Vadodara	A		Upto 220KV	
					KEI Industries	Bhiwadi	A		Upto 132KV , 220KV	
					Phelps Dodge	Bangkok	A		For 132 KV only	
					LS CABLE & SYSTEM LTD	South Korea	A		Up to 400 KV	
					LS CABLE & SYSTEM LTD	BHIWADI	A		Up to 132 KV	
					Universal Cable Ltd.	Satna	A		Upto 132KV only	
14	DG SET(ASSMEBLER & TESTING)	CAT I								
					Kohler	Singapore	A		Up to 1500 KVA ,11KV	
					CLLS	Singapore	A		Up to 1250 KVA, 415 V,	
					Powerica	Silvasa	A		Up to 2000 KVA, 415 V & 1500 KVA, 11 KV	
					Jakson Unit-II	Kathua	A		Up to 11KV, 1500KVA	
					Jakson	Kathua	A		Up to 415 V, 2000 KVA	
					Sterling Generators Pvt Ltd	Silvasa	A		Up to 415 V 2000 KVA	
					Supernova	Rajpur	A		Up to 415 V 2000 KVA	
14.1	ALTERNATOR	CAT I								
					Kirloskar Electric	Bangalore	A		415 V alternators	
					Cummins Generator Technology (Stamford)	U.K	A		415 V & 11 KV alternators	
					Leroy Somer	France	A		Up to 11KV alternator 3500 kW	
					Marathan	USA	A		Alternators for up to 415 V, 1500 KVA DG SET	
					Cummins Generator Technology (Stamford)	Ahmednagar	A		415 V Alternators up to 1600 KVA	
					Toyo Denki Power System	Bangalore	A		11 KV, 1500 KVA	
14.2	DG Set Control panel / Synchronising panel	CAT I								
					L&T	Mumbai / Coimbatore/ Ahmednagar	A			
					GE	Bangalore	A			
					Siemens	Mumbai	A			
					C&S Electric	Noida / HARIDWAR	A			
					Schneider	Nasik	A			
					Unilec	Gurgaon	A			
					Nitya Electrocontrols	Noida	A			
					Switching Circuits	Kolkata	A			
					Tricolite	Sahibabad / Manesar	A			
		I			Hindustan Control & equipment Ltd	Kolkata	A		With fabrication & painting at unit II & MP Electrical Narendrapur	
					Maktel	Vadodara	A			
					Jakson	Greater Noida	A			
					Vidyut Control	Gaziabad	A			
					Adlec Power	Rohad (Jhajjar)	A			
					Pyrotech	Udaipur	A			
					Anand Power Ltd.	Noida	A			
					Positronics	Vadodara	A			
					Control & Schematics	Hyderabad	A			
					Sterling Generators Pvt Ltd	Silvasa	A			
					Jackson	Kathua	A		11 KV, 1500 KVA	
					Supernova	Rajpur	A			
15	DC Batteries (Ni-Cd type BATTERY)	CAT I								

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					HBL-Power System	Hyderabad	A		Up to 990 Ah with conditions
					Saft India	Bangalore	A		8Ah to 990Ah- KPH type
							A		10Ah to 1365 Ah- KPM type
							A		11Ah to 1550Ah – KPL type
16	BATTERY CHARGER (48V/110V/220V)	CAT I							
					Amararaja	Tirupati	A		
					HBL- Power System	Hyderabad	A		
					Chhabi electrical	Jalgaon	A		
					Chloride Power	Kolkatta	A		
					Statcon	Hapur	A		Up to 220 V, 850 A
					Dubas	Bangalore	A		Up to 220 V, 800 A
17	Dry Type Transformer	CAT I							
					ABB	Savli	A		Up to 8 MVA, 24 KV Class
					Raychem	Pune	A		Up to 3.5 MVA, 33 KV Class
					Toshiba	Hyderabad	A		Up to 2.0 MVA, 33 KV Class
					BHEL	Jhansi	A		Up to 6.3 MVA, 33 KV Class
					Kirloskar Electric Company Limited	Pune	A		Up to 4.0 MVA, 33 KV Class
					Voltamp	Savli	A		Up to 3.25 MVA, 33 KV Class
					Sudhir Power Ltd	Silvassa	A		Up to 1 MVA, 11 KV Class
					Hammond Power Solutions	Hyderabad	A		Up to 95 KVA, 33KV Class
18	OIP/RIP BUSHING	CAT I							
18.1	OIP/CONDENSER BUSHING	I			BHEL	Bhopal	A		Up to 400 KV class
		II			Crompton Greaves Ltd	Nasik	A		Up to 400 KV class
					Crompton Greaves Ltd	Aurangabad	A		Up to 245 KV Class (excluding GT)
					ABB Ltd.	Vadodara	A		
					ABB Switzerland Ltd. MICAFIL Bushings	Switzerland	A		Up to 400 KV class
					TELK	Angamaly	A		Up to 400 KV class
					GE T&D India Limited	Hosur	A		Up to 400 KV class
					Alstom-Passion Villa	Italy	A		Up to 400 KV class
					ABB Power Tech.Products	Sweden	A		Up to 400 KV class
					Trench	France	A		Up to 400 KV class
18.2	RIP Bushing	CAT I							
					ABB AB Components	Sweden	A		Up to 420 KV Class
					ABB Micafil	SwitzerLand	A		Up to 420 KV Class
					Izolytor	Rusia	A		Up to 420 KV Class
					HSP	Germany	A		Up to 420 KV Class
					Yash High Voltage	Vadodara	A		Up to 145 KV Class
19	INSULATING OIL	CAT I							
					Apar Industries	Rabale/Silvassa	A		
					Power Oil Petrolium Products	Silvassa	A		
					NYNAS NAPTHENICS AB	SWEEDEN / USA	A		
					Kanden Engg Corp Ltd	Japan	A		
					Nynas Ltd	Hongkong	A		
					Raj Petro Specialities	Chennai/Silvasa	A		
					Savita Oil Technologies	Mumbai/ Silvasa	A		
20	ON LINE DGA ANALYZER	CAT III							
					GE Kelmen Ltd	UK	A		
					GE GRID SOLUTIONS LTD	LISBURN, UK	A		
					Serveron	USA	A		
					CIC	Vadodara	A		Approval Conditions apply
					Morgan Scehaffer	Canada	A		
21	GIS	CAT I			GE T&D	CHENNAI	A		765 KV
					ABB	BARODA	A		400 KV

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22	CAPACITIVE VOLTAGE TRANSFORMER (CVT)	CAT I								
					ABB	VADODARA	A		UP TO 400KV	
					GE T&D	HOSUR	A		UP TO 765 KV	
					BHEL	JHANSI	A		UP TO 400KV	
					MEHRU ELECTRICALS	BHIWADI	A		UP TO 132 KV	
					CGL	NASHIK	A		UP TO 400KV	
23	CURRENT TRANSFORMER	CAT I								
					Mehru Electrical	Bhiwadi	A		UP TO 132 KV	
					GE T&D	Hosur	A		UP TO 765 KV	
					ABB	Vadodara	A		UP TO 400KV	
					CGL	Nasik	A		UP TO 400KV	
					BHEL	Bhopal	A		UP TO 400KV	
					BHEL	Jhansi	A		UP TO 220 KV	
					Vishal Transformer	Meerut	A		UP TO 132 KV	
					Heptacare	Meerut	A		UP TO 33KV	
24	CIRCUIT BREAKER	CAT I								
					GE T&D	KANCHIPURAM	A		UP TO 765 KV	
					ABB	VADODARA	A		UP TO 400 KV	
					SIEMENS	AURANGABAD	A		UP TO 400 KV	
					BHEL	Hyderabad	A		UP TO 400 KV	
					CGL	NASHIK	A		UP TO 400 KV	
25	ISOLATOR	CAT I								
					GR POWER	HYDERABAD	A		UP TO 400KV	
					HIVELM	CHENNAI	A		UP TO 400KV	
					S&S POWER	PONDICHERRY	A		UP TO 400KV	
					SIEMENS	HYDERABAD	A		UP TO 765 KV	
					ELEKTROLITES	JAIPUR	A		UP TO 33 KV	
					SWITCHGEAR & STRUCTURALS	HYDERABAD	A		UP TO 765 KV	
26	'SURGE ARRESTOR	CAT I								
					CGL	NASIK	A		UP TO 400KV	
					ELEKTROLITES	JAIPUR	A		UP TO 33 KV	
					LAMCO	HYDERABAD	A		UP TO 400KV	
					OBLUM	HYDERABAD	A		UP TO 765 KV	
27	CLAMPS & CONNECTORS & WELDING SLEEVES	CAT I								
					ELCTROMECH TRANSTECH	KOLKATA	A			
					EXALT	MUMBAI	A			
					KLEMMEN ENGG	CHENNAI	A			
					MEGHA ENGG	CHENNAI	A			
					MILIND	MUMBAI	A			
					EMI	MUMBAI	A			
					NOOTAN ENGG	MUMBAI	A			
					TAG CORPORATION	CHENNAI	A			
					ITPL	MUMBAI	A			
					RASHTRA UDYOG	KOLKATA	A			
					Premier Power Products	Chennai	A			
					PEE VEE ENGG	BANGALORE	A			
27.1	ACSR CONDUCTOR	CAT I								
					APAR INDUSTRIES	SILVASSA	A			
					CABCON	KOLKATA	A			
					DIAMOND	VADODARA	A			
					GALAXY	SANGLI	A			
					GUPTA POWER INFRA	BHUBANESWAR	A			
					HIRA CABLES	HIRAKUD	A			

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					JSK	SILVASSA	A			
					LUMINO	KOLKATA	A			
					SARAVATHY	BANGALORE	A			
					HIREN ALUMINIUM	SILVASSA	A			
					SMITA	GHAZIABAD	A			
27.2	ALUMINIUM TUBE	CAT I								
					ALOM EXTRUSIONS UNIT-II	BALASORE	A			
					BANCO	VADODARA	A			
					CENTURY EXTRUSION	KOLKATA	A			
					HINDALCO	RENUKOOT	A			
					HINDALCO	ALUPURAM	A			
					JINDAL ALUMINIUM	BANGALORE	A			
					SUDAL	NASIK	A			
28	SUB STATION AUTOMATION SYSTEM '(BCU, GRP, ENERGY METER, NUMERICAL RELAYS, SWITCHYARD PROTECTION)	CAT I								
					GE T&D	CHENNAI	A			
					ABB	PEENYA	A			
					SCHNEIDER	NOIDA	A			
					SIEMENS	KALWA/GOA	A			
					BHEL	BHOPAL	A			
29	AB Tariff energy meter	CAT I								
					SEMS	Udaipur/Solan	A			
					Elster	Mumbai	A			
					L&T	Mysore	A		For Model ER300P With CMS software.	
30	Power Conditioning Unit (PCU)	CAT I								
					Schneider	Bangalore	A		Conditions apply	
					ABB	Bangalore	A		Conditions apply	
					Bongfiglioli	Germany	A		Conditions apply	
					Fecon	Germany	A			
					AEG	Bangalore	A		Conditions apply	
					Hitachi-Hirel	Gandhinagar	A		Conditions apply	
					Hitachi-Hirel	Sananad	A		Conditions apply	
					Vacon	Bangalore	A		Conditions apply	
30.1	String Monitoring Box (SMB)	CAT II								
					Trinity Touch	Palwal	A		Conditions apply	
					Hensel	Sriperumbudur	A		Conditions apply	
					AEG	Bangalore	A		Conditions apply	
					Statcon	Pilkhuwa	A		Conditions apply	
					Weidmuller	Spain	A		Conditions apply	
31	SPV module	CAT I								
					BHEL	Bangalore	A			
					Warree	Surat	A			
					Emmvee	Bangalore	A			
					Vikram Solar	Parganas	A			
					Lanco Solar	Chattisgarh	A			
					Tata Power Solar	Bangalore	A			
					Alpex	Solan	A			
					Synergy	Durgapur	A			
					Photonix	Satara	A			
					HHV Solar	Bangalore	A			
32	Lighting mast with raise & lower type lantern carriage/ Lighting poles polygonal type	CAT I								
					Bajaj	Pune	A			
					BP Projects	Hoogly	A			

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					Skipper	Howrah	A			
					Transrail	Silvasa	A			
33	132 KV cable termination & straight through jointing kits	CAT I								
					Iljin	South Korea	A			
					ABB Kabeldon	Sweden	A			
					Pfisterer AG	Switzerland	A			
					Tyco Electronics Raychem GmbH	Germany	A			
34	Air Insulated Non Segregated phase type LT busduct	CAT I								
					C&S Electric	G.Noida	A			
					C&S Electric	HARIDWAR	A			
					Unilec	Gurgaon	A		Upto 3200 A	
					Stardrive	Chennai	A			
					Spaceage Swgr Ltd	Bawal	A			
					REEP	Chennai	A			
					Enpro	Chennai	A			
					Godrej	Banglore	A			
					Nitya Electrocontrols	Noida	A			
34.1	Sandwitched type LT Busduct	CAT I								
					Henikwon	Malaysia	A			
					Godrej	Banglore	A			
					C&S	HARIDWAR	A			
35	SPBD	CAT I								
					BHEL	Rudrapur	A			
					C&S	Greater Noida	A			
					C&S	Haridwar	A			
					GODREJ & BOYCE MANUFACTURING COMPANY LTD	Bangalore	A			
					Powergear	Hindupur	A			
					Powergear	Chennai / Bangalore	A			
					KGS Engg.	Chennai	A			
36	LT MOTOR	CAT I								
		Refer Note 7			ABB	FARIDABAD	A		UPTO 55KW	
					ABB	BANGALORE	A			
					JYOTI LTD.	VADODARA	A			
					TIPM	JAPAN	A		UPTO 15 KW (NON FLAME PROOF)	
					HYOSUNG	SOUTH KOREA	A			
					WEG	BRAZIL	A			
					HYUNDAI	SOUTH KOREA	A			
					LHP	SOLAPUR	A			
					CGL	AHMEDNAGAR	A		RQP, FOR FLAME PROOF MOTOR	
					TMEIC	JAPAN (NAGASAKHI)	A			
					NGEF	BANGALORE	A		UPTO 15 KW	
					BHARAT BIJLEE	MUMBAI	A		RQP, FOR FLAME PROOF ALSO	
					KEC	BANGALORE/ HUBLI*	A		*UPTO 90KW, RQP, FOR FLAME PROOF ALSO	
					MARATHON	KOLKATA	A		RQP (UPTO 690V & 600 KW) FOR FLAME PROOF ALSO	
					ABB	SWEDEN	A		UPTO 55KW	
					HAVELL	NEEMRANA	A		UP TO 90KW	
					KAWAMATA	JAPAN	A		UP TO 75 KW	
					TIPS	JAPAN	A		UP TO 45KW	
36.1	DC Motor	CAT I								
					CGL	MANDIDEEP	A			
37	LT VFD Control Panel	CAT I								

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					Powertech	Sonepat	A		Upto 55 KW with following conditions: i) VFD from Schneider- France, upto 415V, 50KW. ii) Enclosure & bought out items shall be from NTPC acceptable makes & iii) Engineering support for integration will be provided by Schneider/ Authorized integrator of Schneider	
					DANFOSS	Oragadam	A		(upto 690V, 1200kW), VFD drives with VFD sourced from Danfoss-Denmark/USA and Panel sourced from Rittal	
					YASAKAWA	Japan	A		VFD from Yasakawa- Japan, Upto 415V, 132KW	
					ROCKWELL AUTOMATION	SAHIBABAD	A		VFD from Rockwell(Allen Bradley)- USA, (Upto 415 V, 600 KW)	
					ABB	BANGALURU	A		VFD from ABB-Finland, Upto 690V, 750 KW	
					SIEMENS	NASIK	A		VFD from SIEMENS- Germany, Upto 690V,900KW	
					VACON	BANGALORE	A		VFD(NXP model) from VACON Finland, upto 400KW,415V and upto 900KW, 690V	
37.1	MV VFD Control Panel	CAT I								
					HITACHI HI REL POWER ELECTRONICS PVT. LTD.	SANAND	A		UP TO 11KV	
					TMEIC INDUSTRIAL SYSTEMS INDIA PRIVATE LIMITED	TUMKUR	A		UP TO 11KV	
38	Elevator (GEAR TYPE)	CAT I								
					ECE INDUSTRIES,	Ghaziabad	A			
					TECHNO INDUSTRIES LTD.,	AHMEDABAD	A			
					BHARAT ELEVATORS ENGG. PVT. LTD.,	KOLKATA	A			
					OTIS	MUMBAI	A			
					KONE ELEVATORS INDIA PVT. LTD.,	CHENNAI	A			
					OMEGA ELEVATORS	AHMEDABAD	A			
					SAMIL ELTEC CO LTD.	SOUTH KOREA	A			
					ORBIS ELEVATOR CO. LTD.,	AHMEDABAD	A			
39	HVR Transformer & EC Panel	CAT I								
					ADOR Powertron	Pune	A			
					BHEL	Jhansi	A			
40	Panel Type Hopper Heater	CAT I								
					HTD	USA	A			
					Hotfoil EHS	USA	A			
					HTD HEAT TRACE(I) Pvt Ltd	Hyderabad	A			
					Thermon	USA	A			
					Thermopads(Unit-II)	Jeedimetla	A			
					Thermon	Pune	A			
41	Neutral Grounding Transformer	CAT II								
					Pragati Electrical Pvt. Ltd.	Mumbai	A			
					Bharat Bijlee Ltd.	Navi Mumbai	A			
					Prayog Electrical Ltd.	Pune	A			
					Andrew Yule	Chennai	A			
42	LT Switchgear - Floor mounted Fixed type indoor LT Switchgear Panel (MLDB)	CAT I								
					Switching Circuits	Kolkata	A			
					Hindustan Control & equipment Ltd	Kolkata	A		With fabrication & painting at unit II & MP Electrical Narendrapur	
					Maktel	Vadodara	A		Prior Type Testing	
					Jakson	Greater Noida	A			
					Vidyut Control	Gaziabad	A			

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					Adlec Power	Rohad (Jhajjar)	A			
					Conquerent Control System	Manesar	A		Condition apply ,upto 1250A	
					Control & Schematics	Hyderabad	A			
					Positronics	Vadodara	A			
					Schneider (formerly L&T)	Mumbai / Coimbatore/Ahmednagar	A			
					GE	Bangalore	A			
					C&S Electric	Noida/ Haridwar	A			
					Schneider	Nasik	A			
					Pyrotech	Udaipur	A			
					Siemens	Kalwa	A			
					Tricolite	Sahibabad/Manesar	A			
					Schneider	Vadodara	A			
					Nitya Electrocontrols	Noida	A			
43	Rectifier Panel For Hydrogen Generation Plant	CAT I								
					RUTTONSHA INTERNATIONAL RECTIFIERS LTD	HALOL, GUJRAT	A			
					Hind Rectifier	MUMBAI/NASIK	A			
	A- MAJOR COMPONENTS OF BHEL MAKE GENERATOR (AS PER OEM SPECIFIC DESIGN):									
44	STATOR FRAME FABRICATION	CAT I								
					BHEL-HEEP	HARIDWAR	A			
44.1	STATOR FRAME MACHINING	CAT II								
					BHEL-HEEP	HARIDWAR	A			
45	SPRING BASKET	CAT II								
					BHEL-HEEP	HARIDWAR	A			
45.1	CORE BAR	CAT II								
					BHEL-HEEP	HARIDWAR	A			
45.2	FLUX TRAP	CAT II								
					BHEL-HEEP	HARIDWAR	A		STAMPINGS FROM BHEL CSU JAGDISHPUR	
45.3	FLAT SPRINGS AND BASKET ASEMBLY	CAT II								
					BHEL-HEEP	HARIDWAR	A			
45.4	RIPPLE SPRING	CAT II								
					KREMPAL GMBH	GERMANY	A			
45.5	TENSION BOLT FOR STATOR CORE (INSULATED)	CAT II								
					BHEL-HEEP	HARIDWAR	A			
45.6	CORE PRESS RING	CAT II								
					BHEL-HEEP	HARIDWAR	A			
46	ETS MATERIAL	CAT II								
		II			THYSSEN KRUPP ELECTRICAL STEEL	NASIK	A			
		II			ARCELOR MITTAL INTERNATIONAL	LUXAMBOURG	A			
		II			THYSSENKRUPP MATERIAL TRADING	GERMANY	A			
		I			POSCO	RAIGARH	A			
		I			JSW	BELLARY	A			
		II			ALLOVERZE	GERMANY	A			
47	STATOR LAMINATION	CAT II								
					BHEL-CSU	JAGDISHPUR	A			
48	BUS BAR CONNECTION TUBES	CAT II								
					LUVATA PORI	FINLAND	A			
					BUNT METAL	AUSTRIA	A			
					KME GERMANY GMBH & CO. KG	GERMANY	A			
48.1	CONNECTING BUS BAR	CAT I			BHEL	HARIDWAR	A			

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49	SOLID COPPER CONDUCTOR (FOR STATOR BAR)	CAT I								
		I			PEARL INSULATIONS	BANGLORE	A			
		I			MAHENDRA INDUSTRIES	BANGLORE	A			
		II			VONROLL	SWITZERLAND	A			
		II			GEBAUER & GRILLER	AUSTRIA	A			
49.1	HOLLOW SS CONDUCTOR (STATOR BAR)	CAT II								
		II			FINE TUBES LTD.	ENGLAND	A			
50	OVER HANG SUPPORT RING	CAT II								
					ROECHLING ENGINEERING PLASTICS	GERMANY	A			
					POWER & COMPOSITE TECHNOLOGIES	USA	A			
51	WATER SUPPLY HOSE (INSULATED)	CAT I								
		II			DR SCHNABEL GMBH & CU KG LIMBURG	GERMANY	A			
		II			CRANE RESISTOFLEX	USA	A			
		I			MIL INDUSTRIES LIMITED	CHENNAI	A			
52	BAFFLE RING & BAFFLE RING CARRIER MACHINING	CAT I								
					BHEL-HEEP	HARIDWAR	A			
53	STATOR WINDING BAR	CAT I								
					BHEL-HEEP	HARIDWAR	A			
54	GENERATOR SHAFT FORGING	CAT II								
					BUDERUS EDELSTAHL	GERMANY	A			
					JSW	JAPAN	A			
					SAARSCHMIEDE	GERMANY	A			
					JCFC	JAPAN	A			
					PJSC Energomashpetstal	Ukraine	A			
					DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO. LTD.	SOUTH KOREA	A			
					SDF-TURNI	ITALY	A			
54.1	GENERATOR SHAFT MACHINING	CAT I								
					BHEL-HEEP	HARIDWAR	A			
55	CURRENT CARRYING BOLTS FOR ROTOR	CAT II								
					BHEL HEEP	HARIDWAR	A			
56	SILVER BEARING COPPER HOLLOW STRIPS (ROTOR COIL)	CAT II								
					BUNT METAL	AUSTRIA	A			
					BOASHIDA SWISS METAL	SWITZERLAND	A			
57	ROTOR COIL FORMING	CAT II								
					BHEL HEEP	HARIDWAR	A			
58	ROTOR SLOT ANGLE	CAT II								
					SAHNEY KIRKWOOD PVT. LTD.	NASIK	A			
					ABB SWITZERLAND LTD.	SWITZERLAND	A			
					VON ROLL ISOLA	FRANCE	A			
58.1	WEDGES FOR ROTOR (DAMPER +SLOT)	CAT II								
					KM EUROPA	GERMANY	A			
					BOASHIDA SWISS METAL	SWITZERLAND	A			
					LUVATA (OUTO KUMPU PORI)	FINLAND	A			
					BUNT METAL	AUSTRIA	A			
59	RETAINING RING	CAT II								
					SAARSCHMIEDE	GERMANY	A			
					ENERGIETECHNIK	GERMANY	A			
					JSW	JAPAN	A			

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59.1	RETAINING RING MACHINING	CAT I								
					BHEL-HEEP	HARIDWAR	A			
60	FAN BLADE FOR COMPRESSOR M/C	CAT I								
					BHEL-HEEP	HARIDWAR	A			
60.1	FAN BLADE FOR COMPRESSOR (RAW MATERIAL) - HW10786 –X20Cr 13	CAT I								
					Refer Steam Turbine List for same grade material for blade bars		A			
60.2	COMPRESSOR HUB M/C & ASSEMBLY	CAT I								
					BHEL-HEEP	HARIDWAR	A			
61	BEARING SHELL FORGING (GENERATOR)	CAT II								
					BHEL-CFFP	HARIDWAR	A			
62	BEARING COMPLETE (EXCITER)	CAT I								
					RENK AG	GERMANY	A			
					ZOLLERN	BRAZIL	A			
					EURO BEARINGS	ITALY	A			
63	END SHIELD FABRICATION & MACHINING	CAT I								
					BHEL-HEEP	HARIDWAR	A			
64	TERMINAL BOX FABRICATION	CAT I								
					BHEL-HEEP	HARIDWAR	A			
64.1	TERMINAL BOX MACHING	CAT I								
					BHEL-HEEP	HARIDWAR	A			
65	HYDROGEN COOLER MAIN ITEMS	CAT I			BHEL-HEEP	HARIDWAR	A			
65.1	TUBES FOR COOLERS (BRASS / COPPER TUBES)	CAT II								
					MULTIMETALS	KOTA	A			
					Mehta Tubes Pvt Ltd	VAPI	A			
					METAL ALLOYS	JAMNAGAR	A			
65.2	FINNING OF COOLER TUBES	CAT I								
					LAXMI ENGINEERING INDUSTRIES	BHOPAL	A			
					LORD VISHWAKARMA HEAT EXCHANGE	HARIDWAR	A			
					FITWELL CORPORATION	BHOPAL	A			
65.3	HYDROGEN COOLER	CAT I								
					BHEL-HEEP	HARIDWAR	A			
66	PW COOLER & SEAL OIL COOLER	CAT I								
					BHEL-HEEP	HARIDWAR	A			
					ALFA LAVAL (INDIA) LIMITED	PUNE	A			
					TRANTER INDIA PVT. LIMITED	PUNE	A			
67	SEAL OIL PUMP & PRIMARY WATER PUMP	CAT I								
					TUSHACO PUMPS	DAMAN	A			
					KSB INDIA	PUNE	A			
					SULZER INDIA	NAVI MUMBAI	A			
68	PW SYSTEM/SKID	CAT I								
					BHEL-HEEP	HARIDWAR	A			
69	SEAL OIL SYSTEM/SKID	CAT I								
					BHEL-HEEP	HARIDWAR	A			
70	TERMINAL BUSHING	CAT II								
					TRENCH FRANCE SAS	FRANCE	A			
					HSP HOCHSPANNUNGSGERAETE GMBH	GERMANY	A			
71	HYDROGEN DRIER (REFRIGERANT TYPE)	CAT I								
					JINDAL ELECTRONICS	ROORKEE	A			
					MELLCON ENGS PVT	NEW DELHI	A			
					SPAN	ROORKEE	A			

