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and OHSAS 18001 certified
company

Sub-Contract and Purchase
Deptt.

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

Power Sector – Northern Region, Plot No. 25, Sector - 16A,
Distt. Gautam Budh Nagar, NOIDA – 201 301, INDIA

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Tender Enquiry No.: BHEL/PSNR/SCP/CS/YEMEN/E-2354

DATE:03.09.2012

TENDER NOTICE

DUE DATE & TIME: 18.09.2012 by 1400 Hrs.

BHEL Power Sector, Northern Region invites offers in two parts in **triplicate**, in sealed covers for the under mentioned equipment/ system.

SL. No.	DESCRIPTION	INDICATIVE QUANTITY	COMPLETION SCHEDULE
1	<p>Supply of Fabricated steel structures, Preparation of detailed fabrication drawings and Erection marking drawings based on design/ drawings issued by BHEL for 4X100 MW MARIB GTPS PHASE – II, REPUBLIC OF YEMEN. Details as per attached BOQ including painting / Galvanization and transportation up to sea port/ Mumbai.</p> <p><u>PRE-QUALIFICATION REQUIREMENT (PQR):</u></p> <p>Considering the delivery requirement and cost of work, bidder should have fabricated minimum 6,000 MT of Steel Structure or similar work and achieved financial turnover of Rs. 30.00 crore in the financial year 2011-12</p>	2000 MT	Seven to Eight months from the date of Letter of Award (LOA)

Notes:

1. For detailed tender enquiry, please visit BHEL web site www.bhel.com
2. All amendments to this Tender will be hosted in this web page only and not in the newspapers. Bidders shall keep themselves updated with all such amendments by checking the site regularly.

SR. ENGINEER/PURCHASE

The Tender Document comprise of following;

- a) **TERMS AND CONDITIONS (04 Pages)**
- b) **SECTION – “A” – INDICATIVE STEEL BREAK UP FOR PROCUREMENT PLANNING (01 Page)**
- c) **SECTION – “B” - TECHNICAL CONDITIONS OF CONTRACT (TCC) (08 pages)**
- d) **SECTION – “C” - SPECIFIC TECHNICAL REQUIREMENTS FOR GENERAL CIVIL WORKS AS PER CUSTOMER (PEC, YEMEN) (19 Pages)**
- e) **SECTION – “D” - GENERAL TECHNICAL SPECIFICATION OF FABRICATION OF STRUCTURAL STEEL WORK(GENERALLY APPLICABLE FOR ALL DOMESTIC PROJECTS) (40 Pages)**
- f) **SECTION – “E” - SPECIAL TERMS AND CONDITIONS OF CONTRACT (SCC) (12 Pages)**
- g) **SECTION – “F” – GENERAL TERMS AND CONDITIONS OF CONTRACT (GCC) (34 Pages)**
- h) **SECTION – “G” – PRICE SCHEDULE (03 Pages)**
- i) **ANNEXURES – NO. I TO XII.**

TERMS AND CONDITIONS:

1. Enquiry no., Due Date etc. must be legible, super scribed on the sealed envelopes as per Clause no. 2.0 of “Instructions to Bidders”.

2. Offers should be submitted in two parts in two separate sealed covers as follows:

Part-I: TECHNO-COMMERCIAL BID Part-II: PRICE BID

For detailed instructions, please see clause no. 2.0 of “Instructions to Bidders” of Part – A of GCC.

3. Bidders shall submit their offers meeting the requirement of the following tender documents (enclosed) and other Terms and Conditions included in this Enquiry Letter(GCC, SCC, TCC & Technical Specifications):

ANNEXURE-I of GCC: Letter to be furnished by the bidder

ANNEXURE-II of GCC: Agreed Terms & Conditions (confirmation to be given by the bidder)

ANNEXURE-III of GCC: Declaration

ANNEXURE-IV TO XII of GCC

All the above Tender Documents shall automatically become a part of the Order/ Contract, after its finalisation.

4. Tenders shall be submitted strictly in accordance with the requirements of the above tender documents. Deviations (Technical as well as Commercial), if any, shall be listed out separately. Technical deviations and Commercial deviations shall be furnished in

separate sheets under the headings “**TECHNICAL DEVIATIONS**” and “**COMMERCIAL DEVIATIONS**” respectively, along-with reasons of taking such deviations.

5. Standard pre-printed terms and conditions of the tenderers shall not be considered valid.

6. Offer shall remain valid for **Six months** from the Due Date of Part – I bid opening.

7. Unsolicited fresh/ revised Price Bids shall not be entertained.

8. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/ all tender(s) in part or full without assigning any reason whatsoever.

9. Purchaser reserves the right to split up the scope of the tender enquiry and place the orders for different scope/ items with different bidders and also increase or decrease the quantity.

10. Tenderers must enclose the Quality Plan in the prescribed format, for approval. Equipment will be despatched only after Purchaser’s/ Owner’s inspection at the hold points specified in the approved Quality Plan and issue of Material Despatch Clearance Certificate (MDCC).

