



BHEL-ISG
BANGALORE

Enquiry Technical Specification For
Erection of Bottom Ash hopper for Ash Handling
System – 2 x 660MW Ennore SEZ STPP

Specification No.
IS-1-14-2004/065/TS

Enquiry Specification
for
Fabrication and Erection of Bottom Ash Hopper for Ash handling system
2 x 660MW Ennore SEZ STPP



BHARAT HEAVY ELECTRICALS LIMITED
INDUSTRIAL SYSTEMS GROUP
BANGALORE

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01.0 PROJECT INFORMATION

Tamilnadu Generation and Distribution Corporation (TANGEDCO) is establishing 2 x 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS in Vayalur Village, Near Ennore Port by reclamation of some portion of Ash Dyke. BHEL-ISC is supplying Ash handling system for this plant along with other systems. Bottom ash hopper is a static structure lined with refractory and forms part of the Ash handling system.

Owner	TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION (TANGEDCO)
Project	2 x 660 MW Ennore SEZ Coal Based Supercritical Thermal Power Project at Ash Dyke of NCTPS
Owner's consultant	DESEIN PRIVATE LIMITED , DESEIN HOUSE, GREATER KAILASH-II, NEWDELHI-110048
Location	The site is located near Vayalur Village, Ennore. Latitude : 13°17' N to 13°18' N & Longitude : 80°18' E to 80°19' E
Site	Distance from Chennai City : 35 km
Nearest Airport	Nearest Airport is at Chennai at a Distance of 60 km
Nearest Port	Ennore
Nearest Railway Station	Athipattu Pudunagar (approx. 5 kms.)
Access to site	All weather road from Pattamandri on the Thiruvottiyur-Ponneri district highway is the nearest road access.

02.0 TECHNICAL SPECIFICATION & SCOPE OF WORK

The scope of services includes fabrication and erection of Bottom Ash Hopper for Ash Handling System. It includes co-ordination with BHEL's Material unloading and storage contractor during receipt of material at site, Intra Site Transport & Handling at site, identifying the item from closed/open storage yard, shifting to erection work place, erection, alignment, painting at site, water leak test of Bottom ash hopper of Ash Handling System until satisfactory completion and written confirmation from customer.

01.00. SCOPE OF WORK

The scope of work includes but not limited to the following.

- 01.01 Fabrication (including drilling, welding) of Bottom ash hopper assembly (1 No.) and accessories (as defined in Table-1). BHEL shall provide the requisite structural material. Bidder shall prepare the fabrication drawings based on the structural GA of Bottom ash hopper.
- 01.02 Erection of Bottom Ash Hopper assembly (1 No.) (Table-1). On completion of erection of AHP to the satisfaction of BHEL/Customer as per specification requirement, the work area is to be cleared of all debris and other material not required for the system
- 01.03 Necessary "PROTOCOLS" as per customer approved FQP to be maintained by the Bidder with BHEL and Customer and the same to be submitted to BHEL for record.
- 01.04 Bidder shall maintain "Erection Completion register" at site to record the completion of erection activities and the register shall be jointly signed by Bidder, AHP Package Vendor / BHEL and Customer. Thereafter the erection protocol shall be prepared based on the signed protocol.
- 01.05 Bidder shall arrange required water for filling in bottom ash hopper (during hydro test before refractory works and during boiler light up, coal synchronization etc.), from the water source which shall be indicated by BHEL at project site. Bidder shall arrange his own pump for pumping water into bottom ash hopper. The erection and dismantling of temporary water pipes from source to Bottom Ash Hopper (BAH) shall be done by bidder. As and when required, the water has to be arranged in bottom ash hopper by the bidder until availability of water through permanent connection of water pipe from Ash Water pump house. This is part of the contract price and bidder to quote accordingly with no extra cost to BHEL.
- 01.06 Grouting of bases of all the columns, minor chipping of pedestals / pockets shall be in scope of Bidder. BHEL / BHEL's civil contractors shall provide only the foundation with foundation bolt for pedestals (wherever necessary) as per Mechanical GA drawings. Potable water shall be used for mixing grout material. Bidder shall take minimum 3nos of cube sample for testing in lab each time structural base plate and shear key pocket grouting works is carried out at site. The test must pass the required parameters, otherwise the corrective action has to be taken by the bidder at no extra cost to BHEL.