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72	RC BLOCK	CAT I								
					ZENTRONICS SYSTEMS	HYDERABAD	A			
NOTE	**1. CHECKS FOR STATOR CORE ASSLY, STATOR WINDING ASSEMBLY, ROTOR WINDING ASSLY.(GEN.), GENERATOR ROTOR -FINAL, BEARING ASSEMBLY/SHAFT SEAL ASSEMBLY, EXCITER ASSLY (MAIN & PILOT), EXCITER TEST RUN, GENERATOR ASSEMBLY AT WORKS INCLUDING TERMINAL BUSHING & GENERATOR WORKS RUN TEST SHALL BE FINALIZED DURING DETAILED ENGINEERING/MQP FINALIZATION FOR THE RESPECTIVE OEMs.** **2. For Raw Material/Components/Items of Generator which are not appearing in the above list, their OEM approved sources shall be tied up during Detailed Engineering/ MQP finalization.**									
	B- MAJOR COMPONENTS FOR L&T MAKE GENERATOR (AS PER OEM SPECIFIC DESIGN):									
73	STATOR FRAME WITH MAN HOLE COVER FABRICATION & MACHINING (Generator Stator Frame fabrication & Machining)	CAT I								
					MITSUBISHI ELECTRIC	JAPAN	A			
					LMTG	HAZIRA	A			
74	CORE BOLT ASSEMBLY (Core Bolt assembly in stator frame)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
75	BORE RING FOR STATOR FABRICATION (Bore ring Fabrication & M/c)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
		I			MANJUNATH	BANGALORE	A			
76	END PRESSURE PLATE (CORE PRESSURE RING AND FINGER (Finger Plate)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			RV ENGG	BALLABGARH	A			
77	STATOR CORE PUNCHING & SHIELD CORE PUNCHING	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			PITTI LAMINATION	HYDERABAD	A			
78	TENSION B0LT FOR STATOR CORE(INSULATED}(CORE BOLT)	CAT II								
					MITSUBISHI ELECTRIC	JAPAN	A			
79	LEAD BOX FABRICATION & MACHINING	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
		I			JSPL	RAIPUR	A			
80	OVER HANG SUPPORT RING(RESIN CONE)	CAT II								
		II			HITACHI CHEM	JAPAN	A			
		II			PCT	USA	A			
		II			ROCHLING	GERMANY/ France	A			
81	CORE TENSION BOLT (UNINSULATED) FOR STATOR (Core bolt)	CAT I								
		II			MITSUBISHI	JAPAN	A			
		I			STAR WIRE	BALLABGARH	A			
82	OVERHANG SLIDING SYSTEM (Part of stator winding Assembly)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			

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		I			LMTG	HAZIRA	A			
83	BUS RING FABRICATION (Phase Ring)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
84	RIPPLE SPRING	CAT III								
		III			MITSUBISHI ELECTRIC	JAPAN	A			
		III			AUGUST KREMPEL	GERMANY	A			
85	SOLID COPPER CONDUCTOR (FOR STATOR BAR)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			UNIMAC	JAPAN	A			
		I			MAHENDRA IND	BANGALORE	A			
		II			GEABUR AND GRILER	AUSTRIA	A			
		II			HITACHI MAGNET WIRE	JAPAN	A			
		I			PEARL INSULATION	BANGALORE	A			
		I			COSMOS	BANGALORE	A			
86	HOLLOW COPPER CONDUCTOR (STATOR BAR)	CAT I								
		II			UNIMAC	JAPAN	A			
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			ISOLA	SWITZERLAND	A			
		I			MAHENDRA INDUSTRIES	BANGALORE	A			
		I			PEARL	BANGALORE	A			
		I			COSMOS	BANGALORE	A			
87	TERMINAL BUSHING (CONDENSER TYPE) (Lead Bushing)	CAT II								
		II			EMIL HAFLEY(TRENCH)	SWITZERLAND	A			
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			TRENCH	SWITZERLAND	A			
88	SUPPORT BRACKET	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMB	HAZIRA	A			
89	CONNECTING BUS BAR (PHASE BELTS) FABRICATION	CAT II								
		II			SUMIKEI COPPER	JAPAN	A			
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			HITACHI CABLE	JAPAN	A			
		II			ORIENTAL COPPER	THAILAND	A			
90	INSULATING HOSES FOR STATOR (WATER SUPPLY HOSES)	CAT I								
		II			SAKURA RUBBER	JAPAN	A			
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			CRANE RESISTOFLEX	USA	A			
					DR SCHNABEL	GERMANY	A			
91	SHIELD PLATES / SHIELD CLAMPER	CAT I								
		III			MITSUBISHI ELECTRIC	JAPAN	A			
		I			RV ENGG	FARIDABAD	A			
		I			AK Multi metal	PUNJAB	A		CS Casting for Generator Bracket Hub of Bearing bracket, Ni-alloy casting for Generator Blower Shroud & Shield clamper, nodular cast iron casting for Shroud support.	
92	STATOR WINDING ASSLY	CAT I								

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		I			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
93	GENERATOR SHAFT FORGING	CAT II								
					SAARSCHMIEDE	GERMANY	A			
					Buderus Edelstahl	GERMANY	A			
					JSW	JAPAN	A			
					SDF	ITALY	A			
					CRUIST FORCE	FRANCE	A			
					OMZ	RUSSIA	A			
					FORGE MASTER	UK	A			
					JCFC	JAPAN	A			
94	GENERATOR ROTOR MACHINING	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			NUGO ROMANO	ITALY	A			
		I			LMTG	HAZIRA	A			
95	ETS MATERIAL (Core material)	CAT I								
		I			THYSSON KRUPP	NASIK	A			
		II			NIPPON	JAPAN	A			
		II			JFE	JAPAN	A			
		I			POSCO	RAIGARH	A			
		I			JSW	BELLARY	A			
		II			MITSUBISHI	JAPAN	A			
96	RETAINING RING FORGING(MAT- CrMn 1818)	CAT II								
					SAARCSHMIEDE	GERMANY	A			
					JSW	JAPAN	A			
					KOBE STEEL	JAPAN	A			
					FORTEH	FRANCE	A			
97	RETAINING RING MACHINING	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
98	SILVER BEARING COPPER HOLLOW STRIPS (ROTOR COIL)	CAT II								
					ORIENTAL COPPER	THAILAND	A			
					HITACHI CABLE	JAPAN	A			
					FURUKAWA ELECTRIC	JAPAN	A			
					KM EUROPA	GERMANY	A			
					OTOKUMPUTURI (Luvata)	FINLAND	A			
					GINDRE	FRANCE	A			
99	FIELD LEAD CORE BAR FOR ROTOR WITH D LEAD(RAW MATERIAL) (Field lead)	CAT II								
					ORIENTAL COPPER	THAILAND	A			
					BAOSHIDA SWISS METAL	GERMANY	A			
					KME	GERMANY	A			
					Agarwal industries (Fabrication)	Mandideep	A			
					Rachna Metals (Raw material)	GHAZIABAD	A			
					INDIAN METAL & ALLOY	KOLKATA	A			
					HITACHI CABLE	JAPAN	A			
100	CURRENT CARRYING BOLTS FOR ROTOR (Radial Lead)	CAT II								

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					MITSUBISHI ELECTRIC	JAPAN	A			
101	ROTOR COIL FORMING	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
102	STATOR Coil Manufacturing	CAT I								
					MITSUBISHI ELECTRIC	JAPAN	A			
					LMTG	HAZIRA	A			
103	ROTOR SLOT WEDGES & DAMPER WEDGES FABRICATION & MACHINING (Rotor wedge & Damper bar)	CAT II								
					MITSUBISHI ELECTRIC	JAPAN	A			
					MURAKAMI	ompress	A			
					FIAV	ITALY	A			
					OTOKUMUPORI (LUVATA)	FINLAND	A			
					METALLURGICA MINOTI	ITALY	A			
					Damper Wedges - Gindre India Components Pvt. Ltd	Gurgaon	A			
104	ROTOR WINDING ASSLY (GEN) INCL ROTOR WEDGES (Rotor winding)	CAT I								
					MITSUBISHI ELECTRIC	JAPAN	A			
					LMTG	HAZIRA	A			
105	GENERATOR ROTOR-FINAL assembly & Balancing Process (Rotor final assembly & HSB)	CAT I								
					MITSUBISHI ELECTRIC	JAPAN	A			
					LMTG	HAZIRA	A			
106	COMPRESSOR BLADE ASLY ON ROTOR (Part of generator final assembly)	CAT I								
					MITSUBISHI ELECTRIC	JAPAN	A			
					LMTG	HAZIRA	A			
107	D LEAD (FL CORE BAR) & CONTACT BOLT FOR SLIP RING (Axial lead)	CAT II								
					MITSUBISHI ELECTRIC	JAPAN	A			
108	TUBES FOR CONNECTING BUS BAR (Phase ring tubes)	CAT II								
					ORIENTAL COPPER	THAILAND	A			
					ALCOBEX	JODHPUR	A			
					S H Copper	Japan	A			
					IPCL	BHAVNAGAR	A			
					HITACHI CABLE	JAPAN	A			
109	END SHIELD FABRICATION & MACHINING (Generator Bearing Bracket)	CAT I								
					MITSUBISHI ELECTRIC	JAPAN	A		For End Shield Fabrication Only	

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					SHAPE	HARIDWAR	A			
					MANJUNATH	BANGLORE	A			
110	BEARING SHELL(GEN& SLIP RING)-FORGING (part of generator Bearing)	CAT II								
					MITSUBISHI ELECTRIC	JAPAN	A			
					OMEGA THERMIT	BHOPAL	A			
					DUM DUM	KOLKATA	A			
					EURO BEARING	ITALY	A			
111	CENTERING RING FORGING (END PLATE)	CAT I								
		I			GOODLUCK	GHAZIABAD	A			
		II			NISHIMAKI IRON WORKS	JAPAN	A			
		I			BAY FORGE	CHENNAI	A			
112	BEARING SHELL (GEN & SLIP RING) M/C (Generator bearing)	CAT III								
					DSE	KOREA	A			
					DYM	KOREA	A			
					MITSUBISHI ELECTRIC	JAPAN	A			
					OMEGA THERMIT	BHOPAL	A			
					DUM DUM	KOLKATA	A			
					EURO BEARING	ITALY	A			
					WAUKESHA BEARING	USA	A			
113	INTERMEDIATE RING FORGING (Space ring forging)	CAT I								
					Good luck (For forging)	FARIDABAD	A			
					LMTG (For m/c)	Hazira	A			
114	PRIMARY WATER PUMP	CAT I								
					MATHER & PLATT	PUNE	A			
					KSB INDIA	Nasik	A			
					SULZER PUMPS	NAVI MUMBAI	A			
					EBARA SEISAKUSHO	JAPAN	A			
115	HYDROGEN DRIER	CAT I								
		I			JINDAL	ROORKEE	A			
		II			MITSUBISHI ELECTRIC	JAPAN	A			
116	TUBES FOR COOLERS (BRASS/COPPER TUBES) (GENERATOR) (Gas cooler tubes)	CAT I								
					ALCOBEX	JODHPUR	A			
					MULTIMETAL	KOTA	A			
117	PW PUMP & FILTER UNIT ASSEMBLY (SKID)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		II			JIMC	KOREA	A			
		I			LMTG	HAZIRA	A			
		I			LINCOLN	PUNE	A			
118	PW COOLER & SEAL OIL COOLER	CAT I								
		I			ALFA LAVAL	PUNE	A			
		II			JIMC	KOREA	A			
		I			TRANTER	PUNE	A			

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800MW) Package/ पैकेज: EPC PACKAGES Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची	DOC. NO./ दस्तावेज सं.: REVISION NO : 00 DATE/ तिथि : 09.05.2023 SUB-SYSTEM उप-प्रणाली: QA-ELEC

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119	SLIP RING FORGING & MACHINING	CAT II								
					LMTG (For machining)	Hazira	A			
					Good luck (For forging)	FARIDABAD	A			
120	DC LEAD ASSLY FOR SLIP RING (Slip ring lead)	CAT I								
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			LMTG	HAZIRA	A			
121	SLIP RING ASSLY (Part of Generator Final assembly)	CAT I								
					LMTG	HAZIRA	A			
122	SLIP RING SHAFT ASSLY	CAT II								
					MITSUBISHI ELECTRIC	JAPAN	A			
123	AIR COOLER FOR BRUSH GEAR (Slip ring fan)	CAT I								
					LMTG	Hazira	A			
124	SEAL OIL PUMP	CAT I								
		I			TUSHACO PUMP	DAMAN	A			
		II			KOSAKA LABORATORY	JAPAN	A			
		II			SHIMADZU	JAPAN	A			
125	FAN BLADE FORGING & MACHINING (Blade for slip ring fan)	CAT I								
		II			MURAKAMI SEISAKUSHO	JAPAN	A			
		I			STAR WIRE	BALLABHGARH	A			
		II			MITSUBISHI ELECTRIC	JAPAN	A			
		I			GOODLUCK ENGG	GHAZIABAD	A			
126	SEAL OIL VALVE RACK	CAT II								
					JIMC	KOREA	A			
127	SEAL OIL STORAGE TANK (LOOP SEAL TANK)	CAT I								
					JIMC	KOREA	A			
					Gujarat infra	Vadodara	A			
					Shree sarjan	Vadodara	A			
128	HYDROGEN COOLER (Gas cooler)	CAT I								
					KITASHIBA ELECTRIC	JAPAN	A			
					ENERGEN	KOREA	A			
					GEA	GERMANY	A			
					LAXMI	BHOPAL	A			
129	CARBON BRUSH	CAT II								
					MORGAN	KOREA	A			
					MERSEN	BANGLORE	A			
					VIDYUT CARBON	HARDWAR	A			
					ASSAM CARBON	KOLKATA	A			
130	EXCITATION SYSTEM	CAT I								
					ALSTOM	FRANCE	A			
					ABB	SWITZERLAND	A			
					SIEMENS	AUSTRIA	A			
					BHEL	BANGLORE	A			
					MITSUBISHI ELECTRIC	JAPAN	A			
131	EXCITATION TRANSFORMER	CAT I								
					REFER SEPARATE LIST					
132	EXCITATION AC/DC BUS DUCT	CAT I								

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					REFER SWITCHGEAR AND BUS DUCT LIST				
133	END WINDING VIBRATION SYSTEM	CAT II							
					IRIS	Canada	A		
					Vibro systems	Canada	A		
134	Rotor slot angle (Slot cell)	CAT II							
					PCT	USA	A		
					MITSUBISHI ELECTRIC	JAPAN	A		
					VON ROLLA ISOLA	FRANCE	A		
135	CENTRING RING & INTERMEDIATE RING MACHINING (End plate & space ring)	CAT I							
					MITSUBISHI ELECTRIC	JAPAN	A		
					Good luck (For forging only)	Faridabad	A		
					LMTG (For machining)	HAZIRA	A		
136	ROTOR FLUX MONITORING SYSTEM	CAT II							
					GE	USA	A		
					MITSUBISHI ELECTRIC	JAPAN	A		
					Vibro systems	Canada	A		
					IRIS	CANADA	A		
137	FIELD LEAD CORE BAR FOR ROTOR WITH D LEAD	CAT II							
					MITSUBISHI ELECTRIC	JAPAN	A		
138	Generator Blower shroud	CAT I							
					RV Casting	Faridabad	A	(M/C by LMTG)	
139	Bearing Bracket Hub casting	CAT I							
					VAISHNOV STEEL	MUZAFFAR NAGAR	A		
					LMTG HCU	Hazira	A		
140	Shroud support	CAT I							
					R V Casting	Faridabad	A	(M/C by LMTG)	
141	Blower hub Forging	CAT I							
					Goodluck	Gaziabad	A	(M/C by LMTG)	
142	Bore ring Forging	CAT I							
					CHW	Greater noida	A	(M/C by LMTG)	
143	Rotor & stator blade	CAT I							
					LMTG (for machining)	Hazira	A		
					Star wire (For Rotating blade raw material)	BALLABHGARH	A		
					As per NTPC approved list (For ST blade raw material also)		A		
144	Center wedge & end wedge machining	CAT I							
					Moldpro	Vadodara	A		
NOTE	**1.CHECKS FOR STATOR CORE ASSLY, STATOR WINDING ASSEMBLY, ROTOR WINDING ASSLY.(GEN.), GENERATOR ROTOR -FINAL, BEARING ASSEMBLY/SHAFT SEAL ASSEMBLY, EXCITER ASSLY (MAIN & PILOT)/ SLIP RING SHAFT ASSEMBLY WITH BRUSH GEARS, EXCITER TEST RUN, GENERATOR ASSEMBLY AT WORKS INCLUDING TERMINAL BUSHING & GENERATOR WORKS RUN TEST SHALL BE FINALIZED DURING DETAILED ENGINEERING/MQP FINALIZATION FOR THE RESPECTIVE OEMs.** **2. For Raw Material/Components/Items of Generator which are not appearing in the above list, their OEM approved sources shall be tied up during Detailed Engineering/ MQP finalization.**								
	C- MAJOR COMPONENTS FOR GE MAKE GENERATOR (AS PER OEM SPECIFIC DESIGN):								
145	Stator Frame with manhole cover (Fabrication & Machining)	CAT I							
					ALSTOM Power Sp. z o.o,	Poland	A		

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					Alstom Bharat Forge Power Limited	Sanand	A			
					ISGEC	YAMUNA NAGAR	A			
146	Key Bar (Fabrication & Machining)	CAT I								
		II			Bright Steel	UK	A			
		II			Jordan Matcon	Poland	A			
		II			ALSTOM Power Sp. z o.o	Poland	A			
		II			Somet	Poland	A			
		II			Empaz	Poland	A		Only M/c	
		I			Shiv Engineering	vadodara	A		Only M/c	
		I			Alstom Bharat Forge Power Limited	Sanand	A		Only M/c	
		I			Shape Engg	Haridwar	A		Only M/c	
147	Dovetail for Stator (Aluminnium key profile)	CAT II								
					Sapa Profiles Kft.	Hungary	A			
					ALSTOM Power Sp. z o.o,	Poland	A			
					Somet	Poland	A			
148	End Presure Plate (Laminated Press plate)	CAT II								
					ALSTOM Power Sp. z o.o,	Poland	A			
					Generpro	Sweden	A			
149	Stator Core Punching	CAT II								
					ALSTOM	France	A			
					ALSTOM Power Sp. z o.o,	Poland	A			
					Donako	Poland	A			
					Pitti Laminations	Hyderabad	A			
					BHEL	Jagdishpur	A			
150	Core Tension Bolt for Stator									
		I			Starwire	Ballabhgarh	A			
		II			Boehler Ybbstal Profil	Austria	A			
		II			Energietechnik Essen	Germany	A			
		II			Empaz	Poland	A			
		I			Kalyani carpenter	Pune	A			
151	Insulation of Core Tension Bolt for Stator	CAT II								
					Empaz	Poland	A			
					ALSTOM Power Sp. z o.o,	Poland	A			
152	Solid Copper Coductor for Stator Bar	CAT I								
					VonRoll	Switzerland	A			
					Pearl	Bangalore	A			
					Cosmos	Bangalore	A			
					Mahindra	Bangalore	A			
					Geaber & Greuller	Austria	A			
153	Hollow Stainless Steel Conductor for Stator Bar	CAT II								
					Fine Tubes	UK	A			
					Fischer	Austria	A			
154	Stator Bars	CAT I								
					ALSTOM Power Sp. z o.o,	Poland	A			
155	Tubes for Connection Bus Bar	CAT II								
					KME	Germany	A			
					Luvata Pori	Finland	A			
					Multimetal	Jamnagar	A			
156	Connection Bus Bar (Phase Connector)	CAT II								

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					PPU Wojtera	Poland	A			
					ALSTOM Power Sp. z o.o,	Poland	A			
157	Insulating Hoses for Stator (Water Supply Hoses)	CAT II								
					Dr. Schnabel	Germany	A			
					Siemens	Germany	A			
					Crane Resistoflex	USA	A			
158	Winding Head Support Ring	CAT II								
					Röchling Permali	Germany	A			
					Kompozyty	Poland	A			
					PCT	USA	A			
					Siemens	Germany	A			
					Texplas	Haridwar	A			
159	Spring for Winding Head Assembly (Console)									
		CAT II			Wolfensberger	Switzerland	A			
		CAT I			R V Engg	Ballabgarh	A			
160	Generator Shaft Forging	CAT II								
					Saarschmiede	Germany	A			
					Buderus	Germany	A			
					JSW	Japan	A			
					JCFC	Japan	A			
					SdF Terni	Italy	A			
					SUMITOMO	JAPAN	A			
					FORGEMASTER	UK	A			
					OMZ	RUSSIA	A			
161	Generator Shaft Machining	CAT I								
					Alstom (Switzerland) Ltd.	Switzerland	A			
					Alstom Bharat Forge Power Limited	Sanand	A			
162	Centering Ring Forging	CAT II								
					Bharat Forge	Pune	A			
					Schmiedewerk Stoss	Switzerland	A			
					FORGITAL SPA VELO D ASTICO LOCALITA	Italy	A			
					Bay Forge	Chennai	A			
163	Centering Ring Machining	CAT II								
					Alstom (Switzerland) Ltd.	Switzerland	A			
					Bharat Forge Limited	Satara	A			
164	Retaining Ring FORGING (Mat.18-18Cr-Mn)	CAT II								
					Energietechnik Essen	Germany	A			
					Saarschmiede	Germany	A			
					JSW	Japan	A			
165	Retaining Ring Machining	CAT II								
					Alstom (Switzerland) Ltd.	Switzerland	A			
					Alstom Bharat Forge Power Limited	Sanand	A			
166	Rotor Copper Profile	CAT II								
					Swissmetall	Switzerland	A			
					Wieland	Germany	A			
					Buntmetall	Austria	A			
167	Field Lead Core Bar for Rotor	CAT II								

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					Swissmetall	Switzerland	A			
					Buntmetall	Austria	A			
					Wieland	Germany	A			
168	Radial Bolt for Rotor	CAT II								
					Alstom	Switzerland	A			
					Starwire	Ballabgarh	A			
					Atals	Hydrabad			only for Machining	
169	Rotor Coil Forming	CAT I								
		CAT II			Alstom (Switzerland) Ltd.	Switzerland	A			
		CAT I			Alstom Bharat Forge Power Limited	Sanand	A			
170	Rotor Slot Wedges & Damper wedges	CAT II								
					Swissmetall	Switzerland	A			
					Wieland	Germany	A			
					Luvata	Finland	A			
					Buntmetall	Austria	A			
171	Generator Rotor Final	CAT I								
					ALSTOM Power Sp. z o.o,	Poland	A			
					Alstom (Switzerland) Ltd.	Switzerland	A			
172	Hydrogen Blower	CAT II								
					FIMA	Germany	A			
172.1	Hydrogen Blower Assembly	CAT II								
					Alstom (Switzerland) Ltd.	Switzerland	A			
173	Terminal Bushing(Condenser type)	CAT II								
					Trench (Emily new name)	France	A			
					HSP	Germany	A			
174	Terminal Box Fabrication	CAT II								
					ALSTOM Power Sp. z o.o,	Poland	A			
					ISGEC	Yamunanagr	A			
					Shape Engg	Haridwar	A			
174.1	Terminal Box Machining	CAT II								
					ALSTOM Power Sp. z o.o,	Poland	A			
					Energy machines	Ahmedabad	A			
175	End Shield Fabrication	CAT I								
					ALSTOM Power Sp. z o.o,	Poland	A			
					Shape Engg	Haridwar	A			
					ISGEC	Yamunanagr	A			
175.1	End Shield Machining	CAT I								
					ALSTOM Power Sp. z o.o,	Poland	A			
					ISGEC	Yamunanagr	A			
					Energy Machines	Ahmedabad	A			
176	Seal Assembly (Ring & Housing)	CAT II								
					ALSTOM Power Sp. z o.o,	Poland	A			
177	Stator water cooler	CAT I								
					Alpha Laval	Sweden	A			
					GEA	Germany	A			
					TRANTER	Pune	A			
					IDMC Ltd	Anand	A			
178	Stator water cooling unit	CAT II								

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					Rockfin	Poland	A			
179	Stator water cooling pump	CAT II								
					ALWELLER	GERMANY	A			
					KSB	Pune	A			
					Ebera	Japan	A			
					SULZER	Navi Mumbai	A			
180	Slip Ring Shaft Forging	CAT II								
					See Generator Forging Suppliers					
					Bharat forge	Pune	A			
					BAY FORGE	Chennai	A			
180.1	Slip Ring Shaft Machining	CAT II								
					Alstom (Switzerland) Ltd.	Switzerland	A			
					Euroflex Transmission(india) pvt. Ltd.	Hydrabad	A			
181	DC-Lead Assembly for Slip Ring	CAT II								
					Alstom (Switzerland) Ltd.	Switzerland	A			
181.1	Slip Ring Shaft Assembly	CAT I								
					Alstom (Switzerland) Ltd.	Switzerland	A			
					Euroflex Transmission(india) pvt. Ltd.	Hydrabad	A	Only M/c		
182	Seal Oil Pump	CAT I								
					Allweiler	Germany	A			
					Allweiler	DAMAN	A			
					UT PUMP	FARIDABAD	A			
183	Seal Oil Cooler	CAT I								
					GEA	Germany	A			
					Alpha Level	EUROPE	A			
					Alfa level	Satara	A			
					ALPHA LAVAL	Sweden	A			
					TRANTER	Pune	A			
184	Seal Oil Unit	CAT II								
					Rockfin	Poland	A			
185	Hydrogen Cooler	CAT I								
					GEA	Germany	A			
					Kelvion	Pune	A			
					Laxmi	Bhopal	A			
186	Hydrogen dryer(Refrigrant Type)	CAT I								
					Jindal electrical	Roorkee	A			
					Melcon engg	G. NOIDA	A			
187	Copper connector between main rotor and slip ring shaft(radial stud)	CAT II								
					SWISS METAL	Switzerland	A			
					Pfisterer Sefag AG	Germany	A			
188	Carbon Brush & Holders	CAT III								
					Morgan	Germany	A			
					Vidhyut Carbon	Haridwar	A			
					National Carbon	Kolkata	A			
					G. Dietrich (belongs to CL)	Germany	A			
189	ETS Material	CAT I								
		CAT I			Thyseen Krupp	NASIK	A			