11. Tenderers must enclose a schedule of submission of drawings/ documents for approval to BHEL.

12. Late tenders are liable to be rejected.

13. Tenders and all correspondence thereof shall be addressed to the undersigned by name and designation and sent at the following address:

SR. ENGINEER / PURCHASE
BHEL – PSNR, HRDI & PSNR Complex,
Plot No. 25, Sector-16A, Noida – 201 301
Phone: 0120-2416284/2416500, 9999316863.

14. In the event of any contradiction in the terms and conditions mentioned in the **Special Conditions of the Contract** and those mentioned elsewhere, stipulations mentioned in the Special Conditions of the Contract shall prevail.

15. Please note the specific technical requirement for general civil works as per section “C” is based on contract with the customer wherein material specification, Fabrication & Erection and shop welding are as per American standard. Technical requirement given in section “D” is as per Indian standard which are generally applicable for all domestic projects. In the event of any contradiction in the terms and conditions mentioned in the **Section “C” and Section “D”, Section “C” shall prevail.**

16. Definition of Terms is also enclosed. These definitions will apply to all the tender documents including this Enquiry Letter.

17. BHEL reserves the right to finalise the order through Reverse Auction.

18. EARNEST MONEY DEPOSIT

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

i) EMD of **Rs. 50,000.00 (Rupees Fifty Thousand Only)** shall be furnished along with the offer in full.

ii) EMD is to be paid in Demand Draft in favour of "**Bharat Heavy Electricals Limited**" and payable at **Noida**.

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

18.2. EMD by the bidder will be forfeited as per Tender Documents if

i) After opening the tender, the bidder revokes his tender within the validity period or increases his earlier quoted rates.

ii) The bidder does not commence the work within the period as per LOI/Contract. In case the LOI / contract is silent in this regard then within 15 days after award of contract.

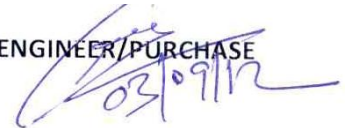
18.3. EMD shall not carry any interest.

18.4. In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after acceptance of award by successful tenderer.

Thanking you,

Yours faithfully,
For and on behalf of BHEL

SR. ENGINEER/PURCHASE



Encl:

4 X 100 MW MARIB GTPS PHASE-II, REPUBLIC OF YEMEN

INDICATIVE BREAK UP OF STEEL QUANTITY

SL NO	TYPE	SIZE	GRADE	Quantity (in MT)
1	ANGLE	ISA 50X50X6	IS:2062 GRADE A	9.00
2	ANGLE	ISA 65X65X6	IS:2062 GRADE A	6.00
3	ANGLE	ISA 75X75X8	IS:2062 GRADE A	15.00
4	ANGLE	ISA 100X100X10	IS:2062 GRADE A	50.00
5	ANGLE	ISA 130X130X12	IS:2062 GRADE A	15.00
6	ANGLE	ISA 150X150X12	IS:2062 GRADE A	15.00
7	ANGLE	ISA 150X150X15	IS:2062 GRADE A	30.00
8	CHANNEL	ISMC150	IS:2062 GRADE A	15.00
9	CHANNEL	ISMC200	IS:2062 GRADE A	75.00
10	CHANNEL	ISMC250	IS:2062 GRADE A	120.00
11	CHANNEL	ISMC300	IS:2062 GRADE A	9.00
12	I SECTION	ISMB200	IS:2062 GRADE A	30.00
13	I SECTION	ISMB250	IS:2062 GRADE A	120.00
14	I SECTION	ISMB300	IS:2062 GRADE A	45.00
15	I SECTION	ISMB350	IS:2062 GRADE A	120.00
16	I SECTION	ISMB450	IS:2062 GRADE A	110.00
17	I SECTION	ISMB500	IS:2062 GRADE A	30.00
18	I SECTION	ISMB600	IS:2062 GRADE A	120.00
19	PLATE	CHEQD. PLATE 6MM	IS 3502	15.00
20	PLATE	8 MM THK	IS:2062 GRADE A	15.00
21	PLATE	10 MM THK	IS:2062 GRADE A	105.00
22	PLATE	12 MM THK	IS:2062 GRADE A	180.00
23	PLATE	16 MM THK	IS:2062 GRADE A	120.00
24	PLATE	20 MM THK	IS:2062 GRADE A	300.00
25	PLATE	25 MM THK	IS:2062 GRADE B	30.00
26	PLATE	32 MM THK	IS:2062 GRADE B	125.00
27	PLATE	40 MM THK	IS:2062 GRADE B	66.00
28	PLATE	12 MM THK	IS:2062 GRADE C	45.00
29	PLATE	20 MM THK	IS:2062 GRADE C	15.00
30	PLATE	25 MM THK	IS:2062 GRADE C	30.00
31	PLATE	32 MM THK	IS:2062 GRADE C	20.00
		TOTAL		2000.00

Note:

1. Although the grade of materials has been indicated as per Indian Standard but as per our contract with customer (PEC, Yemen) materials to be used shall conform to the corresponding ASTM A 36 standard as well. All material TCs shall essentially be as per ASTM only. For this while procuring steel you shall insist manufacturer to give certificate as per ASTM also. Wherever due to small qty. or any other reason it is difficult for you to obtain TC as per ASTM from manufacturer the same shall be got tested in Independent Accredited Laboratory and necessary TCs obtained.
2. Above indicated steel sections and quantity against each is indicative only and may vary during engineering stage.
3. Above BOQ do not reflect the finished tonnage. It is an attempt by us to indicate you the quantity and the section which may be needed to enable you to plan for procurement.
4. Above steel should be procured which is manufactured by established primary steel manufacturers, i.e. SAIL/JSPL/JSW/ESSAR/TISCO. Structure made by mini steel plant who use their own billets shall not be accepted. In case due to unavoidable circumstances it becomes necessary to procure structure rolled by secondary manufacturer, same shall be done with explicit approval of BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

TENDER ENQ. NO. BHEL/PSNR/SCP/CS/YEMEN/E - 2354

SECTION – “B”

TECHNICAL CONDITIONS OF CONTRACT (TCC)

TECHNICAL CONDITIONS OF CONTRACT (TCC)

PROJECT SYNOPSIS

1. Name of the Owner : PUBLIC ELECTRICITY CORPORATION
2. Address : PEC, Airport street, P.O. Bo – 178,
Sana'a, Republic of Yemen
3. Installed capacity : 3 x V 94.2
4. New Installation : 4 x 100 MW
5. Nearest City : MARIB – Approx 50 KM
6. Nearest Airport : SANA'A – Approx 250 km
7. Nearest Sea Port : ADEN

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II

SCOPE OF WORK

2.0 GENERAL SCOPE OF WORK

- 2.1 This tender covers supply and fabrication of Complete Structural Steel works related to Power House consisting of GT Hall, Pipe rack and other miscellaneous structures including supply of all materials, consumables, Tools and plants, preparation of detailed fabrication and Erection marking drawings, fabrication, painting, seaworthy packaging, transportation up to Sea Port and handing over to designated Agency of BHEL for shipping to Yemen, complete in all respect as per BOQ, specifications and drawings required for proper execution of the project for 400 MW Marib Phase –II Gas Turbine power Station Project at Marib, Republic of Yemen.
- 2.2 The scope of this tender includes all work as given in BOQ which shall be carried out as per detailed specifications given in TCC, BOQ, Section 'C' & Section 'D' and according to conditions of contract given in TCC, SCC & GCC. **In case of any contradiction in specification; Section 'C' will get priority over Section 'D' ; BOQ will get priority over Section 'C' and TCC will get priority over BOQ. Similarly for conditions SCC will get priority over GCC and TCC will get priority over SCC in case of conflict among any clauses.** If any point or specification or quality assurance issue is not mentioned in any of the document mentioned above but if subsequent to award of contract, BHEL finds it essential for proper completion of work, the same shall be included in the scope of work without any extra cost to BHEL.
- In case of any contradiction between drawings issued by BHEL and contract documents like BOQ, TCC, Specifications etc., Contractor shall seek clarification from BHEL before execution and decision of BHEL in this regard shall be final.
- 2.3 Other related works although they may not be specifically mentioned in the above paragraph and all such incidental items not specified but reasonably implied and necessary for completion of the job as a whole.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

2.4 **Fabrication and Erection Marking drawings**

2.4.1 Drawings shall be prepared as per section D. The scope includes the preparation of abstract of quantities as well as total quantity of materials involved, in computerized form. The contractor shall prepare a consolidated schedule of bolts and nuts, showing the length, size, weight and numbers required for each fabricated member.

2.5.2 The drawings shall include but not be 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 bolt locations etc.
- c) Comparison sheets to show that the proposed alternative sections, if any, are 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 including Bolts/Nuts schedule.
- e) Any other drawings or calculations that may be required for the clarification of the work or substituted parts thereof.

2.5.3 These drawings shall give all the necessary information for the fabrication, erection and painting of the steel work in accordance with the provision of the technical specifications. Drawings shall be made in accordance with the best modern practice and with due regard to sequence, speed and economy in fabrication and erection. The contractor shall furnish along with the drawings, necessary calculations for the design of joints namely size and length of welds, diameter and number of bolts, size of gussets, tack plates, batten plates, lacings etc. as well as design of erection and fabrication splices in accordance with ASTM or equivalent Indian Standard Specifications. Drawings shall give complete information necessary for fabrication of the various components of the steel work, including the location, type, size and extent of welds. These shall also clearly distinguish between shop and field rivets, bolts and welds. The drawings shall be drawn to a scale large enough to convey all the necessary information adequately and suitable for microfilming.

2.5.4 The drawings shall be prepared in AutoCAD (latest version). Four copies of the drawings with preliminary status shall be submitted initially for comments/approval within 7 days of the receipt of the basic Engineering drawings. One copy of the drawing will be returned to the Contractor with comments/approval of Engineer. Final drawings shall be

TECHNICAL CONDITIONS OF CONTRACT (TCC)

prepared by the Contractor incorporating all such comments and furnished within 3 days of the receipt of the commented prints. Seven copies of such final drawings after approval together with Bill of Material lists shall be submitted. **Such approval shall, however, not relieve the contractor of the responsibility for the safety of structure, good connections, erectibility etc.** Final drawings along with Bill of Materials shall be also submitted in electronic form (on Compact diskettes). No drawings shall be treated as final unless it is accompanied by the relevant Bill of Material lists and joint calculations. Bill of materials shall be prepared in computerised form.