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01.07 Bill of Quantity:

The scope of bidder shall include the fabrication & erection of following items but not limited to:

Table:1:- Bill of Quantity

Sl. No.	ITEM DESCRIPTION	UOM	QTY.
1	BOTTOM ASH HOPPER "VV" SHAPE		
2300	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.		
2301A	Fabrication,erection and alignment of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, MS grating(For hoppers) etc. in columns, beams, hoppers, hangers, struts, stiffeners, wall beams, brackets, stub columns, bracings, cleats, base plates, splice plates, walkway platforms, ladders, stairs, stringers, treads, landings etc...,connection design & preparation of fabrication drgs., collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, threading, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20 degree Celcius for welding over 20 mm and upto 40 mm & 66 degree Celcius for welding over 40 mm and up to 63 mm & 110 degree Celcius for thickness over 63 mm) & use of low hydrogen electrodes for welding of steel (for all thickness), 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, painting & touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL for preparation, review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply structural steel free of cost). Electrode E-7018 to be used for Fabrication & Erection works for MS steel. <u>Painting:</u> a) Surface preparation- blast cleaning of steel structures to near white metal surface (Sa 2 1/2) as per SIS 05-5900 b) Primer- 2 coats of Zinc silicate epoxy (60 microns DFT each,120 microns DFT total) c) Intermediate coat – 2 coats of High built epoxy polyamide MIO (90 microns DFT each, 180 microns DFT total)	MT	86
2301B	Shifting fabricated material issued by BHEL from store, Placement and Erection, alignment in position, Welding all connections, rectification and correction of defective welding works, painting & touch-up painting, as per approved drawings/ FQP and instruction of Engineer In-charge. <u>Painting:</u> a) Surface preparation- blast cleaning of steel structures to near white metal surface (Sa 2 1/2) as per SIS 05-5900	MT	19

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Sl. No.	ITEM DESCRIPTION	UOM	QTY.
	b) Primer- 2 coats of Zinc silicate epoxy (60 microns DFT each, 120 microns DFT total) c) Intermediate coat – 2 coats of High built epoxy polyamide MIO (90 microns DFT each, 180 microns DFT total)		
2307A	Erection and alignment of factory made electro-forged galvanised grating units with mild steel in flooring, platforms, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, grinding, drilling, welding, edge & notch preparation, modification etc. all complete. (BHEL to supply grating free of cost)	MT	6
2316A	Fabrication and erection of SS 316L Seal Trough in BAH including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel, all complete. (The measurement for the item of stainless steel seal trough shall be based on the actual finished weight) (BHEL to supply stainless steel free of cost)	MT	7.5
2322A	Fabrication and fixing of GI pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading, etc. all complete spec. (BHEL to supply handrail free of cost)	MT	1.5
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	5
2324	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	20
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	50
1.1	Hydro test/ water leak test of Bottom ash hoppers	Sets	1
800	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level, drawings and as directed by engineer - in - charge.		
805	Providing & grouting of pocket holes, pipe sleeves, shear key pocket and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, machine mixing of grout, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	1.5

Note:

- Bidder shall procure the items which are in their scope of supply from the sources/makes which is already approved by BHEL/TANGEDCO. Otherwise, the bidder shall take prior approval from BHEL/customer before supplying items.
- Quantity variation shall be as per the CTC.

02.00 SERVICES:

Bidder shall include/ consider the following also in his scope.