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		CAT II			Mitsubishi	Japan	A		
		CAT II			Arcelor	Luxemburg	A		
		CAT II			Salzgietter	Germany	A		
		CAT II			Alloverze	Germany	A		
		CAT I			JSW	BELLARY	A		
		CAT II			JFE	Japan	A		
190	Radial Leads (Slip Ring Shaft)	CAT II							ALSO FOR SL NO 71
					Schmelzmetall AG	Switzerland	A		
191	Connection Rod for main Rotor	CAT II							
					Weiland werke	Germany	A		
					Swiss Metal	Switzerland	A		
192	Excitation System	CAT I							
					Alstom Power Sp. z o.o	Poland	A		
					GE power	NOIDA	A		
193	GHM(Generator health monitoring system)	CAT I							
					GE Power	Noida	A		
194	Excitation AC-DC Bus duct	CAT I							
					Etacom	Belgium	A		for Cast Resin
					REEP	Chennai	A		
					C&S	NOIDA	A		
NOTE	**1. CHECKS FOR STATOR CORE ASSLY, STATOR WINDING ASSEMBLY, ROTOR WINDING ASSLY.(GEN.), GENERATOR ROTOR -FINAL, BEARING ASSEMBLY/SHAFT SEAL ASSEMBLY, EXCITER ASSLY (MAIN & PILOT)/ SLIP RING SHAFT ASSEMBLY WITH BRUSH GEARS, EXCITER TEST RUN, GENERATOR ASSEMBLY AT WORKS INCLUDING TERMINAL BUSHING & GENERATOR WORKS RUN TEST SHALL BE FINALIZED DURING DETAILED ENGINEERING/MQP FINALIZATION FOR THE RESPECTIVE OEMs.** **2. For Raw Material/Components/Items of Generator which are not appearing in the above list, their OEM approved sources shall be tied up during Detailed Engineering/ MQP finalization.**								
	D- MAJOR COMPONENTS FOR TOSHIBA MAKE GENERATOR (AS PER OEM SPECIFIC DESIGN):								
195	STATOR FRAME WITH MAN HOLE COVER FABRICATION & MACHINING	CAT I							
					TOSHIBA	JAPAN	A		
					TJPS	CHENNAI	A		
196	KEY BAR FABRICATION AND MACHINING	CAT I							
					TOSHIBA	CHENNAI	A		
					Kalyani Carpenter (Material)	Pune	A		
					Punj Lloyd (Machining)	Gwalior	A		
197	KEY BAR ASSEMBLY	CAT I							
					TOSHIBA	JAPAN	A		
					TJPS	CHENNAI	A		
198	DOVETAIL FOR STATOR	CAT I							
					TOSHIBA	JAPAN	A		
					TJPS	CHENNAI	A		
199	END PRESSURE PLATE - Fabrication								
		II			TOSHIBA	JAPAN	A		
		I			TJPS	CHENNAI	A		
199.1	End Pressure Plate - Machining	CAT II							
					TJPS	CHENNAI	A		
					Sharp Engineering	Pune	A		
					N.S Engg	Hyderabad	A		
200	STATOR CORE PUNCHING								
		I			TJPS	CHENNAI	A		
		II			TOSHIBA	JAPAN	A		
201	TERMINAL BOX FABRICATION& MACHINING								
		II			TOSHIBA	JAPAN	A		
		I			TJPS	CHENNAI	A		

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		I			Leo Prime	Chennai	A			
202	OVER HANG SUPPORT RING	CAT II								
					HITACHI CHEMICAL	JAPAN	A			
203	SOLID COPPER CONDUCTOR (FOR STATOR BAR)	CAT II								
					UNIMAC	JAPAN	A			
204	HOLLOW COPPER CONDUCTOR (FOR STATOR BAR)	CAT II								
					UNIMAC	JAPAN	A		HOLLOW CONDUCTOR (RAW MATERIAL FROM FURUKAWA-JAPAN)	
205	TERMINAL BUSHING (CONDENSER TYPE)	CAT II								
					PASSONI & VILLA	ITALY	A			
					Trench	Switzerland	A			
					Toshiba	Japan	A			
206	CONNECTING BUS BAR (PHASE BELTS) FABRICATION	CAT II								
					SUMIKEI COPPER	JAPAN	A			
					Oriental Copper	Thailand	A			
					Hitachi Cable	JAPAN	A			
207	INSULATING HOSES FOR STATOR (WATER SUPPLY HOSES)	CAT II								
					SAKURA RUBBER	JAPAN	A			
					CRANE RESISTOFLEX	USA	A			
					MIL	Chennai	A			
208	GENARATOR SHAFT FORGING	CAT II								
					SAARSCHMIEDE	GERMANY	A			
					SDF ITALY	ITALY	A			
					JCFC	JAPAN	A			
					JSW	JAPAN	A			
					BUDERUS EDESTAHL	GERMANY	A			
					Doosan	Korea	A			
208.1	GENERATOR SHAFT MACHINING	CAT I								
					TOSHIBA	JAPAN	A			
					TJPS	CHENNAI	A			
209	ETS MATERIAL	CAT II								
					NIPPON	JAPAN	A			
					JFE	JAPAN	A			
210	RETAININIG RING FORGING (MAT-CrMn 18-18)	CAT II								
					SAARCSHMIEDE	GERMANY	A			
					JSW	JAPAN	A			
210.1	RETAINING RING MACHINING	CAT II								
					TOSHIBA	JAPAN	A			
					TJPS	Chennai	A			
211	SILVER BEARING COPPER HOLLOW STRIPS (ROTOR COIL)	CAT II								
					ORIENTAL COPPER	THAILAND	A			
212	FIELD LEAD CORE BAR FOR ROTOR WITH D LEAD	CAT II								
					KME	GERMANY	A			
					ORIENTAL COPPER	THAILAND	A			
					BAOSHIDA SWISS METAL	GERMANY	A			
213	CURRENT CARRYING BOLTS FOR ROTOR	CAT II								
					TOYO KOGYO	JAPAN	A			
					TOSHIBA	JAPAN	A			
214	ROTOR COIL FORMING	CAT II								
					TOSHIBA	JAPAN	A			
					TJPS	Chennai	A			

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215	ROTOR SLOT WEDGES & DAMPER WEDGES FABRICATION & MACHINING	CAT II								
					MURUKAMI	JAPAN	A			
					FIAV	ITALY	A			
					TOSHIBA	JAPAN	A			
216	GENERATOR ROTOR -FINAL	CAT I								
					TOSHIBA	JAPAN	A			
					TJPS	Chennai	A			
217	MOLDED INSULATION RING (FAN NOZZLE RIM)	CAT I								
		II			PCT	USA	A			
		I			PERMALI WALACE	Bhopal	A			
218	FAN BLADE ASLY ON ROTOR									
		II			TOSHIBA	JAPAN	A			
		I			TJPS	Chennai	A			
219	D LEAD (FL CORE BAR)& CONTACT BOLT FOR SLIP RING									
		I			TJPS	Chennai	A			
		II			TOSHIBA	JAPAN	A			
220	END SHIELD FABRICATION & MACHINING	CAT I								
					SHAPE	HARIDWAR	A			
					TJPS	Chennai	A			
221	Bearing (CE & TE)									
		II			DSE	Korea	A			
		I			Omega Renk	Bhopal	A			
		II			DYM	Korea	A			
222	CENTERING RING FORGING									
		I			BAY FORGE	CHENNAI	A			
		II			MINATO KIKO	JAPAN	A			
		II			NISHIMAKI IRON WORKS	JAPAN	A			
		I			GOODLUCK	GHAZIABAD	A			
223	SEAL ASSLY (RING & HOUSING)	CAT II								
					TOSHIBA	JAPAN	A			
224	SLIP RING SHAFT ASSLY									
		I			TJPS	Chennai	A			
		II			TOSHIBA	JAPAN	A			
225	FAN BLADE FORGING & MACHINING									
		II			MURAKAMI SEISAKUSHO	JAPAN	A			
		I			TJPS	Chennai	A			
		I			Azad	Hyderabad	A			
		II			TOSHIBA	JAPAN	A			
226	HYDROGEN COOLER	CAT II								
					ENERGYEN	KOREA	A			
					KITASHIBA ELECTIRC	JAPAN	A			
					Karnataka Gas Coolers	Bangalore	A			
227	AC/DC BUSDUCT	CAT I								
					SPACEAGE	GURGAON	A			
					REEP	CHENNAI	A			
					C&S ELETRIC	NOIDA/HARIDWAR	A			
228	EXCITATION TRANSFORMER (DRY TYPE)	CAT I								
					RITZ	GERMANY	A		UPTO 8 MVA	
					BHEL	JHANSI	A		UPTO 6 MVA	
229	EXCITATION SYSTEM	CAT I								
					TOSHIBA	JAPAN	A			
					ABB	Bangalore	A			
230	HYDROGEN DRIER	CAT I								

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					JINDAL ELECTRONICS	ROORKEE	A			
					MELCON ENGG	GREATER NOIDA	A			
					SPAN MANUFACTURING CO PVT LTD	ROORKEE	A			
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Items Identified as Main Contractor approved sources										
MC 1	Tubular Type Heater	III								
MC 2	Interlocks for ESP	III								
MC 3	Porcelain Bushing Insulators	III								
MC 4	Continous Cast Copper Rod	III								
MC 5	Unimpregnated Densified Wood	III								
MC 6	Marshalling Box Components	III								
MC 8	Air Cell	III								
MC 9	Terminal Connector	III								
MC 10	Oil Flow Indicator	III								
MC 11	Pressure Relief Valve	III								
MC 12	Magnetic Oil Level Gauge	III								
MC 13	OTI/WTI (RTD Type)	III								
MC 14	Off-Circuit Tap Changer	III								
MC 15	Cooling Fan & Motor Assembly	III								
MC 16	Silica Gel Breather	III								
MC 17	Bushing Metal Parts	III								
MC 18	Copper Conductor Bus Bar	III								
MC 19	Copper Foil/Sheet for Dry Type Transformer	III								
MC 20	Core cheese assembly for Bus Reactor	III								
MC 21	Core Clamps & OLTC Bracket, Core/Tie Bolt, Rods & Nuts	III								
MC 22	Epoxy Casting Material for Dry Type Transformer	III								
MC 23	Fibre Glass Covered Copper Conductor for Dry Type Transformer	III								
MC 24	Fibre Glass Sheet for Dry Type Transformer	III								
MC 25	Gaskets	III								
MC 26	Hardwares	III								
MC 27	Motor for OLTC	III								
MC 28	Sheet Metal Enclosure for Dry Type Transformer	III								
MC 29	Steel Plate & Pipe	III								
MC 30	Tank Fabrication up to 5 MVA	III								
MC 31	Temperature Surveillance Unit for Dry Type Transformer	III								
MC 32	Valves (for Radiator/Gun Metal/CI valves,etc.)	III								
MC 33	Gas Collecting Device	III								
MC 34	Networking of Numerical Relay	*(with Switchgear MQP)								
MC 35	Paint	III								
MC 36	Copper for Copper Flats & Copper strips/flexibles	III								
MC 37	OIL PURIFYING EQUIPMENT	CAT III								
MC 38	VACUUM PUMP WITH MOTOR	CAT III								
MC 39	ON LINE MOISTURE REMOVAL SYSTEM	CAT III								
MC 40	Oil Tanker (wheel mounted),10 kL capacity	CAT III								
MC 41	POST INSULATOR	CAT II								

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S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	
MC 42	DISC INSULATOR/ PIN INSULATOR	CAT II								
MC 43	FIBRE OPTIC CABLE	CAT I								
MC 44	EVENT LOGGER	CAT III								
MC 45	GPS TIME SYNCHRONISATION EQUIPMENT	CAT III								
MC 46	RELAY TEST KIT	CAT III								
MC 47	DISTURBANCE RECORDER	CAT III								
MC 48	OPERATIONAL ANALYSER WITH DCRM KIT	CAT III								
MC 49	FOTE	CAT II								
MC 50	OPGW	CAT II								
MC 51	LARGE VIDEO SCREEN (LVS)	CAT III								
MC 52	BELT WEIGHER	CAT II								
MC 53	WEIGH BRIDGE	CAT I								
MC 54	IN LINE MAGNETIC SEPARATOR / SUSPENDED MAGNET	CAT II								
MC 55	METAL DETECTOR	CAT II								
MC 56	CABLE REELING DRUMS	CAT II								
MC 57	PIANO SWITCHES	CAT III								
MC 58	PULL CORD / BELTSWAY / INDICATION SYSTEM	CAT II								
MC 59	ELECTRONIC SPEED SWITCH, ZSS, TILT SWITCH, MAGNETIC SWEITCH, PROXIMITY SWITCH	CAT II								
MC 60	HEAVY DUTY LIMIT SWITCHES	CAT II								
MC 61	UNDER BELT SWITCH	CAT II								
MC 62	GI CABLE TRAYS AND ACCESSORIES (LADDER & PERFORATED TYPE), fitting & accessories including bends	CAT II								
MC 63	GI FLEXIBLE CABLE TRAY SUPPORT SYSTEM	CAT II								
MC 64	Cable termination kits & straight through jointing kit	CAT II								
MC 65	Lighting fixtures with accessories (Filament type)	CAT II								
MC 66	Lighting fixtures with accessories (LED type)	CAT II								
MC 67	VFD MOTOR	CAT I								
MC 68	HFTR SET (Power Plus)	CAT I								
MC 69	Insulators for ESP (Bushing, Support , Shaft)	CAT III								
MC 70	Fire sealing system - Type A Material supplier	CAT II								
MC 71	Fire sealing system - Type B Material supplier	CAT III								
MC 72	Executing Agency for Fire sealing system	CAT I								
MC 73	Porcelain Insulator	CAT III								
MC 74	Lighting & Welding Transformer	CAT III								
MC 75	Industrial /welding receptacles & boxes	CAT III								
MC 76	LT Switchgear - Wall mounted fixed type indoor / outdoor LT Switchgear non compartmentalized Panel (Lighting panels / AC / DC Fuse boards etc.)	CAT II								
	L2 LIST OF MAJOR EQUIPMENT(POWER TRANSFORMER)								SOURCES FOR THESE ITEMS SHALL BE FINALIZED DURING DETAILED ENGINEERING AND MQP FINALIZATION	
1	CRGO STEEL	CAT II								
2	TANK FABRICATION	CAT II								
3	CRGO PROCESSORS	CAT II								

एनटीपीसी NTPC	Project/ परियोजना : SIPAT-III (1X800MW) Package/ पैकेज: EPC PACKAGES Supplier/ आपूर्तिकर्ता: Contract No./ अनुबंध सं.:	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL क्वालिटी प्लान तथा सब –वेंडर के अनुमोदन सहित मदों की सूची	DOC. NO./ दस्तावेज सं.: REVISION NO : 00 DATE/ तिथि : 09.05.2023 SUB-SYSTEM उप-प्रणाली: QA-ELEC

S. N. क्र.सं.	Item / मद	QP/ Insp. Cat. क्यूपी/ निरी. श्रेणी.	QP No. / क्यूपी. सं.	QP Sub. Schedule क्यूपी उप.अनुसूचि	Proposed sub-supplier/ प्रस्तावित उप आपूर्तिकर्ता	Place/ स्थान	Sub-suppliers approval status / category उप आपूर्तिकर्ता के अनुमोदन की स्थिति /श्रेणी	Sub-supplier Details submission schedule/ उप आपूर्तिकर्ता के विवरण प्रस्तुतीकरण की सूची	Remarks/ टिप्पणी	
4	CONTINUOUSLY TRANSPOSED CONDUCTOR	CAT II								
5	PAPER INSULATED COPPER CONDUCTOR	CAT II								
6	INSULATING PAPER for PICC	CAT III								
7	MOULDED INSULATION COMPONENTS	CAT III								
8	PRE-COMPRESSED BOARDS & INSULATION COMPONENTS	CAT III								
9	OIL PUMP AND MOTOR SET	CAT II								
10	BUCHOLZ RELAY	CAT III								
11	ON LOAD TAP CHANGER	CAT III								
12	OFAF COOLER	CAT III								
13	RADIATORS	CAT II								
14	REGNENERATIVE MAINTENANCE FREE BREATHER	CAT III								
15	CMS System	CAT I								
16	CMS PANEL	CAT II								
17	TRANSFORMER TESTING & MAINTENANCE EQUIPMENTS	CAT III								
	L2 LIST OF BUS DUCTS									
1	Air Pressurisation Equipment	CAT II								
2	Hot Air Blower	CAT II								
3	LAVT Cubicle / NG Cubicle/ Marshalling Box	CAT II								
4	CT for IPBD	CAT II								
5	Epoxy Seal off bushing / Insulators	CAT II								
NOTE	**L2 LIST OF SWITCH GEAR**								SOURCES FOR THESE ITEMS SHALL BE FINALIZED DURING DETAILED ENGINEERING AND MQP FINALIZATION	
1	Numerical Relays	CAT I							SUB-QR CLEARED VENDORS ARE ACCEPTABLE FOR NUMERICAL RELAYS	
2	Silver Plating	CAT III								
3	LV Air Circuit Breaker	CAT I								
4	LT CT/PT/CBCT/ Control Transformer	CAT II								
5	MV Vacuum Type Circuit Breaker	CAT I								
6	MV CT / PT & CBCT	CAT I								
7	MCBs	CAT III								
8	ENERGY METER	CAT III								
9	H.V. Fuse	CAT III								
10	Terminal Blocks (Control)	CAT III								
11	Surge Capacitors	CAT II								

NOTES:

Note - 1 : Vendors to submit project specific documents as per Sub-QR requirements in case the Vendor is approved under collaboration agreement.

Note - 2: Vendors under 'A' are approved and accepted by NTPC with/without conditions in the past. Similar conditions as the case may be for the vendor shall be applicable for this project and tied up in the quality plan.

Note - 3: Main contractor approved sub vendors are acceptable those are evaluated / assesesed as per Main contractor Quality Management System for vendor approval. Main contractor to inform the finaly selected vendor to NTPC as soon as PO is placed for these items. In case of sub-QR Note-1 is also applicable.

Note - 4 : BOI shall be reviewed and finalised during MQP approval for items/systems where ever applicable.

Note - 5: Category of inspection for LT Cables:

	For Total Contract Quantity per Size	*Category Of Inspection*
	For cable total quantity ≤ 2.5 KM	Cat-III - submission of TC & Certificate of Conformance by Main Contractor for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for atleast 2 years
	For cable total quantity above 2.5 km & up to ≤ 10 km per size/type	Cat-II for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for atleast 2 years

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	For cable total quantity above 10 km per size/type					Cat-I				
Note - 6: Category of inspection for Cable Trays & Cable Tray Flexible Support System:										
	For Total Contract Quantity per Size					*Category of Inspection*				
	For cable total quantity ≤ 2.5 KM					Cat-III - submission of TC & Certificate of Conformance by Main Contractor for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for atleast 2 years				
	For cable total quantity above 2.5 km & up to ≤ 10 km per size/type					Cat-II for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for atleast 2 years				
	For cable total quantity above 10 km per size/type					Cat-I				
Note - 7:	i) For Motors less than 50 KW: CAT-III. Acceptance of Motor less than 50 KW is based on COC of the Manufacturer and the Main Contractor confirming as follows: "It is hereby confirmed that the above mentioned motor /motors was/ were manufactured taking care of NTPC specific requirements regarding ambient temp., voltage & frequency variation, hot starts, pull out torque, starting KVA/KW, temp. rise, distance between centre of stud & gland plate and tested in accordance with approved drawing /data sheets". ii) For Motors 50 KW and less than 75 KW : CAT- II. Acceptance of Motor is based on NTPC review of Routine Test inspection report as per IS: 12615 / applicable standards duly witnessed by main contractor along with COC of the Manufacturer and the Main Contractor confirming as follows: "It is hereby confirmed that the above mentioned motor /motors was/ were manufactured taking care of NTPC specific requirements regarding ambient temp., voltage & frequency variation, hot starts, pull out torque, starting KVA/KW, temp. rise, distance between centre of stud & gland plate, space heater and tested in accordance with approved drawing /data sheets". iii) For Motors 75 KW & above : CAT- I . AS PER NTPC APPROVED QUALITY PLAN (To be submitted seperately for NTPC review & approval).									
Note - 8:	NTPC approved Galvanizers:									
	1. M/s M J Engg,Delhi	7. M/s National Galvanizer, Kolkata				13. M/s Gurpreet Galvanizer, Hyderabad			19. Unitech Fabricators & Galvanizers- Hoogly	
	2. M/s A.V. Engg, Kolkata	8. M/s Unistar Galvanizer, Kolkata				14. M/s Sigma, Mumbai				
	3. M/s Inar Profiles, Vishakapatnam	9. M/s B.P. Project. Kolkata				15. M/s Radhakrishnan Shetty, Chennai				
	4. M/s Anand Udyog, Mumbai	10. M/s Bajaj Pune				16. Karamtara Mumbai				
	5. M/s Techno Engg,Chandigarh	11. M/s Electrocare Industries, Mumbai				17. Poona Galvanizers Pune				
	6. M/S Steelite Engg, Mumbai	12. M/s B.G. Shirke, Pune				18. Neha Galvanizer- Kolkata				
Note - 9: Relevant certificates shall be submitted for NTPC approval.Approval conditions attached to above identified vendors, as applicable shall be adhered to.										
Note - 10 : Indigenous sub-vendors for Annexure-I items are acceptable subject to meeting the MLC (Minimum Local Content} in line with latest MOP order.										

LEGENDS / संकेतिका
SYSTEM SUPPLIER/SUB-SUPPLIER APPROVAL STATUS CATEGORY /प्रणाली आपूर्तिकर्ता / सब –वेंडर की स्वीकृति की स्थिति की श्रेणी (SHALL BE FILLED BY NTPC एनटीपीसी द्वारा भरा जाएगा)
A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter "A" in the list along with the condition of approval, if any./ इन मदों के लिए प्रस्तावित वेंडर एनटीपीसी को स्वीकार्य है। अनुमोदन की शर्त, , यदि कोई हो, के साथ-साथ पत्र "क" में इंगित किया जाए ।
DR – For these items "Detailed required" for NTPC review. To be identified with letter "DR" in the list. एनटीपीसी द्वारा इन मदों की समीक्षा के लिए "विस्तृत ब्यौरे की आवश्यकता" होगी। सूची में "DR" पत्र में इंगित किया जाना चाहिए।
QP/INSPN CATEGORY: क्यूपी / निरीक्षण की श्रेणी:
CAT-I / श्रेणी- I: For these items the Quality Plans are approved by NTPC and the final acceptance will be on physical inspection witness by NTPC. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है और एनटीपीसी द्वारा अंतिम स्वीकृति भौतिक निरीक्षण के दौरान उपलब्ध गवाह के आधार पर दी जाएगी।
CAT-II / श्रेणी- II: For these items the Quality Plans approved by NTPC. However no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on the basis review of documents as per approved QP. इन मदों के लिए गुणवत्ता योजनाओं को एनटीपीसी द्वारा अनुमोदित किया जाता है। हालाँकि एनटीपीसी द्वारा कोई भौतिक निरीक्षण नहीं किया जाएगा। एनटीपीसी द्वारा अंतिम स्वीकृति अनुमोदित क्यूपी के अनुसार दस्तावेजों की समीक्षा के आधार पर दी जाएगी।
CAT-III/ श्रेणी-III : For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.
UNITS/WORKS इकाईयां / कार्य: Place of manufacturing/ निर्माण का स्थान Place of Main Supplier of multi units/works/बहु- इकाइयों / कार्यों के मुख्य सप्लाइर का स्थान.
: Control measure of item covered in quality plan of main item.