2.5. No detailed drawings will be accepted by the Engineer (BHEL) unless it is entirely complete, first completely checked by the Contractor & approved by the checking agency and is accompanied by an erection plan showing the location of all pieces detailed.

2.5.6. Attempts will be made not to change the basic designs of structures and the revision in the design drawings are expected to be minimum. But such changes are not ruled out. In case of revision of design drawings, the Contractor has to incorporate all the changes/modifications in the fabrication/erection drawings together with bill of material lists without any extra cost to BHEL and submit the same for approval. Requisite number of copies of such drawings after approval along with bill of material lists shall be submitted. Such changes may have to be resorted to even after the approval of drawings.

2.5.7. Design drawings showing typical details for the preparation of fabrication drawings **as** per the specifications shall be furnished to the contractor in a phased manner sequentially as far as possible. Non-availability of basic Engineering drawings in time for the preparation of detailed fabrication drawings, or approved fabrication drawings for execution of particular work, shall not entitle the Contractor for any claim or payment towards lay down time. The contractor is expected to have given full Consideration to such an eventuality while quoting his unit rates for various items of work.

2.5.8. During the work it will be necessary for the contractor to visit the BHEL design office to collect information, design drawings, commented drawings and to submit preliminary drawings and final drawings. It may also be necessary to depute the Contractor's drafting personnel for any clarifications on the drawings. No additional charges shall be paid on account of any of the above visits.

2.5.9. After completion of the total works, the contractor shall submit final drgs. as per following list.

- a) Eight copies of drgs along with Bill of Materials.
- b) CD ROM containing all the drgs. along with Bill of Materials.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

2.6 TYPE OF STRUCTURES ENVISAGED

Gas Turbine Building, pipe racks all any other structure falling in the scope of the contract. Members involved may be columns, girders, plated sections, roof truss, purlins, bracings, lacings, platforms, crane gantry girders, monorail beams, wall beams, railings, ladders, inserts etc. The above is not an exhaustive list and may involve detailing for any type of members indicated in design drawings.

2.7 ALSO INCLUDED IN THE SCOPE

Unless otherwise specified, the work to be provided by the contractor for the items mentioned in the "Bill of Quantities" shall include but not be limited to the following.

- a) Furnishing samples of all materials required by the engineers for testing / inspection and approval for use in the works. The samples may be retained by the engineer for final incorporation in the works.
- b) Furnishing test reports as required in the Quality plan.
- c) Giving all notices, paying all fees, taxes etc., in accordance with the general conditions of contract, those are required for all works including temporary works.
- d) Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
- e) The contractor shall provide the owner/BHEL such a assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
- f) Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

TIME SCHEDULE

- 6.1 Entire work as detailed in tender specification shall be completed within **07 to 08 months** from the scheduled date of start of work as per the programs / milestones indicated by BHEL. Contractor has to mobilize adequate resources to meet BHEL's commitments to their customer as indicated from time to time. The Contractor is expected to mobilize additional resources to expedite the work for achieving of target / milestone and compressing the schedule by one month within the quoted rates as per Rate Schedule, at no extra cost to BHEL. In the event the contractor 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.
- 6.2 **BHEL shall give the basic engineering drawings within 30 days. However readiness of fabrication drawings, procurement schedule, fabrication & inspection & dispatch schedule shall be discussed during the contract kick off meeting immediately after the work award.**
Since fabricated structure eventually will be shipped to Yemen in shippable lots due to storage at Mumbai port and limitation of hiring of ship, therefore dispatch planning shall be accordingly made.
- 6.3 In case due to reasons not attributable to the contractor, the work gets delayed and scheduled completion gets extended, time extension will be granted by BHEL.
- 6.4 The work under the scope of this contract is deemed to be completed in all respects, only when all the works are carried out as per satisfaction of BHEL. The decision of BHEL on completion date shall be final and binding on the contractor. In order to meet above schedule in general, and any other intermediate targets set, to meet customer/ project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL. This project is a fast track project. Customer is making all out efforts to advance the project schedule. No extra payment whatsoever shall be paid on this account.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

6.5 **CONTRACT PERIOD**

The contract period for completion of entire work under scope from the “**START OF CONTRACT PERIOD**” as specified earlier shall be as follows:

- 1) Preparation of detailed Fabrication drawings, Procurement, Fabrication, Shop Painting, and dispatch – 07 to 08 months.**

6.6 **CONSEQUENCE OF DELAY**

It may be noted that in the event delay in completion is attributable to the contractor and leads to imposition of liquidated damages by BHEL’s client, BHEL will impose LD on the contractor as per GCC.