- 02.01 Taking delivery of the materials such as raw structural steel, Stainless steel for Bottom Ash Hopper for Ash Handling System from BHEL Store/ Office/point of storage located anywhere inside the plant premises & transporting the same to the actual fabrication/erection site including loading, shifting, unloading & handling. Security, maintaining ward and watch, stacking and storage of material on RCC/Timber sleepers are in bidder's scope. The supply of sleepers are in the scope of bidder.
- 02.02 Fabrication, Erection, Alignment, Welding, Clamping, Painting etc. of Bottom Ash Hopper, Platforms, ladders, hand rail, various supports etc. as per the instruction of the Engineer-in-Charge of BHEL and as per TANGEDCO/BHEL's approved FQP, shall have to be carried out by the Bidder. Welding procedure specification (WPS) and Procedure Qualification Record (PQR) shall be submitted by bidder for approval of TANGEDCO/BHEL. Welders engaged in welding of BAH structures shall be tested and approved by TANGEDCO/BHEL at site. Only Certified welders will be employed for the jobs. Bidder to carry out welder test, before on site fabrication/erection welding activity, at no extra cost to BHEL
- 02.03 Providing temporary support for keeping erected equipment in position and temporary arrangement whatsoever for testing. The Bidder shall also arrange for turn buckle, C-clamp etc. required during fabrication & pre-assembly. Provision of any temporary supports/platforms required for Erection shall be in the scope of bidder.
- 02.04 Non-Destructive test, Dye-Penetration Test, Radiography Test and any other test as required as per approved FQP & requirement of BHEL/TANGEDCO
- 02.05 Hydro-testing / leak testing of Bottom Ash Hopper, shall have to be carried out as per approved FQP.
- 02.06 The Bidder shall have to arrange Mechanical / Structural / Electrical material handling equipment, tools & tackle such as level instrument Dial Gauge, Stop Watch, Torque Wrench, Anemometer, Megger, Multimeter, tester, electrical meters, & all other instruments as per requirement & welding Generator Sets, welding Transformer, Grinding Machine, Pencil Grinder, Power / Manual Winch, drilling machine, gas cutting set with flash back arrest and all other tools & plants required for erection of Bottom ash hopper for Ash Handling Plant without any financial implication to BHEL. All the above listed testing instruments shall be calibrated from NABL approved labs and shall be re-calibrated in case of expiry of calibration certificate.
- 02.07 Diesel Generator set for erection & fabrication, during power shutdown & for carrying out welding work and also for the area where power will not be available, shall be arranged by the Bidder without any financial implication to BHEL.

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- 02.08 The Bidder shall submit schedules of manpower tools, tackles and construction equipment deployment schedule along with work schedule and also to submit the monthly progress report indicating manpower deployment &, tools & tackles.
- 02.09 Minor chipping i.e. up to 50mm thickness, micro leveling, and providing shim plates for erection of hopper shall be in the scope of bidder at no extra cost to BHEL.
- 02.010 Cleaning of any debris produced by the bidder during E&C shall be done immediately at each front.
- 02.011 Necessary provisions shall be considered in the BA hopper which are in bidder's scope for integrating with other equipment/ systems/ items which are part of other contractor's scope.
- 02.012 BHEL ISG shall furnish the L-2 project schedule indicating various milestones and constraints. The successful bidder shall furnish the L-3 project schedule in line with the L-2 schedule after award of the contract.
- 02.013 Bidder shall adhere to the approved Erection manual, Operation Philosophy and Control write up provided by BHEL ISG. Bidder shall strictly follow already approved engineering drawings, FQPs, TANGEDCO specification, etc. for site execution, as per the scope of this package. Bidder shall ask for Drawings/Documents as required for execution of work.
- 02.014 Bidder shall have to provide within the quoted price qualified & experienced Engineer, supervisor & skilled and unskilled laborer to carryout work as per specification. Further, Bidder shall depute continuously and maintain following minimum nos. of engineers and supervisors, not limited to nos. to be deputed at site for supervision of their E&C work, workmen, coordination and commercial activity for the package.
- Mech. Engineer -01 no.
 - Quality engineer-01 no.
 - Safety engineer -01 no.
- In case Bidder fails to maintain the above minimum manpower /site staff at site till project completion, suitable pro-rata deductions shall be made from RAB payables, for the duration of such absences, at the prevailing rate of BHEL manpower cost as penalty at the sole discretion of BHEL whose decision shall be final and binding
- 02.015 All consumables, like gas, electrodes, chemicals, lubricants etc. required for the scope of work, shall be arranged by the contractor at his cost from approved brand/make unless otherwise specifically mentioned in the contract. Also erection bolts, nuts and washers shall be supplied by bidder at his cost. The electrodes to be used for welding shall be as per IS and as approved by the Project Authority/ Executing authority/ BHEL.
- 02.016 Measurement of work: Erected material shall be measured periodically after completion of various activities like, installation/ laying, alignment, etc. Such stage completion and periodicity of measurement shall be decided by BHEL. All measurement of each stage acting shall be recorded in the measurement book determine as adhered by BHEL. It should be noted that, maintaining

register to record the readings, observations, deviations etc. directly recorded from the field is the responsibility of the successful bidder. In case proper register is not maintained, the measurements shall not be certified.