एनटीपीसी NTPC एक महारत्न कम्पनी		PROJECT : Sipat-III (1X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :					LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL				REVISION NO : 00 DATE :02.05.2023 SUB SECTION: C&I
Sr No	**Item Description**	**QP Inspection Category**	**QP No**	**QP submission SCH**	**QP approval SCH**	**Proposed Sub Supplier**	**Country**	**SS Approval_Status (Note-1)**	**SS Detail Sub.SCH**	**SS Approval SCH**	**Remark**
1	AAQMS System										
		I				ACOEM Ecotech Industries Pvt Ltd	Pithampur	**A**			1. So2 ,Nox,CO,CO2 ,Ozone ,PM-10,PM-2.5 & multipoint calibrator will be from Ecotech Australia 2.Metrological sensor from Dynalab 3. Mercury analyser from LOA agreed sources 4.Pl refer Note-07
		I				Horiba India Pvt ltd	Pune	A			1. So2 ,Nox,CO,CO2 ,Ozone & multipoint calibrator will be from Horiba Japan 2.PM-10,PM-2.5 ,TSP will be from Met One USA & metrological sensor from Spectrum USA 3. Mercury analyser from LOA agreed sources
		I				Enviorment SA India Pvt. Ltd.	Mumbai	A			1.Analysers SO2,Nox,CO2 & SPM from Environment SA France, 2-Multipoint Calibrator From envoirenment SA France 3-Metrological Sensor with interface unit from M/s LSI Lastem SRL, Italy
		I				Thermo Fisher Scientific India Pvt. Ltd	Mumbai	A			1) Analysers (Sox,Nox,CO,SPM,RSPM ,Ozone) ,multi gas calibrator shall be sourced from their principle Thermo Environmental ,USA (Division of M/S Thermo fisher Scientific ,USA) 2)Metrological sensors shall be sourced from M/S Metone Instruments USA
		I				Chemtrol Engineering Ltd	Goa	A			1. Analysers from M/S Teledyne USA except Mercury analyser . 2.Metrological sensors & SPM analysers from Met one Instruments Inc USA 3.Pl refer note-07
2	Acoustic pyrometer System										
		I				Lucent Marcons Pvt Ltd (As a system Integrator of M/S Scientific Environmental Instruments, Inc. (SEI) USA)	Noida	A			1.Boiler watch processor control unit, acoustic sensor (Pizeo/Microphone with prefab cable) , Preamplifier , mapping software & analog output cards shall be from M/S SEI USA . 2. Enclousure ,OWS ,Waveguide ,Transition cone with flange , venturi , Tube box etc shall be from M/S SEI USA approved sources to be tiedup in MQP. 3. Pl refer Note-07

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		I				Hi-Tech Systems & Services Ltd (As a system Integrator of M/S Bonnenberg + Drescher GmbH, Germany)	Kolkata	A			1.All critical components are to be procured from M/S Bonnenberg + Drescher GmbH, Germany 2.Standard indiginious components like Solenoid valve (Asco make) ,matching flange ,printer & monitor table shall be supplied by M/S Hi- Tech
		II				Scientific Environment Instrument Inc (SEI)	USA	A			1.PCU ,Acoustic sensor ,Preamplifier mapping software shall be from SEI USA . 2. Enclousure ,OWS ,Waveguide ,Tube box etc shall be from SEI approved sources to be tiedup in MQP. 3.Pl refer Note-07
		II				Bonnenberg + Drescher GmbH,	Germany	A			
		II				STOCK Equipment Co	USA	A			
3	Addressable Detector (Multisensor , Photo & Heat Detectors Type), Interface units & Manual call points										
		II				Honeywell Life Safety-HIIPL	Gurugram	A			Notifier Brand (Detector, Interface Module only)
		II				Schrack	Austria	A			
		II				Autronica	Norway	A			
		II				Edwards	Mexico	A			
		II				Notifier	USA	A			
		II				Sheld Fire safety	UK	A			
		II				Jhonson Controls	USA	A			Simplex Brand
4	Battery for 24VDC charger & UPS										
		Note-4				Hoppecke Batterien GmbH & Co Kg	Germany	A			For Lead Acid- Plante
		Note-4				Exide	Kolkata	A			For Lead Acid- Plante
		Note-4				SAFT India Ltd	Bengaluru	A			For Ni-Cd
		Note-4				HBL Power	Hyderabad	A			For Ni-Cd ,Upto 990AH (H type)
		Note-4				SAFT	France/Sweeden	A			For Ni-Cd
		Note-4				Hoppecke Batterien GmbH & Co Kg	Germany	A			For Ni-Cd
5	Blank Panels / Cabinets										
		III				Pyrotech Electronics Pvt. Ltd	Udaipur	A			
		III				Rittal India Private Ltd	Bengaluru	A			
		III				Hoffman	Bengaluru	A			
		III				BHEL	Bengaluru	A			
		III				BCH ELECTRIC LIMITED	Faridabad	A			
6	Boiler tube leak detection system (ASLD)										
		III				HI Tech System & services Ltd (System Integrator of Acoustic Monitoring International Inc. USA)	Kolkata	A			1.M/S Acoustic Monitoring International Inc. USA Make system Conditional as per approval letter 01/CQA/9573-102/Hi-tech-AMI dated 11.04.2013 2.Pl refer Note-07
		III				Raman Instruments (System Integrator of M/S Procon UK)	Delhi	A			1.M/S Procon UK Make system 2.Pl refer Note-07
		III				BHEL Ltd	Trichurapalli	A			
		III				Instrotech (PTY) Ltd	South Africa	A			

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		III				Rectuson Co. Ltd	S.Korea	A			
		III				Procon Engineering	UK	A			
		III				Acoustic Monitoring International Inc. (AMI)	USA	A			
7	CCTV System (IP Based)										
		III				Axis	Sweden	A			1-CCTV components will be of Axis communication AB,Sweden make & Video Management Software will be of Milestone Brand. 2.Other BOI items shall be from LOA approved sources & will be tied up during the finaliztion MQP.
		III				Bosch	Bengaluru	A			1.CCTV components will be of M/S Bosch make, and supplied through M/s Bosch, Bengaluru. 2.Other BOI items shall be from LOA approved sources & will be tied up during the finaliztion MQP.
		III				Pelco	USA	A			1.CCTV components will be of M/S Pelco, USA make 2.Other BOI items shall be from LOA approved sources & will be tied up during the finaliztion MQP.
7A	CCTV System (IP Based) /System Integrators										
		I				Jonson Control India Pvt Ltd	Mumbai	A			M/S Pelco Make CCTV system
		I				Toshniwal Industrial Pvt Ltd	Ajmer	A			M/S Axis Make CCTV system
		I				L&T TECHNOLOGY SERVICES	Bengaluru	A			M/S Bosch Make CCTV system
		I				Score Information Technologies Limited	Kolkata	A			M/S Bosch Make CCTV system
8	Control Desk										
		I				Pyrotech Workspace Solutions Pvt Ltd	Udaipur	A			BOI items like Mosaic tiles /Console items shall be as per LOA approved sources
		I				Cosmos Media Products Pvt Ltd	Greater Noida	A			1.BOI items like Mosaic tiles /Console items shall be as per LOA approved sources 2. H block should be from knurr Germany .Solid acrylic surface should be procured from Du Pont/NTPC approved sources 3.Extruded Al profile structure should be procured from Hindalco (With Knurr design)
		I				Adarsha Control system Pvt Ltd	Bengaluru	A			1.BOI items like Mosaic tiles /Console items shall be as per LOA approved sources 2. Acrylic solid surface (ASS) should be procured from Du Pont /NTPC approved sources 3.wood works are to be done by M/S C K Furn Bangaluru
9	Control Valves										
9-A	Control Valves for Aux PRDS system including desuperheater										

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		I				Instrumentation Limited	Palakkad (Kerala)	A			Up to A182F92 material with conditions as per approval letter
		I				Koso India Pvt limited	Nasik	A			Up to A182F92 material with conditions as per approval letter
		I				Bomafa Special Valve solutions Pvt ltd	Ahmedabad	A			Up to A182F92 material with conditions as per approval letter
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			As per approval Ref: 02/CQA/SG/Tanda/MIL Dated 30.09.2015
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.MQP shall be vetted by M/S CCI -USA 2.Sources of major components like casting /forging and actuators shall be tied up during finalization of MQP
		II				Parcol SPA	Italy	A			
		II				Daume	Germany	A			
		II				HOLTER	Germany	A			
9-B	Control Valve for Start Up System										
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing.
		I				KOSO India Pvt Ltd	Nasik	A			
		I				Emerson Process Management Ltd	Chennai	A			
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				SEMPELL AG	Germany	A			Up To size 20 Inches & 2500 ANSI Class
		II				Nihon Koso Co Ltd	Japan	A			
		II				HORA	Germany	A			
		II				CCI	S.Korea	A			
		II				Emerson (Fisher)	USA/France/Japan	A			
9-C	Control Valve for BFP Recirculation.										
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing.
		I				KOSO India Pvt Ltd	Nasik	A			
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			Up to 10 Inches & 3400 ANSI class
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				Nihon Koso Co Ltd	Japan	A			
		II				CCI	USA	A			

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		II				Emerson (Fisher)	USA/France/Japan	A			
9-D	Control valve for feedwater flow Control										
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing.
		I				KOSO India Pvt Ltd	Nasik	A			
		I				Emerson Process Management Ltd	Chennai	A			Control valve body assembly will be from Nippon Fisher ,Japan with IBR form III C certificates .
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			1.Provision of straight type of brackets for linkage mechanism .2.Factory fitted strainer /diffuser type seat ring . 3.AFR with T connector for pneumatic connection to volume booster
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				Nihon Koso Co Ltd	Japan	A			CONDITIONAL
		II				CCI	USA / Austria / S.Korea / Switzerland	A			
		II				Emerson (Fisher)	USA/France/Japan	A			
9-E	Control valves for Soot blower pressure reducing ,SH/ RH Attemperation.										
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			1.The critical components of control valve i.e. Disk Stack (Drag technology) shall be sourced from CCI, USA/CCI S. Korea . 2.The positioner from NTPC approved sources & pneumatic actuators are sourced from CCI S.Korea 3.Control valve to be manufactured as per CCI USA design & drawing.
		I				KOSO India Pvt Ltd	Nasik	A			
		I				Emerson Process Management Ltd	Chennai	A			
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			
		I				GE Oil & Gas India Pvt Limited	Coimbatore	A			up to 2500 ANSI Class
		I				Flow Serve India Controls Pvt Ltd	Bengaluru	A			
		I				Instrumentation Limited	Palakkad (Kerala)	A			only for SH / RH
		II				Nihon Koso Co Ltd	Japan	A			
		II				Dressor Masoneilan	USA	A			only for SH / RH/ up to 2500 class
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				SPX Flow Technology	USA	A			only for SH / RH
		II				Leslie Controls Inc	USA	A			only for SH / RH
		II				Sempell AG (Tyco group)	Germany	A			only for SH / RH

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		II				CCI	USA/Sweden /S.Korea	A			
		II				Emerson (Fisher)	USA/France /Japan	A			
9-F	Control valve(Other application)										
		I				Mascot Valves Pvt Ltd	Ahmedabad	A			Up to size 12 inches & 900 ANSI class
		I				Control Component India PVT Ltd	Sricity (Andhra Pradesh)	A			Up to 2500 ANSI class
		~~I~~				KOSO India Pvt Ltd	Nasik	~~A~~			
		I				KSB MIL Controls Ltd	Thrissur (Kerala)	A			Up to 2500 ANSI class
		I				Emerson Process Management Ltd	Chennai	A			Up to 2500 ANSI class
		I				GE Oil & Gas India Pvt Ltd	Coimbatore	A			Up to size 10 inches & 900 ANSI class /Up to size 24 inches & 600 ANSI class
		I				Flow Serve India Controls Pvt Ltd	Bengaluru	A			Up to size 14 inches & 600 ANSI class
		I				Forbes Marshal Arca Pvt. Ltd.	Pune	A			Up to size 16 inches & 900 ANSI class
		I				Instrumentation Limited	Palakkad (Kerala)	A			Up to 2500 ANSI class
		I				Severn Glocon India Pvt Ltd	Chennai	A			Up to size 14 inches & 300 ANSI class
		II				CCI	USA/Sweden /S.Korea	A			
		II				Nihon Koso Co Ltd	Japan	A			
		II				Emerson (Fisher)	USA/France /Japan	A			
		II				Leslie Controls Inc	USA	A			
		II				PARCOL S.P.A	Italy	A			
		II				Dresser Produits industriels Industriels S.A.S	France	A			
		II				HORA	Germany	A			
		II				Wellend & Tuxhorn	Germany	A			
		II				SPX Flow Technology	USA	A			
		II				Sempell AG (Tyco group)	Germany	A			
9-G	Control Valve (Ceramic lined)										
		I				Samson Controls Pvt Ltd	Pune	A			1. For M/S Samson Cera Germany make valve Up to 10 inches size & 150 ANSI class 2. BOI shall be tied up at the time of finalisation of MQP
10	DDCMIS										
		I				ABB	Germany	A			
		I				SIEMENS AG	Germany	A			
		I				Emerson Process Management Asia Pacific Pvt Ltd	Singapore	A			
		I				Hitachi nest control system Pvt Ltd	Bengaluru	A			
		I				Honeywell Automation India Ltd	Pune	A			
		I				GE	France	A			
		I				SIEMENS	Gurugram	A			
		I				BHEL	Bengaluru	A			For MAX DNA System
		I				Yokogawa	Bengaluru	A			
		I				GE Power India Ltd	Noida	A			
		I				Toshiba	Japan	A			
		I				ABB	Bengaluru	A			
		I				Emerson Process Management Ltd	Pawane	A			

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11	Dust Emision Monitor										
		III				Durag India Instrumentation Pvt Ltd	Bengaluru	A			1. For Durag Germany Make Extractive Type Dust density analyser 2. Other components shall be as per approval letter CQA/NTPC BARH STPP-I / D-263 / Durag India Instrumentation Pvt Ltd Bengaluru Dated 28.08.2019
		III				Sick India Pvt ltd	Mumbai	A			1.For SICK AG Make Extractive Type Dust density analyser 2. Other components shall be as per approval letter CQA/NTPC BARH-I /S-907/M/S SICK India Pvt Ltd dated 28.08.2019
		III				Environment SA India Pvt Ltd	Navi Mumbai	A			1.For ENEVA UK Make Extractive Type Dust density analyser 2. Other components shall be as per approval letter No.: CQA/NTPC BARH-I / E-335 / M/S Environment SA India Pvt Ltd Dated 16.09.2019
		III				Land Instruments International	UK	A			For In Situ type /Optical Transreceiver type
		III				Codel	UK	A			For In Situ type /Optical Transreceiver type
		III				Durag Industrie Elektronik GmbH & Co KG	Germany	A			For In Situ type /Optical Transreceiver type & Extractive Type
		III				Emerson Process Management	Ireland	A			For In Situ type /Optical Transreceiver type
		III				SICK AG	Germany	A			For In Situ type /Optical Transreceiver type & Extractive Type
		III				ENEVA	UK	A			For Extractive Type Dust density analyser
12	Electrical Actuators										
12-A	Electrical Actuator (With gear box if applicable)										
		II				Antrieb Technik Pvt Ltd	Chennai	A			For low torque applications only
		II				Auma	Bengaluru	A			
		II				Limitorque	Faridabad	A			Model no L120,SMB,LY series, Gear Box T, HBC Series
		II				Rotork	Bengaluru	A			For low torque app (Up to 1000 Nm)
		II				Rotork Controls (India) Private Ltd	Chennai	A			For low torque app (Up to 1000 Nm) & High torque 4000 to 7000 Nm With integral starter for non critical applications
		III				Auma	Germany	A			
		III				Limitorque	USA	A			
		III				Rotork	UK	A			For low torque app (Up to 1000 Nm)
		III				Nippon gear	Japan	A			
		III				Drehmo GMBH	Germany	A			C Matic Series (DMC/DMCR)
12-B	Electrical Actuator- Non-Intrusive (With gear box if applicable)										
		I				Auma India Pvt Ltd	Bengaluru	A			Also acceptable for Field Bus based applicable
		I				Rotork Control	Chennai	A			Upto 630Nm
		III				Flowserve	USA	A			Also acceptable for Field Bus based applicable
		III				Bernard Controls	France	A			

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12-C	Electrical actuator for ID/FD/PA Blade pitch ,IGV &SCOOP										
		III				Harold Beck & Sons Inc	USA	A			
		III				SIPOS Aktrorik GmbH	Germany	A			
13	Electronics Transmitter (Pressure , DP and DP based Flow/Level)										
13-A	Electronics Transmitter (Pressure , DP and DP based Flow/Level)										
		III				ABB Ltd	Bengaluru	A			2600T & critical item from ABB Italy/ Their approved source;
		III				Emerson Process Management Ltd	Pawane	A			
		III				Siemens Ltd	Thane	A			Model:-SITRANS P
		III				Honeywell Automation India Ltd	Pune	A			
		III				Baldota Control and Equipment Pvt Ltd	Navi Mumbai	A			PT & DPT of LD 301 Series (SMAR)
		III				Yokogawa India Limited	Bengaluru	A			EJA-E 110,430,530 SERIES & all raw material and BOI under knocked down condotion (sensor assembly as a single unit) shall be sourced from M/S Yokogawa Japan
		III				M/s Endress + Hauser India Automation Instrument Pvt Ltd	Aurangabad	A			
		III				Emerson (Rosemount)	USA	A			
		III				Yokogawa	Japan	A			
		III				ABB	Germany / Italy	A			2600T & critical item from ABB Italy/ Their approved source;
		III				Siemens	France	A			Sitrans P DSIII Series
		III				Fuji Electric	France	A			FCX -AIII SERIES
		III				Fuji	Japan	A			
13-B	Electronics Transmitter -Field Bus Based (Pressure , DP and DP based Flow/Level)										
		I				ABB India Ltd	Bengaluru	A			One no of Transmitter will be sent at DDCMIS supplier for function testing of field bus communication with DDCMIS during FAT
		I				Yokogawa India Limited	Bengaluru	A			EJA-E 110,430,530 SERIES & all raw material and BOI under knocked down condotion (sensor assembly as a single unit) shall be sourced from M/S Yokogawa Japan
14	EQMS										

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		I				SWAN	Hyderabad	A			1. Conductivity analyser, pH analyser and Temperature Transmitter will be of M/s ABB, UK make . 2. TSS analyser will be of M/s Daeyoon, South Korea make . 3. Oil in water analyser will be of M/s TriOs, Germany make. 4. Online BOD/COD analyser will be of M/s Shimadzu, Japan make . 5. Flow meter will be of M/s Khrone Marshall, Maharashtra make. 6. Data Aquisition System will be procured from Knowledge Lens, Karnataka.
15	Fiber optic cable										
		Note-3				U M Cables Ltd	Silvassa (Daman)	A			
		Note-3				KEC International Ltd	Mysore	A			
		Note-3				Apar Industries Limited	Valsad (Gujrat)	A			
		Note-3				HFCL	Goa	A			
		Note-3				Aksh Fibre	Bhiwadi (Raj)	A			
		Note-3				Finolex Cable Ltd	Goa	A			
		Note-3				Birla Cable Limited	Rewa	A			
		Note-3				R&M	Switzerland	A			
		Note-3				Molex	UK	A			
		Note-3				Corning	USA	A			
16	Fire alarm Panel										
		II				Toshniwal Industrial Pvt Ltd	Ajmer	A			1.M/S Notifier Make Fire alarm Panel 2.Pl Refer Note-07
		II				Bosch Security system	Bengaluru	A			1.Detector , Hooter, MCP, Modules, Panel shall be M/s Bosch Make
		II				Notifier	USA	A			
		II				Autronica	Norway	A			
		II				Schrack	Austria	A			
		II				Edwards	Mexico	A			
		II				Shield Fire safety and security Ltd	UK	A			
		II				Jhonson Controls	USA	A			Simplex Brand
17	Flame Monitoring System (Scanner)										
		I				Lucent Marcons Pvt Ltd (System Integrator of M/S Forney Corporation USA)	Noida	A			1.Flame detector, amplifier ,light guide fiber optic , smart display programming unit , test kit & simulator will be supplied from M/S Forney Corporation USA 2.Other components like outer carrier ,IDD cable with connector , expander , Y connector with adapter gasket , fastners & signal isolators will be supplied from M/S Forney Corporation USA approved sources . 3.Pl Refer Note-7
		I				HI Tech System & services Ltd (System Integrator of BFI Germany)	Kolkata	A			1.For BFI Germany make system 2. Pl Refer Note-7

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		II				Durag India Instrumentation Pvt Ltd	Bengaluru	A			For Durag Germany make system
		II				Forney Corporation	USA	A			
		II				BFI	Germany	A			
		II				Durag GmbH	Germany	A			
		II				Emerson (COEN)	USA	A			
		II				BHEL	Trichurapalli	A			
18	Flow nozzle assembly										
		I				Microprecision Product Pvt Ltd	Palwal	A			Up to Alloy steel material grade P-92 & other conditions as per approval letter
		I				Minco India Flow Elements Pvt. Ltd.	Goa	A			Up to size 26 Inches for Alloy steel/ Stainless steel pipe SA335 P-11, P -22 and SA 335 P-91 & other conditions as per approval letter
		I				Instrumentation Limited	Palakkad (Kerala)	A			Up to alloy steel grade P-92 subject to qualified WPS & other conditions as per approval letter
		I				Starmech controls (India) Pvt Ltd	Pune	A			Up to alloy steel grade P-92 subject to qualified WPS & other conditions as per approval letter
		II				SEIKO	Czech Republic	A			
		II				WISE Control	S.Korea	A			
		II				Technomatic	Italy	A			
19	Flue Gas Analyser (CO)										
		III				Forbes Marshall Pvt Ltd	Pune	A			For In situ type CO analyser
		III				ICE (Asia) Pvt Ltd	Mumbai	A			For In situ type CO analyser 1. CO analyser from Protea UK 2. Other components like, Mounting Flanges, tubing, fittings ,junction boxes, air purging system , calibration cylinders & cables will be supplied by ICE (Asia) Pvt Ltd 3.Pl refer Note-7
		III				Sick India Pvt Ltd	Mumbai	A			For In Situ Type / CO analyser from SICK AG & Other components like ,Protection tube ,Flanges ,tubing ,fittings ,junction boxes, solenoid valves & calibration cylinders will be supplied by M/S Sick India Pvt Ltd .
		III				Emerson Process Management Ltd	Pawane	A			For M/S Emerson Germany/ USA make Analyser
		III				Codel	UK	A			
		III				Land Instruments International	UK	A			
		III				Sick AG	Germany	A			For In Situ Type
		III				Envoirenment SA	France	A			For Hot Extractive
		III				Fuji Electric	Japan	A			
		III				Servo max Group	UK	A			
		III				Siemens	Germany	A			
20	Flue Gas Analyser (CO2,SO2 and Nox)										
		III				Sick India Pvt Ltd	Mumbai	A			For In Situ Type SO2 analyser 1. Analyser will be from Sick AG Germany 2. Other components like ,Whether proof covers ,flanges ,purge air unit ,junction boxes ,cables ,PC ,remote display ,gas cylinders shall be supplied by M/s Sick India Pvt Ltd

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		III				Emerson Process Management Ltd	Pawane	A			For M/s Emerson Germany/ USA make Hot Extractive SO2, NOx Analyser
		III				Envoirenment SA	France	A			For Hot Extractive
		III				Fuji Electric	Japan	A			Hot Extractive Type For SO2 & Nox
		III				Siemens	Germany	A			Hot Extractive Type For SO2 & Nox
		III				Yokogawa Electric Corporation	Japan	A			IR-400 Series (Hot Extractive Type For CO2, SO2 & NOx)
		III				Servo max Group	UK	A			Hot Extractive Type For SO2 & Nox
		III				Sick AG	Germany	A			Hot Extractive Type For CO2, SO2 & NOx and In situ type for SO2 analyser
21	Flue Gas Analyser O2 Analyser (HT)										
		III				SECO	Chennai	A			
		III				Marathon Monitor	USA	A			
		III				Servo max Group	UK	A			
22	Flue Gas Analyser {O2 Analyser (LT)}										
		III				Sick India Pvt Ltd	Mumbai	A			For In Situ Type 1. Analyser will be from Sick AG Germany 2. Other components like ,Whether proof covers ,flanges ,purge air unit ,junction boxes ,cables ,PC ,remote display ,gas cylinders shall be supplied by M/s Sick India Pvt Ltd
		III				Analyser Instruments Co Pvt Ltd	Kota	A			For In Situ Type 1.Main parts like Sample probe & Analyser will be supplied by M/s Enotec Germany. 2. Other components like auto calibration unit ,probe protector ,enclosure panel & calibration kit will be supplied & integrated M/s AIC kota. 3.Pl refer Note-07
		III				Emerson Process Management Ltd	Pawane	A			For In Situ Type For M/s Emerson USA make Analyser
		III				ABB	Bengaluru	A			For In Situ Type For M/s ABB UK make Analyser
		III				Yokogawa India	Bengaluru	A			For In Situ Type For M/s Yokogawa Japan make Analyser
		III				Enotech GmbH	Germany	A			For In Situ Type
		III				Ametek	USA	A			For In Situ Type
		III				Yokogawa Electric Corporation	Japan	A			For In Situ Type
		III				Servo max Group	UK	A			For In Situ Type
		III				Sick AG	Germany	A			For In Situ Type
23	Continous Emisson Monitoring system										
		I				Horiba India Pvt ltd	Pune	A			Approval conditions as per approval letter no - CQA/NTPC Mauda-II / H-321 / M/S Horiba India Pvt Ltd Dated 03.10.2019
		I				Yokogawa India Ltd	Bengaluru	A			1. SO2,NOx & CO2 Analyser will be from M/S Yokogawa Electric Corporation Japan . 2.Other Conditional as per approval letter no Ref. No.:-CQA/BARH-I / Y-023/ M/s Yokogawa India Ltd dated 21.05.2020

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		I				Adage Automation Pvt Ltd.	Goa	A			For M/s Siemens Germany make SO2,NOx & CO2 Analysers
		I				Thermo Fisher Scientific India Pvt. Ltd	Pune	A			Approved only for Dilution Extractive Technique 1)Analyser (SO2,NOx,CO,CO2,Mercury), sampling probe ,sample handling system ,umbical cord etc to be supplied from M/S Thermo Fisher USA . 2) Other BOI shall be as per LOA approved sources
		I				Emerson Process Management India Pvt Ltd	Pawane	A			For M/s Emerson Germany make SO2,NOx & CO2 Analysers other conditions as per approval letter.
		I				Analyser Instruments Co Pvt Ltd	Kota	A			Analysers from Fuji Japan & other BOI shall be as per LOA approved sources .
		I				Envoirenment SA India Pvt Ltd	Navi Mumbai	A			Hot Extractive Type / 1.Multipoint gas Analyzers MIR-9000 for SO2, NOx,CO2 & CO ,Probe ,Nafyon drier & heater for drier will be of M/S Environment SA France make. 2. Other components shall be as per the approval letter ref no CQA/NTPC Telangana/E-335/M/SEnvoirenment SA India dated 12.02.2019
24	Furnace Flame viewing system (High Temperature CCTV Components)										
		III				Sertel Electronics Pvt. Ltd.	Chennai	A			Approved for Visible type only
		III				Hi Tech System and Service (System Integrator of M/S Lenox USA)	Kolkata	A			1.M/S Lenox USA Make System 2.Pl refer Note-07
		III				Durag India Instrumentation Pvt Ltd	Bengaluru	A			1.Complete Camera Assembly, IRIS Control etc. from Durag Germany 2.Other Component like chiller, vedio monitor, OFC ,Panel from M/S Durag Approved sources
		III				TLT Engg Pvt. Ltd. (System Integrator of M/S Diamond Power USA/ Sweden make system)	Kolkata	A			1.M/S Diamond Power USA/ Sweden make system 2.Pl refre Note-07
		III				Toshniwal Industries (System Integrator of M/S Mirion UK make system)	Ajmer	A			1. M/S Mirion UK make system 2.Pl refer Note-07
		III				Diamond Power	USA / Sweden	A			
		III				Durag GmbH	Germany	A			D-VTA-201
		III				Lenox	USA	A			
		III				Mirion	UK	A			
		III				Piper GmbH	Germany	A			
		III				Sabota GmbH	Germany	A			
25	H2 Gas Analyser										
		I				ABB India Ltd	Bengaluru	A			M/s ABB Germany /UK Make analyser
		I				Adage Automation Pvt. ltd	Goa	A			1.M/s Siemens, Garmany (Calomat 6) Make analyser 2. Pl refer Note-07