TITLE:

**SPECIFIC TECHNICAL REQUIREMENT
FOR
GENERAL CIVIL WORKS**

SPECIFICATION NO. PE-TS-H32-600-C002

VOLUME - IIB

SECTION "C"

REV. 00

DATE: 23/07/2009

SHEET 1 OF 2

**400 MW MARIB
GAS TURBINE POWER STATION
PHASE-II, YEMEN**

VOLUME - IIB

SECTION - C


**SPECIFIC TECHNICAL REQUIREMENTS
FOR
GENERAL CIVIL WORKS**

SPECIFICATION NO. PE-TS-H32-600-C002



Bharat Heavy Electricals Limited

**Project Engineering Management
Power Sector, BHEL House
Asian Games Village Complex
Siri Fort, New Delhi-110049**

	TITLE: SPECIFIC TECHNICAL REQUIREMENT FOR GENERAL CIVIL WORKS	SPECIFICATION NO. PE-TS-H32-600-C002	
		VOLUME - IIB	
		SECTION "C"	
		REV. 00	DATE: 23/07/2009
SHEET 2 OF 2			

SPECIFIC TECHNICAL REQUIREMENTS

1. GENERAL

Section-C covers specific technical requirements of contract and should be read in conjunction with, Civil BOQ, Section-D and other sections of the contract. In case of any conflict between the contents of BOQ and Section-C, BOQ will prevail over Section-C. In case of any conflict between Section-C and Section-D, Section-C will prevail over Section-D.

Project	Subject	Tender Doc. No.	Rev	Section
REPUBLIC OF YEMEN PEC - ME 4th MV MARIB GTPS - II	TENDER DOCUMENT FOR ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC)	7195-GE-EPC-700-001	C	10.8
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				1

(PEC TENDER NO.: 12/2008)

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10.8.2	Codes and Standards	2
10.8.3	Quality Assurance	2
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FORMS-P REV/B

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REPUBLIC OF YEMEN PEC - ME 400 MW MARIB GTPS - II	TENDER DOCUMENT FOR ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC)	7195-GE-EPC-700-001	C	10.8
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10.8 Structural Steel

10.8.1 Scope

This specification covers labour, material, equipment and services required to complete all structural work indicated in drawings and as specified herein. The work includes all structural steel work but not necessarily limited to :

- Practices as defined in the American Code
- Field bolts and other structural steel accessories
- Angles and miscellaneous steel to support metal decking
- Steel assemblies that are fixed to concrete as shown on the structural drawings.
- Related work specified elsewhere in the specifications - concrete, reinforcing steel, grouting of base and setting of plates.

10.8.2 Codes and Standards

Unless specifically mentioned otherwise American Codes and Standards in their latest editions, local regulations govern in respect of design, workmanship quality and properties of materials and methods of testing.

10.8.3 Quality Assurance

10.8.3.1 Qualification of Welders

- All welding shall be performed by operators who are qualified for the types of welds used.
- Welders are required to give on requalification test, if any reasonable doubt about welders proficiency is noticed by the Engineer. If the welder does not requalify he / she shall not be employed on the project. The Fabricator shall pay all costs associated with welder qualification.

- Quality Control

Shop fabrication of steel indicated on the Structural Drawings will be inspected by an independent testing laboratory retained by the Contractor and approved by the Owner.

- Testing

Contractor shall furnish testing agency with the following :

- One complete set of fabrication and erection drawings.
- Material bills and mill test reports
- Information regarding time, place of rolling and shipment of materials to shop
- Sample pieces for testing as requested by the Engineer
- Full and ample means and assistance for testing materials

Project	Subject	Tender Doc. No.	Rev	Section
REPUBLIC OF YEMEN PCC - ME 400 MW PARB GIPS - II	TENDER DOCUMENT FOR ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC)	7195-GE-EPC-700-001	C	10.8
				Sheet No. 3

- Source Quality Control – Structural steel work (including miscellaneous steel work items)
 General: Materials delivered with certificates are classified as identifiable; those without certificates are classified as unidentifiable.

Testing of Unidentifiable Material: by independent testing agency: paid for by Contractor.

10.8.3.2 Submittals

The Contractor shall arrange for the submission of all designs and shop drawings for the whole of the steelwork to the Engineer for his approval before commencement of fabrication work. All such drawings shall show the dimensions of all parts, anchor bolt setting plan and details of general arrangement fabrication and erection, method of construction, spacing of bolts, welded sectional areas and all other details. Bolted or welded construction may be employed, subject to approval and neatness of design. Where welds are used either at Works or on site, they shall wherever possible, be continuous and returned round any meeting face to ensure that the joint is completely sealed against corrosion. Indicate those welds that are to be finished and grooved smooth (reference architecturally exposed steel). Space welds will not normally be accepted without the specific approval of the Engineer. The details in the drawings shall be properly referenced and numbered. Review of shop drawings is of a general nature only. However, responsibility for conformance with intent of drawings shall remain with the Contractor.

Review does not imply or limited to the correct interpretation of drawings by the Contractor. Contractor shall submit details and calculations for all non-seismic connections to the Engineer for review. Review in general nature only. Seismic connections shall be designed as per the seismic guidelines submitted with the Contract documents. The calculations shall be submitted by the Contractor to the Engineer for approval.