02.017 In case apparent damages/ shortages in consignments, packing etc. are noticed by the successful bidder, such cases shall be brought to the notice of BHEL site representative immediately and cleared only with their knowledge/ approval.

02.018 Subletting of works: Successful bidder shall not let-off the contractor part thereof to any third party/other agency without the knowledge of BHEL. In case, subletting of any part of the work is permitted by BHEL, the fact that such permission has been accorded, neither shall establish any contractual relationship between third party/other agency & BHEL nor shall release the bidder from any of his obligations and liabilities under the specific and applicable contract clauses.

02.019 The Bidder must have a valid electrical license, labor license issued by the concerned state government. The bidder should have in his employment sufficient number of electricians and supervisors holding valid license.

02.020 The successful bidder shall be solely responsible for obtaining necessary clearance from various statutory bodies during execution of the work. Any IR (Industrial Relationship) related issues, which are required to be maintained for working peacefully at site, compiling all government requirements must be maintained by the successful bidder. Construction work approval and necessary certificate for building and other construction workers shall be obtained from factory inspector/the Govt. Agencies by bidder. All the safety requirements as per prevailing statutory norms shall be provided for all the manpower supplied by bidder.

02.021 Proper reconciliation statement of all the materials received by the Bidder from BHEL shall be furnished by the Bidder periodically in BHEL's standard format.

02.022 The Bidder has to carry out the work in such a manner that it does not affect the operation of the plant. If other contractor is also engaged on the same work site for other jobs, the bidder shall work in close co-operation with them. The bidder shall get himself acquainted with the prevailing working conditions, practices and arrangement at the plant site, failure to do so shall not relieve him of his responsibility of correct interpretation and execution of the work involved.

02.023 The bidder shall arrange necessary equipment and light fittings with lamps and other accessories to adequately illuminate his work site. Maintenance of light fittings and replacement of fused lamps shall be bidder's responsibility.

02.024 After completion of the work, bidder shall promptly remove from the premises everything brought in by him and shall leave the premises in an acceptable clean condition.

02.025 Bidder to extend all help and documentary support for compliance and addressing any statutory issues raised by TANGEDCO which pertains to the area / work under bidder's scope.

02.026 Clarifications, if any shall be sorted out, before submission of the bid. Bidder's shall raise all ambiguities, conflict in the standard & specification and/or interpretation of clauses, if any, in this enquiry spec. and its enclosures during pre-bid stage itself, failing which it shall be understood that

bidder has no issue and at later date successful bidder shall have no right to take any technical and commercial deviation out of any ambiguity, conflict in the standard & specification and/or interpretation of clauses and the decision of BHEL shall be final and binding and any change due to this shall have no price implication on BHEL and shall have to be absorbed by successful bidder.

02.027 In case of any ambiguity, conflict in the standard & specification &/or interpretation of clauses in this enquiry specification and its enclosures, the decision of BHEL shall be final and binding and any change due to this shall have no price implication on BHEL and shall have to be absorbed by successful bidder.

02.028 Co-ordination & review meetings will be held at site at frequent intervals. Bidder to attend the meetings and discuss various issues with the Owner, Project Authority, Executing Authority, and other Contractors. Bidder shall attend such meetings at his own cost as and when required and fully co-operate with the Owner and other agencies involved.

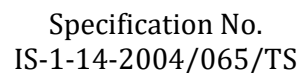
02.029 Bidder shall submit Schedules showing the program in which the Bidder proposes to carry out the work with dates and estimated completion times for various portion of the work. Such schedules shall be approved by BHEL prior to start the erection work. Such times shall be binding on the Bidder. BHEL may not allow the Bidder to start the work for non-submission of schedule for program. During the progress of work, the Bidder shall furnish fortnightly Progress Report for BHEL in respect of erection work, schedule of deployment of manpower, Tools & Tackles, etc.

03.00 INSURANCE:

03.01 Insurance for bidder's staff/workers, tools and instruments are in the scope of bidder. The bidder shall take necessary insurance coverage for the life of his own personnel/other personnel working at site for eventual accidents due to the negligence of the contractor. Any loss or damage to plant or equipment due to the negligence of the contractor shall be made good/replaced by the contractor at his own cost.