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		I				Yokogawa India ltd	Bengaluru	A			M/s Yokogawa Japan (Gas Densitybased) Make analyser
		I				SIEMENS	Gurugram	A			M/s Siemens, Garmany (Calomat 6) Make analyser
		III				GE Sensing EMEA	Ireland	A			Conductivity based
		III				ABB	UK	A			
		III				Emerson (Rosemount)	USA	A			
		III				Environment One Corporation	USA	A			Conductivity based
26	HEA ignitor										
		I				Durag India Instrumentation Pvt Ltd	Bengaluru	A			M/S Durag Germany make HEA Ignitor
		I				Hindustan Thermometers	Ambala	A			Condtional as per approval ref no 01/CQA/0270-102 dated 17.09.2012.Spark tip of their own make is also acceptable
		I				Fives combustion System Pvt Ltd	Vadodara	A			
		I				Boiler control Pvt Ltd	Puddukottai (Tamilnadu)	A			Approved for Aux Boiler package only
		III				Unison Industries	USA	A			
		III				Durag GmbH	Germany	A			
		III				Ignition system INC	USA	A			
		III				Tesi SPA	Italy	A			
27	High Temp. cable (PTFE/FEP)										
		II				Thermocables	Hyderabad	A			
		II				Tempsens	Udaipur	A			
		II				Habia cables	Sweden	A			
		II				Thermo Electrica BV	Netherland	A			
		II				Lapp cables	Germany	A			
		II				Kerpen cables	Germany	A			
		II				TEW & C	USA	A			
28	Impulse Pipes/Tubes										
		II				Mahrashtra Seamless	Raigarh	A			For CS Pipes only
		II				Ratnamani Metals and Tubes	Gandhinagar	A			For SS only.
		II				Heavy Metals and Tubes	Gandhinagar	A			For SS & CS only.
		II				ISMT	Ahamadnagar	A			For CS/ AS upto Gr 22 Pipes only
		II				Nippon Steel & Sumitomo Metals corporation	Japan	A			
		II				TPS Tecnitube	Germany	A			
		II				Veluric & Manessmann	Germany	A			
		II				Trouvay and Cauvin	France	A			
		II				Sandvik	Sweden	A			For SS only
		II				REMI Edelstahl Tubulars Ltd	Palghar	A			
29	Instrument Cables (F,G & T/C Cables)										
		Note-2				Goyolene Fibers (India) Pvt Ltd	Silvassa	A			F&G Type Cable
		Note-2				Temsens Instruments Ind Pvt Ltd	Udaipur	A			
		Note-2				Havells India	Alwar	A			F Type Cable
		Note-2				Paramount Communication Ltd	Khuskhera	A			
		Note-2				Polycab	Daman	A			
		Note-2				Delton	Faridabad	A			
		Note-2				KEI	Bhiwadi (Raj)	A			
		Note-2				Elkey Telelinks	Faridabad	A			
		Note-2				CORDS	Kaharani	A			
		Note-2				CORDS	Bhiwadi	A			
		Note-2				Nicco	Kolkata	A			

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		Note-2				Universal Cable	Satna	A			
		Note-2				Thermocables	Hyderabad /Mahboobnagar	A			
		Note-2				Gupta Power Inftrastructure Ltd.	Khurdha	A			
		Note-2				CMI	Faridabad	A			
		Note-2				Advance Cables Pvt Ltd	Bengaluru	A			F&G Type Cable
		Note-2				Gemscab Industries Ltd	Bhiwadi (Raj)	A			F&G Type Cable
		Note-2				Apar Industries Limited	Valsad	A			F&G Type Cable
		Note-2				Suyog Electricals Ltd	Halol (Gujrat)	A			
		Note-2				Special Cables Pvt Ltd	Rudrapur	A			
		Note-2				T C Communication	Ghaziabad	A			
		Note-2				TEW & C	USA	A			
		Note-2				Habia cables	Sweden	A			
		Note-2				Kerpen cables	Germany	A			
		Note-2				Lapp cables	Germany	A			
		Note-2				Thermo elecrta Bv	Netherland	A			
30	Intelligent Battery charger 24V DC / DCDB/BHMS										
		II				Chabbi Electricals	Jalgaon	A			Rectifier module, Controller module and Battery Health monitoring system shall be of M/s Vertiv make
		II				Eltek SGS Pvt Ltd	Gurugram	A			
31	Large Video Screen (LED Based)										
		I				Pyrotech Electronics Pvt Ltd	Udaipur	A			
		I				Delta India Electronics Pvt Ltd	Gurugram	A			
		I				Barco Electronics system (P) Ltd	Noida	A			
		I				Planner System Inc	USA	A			
32	Level switch- Conductivity type										
		II				Raman Instruments (System integrator of Delta Morbey/ Emerson Mobrey /Solartron -Mobrey)	Delhi	A			1.M/S Emerson (Morbey) UK system 2.Pl refer Note-07
		II				HI Tech System & services Ltd (System Integrator of Levelstate systems Ltd ,UK)	Kolkata	A			1. M/S Levekstate UK System .Vessel from M/s Hi Tech 2.Pl refer Note-07
		II				BHEL	Trichurapalli	A			
		III				Emerson -Mobrey (Solartron mobrey)	UK	A			
		III				Levelstate Systems Ltd	UK	A			
		III				Yarway	USA	A			
33	Local Instrument Enclosure/Rack										
		I				Pyrotech Electronics Pvt. Ltd	Udaipur	A			BOI from LOA approved sources
		I				Sajas electrical	Trichurapalli (Tamilnadu)	A			BOI from LOA approved sources
		I				Prammen	Puddukottai (Tamilnadu)	A			BOI from LOA approved sources
		I				Chemin C&I Pvt Limited	Puducherry	A			1- BOI from LOA approved sources 2.Fabrication at M/s LUFT tech India 3- Painting at M/s Supreame Coater & Fabricator
34	Master Slave Clock System										
		I				Signals and Systems Pvt. Ltd. (SANDS)	Chennai	A			
		I				Masibus	Gandhinagar	A			

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		I				Sertel Electronics Pvt. Ltd.	Chennai	A			
		II				Hopf Electronik GmbH	Germany	A			
		II				Hathway	USA	A			
		II				Mein Berg	Germany	A			
		II				Moser Baer AG	Switzerland	A			
35	Mercury Analyser										
		I				Analyser Instrument Co. Pvt Ltd (AIC)	Kota	A			1. Mercury Analyzer from PS Analytical UK 2.System integration & supply of components like, Enclosure with AC, calibration cylinders, PC will be done by M/s Analyser Instrument Co. Pvt Ltd (AIC) Kota . 3.Pl refer Note-07
		III				Environment SA India Pvt Ltd	Navi Mumbai	A			1-Mercury analyzer with accessories will be from Mercury instruments GmbH Germany . 2- Other components like, sample line between probe to mercury analyzer will be supplied by M/s Environment SA India Pvt Ltd .
		III				Thermo Fisher Scientific India Pvt Ltd	Pune	A			1. Mercury Analyser shall be from Thermofisher USA 2. Other approval conditions are as per approved letter ref no 01/CQA/9578-001/Thermofisher dated 09/12/2016
		III				Durag India Instrumentation Pvt Ltd	Bengaluru	A			Analyser from M/s Verewa Umwelt Germany
		III				Mercury Instruments GmbH	Germany	A			
		III				SICK AG	Germany	A			
		III				Themofisher	USA	A			
		III				Lumax	Russia	A			For AAQMS System
36	PA System (IP Based)										
		III				BNA Technology Consulting Ltd.	Bengaluru	A			BOI shall be from LOA approved sources.
		III				Armtel	Russia	A			
		III				Zenitel	Norway	A			1.PA system active component , Proprietary item will be Zenitel Norway make 2.Other components & BOI shall be from LOA approved sources
		III				Commend International GMBH	Austria	A			
36A	PA System (IP Based)/System Integrators										note-7
		III				Willstrong Solutions Pvt. Ltd	Greater Noida	A			For M/s Armtel Russia system Approval conditions as per approval letter no Patratu-QA/9585-001-102/VA-Willstrong Dated: 21.12.20
		III				Toshniwal Industries Pvt ltd	Ajmer	A			For M/s Commend Austria make system
		III				Aishan Technologies Pvt Ltd	Bengaluru	A			For M/s Zenitel Norway make system
		III				Haritasa Checkmate Electronics Pvt Ltd	Bengaluru	A			For M/s Commend Austria make system
		III				Netware Computer Pvt Ltd	New Delhi	A			For M/s Commend Austria make system

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37	PLC System										
		I				Emerson Automation solution Intellegent plateforms Pvt Ltd	Bengaluru	A			PLC modules from M/s Emerson USA & BOI shall be from LOA approved sources
		I				ABB India Ltd	Bengaluru	A			
		I				Schneider Electric system india Pvt Ltd	Chennai	A			PLC modules from M/s Schneider France & BOI shall be from LOA approved sources
		I				Rockwell	Sahibabad	A			
		I				Siemens	Nasik	A			
		I				Honeywell	Pune	A			PLC modules from M/s Honeywell ,S.Korea & BOI shall be from LOA approved sources
		I				Schneider Electric India Pvt Ltd	Bengaluru	A			PLC modules from M/s Schneider France & BOI shall be from LOA approved sources
37-A	PLC System Integrators										**Note-11 and note-7**
		I				Ladder Automation Solution Pvt Ltd	Gurugram	A			For M/s Honeywell make system
		I				Virtual Automation	Ranga Reddy (Telangana)	A			For M/s Schneider make system
		I				Cotmac Electronics Pvt Ltd	Pune	A			For M/s SIEMENS make system
		I				Tech-Masters	Hyderabad	A			For M/s Emerson make system
		I				Powertech Switchgear (I) Pvt Ltd	Sonepat	A			For M/s Schneider make system
		I				Unity Industrial Automation Pvt Ltd	Delhi	A			For M/s Rockwell make system
		I				EMCONS	Ranchi	A			For M/s Rockwell make system
		I				Divya Engineers	Chennai	A			For M/s SIEMENS make system
		I				M D Industries	Vadodara	A			For M/s Emerson make system
		I				Velox automation	Surat	A			For M/s SIEMENS make system
		I				Vision Comptel	Kolkata	A			For M/s Emerson make system
		I				Adaptive Engineering Private Limited	Ahmedabad	A			For M/s Schneider make system
		I				Greenwave Solutions Private Limited	Kolkata	A			For M/s Rockwell make system
		I				Dreamz Automation	Ghaziabad	A			For M/s SIEMENS make system
		I				Creative Robotics	Ghaziabad	A			For M/s Honeywell make system
		I				Kruti Techno Engineer Pvt Ltd	Chhapraula (GB Nagar	A			For M/s SIEMENS make system
		I				EDS Instruments & Systems Pvt Ltd	Chennai	A			For M/s Honeywell make system
		I				Delsys Automation Technologies Pvt Ltd	Chennai	A			For M/s Emerson make system
		I				Hindustan Controols and Equipment Ltd	Kolkata	A			For M/s Emerson make system
		I				Vollkraft Engineering And Consultant (P) Ltd	Kolkata	A			For M/s Emerson make system
		I				SSM Infotech Solutions Pvt Ltd	Surat	A			For M/s Schneider make system
		I				Sun Industrial Automation & Solutions	CHENNAI	A			For M/s Schneider make system
		I				ARTEE FLOW CONTROL PVT LTD	ANKLESHWAR	A			For M/s Honeywell make system
		I				CSS AUTOMATION PVT. LTD	KOLKATA	A			For M/s Emerson make system
		I				ARMAX AUTOMATION PVT LTD	BANGALORE	A			For M/s ABB make system

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		I				KAIZEN AUTOMATION	AHEMDABAD	A			For M/s Schneider make system
		I				ELECON PERIPHERALS LIMITED	ANAND	A			For M/s ABB make system
38	Pneumatic Actuator Regulating (Power Cylinder HAD,CAD SADC & Burner Tilt)										
		I				Instrumentation Limited	Palakkad (Kerala)	A			
		I				Kelton	Cochin (Alleppy)	A			
		I				SMC Corporation India Private Ltd	Noida	A			Up to Bore size 12 inches
		I				IMI Norgren Herion Pvt ltd	Noida	A			
		II				Dong Woo Valve Control Co. Ltd	S.Korea	A			
		II				Shin Hwa Engineering Co. Ltd	S.Korea	A			
39	Radar type level transmitter										
		III				Limaco	Russia	A			High Frequency Type
		III				Emerson Process Management Ltd	Pawane	A			For M/s Emerson Singapore make
		III				Endress & Houser	Aurangabad	A			
		III				SIEMENS	Canada	A			
		III				B M Technology	Italy	A			For Non Contact type
		III				Magnetrol	Belgium	A			
		III				ABB	USA	A			K-Tech Brand
		III				Endress & Houser	Germany	A			
		III				Saab Rosemeount	Sweden	A			
		III				Emerson Process Management	Singapore	A			Rosemount 3300 series for GW Radar & 5600 Series for Non-Contact type
		III				Endress & Houser	Germany	A			
		III				Vega Grieshaber KG	Germany	A			
40	Short Term Fire Proof cable										
		III				nVent Solutions limited	UK	A			
		III				Wrexham Mineral	UK	A			
		III				KME	Italy	A			
41	SWAS (Sampling Handling System and Dry Panel)										
		I				Emerson Process Management Ltd	Navi Mumbai	A			Analysers and Other BOI Componets from LOA agreed source
		I				Forbes Marshall	Pune	A			Analysers and Other BOI Componets from LOA agreed source
		I				SEPL	Pune	A			Analysers and Other BOI Componets from LOA agreed source
42	Water Analyser (Chloride, Conductivity, Dissolved Oxygen,pH, Hydrazine, Concentration , Phosphate, Silica, Soldium,Turbidity, Total Iron, Degassed Cation Conductivity)										
		III				Emerson Process Management Pvt Ltd	Pawane	A			For Conductivity,pH, Dissloved Oxygen, Turbidity
		III				Mettlet Toledo India Pvt Ltd	Vasai	A			For pH Analyser (1. PH analyser from M/S Mettler Toledo GmbH Switzerland 2. Other components like, Housing, Panel mounting kit, Tubing's & easy clean mechanism will be supplied by M/s Mettler Toledo India Pvt Ltd)

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		III				Endress Hauser India Pvt. Limited	Mumbai	A			For pH Analyser (1. pH sensor with cable , analyser ,retract & cleaning assembly , electrolyte reservoir (As applicable) will be supplied from Principals of M/S Endress Hauser India Pvt. Limited. 2. Other components like, Flow through assembly shall be supplied from M/S Endress Hauser India Pvt. Limited approved sources.)
		III				Thermo Fisher Scientific	USA	A			For Chloride,Dissloved Oxygen,Hydrazine
		III				ABB	UK	A			For Chloride,Dissloved Oxygen,Hydrazine, Phosphate, Silica,Sodium,Turbidity
		III				Hach	USA	A			For Conductivity, pH,Concentration, Phosphate, Silica,Turbidity
		III				ABB	USA	A			For Conductivity, pH
		III				Yokogawa	Japan	A			For Conductivity
		III				Hach	Switzerland	A			For Dissloved oxygen, Hydrazine, Silica,Sodium
		III				Yokogawa	Japan	A			For pH
		III				Eutech Instrument PTE Ltd	Singapore	A			For Silica
		III				Orion	USA	A			For Sodium
		I				METTLER TOLEDO INDIA PVT LTD	Mumbai	A			For Chloride Analyser
43	Temp Transmitter										
43-A	Temp Transmitter										
		III				Endress & Houser	Aurangabad	A			
		III				Emerson Process Management Ltd	Pawane	A			For M/s Emerson Singapore make
		III				Yokogawa	Bengaluru	A			Make Yokogawa japan and caliberation at Yokogawa Banglore
		III				ABB	Bengaluru	A			For M/s ABB Germany make
		III				WIKA Instruments India Pvt Ltd	Pune	A			For M/s WIKA Germany make Model no T-32
		III				Honeywell Automation India Ltd	Pune	A			
		III				Yokogawa	Japan	A			
		III				Moore	USA	A			
		III				M System co Ltd	Japan	A			Model No-B3HU-0
		III				Emerson	U.S.A/Singapore/ Germany	A			
		III				ABB	Germany	A			
		III				Emerson Process Management	Germany	A			
43-B	Temp Transmitter -Field Bus based Single/Dual Input										
		I				ABB India Ltd	Bengaluru	A			One no of TT will be available at DCS supplier for function testing of field bus communication with DCS during FAT
44	Turbine supervisiory Instruments along with vibration analysis system.										
		I				GE	Pune	A			For GE Bentlly ,USA make system

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		I				Meggitt India Pvt ltd	Bengaluru	A			For Meggitt (Vibrometer) Switzerland make system
		I				Forbes Marshall	Pune	A			For Shinkawa ,Japan make system
		II				GE BENTLY	USA	A			
		II				SHINKAWA	JAPAN	A			
		II				MEGGITT	Switzerland	A			
45	Ultrasonic Type Flow Meter (for Stack)										
		III				Sick India Pvt ltd	Mumbai	A			For Sick AG Germany make
		III				Sick AG	Germany	A			
		III				Durag	Germany	A			
		III				Teledyne	USA	A			
46	Ultrasonic type level Transmitter										
		III				EIP Enviro	Noida	A			1-Ultrasonic level Tx shall be BM Technology Italy make 2-Required mounting arrangement , Testing, Calibration shall be carried out at M/s EIP Works.
		III				E & H	Aurangabad	A			
		III				Emerson Process Management Ltd	Pawane	A			Complete Intrument Transmitter & Probe to be procured from Mobrey UK , only intergration & configuration at Pawane works
		III				BM Technology	Italy	A			
		III				Siemens Miltronics	Canada	A			
		III				Nivelco Process Control	Hungary	A			
		III				E & H	Germany	A			
		III				HAWK Measurement PTY Ltd	Australia	A			
47	UPS With ACDB										
		Note-5				Vertive Energy Pvt Ltd	Pune	A			Upto 125 KVA for 1 phase and 300 KVA for 3 Phase
		Note-5				Vertive Energy Pvt Ltd	Mumbai	A			Upto 160 KVA
		Note-5				Hitachi Hirel Power Electronics Pvt Ltd	Gandhinagar	A			Upto 200 KVA,
		Note-5				Fuji Electric Consul Neowatt Private Limited	Pune	A			Up to 100 KVA single phase
		Note-5				KELTRON	Trivendrum	A			
		Note-5				Merlin & Gerin	France	A			
		Note-5				Gutor	Switzerland	A			
		Note-5				AEG	Germany	A			
		Note-5				Fuji Electric	Japan	A			
48	Vibration Monitoring System										
		II				Sensonics Technology India	Kundli	A			For Sensonic UK system
		II				BHEL	Bengaluru	A			1. Imported items like Vibration Monitors, Cross Connection Cables, Buffered Output Modules, and Piezoelectric Vibration Sensors, Eddy Current type Proximity Probe, Extension Cable and Signal Conditioner will be procured from Valmet Automation, Finland. 2.Indigenous items like Communication cables, networking components, blank panels, TB, OWS will be procured from NTPC approved sources.

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		II				IRD Mechanlysis Ltd	Thane	A			Vibration sensors will be sourced from M/s Hansford UK ,however brand name of IRD and its logo is acceptable with suitable tracebility of M/s Hansford ,UK.
		II				Forbes Marshall Pvt Limited	Pune	A			VMS hardware , Sensors ,extention cables shall be shinkawa Japan make .2. All other BOI shall be from LOA agreed sources
		II				GE	Pune	A			For GE Bentley , USA Make
		II				Rockwell Automation	Sahibabad	A			For Rockwell USA make
		II				SKF	Pune	A			For SKF USA make
		II				Imageneous Engineering Pvt Ltd	Vadodara	A			1-For Meggitt Switzerland make 2- Refer note 7
		II				Shinkawa	Japan	A			
		II				GE	USA	A			Bentley Niveda brand
		II				Meggitt	Switzerland	A			
		II				Sensonic Limited	UK	A			
49	Wireless Solution (Microwave Tower Communication)										
		I				L&T Technology Services (LTTS)	Bengaluru	A			1- Wireless Product (Access Point, Antenna) shall be M/s Cambium UK Make 2- Other Item like Switch, Cat-6 Cable can be supplied from M/s LTTS approved sources meeting technical requirements.
		I				Lotus wireless technologies India Pvt Ltd	Visakhapatnam	A			
		I				Sheetal Wireless Technologies Pvt Ltd	Pune	A			
		III				Proxim Wireless Corporation	USA	A			BOI shall be as per approval letter
50	Field Bus Cable/ Profibus Cable- PA & DP type										
		I				LAPP India Pvt Ltd	Bangalore	A			
51	Field bus components (Field bus modules ,segment protector ,surge protector & SS JB)										
		III				Phoenix Contact Inc	USA	A			Materiall will be allowed to dispatch from the vendor works as CAT-III item ,however all material except SS junction box will be available at DDCMIS supplier works for functional testing .
		III				Pepperl + Fuchs Pte Ltd	Singapore	A			Materiall will be allowed to dispatch from the vendor works as CAT-III item ,however all material will be available at DDCMIS supplier works for functional testing .
52	Stockyard Management System(Including 3D profiling scanner ,Thermal Imaging Camera, RTK GPS)										
		III				TSA	Brazil	A			For 3D profiling / Tripple-IN Germany make

एनटीपीसी NTPC एक महारत्न कम्पनी	PROJECT : Sipat-III (1X800MW) PACKAGE : EPC PACKAGES CONTRACTOR: CONTRACT NO :	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB SUPPLIER APPROVAL	REVISION NO : 00 DATE :02.05.2023 SUB SECTION: C&I

Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark
		I				EIP Enviro	Noida	A			For 3D profiling / 1-Tripple-IN Germany make Laser Scanner and RPU along with software from TSA Brazil inline with the M/s TSA Letter. 2- Other item like ethernet cable, Ethernet Switch, Junction Box required for execution of 3D stockpile managemment system can be supplied by EIP Enviro
53	Perimeter Intrusion Detection System										
		III				Senstar	Canada	A			
54	Radar based Perimeter Surveillance System										
		III				Magos System Ltd	Israel	A			Third Party "Cyber Penetration report " shall be provided along with material TC/COC
55	Thermal Camera (PTZ)										
		III				FLIR Commercial Systems INC	USA	A			
	Main Contractor approved sources (Note-12)										
MC-1	Amonia Analyser	III				Main Contractor Approved Sources					
MC-2	Amonia leak detector	III				Main Contractor Approved Sources					
MC-3	Air Filter Regulator	III				Main Contractor Approved Sources					
MC-4	Anemometer	III				Main Contractor Approved Sources					
MC-5	Annunciator	III				Main Contractor Approved Sources					
MC-6	Battery Health Monitoring System	III				Main Contractor Approved Sources					
MC-7	Biofouling/ Deposit Monitor	III				Main Contractor Approved Sources					
MC-8	Coal bunker Level monitor	III				Main Contractor Approved Sources					
MC-9	Compression Fittings(SS)	III				Main Contractor Approved Sources					
MC-10	Condensing Pots	III				Main Contractor Approved Sources					
MC-11	Conduits /Pipe (GI)	III				Main Contractor Approved Sources					
MC-12	Conduits lead coated (Flexible)	III				Main Contractor Approved Sources					
MC-13	Copper tubing/Brass connectors	III				Main Contractor Approved Sources					
MC-14	Coriolios Type Mass Flow meter	III				Main Contractor Approved Sources					
MC-15	Coupling /Interposing Relays	III				Main Contractor Approved Sources					
MC-16	Density Indicator	III				Main Contractor Approved Sources					
MC-17	Desk for OWS/EWS/Printer/Server	III				Main Contractor Approved Sources					
MC-18	Digital Indicators	III				Main Contractor Approved Sources					
MC-19	Dust Sensor	III				Main Contractor Approved Sources					
MC-20	Dew point sensor/meter (H2)	III				Main Contractor Approved Sources					
MC-21	Flow Gauge	III				Main Contractor Approved Sources					
MC-22	Flow Indicator cum Totaliser	III				Main Contractor Approved Sources					
MC-23	Flow Switch	III				Main Contractor Approved Sources					
MC-24	FRP Junction Box	III				Main Contractor Approved Sources					
MC-25	Furniture for control Room(Chair, Almira, Lock)	III				Main Contractor Approved Sources					
MC-26	Furnace exit gas temp probe	III				Main Contractor Approved Sources					
MC-27	Graphic Interface Unit	III				Main Contractor Approved Sources					
MC-28	Hand Held Calibrator	III				Main Contractor Approved Sources					
MC-29	Hart Management System	III				Main Contractor Approved Sources					
MC-30	Humidistat / Thermostat / Gyserstat / Airstat	III				Main Contractor Approved Sources					
MC-31	Instant Corrosion Rate Monitor & Portable Corrosion Meter	III				Main Contractor Approved Sources					
MC-32	Impact head type flow element	III				Main Contractor Approved Sources					
MC-33	Instrument Tube Fittings (Air)	III				Main Contractor Approved Sources					