The details of connections on drawings shall be such as to avoid formation of pockets to hold condensation, water or dirt and a 12 mm minimum gap between abutting ends of bolted members and the like shall be provided to eliminate any traps and facilitate maintenance painting. Gaps between adjacent members shall be either sealed or wide enough to permit maintenance painting. Overlapping gaps left after welding shall be sealed.

Materials shall not be ordered nor fabrication commenced until such drawings are approved by the Engineer.

Tests, in accordance with ASTM Standards, shall be carried out. These shall be done in presence of the Engineer if so required.

All members of prefabricated frames shall be cut to jig and all holes shall be punched or drilled to jig. All parts shall be carefully cut and holes accurately located so that when the members are in position the holes will be truly opposite to each other before being bolted up.

The drilling, punching, cutting and bending of all fabricated steelwork shall be such as to prevent any possibility of irregularity occurring which might introduce difficulties in the erection of the structures on the Site.

FORMATS-P-REV-B

Project	Subject	Tender Doc. No.	Rev	Section
REPUBLIC OF YEMEN PEC - ME 400 MW MARIB GTPS - II	TENDER DOCUMENT FOR ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC)	7195-GE-EPC-700-001	C	10.8
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Mill Reports

- Submit the mill report for each heat of steel used to The Owner prior to the start of fabrication.
- Mill reports shall show chemical content mechanical properties of the structural steel provided. For unsatisfactory mill test report – retest steel.
- Certification of inspection test reports for each production lot, indicating proof load. Tensile strength and hardness of high strength bolts. For unsatisfactory test report, retest bolts.
- Welding
 - The Contractor shall submit to the Testing Laboratory written welding procedures for all welding works.
 - The welding sequence and procedures shall minimise the effect of weld shrinkage, residual stresses, and maintain erection tolerances.

10.8.3.3 Delivery, Storage and Handling

- Use all means necessary to protect the structural steel and paint before, during and after installation and to protect the installed work and materials of other trades.
- In the event of damage, immediately make repairs and replacements necessary, to the acceptance of the Engineer and at no additional cost to The Owner.
- Storage

Material shall be stored in a manner to preclude damage and to permit ready access for inspection and identification of each shipment and piece. Materials showing evidence of damage will be rejected and shall be immediately removed from the site.

- Steel materials either plain or fabricated shall be stored above the ground. Material shall be kept free from dirt, grease and other foreign matter, and shall be protected from corrosion.

10.8.3.4 Materials

A. Structural Steel :

1. Shapes and Plates shall conform to the following :

ASTM A 36

ASTM A 242 Improved Weathering and Corrosion Resistance required where specified in plans.

ASTM A 441

ASTM A 572

Bend Test shall be required where specified on Contract Drawings.

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the Engineer's approval prior to the start of welding. It is expected that all fabrication welding will be carried out in a correctly sequenced manner to minimise distortion and / or potential cracking.

10.8.3.7 Site Welding

All Site welding shall be carried out by the manual metal arc or tungsten inert gas processes and the root runs of all full penetration but welds shall be made by the tungsten inert gas process. All manual metal arc welding shall be carried out using coated electrodes of the low hydrogen type and the Contractor shall submit his proposals for the receipt, storage drying, issue and return to store for all approved welding consumables to be used on Site.

The welding plant shall be of modern design and of ample capacity to provide the required current to each welding point without appreciable fluctuations.

Site welding of high yield steel will not be permitted without the Engineer's consent.

The welding procedure for making each joint shall be approved by the Engineer before the work is started and the Contractor shall make such trial welds as the Engineer may require to demonstrate the soundness of the proposed method and the competence of its workmen. The Engineer may require such Site made test welds to be radiographed and / or subjected to bend or impact testing as deemed necessary.

Input testing where required by the appropriate code or by the Engineer shall be carried out to the requirements of an approved specification. Mill test certificates shall be provided for all high tensile steel to be welded and the mill test certificate identification shall be included on the certificates issued for the weld tests required.

Whenever possible all welding shall be done in the downhand or horizontal - vertical positions. All parts to be welded shall be accurately prepared in accordance with the requirements of the appropriate code and / or weld geometry so that on assembly they will fit closely together as specified in the code. All groove or butt welds shall be full penetration welds unless noted otherwise on the drawings.

Where structural steel members are to remain exposed in the finished work, all exposed views shall be made uniformly.

Run-off tabs and grind surfaces to be removed, wherever tabs interfere with architectural treatment.

After assembly and before the general welding is commenced, the parts may be held together for welding by the use of mechanical clamps and / or tack welds. Tack welds should be of sufficient size to fulfil their function and small enough to be fully and properly incorporated into the weld without cracking and / or other defects. If mechanical clamps and / or restraints are employed, care shall be exercised in determining their location and the potential effects on weld cracking and / or distortion.