03.02 Workers engaged should be covered under ESI & EPF as per Central and State Govt. labor laws during the project execution. A register of all workmen/supervisors/officials shall be maintained with all relevant particulars. Bidder to obtain workmen compensation policy and submit a copy to BHEL.

03.03 Bidder shall lodge the police complaint and complete all the formalities required to settle insurance claim (including the equipment/boxes received in damaged conditions and also as per packing list). Further bidder shall give all assistance to BHEL/TANGEDCO required for claiming/settlement of insurance payment.



05.0 STATUTORY OBLIGATIONS:

- 05.01 The Bidder shall follow all statutory regulations/ obligations e.g. Contract labor (R & A) Act, Minimum Wages Act, Payment of Wages Act, Workmen Compensation Act, Indian Electricity Act & Laws, Labor license, PF, Gratuity & ESI Regulations as applicable in India and as amended from time to time. Necessary insurance for workmen compensation as per the Act along with 3rd. (third) party insurance shall have to be done by the Bidder. A copy of the valid insurance papers and other documents shall have to be provided to BHEL by the Bidder before commencement of erection work. All necessary fees, compensation, if any, will have to be borne by the Bidder. During retrenchment all benefits such as bonus, service fee, PF, Gratuity, Notice Pay & all other benefits as applicable at such time shall have to be borne and paid by the Bidder.
- 05.02 The Bidder shall have to provide all necessary documents and works along with all services in getting clearance from statutory authority / other agencies for due completion of work and statutory obligations of BHEL. The Bidder shall acquire in its name all permits, approvals and / or licenses from all local state or national government authorities or Public Service Undertakings in the country wherever the state is located and that are necessary for the performance of the Contract. The Bidder shall comply all such laws in force in the country where the erection activities are to be carried out. The laws will include all national, provisional, or other laws that effect the performance of the Contract and bind upon the Bidder.
- 05.03 The Bidder shall have to make all necessary arrangement to lodge complain to the competent authority and to provide necessary assistant to BHEL/ Executing Authority / Project Authority for Insurance claim of theft / damaged materials.

06.0 QUALITY OF SERVICE:

Bidder shall make all necessary arrangements to maintain the quality of work and will be responsible for the acceptance of work to BHEL/ TANGEDCO Engineers at site

07.0 SAFETY:

Bidder shall strictly follow and adhere to the guidelines laid down in the enclosed BHEL's health, safety and Environment manual (HSE).

- a) All safety rules & codes as applicable to work shall be followed without exception.
- b) All safety appliances & protective devices including safety belts, hand gloves, aprons, helmets, goggles, face mask etc. shall be provided by the Bidder to their personnel within the quoted price.
- c) The Bidder shall arrange to provide guards & prominently display caution notice, if access to any equipment / area is considered unsafe and hazardous.
- d) The Bidder shall have to arrange to provide Safety Supervisor (with uniform) to monitor the safety of the personnel / materials at site.
- e) The Bidder must have to follow all prevailing practices of safety and fire protection formalities
- f) Electrical Connection:

The Bidder shall install and connect the electrical equipment in a safe way and shall be guided by the Site Rules as laid down by BHEL. The Bidder shall have to install Electrical Leakage Circuit Breaker for the construction power supply circuit.

08.0 SECURITY:

The Bidder shall have to make adequate security arrangement to ensure security and safety of man, material & machine under custody and for the materials handed over to successful bidder by BHEL. The Bidder must also take all precautions including security for the work being executed till the completion and handing over of the Contract. The Bidder shall have to make their own arrangement for proper storage of erection materials, handling the same during execution of work within the quoted price

09.0 MANPOWER:

- a) The Bidder shall arrange within their quoted price all necessary manpower including unskilled, semiskilled & skilled but not limited to Engineers, competent supervisory staff, clerical staff required for the erection activities.
- b) Requisite number of Electricians & other manpower should be deployed for the entire period of erection by Bidder at their own cost.
- c) The successful Bidder shall have to indemnify against any liability / claim to BHEL for all items, man & machine under him or for others claim arising out of his acts. BHEL reserves the right to deduct from their RA Bill such amount arising out of non-fulfillment of commitment mentioned above for the sake of uninterrupted progress of work and / or local harmony.
- d) The Bidder shall have to attend and settle all disputes arising out of local problem and arrangement for recruitment of staff and workers for erection work shall be made by the Bidder adhering to the local formalities & conditions

10.0 FORCE MAJEURE:

No additional claim shall be entertained if the work is stalled / prevented for any reason beyond control of BHEL/TANGEDCO such as strike, hostility, fire, flood, epidemics, non-availability of government controlled raw materials & act of civil and military authority.