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Sr No	**Item Description**	**QP Inspection Category**	**QP No**	**QP submission SCH**	**QP approval SCH**	**Proposed Sub Supplier**	**Country**	**SS Approval_Status (Note-1)**	**SS Detail Sub.SCH**	**SS Approval SCH**	**Remark**
MC-34	Instrument Valve	III				Main Contractor Approved Sources					
MC-35	IR Detector	III				Main Contractor Approved Sources					
MC-36	KVM Switch/Matrix KVM Switch	III				Main Contractor Approved Sources					
MC-37	Level gauge (Transperent & Reflex, Tubular type)	III				Main Contractor Approved Sources					
MC-38	Level Indicator (Float & Board type)	III				Main Contractor Approved Sources					
MC-39	Level switch - Float/Displacer Type	III				Main Contractor Approved Sources					
MC-40	Level Switch (RF Type)	III				Main Contractor Approved Sources					
MC-41	Level switch capacitance type	III				Main Contractor Approved Sources					
MC-42	Limit Switch	III				Main Contractor Approved Sources					
MC-43	Maintenance and Calibration Equpiment	III				Main Contractor Approved Sources					
MC-44	Mini UPS-Type C configuration	III				Main Contractor Approved Sources					
MC-45	Orifice plate assembly	III				Main Contractor Approved Sources					
MC-46	On line carbon in Ash analyser	III				Main Contractor Approved Sources					
MC-47	Pitot Tube	III				Main Contractor Approved Sources					
MC-48	Pr./Vaccum./DP Gauges	III				Main Contractor Approved Sources					
MC-49	Press, DP, Vaccum Switch	III				Main Contractor Approved Sources					
MC-50	Printer (Dot Matrix/Inkjet / Laser)	III				Main Contractor Approved Sources					
MC-51	Psycrometer	III				Main Contractor Approved Sources					
MC-52	Pulse jet Controller	III				Main Contractor Approved Sources					
MC-53	Pulse Valve	III				Main Contractor Approved Sources					
MC-54	Residual Chlorine Analyser	III				Main Contractor Approved Sources					
MC-55	Rotameter	III				Main Contractor Approved Sources					
MC-56	Reverse Rotation Indicator	III				Main Contractor Approved Sources					
MC-57	Synchronising Relay	III				Main Contractor Approved Sources					
MC-58	Synchroscope	III				Main Contractor Approved Sources					
MC-59	Semaphore Indicators	III				Main Contractor Approved Sources					
MC-60	Sight Flow Indicator	III				Main Contractor Approved Sources					
MC-61	Smart Positioner	III				Main Contractor Approved Sources					
MC-62	Socket Weld Fittings	III				Main Contractor Approved Sources					
MC-63	Solenoid Valve	III				Main Contractor Approved Sources					
MC-64	Solid Mass Flow Meter	III				Main Contractor Approved Sources					
MC-65	Terminal Block (Cage and Clamp type)	III				Main Contractor Approved Sources					
MC-66	Temperature cum Humidity Indicator	III				Main Contractor Approved Sources					
MC-67	Temperature Element(Thermocouple , RTD & Thermowell)	III				Main Contractor Approved Sources					
MC-68	Temperature Gauge(With Thermowell)	III				Main Contractor Approved Sources					
MC-69	Temperature Switch	III				Main Contractor Approved Sources					
MC-70	Transducer	III				Main Contractor Approved Sources					
MC-71	Tube thicknes Meter	III				Main Contractor Approved Sources					
MC-72	Voltmeter/ Watterhour Meter	III				Main Contractor Approved Sources					
MC-73	Valve manifolds	III				Main Contractor Approved Sources					
MC-74	Electric to Pneumatic Converter	III				Main Contractor Approved Sources					
MC-75	Network components	III				Main Contractor Approved Sources					
MC-76	Isolator	III				Main Contractor Approved Sources					
MC-77	ORP Monitor /Analyser	III				Main Contractor Approved Sources					
MC-78	Ultrasonic Type Flow Transmitter	III				Main Contractor Approved Sources					
MC-79	Chlorine Leak detector	III				Main Contractor Approved Sources					
MC-80	Density Meter	III				Main Contractor Approved Sources					
MC-81	Electro Magenetic Flow meter	III				Main Contractor Approved Sources					
MC-82	Postive dispalcement Type Flow Meter	III				Main Contractor Approved Sources					
MC-83	Level Scanner (3 D)for Solid Application	III				Main Contractor Approved Sources					
MC-84	Mosaic tiles /Console items	III				Main Contractor Approved Sources					
MC-85	Electrical Control Panel (UCP/Backup)	III				Main Contractor Approved Sources					
MC-86	Electrical Indicating Instruments (Mosaic Compatible)	III				Main Contractor Approved Sources					
MC-87	OWS/EWS/Server	III				Main Contractor Approved Sources					

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Sr No	Item Description	QP Inspection Category	QP No	QP submission SCH	QP approval SCH	Proposed Sub Supplier	Country	SS Approval_Status (Note-1)	SS Detail Sub.SCH	SS Approval SCH	Remark
MC-88	Bio Matrix Reader	III				Main Contractor Approved Sources					
MC-89	ANPR	III				Main Contractor Approved Sources					
MC-90	UVSS	III				Main Contractor Approved Sources					
MC-91	Comd & Control System	III				Main Contractor Approved Sources					
MC-92	Access & Controller Software	III				Main Contractor Approved Sources					
MC-93	IR LED based Illuminator	III				Main Contractor Approved Sources					
MC-94	ATB Bolloard	III				Main Contractor Approved Sources					
MC-95	Boom Barrier	III				Main Contractor Approved Sources					
MC-96	Touchless biomatric recorder	III				Main Contractor Approved Sources					
MC-97	GPS Sensor based Vehicle Monitoring system	III				Main Contractor Approved Sources					
MC-98	10mp digital camera with tripod for photo capture	III				Main Contractor Approved Sources					
MC-99	2D GIS map application	III				Main Contractor Approved Sources					
MC-100	Audible alarm device	III				Main Contractor Approved Sources					
MC-101	CameraPoles	III				Main Contractor Approved Sources					
MC-102	Card Reader	III				Main Contractor Approved Sources					
MC-103	Door Frame Metal Detector -DFMD	III				Main Contractor Approved Sources					
MC-104	Door sensor	III				Main Contractor Approved Sources					
MC-105	Egress Switch	III				Main Contractor Approved Sources					
MC-106	EM LOCK	III				Main Contractor Approved Sources					
MC-107	Emergency exit / door override switch	III				Main Contractor Approved Sources					
MC-108	Emergency Siren /Hooter	III				Main Contractor Approved Sources					
MC-109	Flap barrier	III				Main Contractor Approved Sources					
MC-110	Flash Lights for covering perimeter area for clear view from PTZ in night time	III				Main Contractor Approved Sources					
MC-111	Geo fencing	III				Main Contractor Approved Sources					
MC-112	Glass Break switch at Emergency Exit	III				Main Contractor Approved Sources					
MC-113	Guard tour	III				Main Contractor Approved Sources					
MC-114	Half Height Turnstile	III				Main Contractor Approved Sources					
MC-115	Handheld Walkie - Talkie	III				Main Contractor Approved Sources					
MC-116	HHMD	III				Main Contractor Approved Sources					
MC-117	Long Range RFID Reader	III				Main Contractor Approved Sources					
MC-118	Monitors 24 Inch Full HD	III				Main Contractor Approved Sources					
MC-119	Network Panel	III				Main Contractor Approved Sources					
MC-120	Optical Time Domain Reflector-meter (OTDR) with all accessories	III				Main Contractor Approved Sources					
MC-121	Panic Button with Audible Alarm	III				Main Contractor Approved Sources					
MC-122	Panic button/SOS button supportin SIP protocol	III				Main Contractor Approved Sources					
MC-123	RFID based Stickers	III				Main Contractor Approved Sources					
MC-124	Sliding Gate	III				Main Contractor Approved Sources					
MC-125	SMS gateway	III				Main Contractor Approved Sources					
MC-126	Storage Device (SAN/NAS/DAS) of 100 TB each	III				Main Contractor Approved Sources					
MC-127	Traffic Light	III				Main Contractor Approved Sources					
MC-128	Turnstile - half height	III				Main Contractor Approved Sources					
MC-129	SPIKE BARRIER	III				Main Contractor Approved Sources					
MC-130	CHAIN LINK FENCE	III				Main Contractor Approved Sources					
MC-131	X-ray Baggage Scanner	III				Main Contractor Approved Sources					
MC-132	Static Radio Set	III				Main Contractor Approved Sources					

LEGENDS :

1.0 SYSTEM SUPPLIER / SUB SUPPLIER APPROVAL STATUS CATEGORY

A - For those items proposed vendor is acceptable to Customer. To be indicated with letter "A" in the list alognwith the condition of approval, if any.

2.0 QP INSPECTION CATEGORY :

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Sr No	**Item Description**	**QP Inspection Category**	**QP No**	**QP submission SCH**	**QP approval SCH**	**Proposed Sub Supplier**	**Country**	**SS Approval_Status (Note-1)**	**SS Detail Sub.SCH**	**SS Approval SCH**	**Remark**
CAT - I : For those items the Quality Plans are approved by Customer and final acceptance will be on physical inspection witness by Customer											
CAT - II : For those items the Quality Plans are approved by Customer. However no physical inspection shall be done by Customer. The final acceptance by Customer shall be on the basis of review of documents.											
CAT - III :For these items Quality control to be exercised as per Main contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of Conformance (COC) by Main Contractor.											
UNITS/WORKS : Place of manufacturing- Place of main supplier of multi units/works.											
NOTE - 1 : A: Vendors to submit project specific documents as per Sub-QR requirements in case the Vendor is approved under collaboration agreement. B: In case approved sub vendor is offering product with latest model/series apart from earlier approved, vendors to submit project specific documents as per Sub-QR requirements.											
NOTE - 2 : For Insrument cable <= 1 KM inspection category CAT - III, For > 1 KM to <= 10 KM Inspecton category CAT - II COC & FOR> 10 KM Inspection category CAT-I											
NOTE -3 : For Fiber Optic cable <=10KM inspection category CAT - III & for > 10KM Inspection category CAT-II											
NOTE-4 : Batteries for UPS <= 10 KVA and batteries for intelligent battery charger 24 V DC <= 40 Amp inspection category CAT-III & for Batteries for UPS> 10KVA and batteries for intelligent battery charger 24 V DC > 40 Amp rating											
NOTE-5 UPS <= 10 KVA rating inspection category CAT-III & for > 10KVA rating inspection category CAT-I											
NOTE - 7 - EMPTY CABINETS, COMPUTERS, SIGNAL ISOLATOR/ MULTIPLIER and TB SHALL ALSO BE ACCEPTABLE FROM OWNER ACCPETED IN QP. IF THE TOTAL INTEGRATED PANEL AND FAT IS CONDUCTED INDEGENEOUSLY											
NOTE-8 : For the C & I instrumnts mounted on the skid of the main item or supplied as a integral part of the main item, instrument to be supplied as per proven practice of the manufacturer meeting the Customer technical specification											
NOTE-9- This item is a bought out componenet of main equipments like DDCMIS ,PLC,TSI,CCTV ,PA system etc											
NOTE-10- For these controlled items, vendor shall be proposed for owner accpetance with-in the agreed contract schedule of the package											
NOTE-11 - Major Bought-Out-Items are to be procured from LOA approved sources & the same shall be finalized during the finalization of Manufacturing Quality Plan . MQP shall be duly vetted by OEM with their project specific authorisation letter .											
NOTE-12 : Main contractor apporved sub vendors are acceptable those are evaluated / assesesed as per Main contractor Quality Management System for vendor approval. Main contractor to inform the finaly selected vendor to NTPC as soon as PO is placed for these items. In case of sub-QR Note-1 is also applicable.											

	PROJECT: SIPAT SUPER THERMAL POWER PROJECT STAGE-III (1X800 MW)	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL	DOC NO	
	PACKAGE: EPC PACKAGE		REV. NO.	
	Main supplier:	SUB SYSTEM: CIVIL WORKS	DATE	02.05.2023
	Contract No.:			

SL. NO.	ITEM	QAP / INSP. CAT	PROPOSED SUB SUPPLIER	PLACE OF MANUFACTURING	APPROVAL STATUS / CATEGORY	REMARKS
1.	GALVANIZED STEEL STRUCTURES (LATTICE & PIPE) FOR SWITCHYARD AND TRANSMISION LINE	I	VIJAY TRANSMISSION LTD	RAIPUR	A	
			UNITECH POWER TRANSMISSION LTD	NAGPUR	A	
			ASSOCIATED POWER STRUCTURES	VADODARA	A	
			R.S. INFRAPROJECTS PVT. LTD	SURAJPUR	A	
			NEW MODERN TECHNOMECH	MAYURBHANJ (ORRISA)	A	
			GOOD LUCK STEEL TUBES	SIKANDRABAD	A	
			UNIQUE STRUCTURES & TOWERS LTD.	RAIPUR	A	
			VATCO ELEC-POWER PVT. LTD.	NAVIMUMBAI	A	GALVANISING AT SIGMA GALVANISER NAVI MUMBAI
			R.S. INFRAPROJECTS PVT. LTD	SIKANDRABAD	A	
			ADVANCE STEEL TUBE	SAHIBABAD	A	
			SANGAM STRUCTURES LTD.	ALLAHABAD	A	
			RELIABLE SPONGE PVT LTD UNIT III	KALUNGA	A	
			VSP ENTERPRISES PVT. LTD	SONEPAT	A	
			SKIPPER LIMITED	UNIT-I: JANGALPUR, Howrah. Unit-II: ULUBERIA UNIT, Howrah. UNIT- III: BCTL, Howrah.	A	Proto type inspection at Unit-Bagnan, Howrah

	PROJECT: SIPAT SUPER THERMAL POWER PROJECT STAGE-III (1X800 MW)	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL	DOC NO	
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	Main supplier:	SUB SYSTEM: CIVIL WORKS	DATE	02.05.2023
	Contract No.:			

SL. NO.	ITEM	QAP / INSP. CAT	PROPOSED SUB SUPPLIER	PLACE OF MANUFACTURING	APPROVAL STATUS / CATEGORY	REMARKS
			RUKMANI ELECTRICAL & COMPONENT PVT. LTD	RAIPUR	A	
			RICHARDSON & CRUDDAS (1972) LTD	NAGPUR	A	
2.	COLOUR COATED METAL DECK & CLADDING/ROOFING SHEET (COIL)	I	TATA STEEL LIMITED	RAIGAD	A	
			TATA STEEL BSL LIMITED	SAHIBABAD	A	
			TATA BLUESCOPE STEEL LTD	JAMSHEDPUR	A	AL-ZN COIL FOR CLADDING
			ESSAR STEEL LTD	PUNE	A	
			NATIONAL STEEL & AGRO INDUSTRIES LTD	DHAR	A	
			JSW STEEL COATED PRODUCTS LTD	KALMESHWAR (NAGPUR)	A	
			JSW STEEL COATED PRODUCTS LTD	TARAPUR, BOISAR	A	
			BHUSHAN POWER & STEEL LTD	SAMBALPUR (ODISHA)	A	
3.	CHIMNEY ELEVATOR (RACK AND PINION)	I	MEKASTER ENGG. & EQUIPMENT(P) LTD.	HALOL, GUJARAT	A	
			ALIKRAFT ENGINEERS PVT. LTD.	SAVIL (VADODARA)	A	
			AVON CRANES	GURGAON	A	
			UNIVERSAL CONSTRUCTION MACHINARY & EQUIPMENT LTD.	PUNE	A	
4.	ELECTROFORGED GRATING	II	INDIANA GRATINGS PVT. LTD	PUNE	A	
			KANADE ANAND UDYOG	THANE	A	

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	PACKAGE: EPC PACKAGE			REV. NO.		
	Main supplier:	SUB SYSTEM: CIVIL WORKS		DATE	02.05.2023	
	Contract No.:					

SL. NO.	ITEM	QAP / INSP. CAT	PROPOSED SUB SUPPLIER	PLACE OF MANUFACTURING	APPROVAL STATUS / CATEGORY	REMARKS
			PREMIER POWER PRODUCTS LTD	HOWRAH	A	
			BHOLA RAM STEEL PVT. LTD	PATNA	A	
			PINAX STEEL INDUSTRIES PVT LTD	PATNA	A	
			GREATWELD STEEL GRATING PVT. LTD	PUNE	A	
			ANKIT ELECTROGRATING	RAIPUR	A	
			SUTTATTI ENTERPRISES LTD.	PUNE	A	
			RATAN PROJECTS & ENGINEERING CO. PVT. LTD.	HOWRAH	A	
			VINFAB ENGINEERS INDIA PVT LTD. (For Galvanising) VINFAB GRATINGS (For Fabrication)	THANE	A	
5.	PROFILERS FOR COLOUR COATED METAL DECK & CLADDING/ROOFING SHEETS	II	MAIN CONTRACTOR APPROVED SOURCE	-	-	
6.	FABRIC EXPANSION COMPENSATOR (FOR CHIMNEY)	II	MAIN CONTRACTOR APPROVED SOURCE	-	-	
7.	MINERAL WOOL FOR THERMAL INSULATION (FOR CHIMNEY)	II	MAIN CONTRACTOR APPROVED SOURCE	-	-	
8.	STOP LOG GATES, TRASH RACK AND LIFTING BEAM	II	MAIN CONTRACTOR APPROVED SOURCE	-	-	
9.	HIGH PERFORMANCE MOISTURE COMPATIBLE CORROSION RESISTANT COATING SYSTEM	III	CECRI LICENSED SOURCES	-	-	
10.	BITUMEN	III	ALL GOVERNMENT REFIINARIES	-	-	

	PROJECT: SIPAT SUPER THERMAL POWER PROJECT STAGE-III (1X800 MW)	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL	DOC NO	
	PACKAGE: EPC PACKAGE		REV. NO.	
	Main supplier:	SUB SYSTEM: CIVIL WORKS	DATE	02.05.2023
	Contract No.:			

SL. NO.	ITEM	QAP / INSP. CAT	PROPOSED SUB SUPPLIER	PLACE OF MANUFACTURING	APPROVAL STATUS / CATEGORY	REMARKS
11.	PTFE BEARING / ELASTOMERIC BEARING	III	MORTH / RDSO APPROVED VENDORS	-	-	
12.	CEMENT	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
13.	CI PIPES	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
14.	RCC PIPES	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
15.	CPVC/UPVC PIPES	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
16.	PVC WATER STOP	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
17.	POLYTHENE WATER STORAGE TANKS	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
18.	CERAMIC / VITRIFIED TILES	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
19.	PARTICLE BOARDS, PLYWOOD, MDF	III	BIS APPROVED SOURCES HAVING VALID BIS LICENCE	-	-	
20.	FIRE PROOF DOORS	III	MAIN CONTRACTOR APPROVED SOURCES WITH VALID PROTOTYPE TEST REPORT FROM CBRI/CPRI/GOV. LAB.)	-	-	
21.	CONSTRUCTION CHEMICALS/ADMIXTURE, WATER PROOFING COMPOUNDS AND GROUTS	III	MAIN CONTRACTOR APPROVED SOURCE	-	-	
22.	PAINT AND PAINTING SYSTEM	III	MAIN CONTRACTOR APPROVED SOURCE	-	-	
23.	HIGH SOLID CONTENT LIQUID APPLIED URETHANE BASED ELASTOMERIC MEMBRANE FOR WATER PROOFING	III	MAIN CONTRACTOR APPROVED SOURCE	-	-	

	PROJECT: SIPAT SUPER THERMAL POWER PROJECT STAGE-III (1X800 MW)	LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB-SUPPLIER APPROVAL		DOC NO	
	PACKAGE: EPC PACKAGE			REV. NO.	
	Main supplier:	SUB SYSTEM: CIVIL WORKS		DATE	02.05.2023
	Contract No.:				

SL. NO.	ITEM	QAP / INSP. CAT	PROPOSED SUB SUPPLIER	PLACE OF MANUFACTURING	APPROVAL STATUS / CATEGORY	REMARKS
24.	FOUNDATION BOLTS	III	MAIN CONTRACTOR APPROVED SOURCE	-	-	

LEGENDS:

1. SYSTEM SUPPLIER/SUB-SUPPLIER APPROVAL STATUS CATEGORY (SHALL BE FILLED BY NTPC)
A – For these items proposed vendor is acceptable to NTPC. To be indicated with letter "A" in the list along with the condition of approval, if any.
DR – For these items "Details required" for NTPC review. To be identified with letter "DR" in the list.

2. QP/INSPN CATEGORY:
CAT-I: For these items the Quality Plans are approved by NTPC and the final acceptance will be on physical inspection witness by NTPC.
CAT-II: For these items the Quality Plans approved by NTPC. However, no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on the basis review of documents as per approved quality plan.
CAT-III: For these items the Quality control to be exercised as per Main Contractor Quality Assurance System. The final acceptance by NTPC shall be on the basis of Certificate of conformance (COC) by Main Contractor.
UNITS/ WORKS: Place of manufacturing Place of Main Supplier of multi units/works.

NOTE 1: For the items placed in CAT-III for Civil Works, the review and final acceptance shall be done by NTPC-EIC/ FQA on the basis of MTC / certificate of conformance in line with Technical Specifications/FQP.

Clause No.			GENERAL CONDITIONS OF CONTRACT (GCC)
19.	**Subcontracting**		
		19.1	Appendix 5 (List of Approved Subcontractors) to the Contract Agreement specifies major items of supply or services and a list of approved Subcontractors against each item, including vendors. Insofar as no Subcontractors are listed against any such item, the Contractor shall prepare a list of Subcontractors for such item for inclusion in such list. The Contractor may from time to time propose any addition to or deletion from any such list. The Contractor shall submit any such list or any modification thereto to the Employer for its approval in sufficient time so as not to impede the progress of work on the Facilities. Such approval by the Employer for any of the Subcontractors shall not relieve the Contractor from any of its obligations, duties or responsibilities under the Contract.
		19.2	The Contractor shall select and employ its Subcontractors for such major items from those listed in the lists referred to in GCC Sub-Clause 19.1.
		19.3	For items or parts of the Facilities not specified in Appendix 5 (List of Approved Subcontractors) to the Contract Agreement, the Contractor may employ such Subcontractors as it may select, at its discretion.
		19.4	The Contractor shall not be allowed to sub-contract works to any subcontractor/ sub-vendor from a country which shares a land border with India unless such sub-contractor is registered with the competent Authority. The Competent Authority for the purpose of registration shall be as mentioned in the relevant Annexure of SCC. However, the said requirement of registration will not apply to subcontractors from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. The Contractor may apprise itself of the updated lists of such countries available in the website of the Ministry of External Affairs. Procurement of raw material, components, etc. does not constitute subcontracting.
20.	**Design And Engineering**		
		20.1	**Specifications and Drawings** 20.1.1 The Contractor shall execute the basic and detailed design and the engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good engineering practice. The Contractor shall be responsible for any discrepancies, errors or omissions in the specifications, drawings and other technical documents that it has prepared, whether such specifications, drawings and other documents have been approved by the Project Manager or not, provided that such discrepancies, errors or omissions are not because of inaccurate information furnished in writing to the Contractor by or on behalf of the Employer.

3.0 FIELD QUALITY PLAN

a) Well before the start of the work, the contractor shall prepare and submit the Field Quality Plans (FQP) and obtain approval of Employer, which shall detail out for all the works, equipment, services, quality practices and procedures etc. in line with the requirement of the technical specifications to be followed by the contractor at site. This FQP shall cover for all the items / activities covered in the contract / schedule of items required, right from material procurement to completion of the work at site. An Indicative Field Quality Plan for civil works is enclosed at **Annexure II** for reference purpose.

4.0 PURCHASE AND SERVICE

a) To facilitate advance planning of material testing/ approval of bought out items (BOI), well before the start of activity as per L-2 network, representative samples shall be procured by the contractor from approved sub-vendors and submitted to the EIC for his approval before bulk procurement. In case of manufacturers test certificate (MTC) is submitted for acceptance, it shall be clearly traceable and correlated with the consignment received at site. MTC of all bought out items (BOI) shall essentially contain all the test parameters / characteristics specified in the technical specifications / standards / codes. In case the manufacturer's test certificate does not mention these details, sample from each lot shall be tested at the Employer acceptable third-party lab. Approval of material / sample by the Employer shall not relieve the contractor of his responsibility, for their conformance to the specification, as well as the requisite performance and quality of material.

b) Structural steel (plates and rolled sections i.e. channels, beams & angles) conforming to IS 2062 and Reinforcement steel conforming to IS 1786 supply if in the scope of the contractor shall be procured from Primary Steel Producers (Refer NOTE below). Currently, Primary Steel Producers acceptable are SAIL, JSW Steel Ltd, Jindal Steel & Power, Tata steel Ltd. (for Reinforcement steel/TMT bars), RINL (for long products/Rolled sections and Reinforcement steel/TMT bars), Arcelormittal Nippon Steel India Ltd. (for Flat products/ Steel Plates), ESL Steel Ltd. (for Reinforcement steel/TMT bars) and JSW Ispat Special Products Ltd. (for long products/Rolled sections and Reinforcement steel/TMT bars). Subsequently, if any new Primary Steel Producer/s are proposed during execution of contract, the same may be considered for acceptance subject to meeting the following qualifying requirements:

i) The proposed supplier should be a Primary Steel Producer, having a minimum production capacity of one million tons per annum (MTPA).

ii) The proposed supplier should be a regular manufacturer of Steel Plates and / or Rolled Sections and / or Reinforcement Steel for the last two years as on date of submission of proposal.

iii) The proposed supplier should also be a registered licensee with Bureau of Indian Standards for BIS: 1786/2062 at the time of submission of proposal.

NOTE: The "Primary Steel Producer" shall mean Steel Producer of any capacity, irrespective of process route, starting their operations from iron making using iron ore, virgin or processed, with necessary refining facilities and rolling/processing facilities, at a single location or else in multiple locations provided that the entire gamut of iron & steel production, from iron making to finished steel production, is owned by the same company or its subsidiary company(ies). Provided that the iron making capacity is sufficiently matching the steel making capacity. Further, downstream units should use material from the upstream units of the same company or its subsidiaries.

In case of non-availability of certain steel section/s i.e. Angle smaller than 100x100x10 mm, MS flats, rounds, square bars and chequered plate from above

acceptable primary steel producers, an option is given to the Main contractor to source these sections directly from SAIL Conversion/Wet Leasing agent subject to the conditions given at point no. A) below:

A) Approval conditions for procurement of structural steel sections through SAIL Conversion/Wet Leasing agent:
1. Main Contractor to ensure continuity of BIS license of the manufacturer for the sections being manufactured for Employer supply.
2. Billets shall be procured from Employer approved Main Steel Producers. Proper records for traceability from raw material to final product shall be maintained.
3. 100% chemical analysis of the raw material (Billets) shall be carried out as per IS: 2830. Testing of one sample per 40 MT for each type of section or part thereof shall be carried out as per IS: 2062 on finished product.
4. Each lot of delivery of finished product shall be accompanied with co-relatable Manufacturer's Test Certificate (MTC). MTC of finished sections shall be correlated with original MTC for Billets received from Main Steel Producer and Manufacturer Test Report of chemical analysis of Billets mentioned at point no.3. MTC of finished sections shall include the reference of MTC for Billets from Main Steel Producer.
5. Employer will have access to carry out the surveillance checks for in-process stage.
6. In case of any defects are seen in the material, Main Contractor will replace the material without any cost implication to Employer.