Welding Procedures

Notch sensitivity in steel shall be included in the welding procedure to prevent brittle and premature fracture during fabrication and erection. Welding shall be carried out in such a way that accumulation and concentration of trough thickness strains due to weld shrinkage is minimised. The welds shall be properly sequenced to reduce residual stresses (due to welding) to a minimum.

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Machine Bolts

Machine bolts shall be tightened to snug tight condition to prevent ply in the connection materials.

10.8.4 Cleaning, Protection and Painting

10.8.4.1 General

The protection of all items of plant, supporting metal-work, structures, pipework and other metallic items, including bolts and fasteners, is essential to ensure the plant as a whole operates efficiently and in accordance with the design requirements.

All ladders, stairs, handrails, platforms, kick plates etc. are to be galvanised and painted.

The Contractor, or its protection sub-contractor, is required to acquaint itself fully with the prevailing environmental conditions at site to ensure he is capable in every respect of carrying out the protective coating works in accordance with the Specification.

All paint systems, paint specifications and other material specifications shall be submitted to the Engineer for approval before commencement of work.

The painting system and finish used for both internal and external surfaces shall be suitable for the particular conditions to be experienced in shipping, storing, erection, commissioning and operation. Where the surfaces to be painted are subject to heat or attack by chemicals, oil, acid, fumes or other aggressive agents, special paints having the appropriate resistant qualities shall be used.

The different paints used for painting, undercoat and finish at Works and Site shall all be mutually compatible.

Protection of steelwork by painting or any other finish shall not be considered as a substitute for any corrosion allowance specified for any particular applications.

Final painting shall be done to the colour code, the details of which will be advised during the term of the Contract.

The painting system and finish proposed for the different times of equipment are to be listed.

10.8.4.2 Preparation of Surfaces

New unprimed iron and steels surfaces shall be thoroughly cleaned to remove all dirt, grease, condensation and moisture. Rust and mill scale shall be removed by an approved process such as shot blasting or picking. Surfaces shall be grit blasted to a minimum finish using cast steel shot. Slag shall not be used to clean any surface except structural steelwork without the specific approval of the Engineer.

In the case of structural steelwork including paint supports and pipe trestles, it is essential that regular checks for retained millscale should be carried out using copper sulphate. Tenacious millscale may take on the appearance of a bright metallic surface after shot blasting and subsequently disrupt the paint protection if not completely removed.

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The surface profile achieved by blast cleaning shall be appropriate for the protection to be applied. In the case of structural steelwork the surface amplitude from peak to adjacent valley shall not exceed 0.07 mm with a maximum of 0.10 mm. In all cases where the surface profile is considered to be coarser than that necessary to give an over-peak paint film thickness within the range specified by the paint manufacturer for the particular paint, one additional coat shall be applied.

Areas of severe profile damage which after blast cleaning will not meet the necessary surface profile requirements shall be ground to a uniform smooth finish prior to re-shot blasting to the correct profile. If such grinding significantly reduces the local thickness, the item will not be accepted.

All blast cleaning and preparation operations shall be carried out by skilled operators and on completion of cleaning, all spent shot, oxides and dust shall be effectively removed by vacuum cleaner or other approved means. If any foreign material is trapped in or under the paint cover, the affected area shall be reblasted to the Engineer's satisfaction and repainted with the appropriate paint.

All surfaces which have been blast cleaned shall be kept dry and shall be paint protected within 4 hours of blast cleaning. No paint or protection shall be applied to any surface which has become discoloured by initial rusting.

Steel surfaces which are intended to be embedded in concrete shall be galvanised but not painted.

All items to be galvanised shall be blast cleaned to suitable profile to allow the required thickness of zinc to be readily obtained during the hot dipping process. To achieve this, suitable grit shall be used for the blast cleaning of structural items. Surfaces to be galvanised shall, after blast cleaning, be pickled in dilute hydrochloric acid, fluxed and stored prior to immersion in the galvanising bath. Particular care is necessary with grey iron surfaces and any free graphite should be removed from the cleaned surface prior to fluxing.

All galvanised surfaces shall be cleaned to remove any oil, grease or dirt by an approved degreasing process and all damage made good by an approved process prior to etching and / or printing and painting as specified.

Before any painting is carried out on Site, the surfaces to be coated shall be thoroughly washed with clean water of potable quality to remove all traces of salt and other impurities.

In the case of structural steelwork and fitting, any rends or splashes of cement, grout or concrete which occur during erection and building works shall be immediately removed by pressure hosing with fresh water or other approved method. Site welds shall be blast cleaned or needle gunned to remove all traces of alkaline flux residues prior to painting.

All damage to existing protected surfaces shall be cut back and suitably prepared before any application of further coats of paint.

Where epoxy paints are used the surface should generally be shot blasted to AAa2½ finish although chemical cleaning may be permitted for surfaces which do not require a degree of roughness to aid mechanical keying of the protective finish.

Immediately after preparation the surface shall be painted with the appropriate primer.

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Primed surfaces shall be examined to ensure that they have been properly prepared and that the primer is adhering firmly and in good condition. If considered unsatisfactory the surfaces shall be blast cleaned thoroughly to bare metal. The surfaces shall then be repainted immediately with the appropriate primer.