11.0 MEASUREMENT:

The accepted measurement shall be the measurement of the work actually executed as per the drawing & BOM.

12.0 STORAGE OF MATERIAL:

Proper storing of raw materials as well as finished materials, issued to the Bidder shall be prevented from deformation, distortion, rusting, damage or loss.

13.0 INSPECTION & TESTING:

- a) Inspection & Testing of the erected structures will be carried out as per approved FQP, in the presence of BHEL/TANGEDCO. BHEL reserves the right to carry out multiple stage inspections

during the time of erection for which bidder shall extend complete co-operation to ensure the correctness and accuracy of work.

- b) The successful Bidder shall provide free of charge such labor, materials, electricity, fuel, water, tools & plants, apparatus & instruments as may be required by the Executing Authority / Project Authority to carry out the inspection and / or tests in accordance with the Contract.
- c) The Testing has to be carried out by the Bidder under the guidance & instruction of BHEL/ Other package supplier Engineer.

14.0 WELDING:

All Welding shall be carried out as per the approved FQP. All testing of welding such as DP testing or any other testing as may be required & asked by BHEL shall be carried out by the Bidder within the quoted price. All welding of pipe shall be carried out as per approved QAP. In case any test shows deficiency subsequent test shall also be carried out by the Bidder within their own cost.

15.0 MOBILIZATION & IDLE LABOUR:

- a) The Bidder shall mobilize their personnel and material along with all tools & plant as per the decision of Resident Engineers within 2/3 days of placement of Service Order / LOI.
- b) The Bidder will not be paid any idle labor and they should increase or decrease the workforce in line with the availability of front schedule.

16.0 PAINTING:

Bidder shall complete the painting works after ensuring proper surface finish. The primer and paint shall be supplied by the bidder as per project requirement at site. The **blasting shed required for surface preparation and tools & machinery required for painting** shall be arranged by Bidder without any cost implication to BHEL. The painting schedule and painting specification is attached (Annexure-2), bidder shall read both in conjunction with each other. Primer and Intermediate paint is included in Bidder's scope and Finish coat is not in Bidder's scope. Painting protocol shall be maintained at each coat of primer/painting.

17.0 TOOLS & TACKLES:

Bidder to include tools and tackles for Erection of Bottom ash hopper of AHP package. The list of the same shall be furnished along with offer. Minimum requirements are as follows:

- Motorized winch- 1no.
- Hydra-1 no.
- Hydra/crane (capacity as required)- 1 no.
- Transport vehicle.
- Chain pulley Block- 3 nos.
- Welding machines- 4 Nos.

- Gas cutting equipment including cylinders- 4 sets
- Grinding machines- 2 sets.
- Drilling machines- 1 set.
- Welding electrodes oven- 4 sets.
- Tong tester- 3 sets.
- Other items like wire rope, sling, D-shackle, Coupler etc. including precision measuring instruments, Megger (1 no.), Multimeter (02 nos.), Clamp meter (1 no.), Tester and screw driver set (02 nos.), Spanners/ Pliers/ Small tools kit (1 set)

18.0 RECORDS TO BE MAINTAINED AT SITE

- Record of Quantity of FREE/Chargeable items issued by BHEL must be maintained during contract execution. Also reconciliation statement to be prepared at regular intervals.
- The Records/ Log-books/ Registers mentioned below as applicable are to be maintained.
- Hindrance Register.
- Site Order Book.
- Test Check of measurements.
- Steel & Cement Supply and Consumption Daily Register
- Records of Test reports of Field tests.
- Records of manufacture's test certificates.
- Records of disposal of scraps generated during and after the work completion.