In case of non-availability of certain size/s of steel tubes conforming to IS:1161 and Hollow (square and rectangular) steel sections conforming to IS: 4923 from above acceptable primary steel producers, the same may be sourced from BIS approved sources having valid BIS license subject to the conditions given at point no. B) below:

B) Approval conditions for procurement of Steel tubes conforming to IS: 1161 and Hollow (square and rectangular) steel sections conforming to IS: 4923 from BIS approved sources:
1. Main Contractor to ensure continuity of BIS license of the manufacturer for the sections being manufactured for Employer supply.
2. Raw materials shall be procured from Employer approved Main Steel Producers.
3. 100% chemical analysis of the raw material (steel) shall be carried out as per IS: 228. Testing of samples of steel tubes and hollow sections from each lot shall be carried out as per IS: 1161 & IS: 4923 respectively on finished product.
4. Each lot of delivery of finished product shall be accompanied with co-relatable Manufacturer's Test Certificate (MTC).
5. Employer will have access to carry out the surveillance checks for in-process stage.
6. In case of any defects are seen in the material, Main Contractor will replace the material without any cost implication to Employer.

The specific methodology to be followed for above procurement through conversion route/BIS approved sources route shall be subject to approval by Employer in advance.

Vendor No	Vendor Name	Mat Group	Material Group Description	GROUP DESCRIPTION	Product Group	Size Detail	COUNTRY	EMAIL	Specification	TDC	CITY1	ADDRESS1	ADDRESS2	ADDRESS3	ADDRESS4	ADDRESS5	CITY	PHONE1	PHONE2	POST CODE1	Material Group Long Description
83956	ARCOY INDUSTRIES (INDIA) PRIVATE LI	GVALP	ALUMMINIUM PAINT	Paints & Thinners	TPGW	FULL RANGE	India	factory@arcoy.com	AS PER BHEL SPEC	AS PER STANDARD	AHMEDABAD	44, 45 Phase -I, GIDC, VATVA					GJ	079-25831219	08980025366	380026	
83913	Rely Paints Pvt. Ltd.	GVALP	ALUMMINIUM PAINT	Paints & Thinners	TPGW	FULL RANGE	India		AS PER BHEL SPEC	AS PER STANDARD	Ghaziabad	Plot No. 7 & 8 Khasra No. 1323			Meerut Road Morta		UP			201003	
100935	Sheenlac Paints Limited	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	DIP COAT PAINT PR :CHEM :09-03/Rev 02
10268	SUNDARAM PAINTS PVT LTD	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	sundarampaint1@rediffmail.com	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	THANJAVUR	SOMASUNDARAM NAGAR			MEDICAL COLLEGE ROAD	THANJAVUR - 613 004.	TN	04362/40881		613004	DIP COAT PAINT PR :CHEM :09-03/Rev 02
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	chemekkn@bsnl.in	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	DIP COAT PAINT PR :CHEM :09-03/Rev 02
19552	GRAUER & WEIL (INDIA) LTD.,	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	DIP COAT PAINT PR :CHEM :09-03/Rev 02
10635	PASUMMEENA PAINT INDUSTRIES	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	pasummeena@yahoo.com	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	TIRUPPUVANAM	61D, Thiruchuli Road,			Palaiyur Thiruppuvanam,	Sivagangai,	TN	9443065268	8637604794	630611	DIP COAT PAINT PR :CHEM :09-03/Rev 02
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	westernpaints@gmail.com	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	DIP COAT PAINT PR :CHEM :09-03/Rev 02
10174	NOVAA PAINTS	PGDIP	DIP COAT PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	novapaints89@gmail.com	120011121900,120011120002,120050530000	PR:CHEM09-03/REV02D230810	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	DIP COAT PAINT PR :CHEM :09-03/Rev 02
18248	POWER LIGHT PAINTS	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	IS:13183 GRADE-I	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	PSS: H.R.Al.Paints Gr -I
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	chemekkn@bsnl.in	IS:13183 GRADE-I	AS PER BHEL TDC	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	PSS: H.R.Al.Paints Gr -I
100935	Sheenlac Paints Limited	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	IS:13183 GRADE-I	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	PSS: H.R.Al.Paints Gr -I
16739	JOTUN INDIA PVT LTD	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT APPLICABLE	India	sankar.damodaran@jotun.com	IS:13183 GRADE-I	AS PER BHEL TDC	CHENNAI.	PRINCE PLAZA, SECOND FLOOR,					TN	044 2841 9420	0 87544 80089	600008	PSS: H.R.Al.Paints Gr -I
10930	ADVANCE PAINTS PVT LTD.,	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	ALL RANGE	India	aplch@vsnl.net	IS:13183 GRADE-I	AS PER BHEL TDC	CHENNAI	NEW NO.15(37/1),			JAYALAKSHMIPURAM,FIRST STREET	NUNGAMBAKKAM	TN	044 - 28281634		600034	PSS: H.R.Al.Paints Gr -I
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	IS:13183 GRADE-I	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	PSS: H.R.Al.Paints Gr -I
10323	STAR PAINT & OIL INDUSTRIES	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT APPLICABLE	India	sales@starpaintindia.com	IS:13183 GRADE-I	AS PER BHEL TDC	MUMBAI	CRESCENT CHAMBERS			56 TAMARIND STREET FORT	MUMBAI	MH			400023	PSS: H.R.Al.Paints Gr -I
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	westernpaints@gmail.com	IS:13183 GRADE-I	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	PSS: H.R.Al.Paints Gr -I
102785	SHIVAM HITECH STEELS PVTLTD	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	ALUMINIUM PAINTS GRADE- I	India	sales@raymaxpaints.com	IS:13183 GRADE-I	AS PER BHEL TDC	BHILAI	PLOT NO.4,4B,4D,3E/4D,			LIGHT INDUSTRIAL AREA,		CH	7354883357	7999018966	490026	PSS: H.R.Al.Paints Gr -I
10174	NOVAA PAINTS	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	novapaints89@gmail.com	IS:13183 GRADE-I	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	PSS: H.R.Al.Paints Gr -I
10051	CARBOLINE INDIA PRIVATE LTD	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	anand@carbolineindia.com	IS:13183 GRADE-I	AS PER BHEL TDC	CHENNAI.	PLOT No.356 & 357			SIDCO INDUSTRIAL ESTATE	AMBATTUR,	TN	0443 002 2200	0 76674 71777	600098	PSS: H.R.Al.Paints Gr -I
19764	SYNORGANIC PAINTS PVT LTD	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT SPECIFIED	India	synovsp@gmail.com	IS:13183 GRADE-I	AS PER BHEL TDC	VISAKHAPATNAM,	102 APPIC INDUSTRIAL PARK,			PARAWADA,		AP	08924205008	9701702411	531021	PSS: H.R.Al.Paints Gr -I
10031	BERGER PAINTS INDIA LTD.,	PGPH1	PSS:HR.Al.Paint Gr-I	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	IS:13183 GRADE-I	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	PSS: H.R.Al.Paints Gr -I
18248	POWER LIGHT PAINTS	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	IS:13183 GRADE-II	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	
19764	SYNORGANIC PAINTS PVT LTD	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	synovsp@gmail.com	IS:13183 GRADE-II	AS PER BHEL TDC	VISAKHAPATNAM,	102 APPIC INDUSTRIAL PARK,			PARAWADA,		AP	08924205008	9701702411	531021	
10442	ASIAN PAINTS PPG PRIVATE LTD.	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	shivakumar.ch@asianpaintsppg.com	IS:13183 GRADE-II	AS PER BHEL TDC	CHENNAI	TNF ESTATE			1/103 POONAMALEE HIGH ROAD	VANAGARAM,	TN	044 24764260		602102	
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	IS:13183 GRADE-II	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	
10323	STAR PAINT & OIL INDUSTRIES	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	sales@starpaintindia.com	IS:13183 GRADE-II	AS PER BHEL TDC	MUMBAI	CRESCENT CHAMBERS			56 TAMARIND STREET FORT	MUMBAI	MH			400023	
102785	SHIVAM HITECH STEELS PVTLTD	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	ALUMINIUM PAINTS GRADE- II	India	sales@raymaxpaints.com	IS:13183 GRADE-II	AS PER BHEL TDC	BHILAI	PLOT NO.4,4B,4D,3E/4D,			LIGHT INDUSTRIAL AREA,		CH	7354883357	7999018966	490026	
10051	CARBOLINE INDIA PRIVATE LTD	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	anand@carbolineindia.com	IS:13183 GRADE-II	AS PER BHEL TDC	CHENNAI.	PLOT No.356 & 357			SIDCO INDUSTRIAL ESTATE	AMBATTUR,	TN	0443 002 2200	0 76674 71777	600098	
100935	Sheenlac Paints Limited	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	IS:13183 GRADE-II	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	
10031	BERGER PAINTS INDIA LTD.,	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	IS:13183 GRADE-II	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	chemekkn@bsnl.in	IS:13183 GRADE-II	AS PER BHEL TDC	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	
16739	JOTUN INDIA PVT LTD	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	sankar.damodaran@jotun.com	IS:13183 GRADE-II	AS PER BHEL TDC	CHENNAI.	PRINCE PLAZA, SECOND FLOOR,					TN	044 2841 9420	0 87544 80089	600008	
10174	NOVAA PAINTS	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	novapaints89@gmail.com	IS:13183 GRADE-II	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	
10930	ADVANCE PAINTS PVT LTD.,	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	ALL RANGE	India	aplch@vsnl.net	IS:13183 GRADE-II	AS PER BHEL TDC	CHENNAI	NEW NO.15(37/1),			JAYALAKSHMIPURAM,FIRST STREET	NUNGAMBAKKAM	TN	044 - 28281634		600034	
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPH2	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	westernpaints@gmail.com	IS:13183 GRADE-II	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	
102785	SHIVAM HITECH STEELS PVTLTD	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	ALUMINIUM PAINTS GRADE- III	India	sales@raymaxpaints.com	IS:13183 GRADE-III	AS PER BHEL TDC	BHILAI	PLOT NO.4,4B,4D,3E/4D,			LIGHT INDUSTRIAL AREA,		CH	7354883357	7999018966	490026	
18248	POWER LIGHT PAINTS	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	IS:13183 GRADE-III	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	
100935	Sheenlac Paints Limited	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	IS:13183 GRADE-III	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	
18453	RAMDEV RESINS PVT LTD	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	info@ramdevcoatings.com	IS:13183 GRADE-III	AS PER BHEL TDC	DIST. GANDHINAGAR.	KAMALDEEP INDUSTRIAL ESTATE,			OPP. ARVIND MILL, KALOL,		GJ	02764 281509	0 93750 80920	382721	
10031	BERGER PAINTS INDIA LTD.,	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	IS:13183 GRADE-III	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	
19764	SYNORGANIC PAINTS PVT LTD	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	synovsp@gmail.com	IS:13183 GRADE-III	AS PER BHEL TDC	VISAKHAPATNAM,	102 APPIC INDUSTRIAL PARK,			PARAWADA,		AP	08924205008	9701702411	531021	
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	IS:13183 GRADE-III	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	
10051	CARBOLINE INDIA PRIVATE LTD	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	anand@carbolineindia.com	IS:13183 GRADE-III	AS PER BHEL TDC	CHENNAI.	PLOT No.356 & 357			SIDCO INDUSTRIAL ESTATE	AMBATTUR,	TN	0443 002 2200	0 76674 71777	600098	
10174	NOVAA PAINTS	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	novapaints89@gmail.com	IS:13183 GRADE-III	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	
18491	TITAN PAINTS & CHEMICALS LTD	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	businessdevelopment@titanpaints.in	IS:13183 GRADE-III	AS PER BHEL TDC	COIMBATORE.	305,POLLACHI MAIN ROAD,			SUNDRAPURAM,		TN	2672894	9003555628	641021	
10323	STAR PAINT & OIL INDUSTRIES	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	sales@starpaintindia.com	IS:13183 GRADE-III	AS PER BHEL TDC	MUMBAI	CRESCENT CHAMBERS			56 TAMARIND STREET FORT	MUMBAI	MH			400023	
10442	ASIAN PAINTS PPG PRIVATE LTD.	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	shivakumar.ch@asianpaintsppg.com	IS:13183 GRADE-III	AS PER BHEL TDC	CHENNAI	TNF ESTATE			1/103 POONAMALEE HIGH ROAD	VANAGARAM,	TN	044 24764260		602102	
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	westernpaints@gmail.com	IS:13183 GRADE-III	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	
19552	GRAUER & WEIL (INDIA) LTD.,	PGPH3	H.R.ALUMINIUM PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	IS:13183 GRADE-III	AS PER BHEL TDC	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	
18248	POWER LIGHT PAINTS	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	chemekkn@bsnl.in	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	
10635	PASUMMEENA PAINT INDUSTRIES	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	pasummeena@yahoo.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	TIRUPPUVANAM	61D, Thiruchuli Road,			Palaiyur Thiruppuvanam,	Sivagangai,	TN	9443065268	8637604794	630611	
16739	JOTUN INDIA PVT LTD	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	sankar.damodaran@jotun.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENNAI.	PRINCE PLAZA, SECOND FLOOR,					TN	044 2841 9420	0 87544 80089	600008	
100935	Sheenlac Paints Limited	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	
10031	BERGER PAINTS INDIA LTD.,	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	
19552	GRAUER & WEIL (INDIA) LTD.,	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	
10930	ADVANCE PAINTS PVT LTD.,	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	aplch@vsnl.net	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENNAI	NEW NO.15(37/1),			JAYALAKSHMIPURAM,FIRST STREET	NUNGAMBAKKAM	TN	044 - 28281634		600034	
19568	DOOALL CORPRO INDIA	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	ALL RANGE.	India	dooall.paints@gmail.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	MUMBAI	21,DAMJI SHAMJI IND.ESTATE,			L.B.SASTRIMARG,		MH	022 25781525	0 9819491313	400083	
10442	ASIAN PAINTS PPG PRIVATE LTD.	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	shivakumar.ch@asianpaintsppg.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENNAI	TNF ESTATE			1/103 POONAMALEE HIGH ROAD	VANAGARAM,	TN	044 24764260		602102	
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	westernpaints@gmail.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	
10268	SUNDARAM PAINTS PVT LTD	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	sundarampaint1@rediffmail.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	THANJAVUR	SOMASUNDARAM NAGAR			MEDICAL COLLEGE ROAD	THANJAVUR - 613 004.	TN	04362/40881		613004	
10174	NOVAA PAINTS	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	novapaints89@gmail.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPTC	PSS:PAINTS & THINNER	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	IS:2074,2932,104,2339 & BHEL SPEC PR:CHEM:0	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	
19568	DOOALL CORPRO INDIA	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	ALL RANGE.	India	dooall.paints@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	MUMBAI	21,DAMJI SHAMJI IND.ESTATE,			L.B.SASTRIMARG,		MH	022 25781525	0 9819491313	400083	
19764	SYNORGANIC PAINTS PVT LTD	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT SPECIFIED	India	synovsp@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	VISAKHAPATNAM,	102 APPIC INDUSTRIAL PARK,			PARAWADA,		AP	08924205008	9701702411	531021	
100935	Sheenlac Paints Limited	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	
16739	JOTUN INDIA PVT LTD	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT APPLICABLE	India	sankar.damodaran@jotun.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI.	PRINCE PLAZA, SECOND FLOOR,					TN	044 2841 9420	0 87544 80089	600008	
102785	SHIVAM HITECH STEELS PVTLTD	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	EPOXY BASED PAINTS AND THINNERS	India	sales@raymaxpaints.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	BHILAI	PLOT NO.4,4B,4D,3E/4D,			LIGHT INDUSTRIAL AREA,		CH	7354883357	7999018966	490026	
13494	GRAND POLYCOATS CO. PVT. LTD,	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT APPLICABLE	India	marketing@grandpolycoats.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	VADODARA	204, SIDDHARTH COMPLEX,			R C DUTT ROAD,		GJ	0265 3064200		390005	
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	
19552	GRAUER & WEIL (INDIA) LTD.,	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	
10930	ADVANCE PAINTS PVT LTD.,	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	ALL RANGE	India	aplch@vsnl.net	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	NEW NO.15(37/1),			JAYALAKSHMIPURAM,FIRST STREET	NUNGAMBAKKAM	TN	044 - 28281634		600034	
10442	ASIAN PAINTS PPG PRIVATE LTD.	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT APPLICABLE	India	shivakumar.ch@asianpaintsppg.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	TNF ESTATE			1/103 POONAMALEE HIGH ROAD	VANAGARAM,	TN	044 24764260		602102	
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	EPOXY MIO & EPOXY RAL 9002	India	chemekkn@bsnl.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	
18248	POWER LIGHT PAINTS	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	
10051	CARBOLINE INDIA PRIVATE LTD	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT SPECIFIED	India	anand@carbolineindia.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI.	PLOT No.356 & 357			SIDCO INDUSTRIAL ESTATE	AMBATTUR,	TN	0443 002 2200	0 76674 71777	600098	
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT SPECIFIED	India	westernpaints@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	
10031	BERGER PAINTS INDIA LTD.,	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	
10174	NOVAA PAINTS	PGPTE	EPOXY BASED PAINTS &	Paints & Thinners	TPFB	NOT SPECIFIED	India	novapaints89@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	
19552	GRAUER & WEIL (INDIA) LTD.,	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	
13494	GRAND POLYCOATS CO. PVT. LTD,	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	marketing@grandpolycoats.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	VADODARA	204, SIDDHARTH COMPLEX,			R C DUTT ROAD,		GJ	0265 3064200		390005	
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	EPOXY ZINC PHOSPHATE GRAY	India	chemekkn@bsnl.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	
19568	DOOALL CORPRO INDIA	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	ALL RANGE.	India	dooall.paints@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	MUMBAI	21,DAMJI SHAMJI IND.ESTATE,			L.B.SASTRIMARG,		MH	022 25781525	0 9819491313	400083	
100935	Sheenlac Paints Limited	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	
10930	ADVANCE PAINTS PVT LTD.,	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	ALL RANGE	India	aplch@vsnl.net	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	NEW NO.15(37/1),			JAYALAKSHMIPURAM,FIRST STREET	NUNGAMBAKKAM	TN	044 - 28281634		600034	
16739	JOTUN INDIA PVT LTD	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	sankar.damodaran@jotun.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI.	PRINCE PLAZA, SECOND FLOOR,					TN	044 2841 9420	0 87544 80089	600008	
10442	ASIAN PAINTS PPG PRIVATE LTD.	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	shivakumar.ch@asianpaintsppg.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	TNF ESTATE			1/103 POONAMALEE HIGH ROAD	VANAGARAM,	TN	044 24764260		602102	
10031	BERGER PAINTS INDIA LTD.,	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	
10174	NOVAA PAINTS	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	novapaints89@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	
10051	CARBOLINE INDIA PRIVATE LTD	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	anand@carbolineindia.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI.	PLOT No.356 & 357			SIDCO INDUSTRIAL ESTATE	AMBATTUR,	TN	0443 002 2200	0 76674 71777	600098	
102785	SHIVAM HITECH STEELS PVTLTD	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	EPOXY FINISH PAINTS AND THINNERS	India	sales@raymaxpaints.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	BHILAI	PLOT NO.4,4B,4D,3E/4D,			LIGHT INDUSTRIAL AREA,		CH	7354883357	7999018966	490026	
18248	POWER LIGHT PAINTS	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPTF	EPOXY FINISH PAINTS	Paints & Thinners	TPFB	NOT SPECIFIED	India	westernpaints@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	
10031	BERGER PAINTS INDIA LTD.,	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	chennaiprotecton@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	D-18,INDUSTRIAL ESTATE,			AMBATTUR,		TN	044-26357835	9282329896	600058	
10442	ASIAN PAINTS PPG PRIVATE LTD.	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	shivakumar.ch@asianpaintsppg.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	TNF ESTATE			1/103 POONAMALEE HIGH ROAD	VANAGARAM,	TN	044 24764260		602102	
19552	GRAUER & WEIL (INDIA) LTD.,	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	
10051	CARBOLINE INDIA PRIVATE LTD	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	anand@carbolineindia.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI.	PLOT No.356 & 357			SIDCO INDUSTRIAL ESTATE	AMBATTUR,	TN	0443 002 2200	0 76674 71777	600098	
13494	GRAND POLYCOATS CO. PVT. LTD,	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	marketing@grandpolycoats.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	VADODARA	204, SIDDHARTH COMPLEX,			R C DUTT ROAD,		GJ	0265 3064200		390005	
18248	POWER LIGHT PAINTS	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	powerlightpaints@yahoo.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	TRICHY.	8/17, RAHIM COMPLEX,			THANJAVUR MAIN ROAD, THUVAKUDYMALAI,		TN	0431 255 3768	0 98424 03768	620022	
10095	KANSAI NEROLAC PAINTS LIMITED,	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	rsrao@nerolac.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI	142-B, THIRUPPORUR HIGH ROAD,			PERUNGUDI - CHENNAI		TN	044-24965676		600096	
100935	Sheenlac Paints Limited	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	ramachandrank@sheenlac.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	
16739	JOTUN INDIA PVT LTD	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT APPLICABLE	India	sankar.damodaran@jotun.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENNAI.	PRINCE PLAZA, SECOND FLOOR,					TN	044 2841 9420	0 87544 80089	600008	
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	chemekkn@bsnl.in	AS PER CUSTOMER REQT	AS PER BHEL TDC	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	
10174	NOVAA PAINTS	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	novapaints89@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	
19764	SYNORGANIC PAINTS PVT LTD	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	synovsp@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	VISAKHAPATNAM,	102 APPIC INDUSTRIAL PARK,			PARAWADA,		AP	08924205008	9701702411	531021	
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	NOT SPECIFIED	India	westernpaints@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	
19568	DOOALL CORPRO INDIA	PGPTP	SPECIAL PRIMER PAINT	Paints & Thinners	TPFB	ALL RANGE.	India	dooall.paints@gmail.com	AS PER CUSTOMER REQT	AS PER BHEL TDC	MUMBAI	21,DAMJI SHAMJI IND.ESTATE,			L.B.SASTRIMARG,		MH	022 25781525	0 9819491313	400083	
10174	NOVAA PAINTS	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	novapaints89@gmail.com	IS:1745	NA	TIRCHY.	7/8-C,CAUVERY NAGAR,			TIRUVERUMBUR,		TN	0431 251 1605	0 96009 07011	620013	THINNER FOR ALKYD PAINTS
10268	SUNDARAM PAINTS PVT LTD	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	sundarampaint1@rediffmail.com	IS:1745	NA	THANJAVUR	SOMASUNDARAM NAGAR			MEDICAL COLLEGE ROAD	THANJAVUR - 613 004.	TN	04362/40881		613004	THINNER FOR ALKYD PAINTS
10308	WESTERN INDIA PAINT& COLOUR CO. (P)	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	westernpaints@gmail.com	IS:1745	NA	CHENGALPET, KANCHIPURAM	PLOT 1A, MELROSAPURAM ROAD,			THIRUKATCHUYUR SENGUNDRAM LAYOUT,	CMDA INDL AREA, MARAIMALAI NAGAR,	TN	044-28156499	0 98840 88887	603204	THINNER FOR ALKYD PAINTS
10635	PASUMMEENA PAINT INDUSTRIES	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	pasummeena@yahoo.com	IS:1745	NA	TIRUPPUVANAM	61D, Thiruchuli Road,			Palaiyur Thiruppuvanam,	Sivagangai,	TN	9443065268	8637604794	630611	THINNER FOR ALKYD PAINTS
19552	GRAUER & WEIL (INDIA) LTD.,	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	dinesh.rao@growel.com	IS:1745	NA	CHENNAI	OLD NO. 145/7, NEW NO. 467,			T.H. ROAD, TONDIARPET,		TN	0-93813-54555		600081	THINNER FOR ALKYD PAINTS
19620	CHEMECOAT PAINTS INDIA PVT LTD.	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	chemekkn@bsnl.in	IS:1745	NA	TRICHY	PLOT NO.3, GF2			OLIYUR MAIN ROAD, KK NAGAR,		TN	0431-2340180	0 98424 45649	620021	THINNER FOR ALKYD PAINTS
100935	Sheenlac Paints Limited	PGTAP	THINNER FOR ALKYD PA	Paints & Thinners	TPFB	NOT APPLICABLE	India	ramachandrank@sheenlac.in	IS:1745	NA	Chennai	Block B, 76B,			GKS Estates	Ambattur Industrial Estate	TN	04443949900	9445862760	600098	THINNER FOR ALKYD PAINTS

CORPORATE QUALITY ASSURANCE/ कॉरपोरेट गुणवत्ता आश्वासन

MAIN CONTRACTOR'S PROPOSAL CUM EVALUATION REPORT

मुख्य संविदाकार प्रस्ताव सह मुल्यांकन रिपोर्ट ANNEXURE-VII

Ref No: संदर्भ सं.:			***Date:*** तिथिः		
i.	***Main Contractor*** मुख्य संविदाकार				
ii.	***Project*** परियोजना				
iii.	***Package Name*** पैकेज का नाम		***Package No*** पैकेज सं.		
iv.	***Proposed Item/Scope of Sub-contracting*** उप-संविदा(अनुबंध) का प्रस्तावित मद/ दायरा				
v.	***Item covered under*** *निम्नलिखित के अंतर्गत शामिल मद*	***Schedule-1*** */अनुसूची-* ***1***		***As per contract clause No-*** *अनुबंध के अनुसार खंड सं.--* ***-***	
		Schedule-2 *अनुसूची-* ***-2***			
vi.	***If item is Schedule-1 and proposed sub-vendor is indigenous, Main Contractor to explain how the contractual provisions will be fulfilled*** /यदि मद अनुसूची -**1** है और प्रस्तावित उप-विक्रेता स्वदेशी है, तो मुख्य संविदाकार को स्पष्ट करना होगा कि संविदा/अनुबंध के प्रावधान कैसे पूरे किए जाएंगे				
vii.	***Name and Address of the proposed Sub-vendor's works*** /प्रस्तावित सब-वेंडर का नाम तथा पता				
viii.	***PO placement date/ Start of manufacturing (if self-manufactured) as per L2 network*** **पीओ नियोजन की तिथि / एल-** 2 **नेटवर्क के अनुसार विनिर्माण (यदि स्व-निर्मित है) की शुरुआत**				

ix.	***Item Description (Type/Size/Rating/Scope of Sub-Contracting)*** मद का विवरण (प्रकार / आकार / रेटिंग / उप-अनुबंध का दायरा)	***Total quantity of proposed item envisaged in this package (Nos/ Running Meters/ Kgs/ Tons etc)*** इस पैकेज में परिकल्पित प्रस्तावित मद की कुल मात्रा (संख्या / क्रियाशील मीटर / किलोग्राम / टन आदि)	***Quantity proposed to be procured from proposed sub-vendor (Nos/ Running Meters /Kgs /Tons etc)*** प्रस्तावित उप-विक्रेता (संख्या / क्रियाशील मीटर / किलोग्राम / टन आदि) से खरीदी जाने वाली मात्रा	***Timeline for quantity requirements as per project schedule & whether the proposed Sub-vendor equipped with adequate capacity to supply proposed order quantity in time /*** परियोजना समय सूची के अनुसार मात्रा आवश्यकताओं के लिए समय-सीमा और क्या प्रस्तावित उप-विक्रेता समय पर प्रस्तावित मांग की मात्रा की आपूर्ति करने में पूरी तरह से सक्षम है