19.0 TERMINAL POINTS

The terminal points for the Bottom ash hopper for Ash Handling System are considered as follows:

19.1 Starting:

- i. Boiler seal plate.
- ii. Service water header.
- iii. Foundation of Bottom ash hopper

19.2 Ending:

- i. Erected bottom ash hopper and seal trough

20.0 MATERIAL HANDLING

- a) Open land as available shall be provided by BHEL on free of cost basis. Contractor shall maintain one centralized fenced store cum fabrication yard at his own cost. Land preparation of this yard for storage and fabrication shall be carried out by the contractor at his own cost within the quoted rate. The bidder shall make complete arrangement of necessary security personnel, to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent work.

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The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering.

- b) The system for receipt, storage & issue of materials shall be available with vendors for easy traceability.
- c) Periodic audit of system of purchasing, storing and issue, etc. will have to be carried out by the vendors. BHEL will also audit the same.
- d) In case, free supply material issued by BHEL is damaged, due to improper storage rendering these materials unusable, then such quantity of steel shall be recovered from the vendor in their RAB's.
- e) The contractor shall maintain proper store account for all the BHEL issued materials and shall give three copies every month computerized reconciliation statement of such account to the BHEL with running bill.
- f) All structural steel shall be stacked plate size wise and thickness wise beams, channels and angles shall be stacked separately on sleepers.
- g) Materials shall not under any circumstances taken out of the project site unless otherwise permitted by BHEL.

21.0 FACILITIES TO BE PROVIDED BY BHEL:

- a) Land at free of charge as available for the construction of Ash handling plant. No space will be provided by the Customer for the Bidder's labor. All facilities for labor housing shall be the sole responsibility of the Bidder.
- b) The bidder shall make their own arrangement for water for Construction & drinking purposes.
- c) Construction power: 415 V, 3-Ph 3-wire power supply will be given at one point within plant premises, on chargeable basis as per HT tariff V (Temporary construction supply) rates applicable as per TNERC tariff order. Further distribution including tariff/energy meter, construction power cable and other equipments required installation, shall be carried out by the bidder as per his requirement.
- d) All temporary wiring must comply with safety erection regulations and shall be subjected to Engineers inspection/ approval before connection to supply. Customer/BHEL shall not be responsible for any interruption in power supply. Bidder shall make his own arrangement for alternative source of power supply through deployment of adequate capacity and number of DG sets to meet the construction needs.
- e) The non-availability of supply or its quality shall not be cited as hindrance of work execution.
- f) In case work progress is affected due to non-availability of construction power, the bidder shall arrange power using DG sets and fuel at his own cost.

03.0 GENERAL NOTES TO BIDDERS

1. BHEL reserves the right to request for any additional information and also reserves the right to reject the proposal of any bidder, if in the opinion of BHEL, qualification data is incomplete or the bidder is found not qualified to satisfactorily perform the works.
2. Notwithstanding anything stated above, BHEL reserves the right to assess bidder's capability and capacity to perform, should the circumstances warrant such assessment in the overall interest of the Project.
3. The bid shall also include Price schedules, Bidder's Qualifications, Eligibility and Conformity of the facilities, list of special Tools & Tackles. Un-priced copy of the price bid shall be furnished along with the technical bid. Sub-Bidders proposed by the bidder shall also be indicated.
4. Bidder shall provide details of important conditions, Deviations (with respect to Technical Specifications, if any, strictly in BHEL Deviation format as per GCC), local representatives, Erection Tools & Plants, Bought Out Items, Quality Assurance program, Project Schedule with Milestone Schedule and Additional Information if any.
5. BHEL reserves the right of demanding any additional information and clarification from the Bidder after submission of his bid for examination and evaluation of bid, in which case, the Bidder shall furnish the same.
6. In the interest of the Bidder, a site visit by the bidder is mandatory, to familiarize himself with the site conditions and understand entire job requirement for, local environment conditions and facilities available inside & outside the plant before submitting the offer. Bidder shall understand limitations/ constraints and decide the optimal route based on the location of the buildings etc. No issues arising out of site condition or layout constraints shall be entertained later on.
7. The bidder's offer shall not carry any sections like clarification, interpretations and /or assumptions.
8. Bidder shall submit the signed and stamped copy of all the pages, which constitutes this technical enquiry specification signed by authorized signatory.