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)*** पिछले **3** वर्षों के लिए उप-अनुबंध के समान मद / दायरे के लिए प्रस्तावित सब-वेंडर (मुख्य संविदाकार हेतु

आपूर्ति, यदि कोई हो, सहित) का आपूर्ति अनुभव (नोट: - उप-अनुबंध के प्रस्तावित मद / दायरे के संबंध में केवल प्रासंगिक अनुभव के विवरण का उल्लेख हो

Project/Package परियोजना/पैकेज	***Customer Name*** ग्राहक का नाम	***Supplied Item (Type/Rating/Model /Capacity/Size etc)*** आपूर्त्तित मद (प्रकार/रेटिंग /मॉडल /क्षमता/आकार आदि)	***PO ref no/date*** पीओ संदर्भ सं. /तिथि	***Supplied Quantity*** आपूर्ति की मात्रा	***Date of Supply*** आपूर्त्ति की तिथि

We confirm that as per our physical assessment, the proposed sub-vendor has requisite capabilities & supply experience and is suitable for supplying the proposed item/scope of sub-contracting/हम अपने **भौतिक** आकलन के अनुसार इस बात की पुष्टि करते हैं कि, प्रस्तावित उप-विक्रेता के पास अपेक्षित क्षमता और आपूर्ति करने का अनुभव है और उप-अनुबंध के दायरे /प्रस्तावित मद की आपूर्ति के लिए उपयुक्त है।

Name: नाम:		***Desig:*** पद:		***Contact No:*** दूरभाष सं.:		***Sign:*** हस्ताक्षर:		***Date:*** तिथि:	

Company's Seal/Stamp:- कंपनी का मुहर:-

एनटीपीसी NTPC	**CORPORATE QUALITY ASSURANCE/ कॉरपोरेट गुणवत्ता आश्वासन** **SUB-VENDOR QUESTIONNAIRE/ सब-वेंडर प्रश्नावली**

i.	***Item/Scope of Sub-contracting*** **उप-संविदा(अनुबंध) का मद/ दायरा**			
ii.	***Address of the registered office*** पंजीकृत कार्यालय का पता	***Details of Contact Person*** संपर्क व्यक्ति का विवरण ***(Name, Designation, Mobile, Email)*** (नाम, पदनाम, मोबाइल, ईमेल)		
iii.	***Name and Address of the proposed Sub-vendor's works where item is being manufactured*** प्रस्तावित उप-विक्रेता के कार्यों का नाम और पता, जहां मद का निर्माण किया जा रहा है	***Details of Contact Person:*** संपर्क व्यक्ति का विवरण ***(Name, Designation, Mobile, Email)*** (नाम, पदनाम, मोबाइल, ईमेल)		
iv.	***Annual Production Capacity for proposed item/scope of sub-contracting*** **उप-संविदा(अनुबंध)** के प्रस्तावित मद / दायरे के लिए वार्षिक उत्पादन क्षमता			
v.	***Annual production for last 3 years for proposed item/scope of sub-contracting*** **उप-संविदा(अनुबंध)** के प्रस्तावित मद / दायरे के लिए पिछले 3 वर्षों का वार्षिक उत्पादन			
vi.	***Details of proposed works*** **प्रस्तावित कार्यों का विवरण**			
1.	***Year of establishment of present works*** वर्तमान फैक्टरी की स्थापना का वर्ष			
2.	***Year of commencement of manufacturing at above works*** उपरोक्त फैक्टरी में निर्माण कार्य शुरू होने का वर्ष			
3.	***Details of change in Works address in past (if any*** पूर्व में फैक्टरी स्थल में परिवर्तन का विवरण (यदि कोई हो)***)***			
4.	***Total Area*** कुल क्षेत्र			
	Covered Area शामिल क्षेत्र			
5.	***Factory Registration Certificate*** फैक्टरी पंजीकरण प्रमाण पत्र	***Details attached at Annexure – F2.1*** विवरण अनुलग्नक- एफ 2.1 पर संलग्न है		
6.	***Design/ Research & development set-up*** डिजाइन / अनुसंधान और विकास सेटअप ***(No. of manpower, their qualification, machines & tools employed etc.)*** (श्रमिकों की संख्या, उनकी योग्यता, मशीन और उपलब्ध उपकरण आदि)	***Applicable / Not applicable if manufacturing is as per Main Contractor/purchaser design)*** ***Details attached at Annexure – F2.2*** ***(if applicable)*** लागू / लागू नहीं, अगर विनिर्माण मुख्य संविदाकार / खरीददार के डिजाइन के अनुसार है) विवरण अनुलग्नक –एफ 2.2 पर संलग्न है। (यदि लागू हो)		
7.	***Overall organization Chart with Manpower Details (Design/Manufacturing/Quality etc)*** मैनपावर विवरण के साथ समग्र संगठन का चार्ट(डिजाइन / विनिर्माण / गुणवत्ता आदि)	***Details attached at Annexure – F2.3*** विवरण अनुलग्नक – F2.3 में संलग्न है।		
8.	***After sales service set up in India, in case of foreign sub-vendor(Location, Contact Person, Contact details etc.)*** भारत	***Applicable / Not applicable*** लागू / लागू नहीं		

	में बिक्री सेवा की स्थापना के बाद, विदेशी उप-विक्रेता के मामले में(स्थल , संपर्क व्यक्ति, संपर्क विवरण आदि)	***Details attached at Annexure – F2.4*** विवरण अनुलग्नक -2.4 पर संलग्न है।
9.	***Manufacturing process execution plan with flow chart indicating various stages of manufacturing from raw material to finished product including outsourced process, if any*** फ्लोचार्ट सहित विनिर्माण प्रक्रिया निष्पादन योजना , जिसमें आउटसोर्स प्रक्रिया, यदि कोई हो, सहित कच्चे माल से तैयार उत्पाद तक विनिर्माण के विभिन्न चरणों को दर्शाया गया हो,	***Details attached at Annexure – F2.5*** विवरण अनुलग्नक - F2.5में संलग्न है।
10.	***Sources of Raw Material/Major Bought Out Item*** कच्चे माल के स्रोत / खरीदे हुए मुख्य मद	***Details attached at Annexure – F2.6*** विवरण अनुलग्नक - F2.6में संलग्न है।
11.	***Quality Control exercised during receipt of raw material/BOI, in-process , Final Testing, packing*** कच्चे माल / खरीदे हुए मद, प्रक्रियाबद्ध, अंतिम परीक्षण, पैकिंग करते समय गुणवत्ता नियंत्रण	***Details attached at Annexure – F2.7*** विवरण अनुलग्नक - F2.7 पर संलग्न है
12.	***Manufacturing facilities*** ***(List of machines, special process facilities, material handling etc.)*** विनिर्माण सुविधा(मशीनों की सूची , विशेष प्रक्रिया सुविधाएं, सामग्री रख-रखाव आदि)	***Details attached at Annexure – F2.8*** विवरण अनुलग्नक - F2.8में संलग्न है।
13.	***Testing facilities (List of testing equipment)*** परीक्षण सुविधाएं(परीक्षण उपकरण की सूची)	***Details attached at Annexure – F2.9*** विवरण अनुलग्नक – F2. 9 में संलग्न है।
14.	***If manufacturing process involves fabrication then-*** यदि निर्माण प्रक्रिया में फेब्रिकेशन की गई है तो-	***Applicable / Not applicable*** लागू / लागू नहीं ***Details attached at Annexure – F2.10*** विवरण अनुलग्नक - F2.10में संलग्न है। ***(if applicable)*** लागू / लागू नहीं
	List of qualified Welders पात्र वेल्डर की सूची	
	List of qualified NDT personnel with area of specialization विशेषज्ञता के क्षेत्र सहित पात्र एनडीटी कार्मिकों की सूची	
15.	***List of out-sourced manufacturing processes with Sub-Vendors' names & addresses*** सब-वेंडर द्वारा बाह्य स्रोतों (उनके नाम और पते सहित)से करवाएं गए निर्माण प्रक्रियाओं की सूची	***Applicable / Not applicable*** लागू / लागू नहीं ***Details attached at Annexure. –F2.11*** विवरण अनुलग्नक - F2.10में संलग्न है। ***(if applicable)*** (यदि लागू हो)
16.	***Supply reference list including recent supplies*** नवीनतम आपूर्ति सहित आपूर्ति संदर्भ सूची	***Details attached at Annexure – F2.12*** विवरण अनुलग्नक - F2.12 में संलग्न है। ***(as per format given below)*** (नीचे दिए गए प्रारूप के अनुसार)

Project/ package परियोजना /पैकेज	*Customer Name* ग्राहक का नाम	*Supplied Item (Type/Rating/Model /Capacity/Size etc)* आपूर्ति की गई वस्तु (प्रकार / रेटिंग / मॉडल / क्षमता / आकार आदि)	*PO ref no/date* पीओ संदर्भ सं. / तिथि	*Supplied Quantity* आपूर्ति की मात्रा	*Date of Supply* आपूर्ति की तारीख

17.	***Product satisfactory performance feedback letter/certificates/End User Feedback*** उत्पाद के संतोषजनक प्रदर्शन संबंधी फीडबैक पत्र / प्रमाण पत्र / अंतिम उपयोगकर्ता फ़ीडबैक	***Attached at annexure - F2.13*** अनुलग्नक F2. 3पर संलग्न है
18.	***Summary of Type Test Report (Type Test Details, Report No, Agency, Date of testing) for the proposed product***	***Applicable / Not applicable*** लागू / लागू नहीं

	(similar or higher rating) प्रस्तावित उत्पाद (एक समान या उच्च रेटिंग वाले) के लिए टाइप टेस्ट रिपोर्ट (टाइप टेस्ट विवरण, रिपोर्ट संख्या, एजेंसी, जांच की तारीख) का सारांश नोट: - रिपोर्ट प्रस्तुत करने की आवश्यकता नहीं है ***Note:- Reports need not to be submitted***	***Details attached at Annexure – F2.14*** विवरण अनुलग्नक - F2.1 4में संलग्न है ***(if applicable)*** (यदि लागू हो)
19.	***Statutory / mandatory certification for the proposed product*** प्रस्तावित उत्पाद के लिए वैधानिक / अनिवार्य प्रमाणीकरण	***Applicable / Not applicable*** लागू / लागू नहीं ***Details attached at Annexure – F2.15*** ***(if applicable)*** (यदि लागू हो)
20.	***Copy of ISO 9001 certificate*** आईएसओ 9001 प्रमाण पत्र की प्रति ***(if available***(यदि उपलब्ध हो)	***Attached at Annexure – F2.16*** अनुलग्नक में संलग्न - F2.1 6 है
21.	***Product technical catalogues for proposed item (if available)*** प्रस्तावित मद के लिए उत्पाद तकनीकी कैटलॉग (यदि उपलब्ध हो)	***Details attached at Annexure – F2.17*** विवरण अनुलग्नक - F2.1 7 में संलग्न है

Name: ***नाम:***		***Desig:*** ***पद:***		***Sign:*** ***हस्ताक्षर:***		***Date:*** ***तिथि:***	

Company's Seal/Stamp:- कंपनी की मुहर / मोहर: -

VOLUME: II B

SECTION - D
(PART I)

SUB-SECTION – D 17

FABRICATION OF STRUCTURAL STEEL WORK

Maharatna Company

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

C 0 N T E N T

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.

i) Maintain a fully equipped workshop at site for fabrication, modification and repairs of steelwork at site as may be required to complete the works in accordance with the Contract.

2.02.00 Work by others

No work under this specification will be provided for by any agency other than the contractor, unless specifically mentioned otherwise elsewhere in the contract.

2.03.00 Codes and standards

All work under this specification shall, unless otherwise specified in the contract, conform to the requirements of the latest revision and/or replacements of the following or any other relevant Indian Standard specifications and codes of practice. In case any particular aspect of the work is not specifically covered by any Indian Standard specification, any other standard practice, as may be specified by the Engineer shall be followed:

IS : 226 - Structural steel (Standard Quality)

IS : 800 - Code of Practice for general construction in steel.

IS : 806 - Code of practice for use of steel tubes in general building construction.

IS : 808 - Rolled steel beams, channels, and angle sections

IS : 813 - Scheme of symbols for welding

IS : 814 - Covered electrodes for metal arc welding of structural steel

IS : 815 - Classification and coding of covered electrodes for metal arc welding of structural steels.

IS : 816 - Code of practice for use of metal arc welding for general construction in mild steel

IS : 817 - Code of practice for training and testing metal arc welders

IS : 818 - Code of practice for safety and health requirements in electric and gas welding and cutting operations

IS : 822 - Code of practice for inspection of welds

IS : 919 - Recommendations for limits and fits for Engineering

IS : 961 - Structural Steel (High Tensile)

IS : 1148 - Rivet bars for structural purposes

IS : 1149 - High tensile rivet bars for structural purposes

IS : 1161 - Steel Tubes for structural purposes

IS : 1200 - Method of measurement of steelwork and ironwork (Part 8)

IS : 1239 - Mild Steel Tubes

IS : 1363 - Black hexagon bolts, nuts and lock nuts (dia. 6 to 30 mm) and black hexagon screws (dia 6 to 24 mm)

IS : 1364 - Precision and semi-precision hexagon bolts, screws, nuts and l locknuts (dia, range 6 to 39 mm)

IS : 1367 - Technical supply conditions for threaded fasteners

IS : 1442 - Covered electrodes for the metal are welding of high tensile structural steel

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

IS : 1730 - Dimensions for steel plate, sheet, and strip for structural and general engineering purposes.

IS : 1731 - Dimensions for steel flats for structural and general engineering purposes

IS : 1852 - Rolling and cutting tolerances for hot-rolled steel products

IS : 1977 - Structural steel (ordinary quality) St-42-0

IS : 2062 - Steel for General Structural Purposes

IS : 2074 - Ready mixed paint, red oxide Zinc chromate priming

IS : 2595 - Code of Practice for Radiographic Testing

IS : 2629 - Recommended practice for Hot-Dip Galvanizing of Iron and Steel

IS : 2633 - Method for testing uniformity of coating on Zinc Coated Articles

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,

the manufacturer shall furnish instructions giving recommended voltage and amperage (Polarity in case of D.C. supply) for which the electrodes are suitable.

2.05.02 Steel

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:

a) IS : 2062 - Steel for general structural purposes

b) IS : 961 - Structural steel High Tensile

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

In case of imported steel materials being used, these shall conform to specifications equivalent to any of the above as may be applicable.

2.05.03 Rivet Steel

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:

a) IS : 1148 - Rivet Bars for structural purpose

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.

2.05.04 Electrodes

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

a) IS : 814 - Covered electrodes for metal arc welding of structural steel

b) IS : 815 - Classification and coding of covered electrodes for metal arc welding of mild steel and low alloy high tensile steel

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

d) IS : 6649 - Hardened washers

2.05.07 Paints

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.

2.06.00 Coal Bin

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.

2.06.02 For general requirements, fabrication and construction details IS: 9178 (Pt.l & 11) shall be followed as general guidance. The bins shall be fabricated and erected in segments.

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.

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.

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.

2.07.00 New Erection Marks

2.07.01 Additional structures involving new erection marks may be required to be added at any stage of work.

2.07.02 All such new erection marks shall be detailed and included in marking schemes and fabrication carded out thereafter.

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.

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.

2.08.10 Grating units shall be provided with all necessary clips, bolts, nuts and lock washers required for proper assembly and rigid installation and fastening to abutting units supporting structural steel framing members.

2.08.11 The gratings shall be of reputed make and manufacturer, as approved by Engineer. The unit rate quoted by him for this item shall be inclusive of transport of gratings to the project site, all taxes, duties etc. He shall also provide all facilities and access to the Engineer or his representative to carry out inspection during all stages of manufacturing of gratings.

2.08.12 Maximum deviation in linear dimension from the approved dimension shall not exceed 12mm.

2.08.13 All fabricated grating section and accessories shall be blast cleaned to near white metal surface (Sa 2½) followed by either of the following two:

(a) Two coats of red lead primer and two coats of black enamel finish paint.

(b) Hot dipped galvanization at 610 gm/sq.m.

in the shop prior to erection at site, as the approved drawing.

2.08.14 Prior to finishing all surfaces shall be cleaned, free from rust, mill scale, grease, oil, or any other foreign matter by blast cleaning. BS: 4232 shall be followed for blast cleaning.

2.08.15 Primer can be applied by spray guns or by brushes, however the finish paint shall necessarily be applied by means of spray guns. The applied coatings shall be uniform, free from voids and streaks; drilled or punched holes shall be touched up prior to erection or assembly.

2.09.00 GALVANIZATION OF GRATINGS

2.09.01 Purity of Zinc to be used-for galvanizing shall be 99.5% as per IS: 2 15

2.09.02 After the shop work is complete, the structural material shall be punched with erection mark and be hot double dip galvanized. Before galvanizing the steel section shall be thoroughly blast cleaned to near white metal surface (Sa 2½).

2.09.03 The weight of the zinc coating shall be at least 610 gm/m² - unless noted otherwise.

2.09.04 The galvanized surface shall consist of a continuous and uniformly thick coating of zinc, firmly adhering to the surface of steel. The finished surface shall be cleaned and smooth and shall be free from defects like discoloured

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.

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.

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.

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.

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.

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 the redone in the similar manner as stated above at no extra cost to the Owner.

2.10.00 STAINLESS STEEL HOPPERS (As per BOQ item)

2.10.01 Material

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.

Material	**%**	**Remarks**
Carbon	10.03%	Max.
Silicon	1.60%	Max.
Manganese	0.80% to 1.50%	
Phosphorous	0.03%	Max.
Sulpher	0.03%	Max.

Chromium	10.80% to 12.50%	
Nickel	1.50%	Max.
Titanium	0.75%	Max.
Nitrogen	0.03%	Max.

The mechanical properties shall be as follows:

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

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.

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.

2.10.04 Cuffing

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.

2.10.05 Jointing

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.

2.10.06 Bending

The stainless steel plates shall be subjected to cold forming and bending in order to get the desired shape and profile.

2.10.07 Welding sequence

The type of electrodes, welding sequence, preheat and interpass temperature and post weld heat treatment shall be as approved by the Engineer.

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

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.

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, Nuts & Washers : Manufacturer's certificate, dimension checks, 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

reports

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.

2.14.00 Standard dimensions, forms and weights

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.

2.15.00 Fabrication Drawings

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.

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.

The fabrication drawings shall include but not limited to the following:

a) Assembly drawings giving exact sizes of the sections to be used and identification marks of the various sections.

b) Dimensional drawings of base plates, foundation bolts location etc.

c) Comparison sheets to show that the proposed alternative section, if any, is as strong as the original sections shown on the Design Drawings.

d) Complete Bill of Materials and detailed drawings of all sections as also their billing weights.

e) Any other drawings or calculations that may be required for the clarification of the works or substituted parts thereof.

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.

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.

3.00.00 WORKMANSHIP

3.01.00 Fabrication

3.01.01 General

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.

3.01.02 Straightening Material

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.

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

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

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 trough 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.

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 m 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

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.

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.

3.03. 12 Temperature

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.

3.03. 13 Peening

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.

3.03. 14 Equipment

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.

3.04.00 Finish

Column splices and butt joints of compression members depending on contact for stress transmission shall be accurately machined and close-butted 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

than 1.0 mm.

3.05.00 Slab bases and caps

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.

To facilitate grouting, holes shall be provided, where necessary, in stanchion bases for the escape of air.

3. 12.00 Lacing bars

The ends of lacing bars shall be neat and free from burns.

3. 13.00 Separators

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.

3.14.00 Bearing Plates

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.

3.15.00 Floor Grating

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.

The grating shall be made in panel units designed to span as indicated in structural steel framing drawing or as directed by the Engineer.

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.

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.

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.

3.10.00 Chequered Plates

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.

3.11.00 Architectural Clearances

Bearing plates and stiffener connections shall not be permitted to encroach on the designed architectural clearances.

3.11.00 Shop connections

a) All shop connections shall be otherwise riveted or welded as specified on the Drawings.

b) Heads of rivets on surfaces carrying brick walls shall be flattened to 10 mm thick projection.

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.

3.13.00 Castings

Steel castings shall be annealed.

3.14.00 Shop erection

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

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

3.15.00 Shop painting

3.15.01 General

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.

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.

3.15.02 Inaccessible parts

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.

3.15.03 Contact surfaces

Contact surface shall be cleaned in accordance with sub-clause 3.13.1 before assembly.

3.15.04 Finished surfaces

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.

3.15.05 Surfaces adjacent to field welds

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.

3.16.00 Galvanizing

3.16.01 General

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.

3.16.02 Surface Preparation

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.

The pickling process shall be completed by thoroughly rinsing with water, which should preferably be warm, so as to remove the residual acid.

3.16.03 Procedure

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.

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.

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.

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

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.

4.00.00 INSPECTION, TESTING, ACCEPTANCE CRITERIA AND DELIVERY

4.01.00 Inspection

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.

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.

4.02.00 Testing and Acceptance Criteria

4.02.01 General

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.

4.02.02 Steel

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.

All material shall be free from all imperfections, mill scales, slag intrusions, laminations, fittings, rusts etc. that may impair their strength, durability, and appearance.

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

manufacturers and shall conform to the provisions of the relevant Indian Standards.

4.02. 12 Galvanizing

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.

4.03.00 Tolerance

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.

4.04.00 Acceptance

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.

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.

4.05.00 Delivery of materials

4.05.01 General

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

discretion.

4.05.02 Marking

Each separate piece of fabricated steelwork shall be distinctly marked on all surfaces before delivery in accordance with the markings shown on approved erection drawings and shall bear such other marks as will further facilitate identification and erection.

4.05.03 Shipping

Shipping shall be strictly in accordance with the sequence stipulated in the agreed Programme. Contractor shall dispatch the materials to the e worksite securely protecting and packing the materials to avoid loss or damage during transport by rail, road or water. All parts shall be adequately braced to prevent damage in transit.

Each bundle, bale or package delivered under this contract shall be marked on as many sides as possible and such distinct marking (all previous irrelevant markings being carefully obliterated) shall show the following:

a) Name and address of the consignee

b) Name and address of the consignor

c) Gross weight of the package in tonnes and its dimensions

d) Identification marks and/or number of the package

e) Custom registration number, if required

All markings shall be carried out with such materials as would ensure quick drying and indelibility.

Each component or part or piece of material when shipped, shall be indelibly marked and/or tagged with reference to assembly drawings and corresponding piece numbers.

Each packing case shall contain in duplicate in English a packing list pasted on to the inside of the cover in a water-proof envelope, quoting especially -

a) Name of the Contractor

b) Number and date of the Contract

c) Name of the office placing the contract

d) Nomenclature of stores

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.

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

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.

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.

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.

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.

6.01.05 Rates shall be inclusive of all leads and lifts/elevation.

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.

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.

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.

6.01.07 The bidder's rates for foundation bolts assembly shall include fabrication, threading, heat treatment, erection, installation, and alignment of complete bolt

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.

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.

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.

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.

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.

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.

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.

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 unublized 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.

The bidder should prepare an optimised cutting plan as per fabrication

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.

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.

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.

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.

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.

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.

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

circumscribing rectangle has been considered for payment.

6.02.09 The splice plate shown in the fabrication drawing or approved by the Engineer shall only be measured for payment.

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.

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.

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.

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.

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.

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.

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.

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.

6.02.18 The measurement for the item of the work of dismantling, additions, alterations, reerection etc. shall be as given below

6.02.19 For dismantling, the unmodified weight of the actually dismantled erection marks shall only be measured.

6.02.20 For the work of addition to, alteration in and / or modification of 'erection marks' either in erected position or in the fabrication yard, measurement of weight for payment purpose shall be calculated as the arithmetic sum of weight of steel cut and removed from the erection mark, weight of steel reutilised out of such cut and removed pieces and weight of additional new steel pieces added to the erection mark.

6.02.21 For re-erection the weight of the modified erection mark shall only be measured.

6.02.22 The weight shall be measured nearest to kg. and shall be arrived in a manner similar to the measurement for the item of fabrication, erection, alignment and welding of structural steel.

6.02.23 The measurement for the item of PTFE bearings shall be based on the load carrying capacity of PTFE in MT, corrected to third place of decimal, supplied by the contractor and as accepted by the Engineer and as per the approved bearing schedule, for the total vertical load carrying capacity, for all bearings.

6.02.24 The measurement for the item of stainless steel hopper shall be based on the actual finished weight of hopper weight in Kgs, corrected to second place of decimal. The hopper weight shall be arrived by multiplying of the inner surface area of the hopper with the unit weight of the hopper plate.

6.02.25 The measurement for the item of flexible open-ended bellows straps of neoprene shall be based in running meter, corrected to second place of decimal. Bellow Straps shall be supplied as per the requirement of the approved drawings. The measurement shall be done for the inner circumference of the bunker on which neoprene has been fixed and for the length supplied by the Contractor 'and as accepted by the Engineer.

6.02.26 The measurement for the item of Stainless Steel Hand Railing shall be based on finished weight of handrail in Kgs corrected to second place of decimal. The weight shall also include the weight of Stainless Steel fasteners, Stainless Steel beading, Stainless Steel cleats etc. The weight shall be the finished weight of Hand Rail, as accepted by the Engineer.