If the condition of the primer is satisfactory the surfaces shall be cleaned to remove dirt, grease or condensation before application of any further treatment.

Surfaces which have been previously painted shall be thoroughly cleaned and all loosely adhering defective paint shall be removed by cleaning back to a firm edges or shall be completely stripped if necessary. All such areas shall be repainted with the original paint prior to any application of new coats.

All rust or loose scale shall be completely removed by an approved process to clean metal. All bare metal shall be appropriately primed in an approved manner. If the primed and / or painted surfaces have deteriorated by overall rust spotting to a state which in the opinion of the Engineer is not suitable for local repair, the whole of the affected surface shall be blast cleaned and primed or painted to the original specification.

Where they are to be eventually painted, unpainted aluminium alloy surfaces shall be cleaned down to remove dirt and grease and then shall be painted with an approved etching primer. Surfaces to be painted shall have surplus paint removed by cleaned to a firm edge. The appropriate primer shall then be applied as soon as possible.

Lead and copper pipes and / or surfaces shall be thoroughly cleaned with abrasive paper and white spirit prior to application of the approved paint system.

When copper pipes are to be lacquered these shall be cleaned immediately prior to application of the lacquer.

10.8.5 Painting and Protection

10.8.5.1 Application of Paint Systems - General

All paints shall be applied evenly to completely cover the surface.

Painting of machinery and auxiliary compartments is to be done by hand and the use of paint spraying equipment is not allowed. Prior to painting by hand, all rubber components, moving spindles, gauges control, governors, and sight gauges and similar items, are to be properly masked.

Each coat shall be allowed to harden before any subsequent coat is applied and all work shall be properly cleaned and prepared prior to the application of any paint.

The paint manufacturer's instructions including but not limited to paint thickness, drying and overcoating times and method of application, must be rigidly adhered to. Successive paint coat shall be of differing colours.

All painting and corrosion protection shall be carried out in steel accordance with manufacturer's written instructions. Paints application consecutive coats shall be of a different tint. All laying surfaces and site welds shall be left unpainted.

Detailed schedules of painting and protection will be required at the design stage and should include all relevant information on the paints proposed, including manufacturers data sheets, the stages of application and the proposed inspection and repair procedures.

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As an integral part of the exercise, the Engineer may require test plates to be prepared and exposed at relevant on Site locations before approval for the use of specific paints or paint systems is given.

No paints or protectives other than those scheduled and approved by the Engineer shall be used.

In all cases the approved paints and protection, including decorative and identification paints shall be applied strictly in accordance with the approved manufacturer's instructions. All painting and protection shall be carried out by skilled operators with appropriate supervision.

Painting shall not be permitted during adverse weather and / or atmospheric conditions such when the humidity is greater than 70%, in rain or fog, at low temperatures, when surface temperatures are less than 3°C above the dew point or when the metal temperature is higher than 50°C. Painting shall not be carried out when the surface to be painted is exposed to direct sunlight.

Paint thinners shall only be added to paints in strict accordance with the approved manufacturers instructions and viscosity tests shall be carried out on random samples of mixed paints as directed by the Engineer.

Except as herein specified, no paint shall be applied to any surface when it is in the slightest degree damp and any paint so applied shall be removed and replaced to the Engineers satisfaction at the Contractor's cost.

All precautions necessary shall be taken to prevent dust, dirt and moisture from coming into contact with freshly painted surfaces or with surfaces being painted. All grit, shot or other cleaning processes shall be screened off from painting areas and all dust, residues and grit or shot shall be removed prior to painting in any designated area.

Attention is drawn to the specific requirements for painting and protection in the following sections.

10.8.5.2 Structural Steel and Associated Items

The surfaces of all structural steelwork, including plant support steelwork, pipe trestles and associated items, steel stairs, galleries and handrails shall be protected by galvanising and a compatible paint system to take account of specific aggressive conditions.

Particular care shall be taken, for example by the application of a stripe coat, to maintain strong paint films on all cleats, arises, bolt holes, bolt heads and similar items. Second and subsequent coats shall only be applied when the previous coats have dried and hardened and the manufacturer's instructions for curing are to be strictly observed. A suitable drying and curing time is to be allowed before packing for shipment.

The Contractor shall ensure the suitable precautions shall be taken in bundling, packing and crating for shipment to ensure that the protective treatment, applied prior to shipment is not damaged during transport to the Site. Straps, rope, wire or chain slings used for handling shall be properly padded or wrapped to minimise damage in handling.

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All steelwork, including plant support steelwork, and gratings, not fully encased in concrete shall be protected by a system similar to or better than that detailed below :

a. For steelwork inside buildings :

- i. Shot blast as previously specified.
- ii. Prime Coat single pack inorganic zinc silicate
solids volume 55 - 60%
dry film thickness (dft) 75 microns
- iii. Undercoat two-pack epoxy polyimide
solids volume 60 - 65%
dft 125 microns

At Site :

- i. Thoroughly wash with clean water to remove all traces of salts, make good damage by shot blasting as necessary and repair prime coat with materials as above.
- ii. Top coat two-pack aliphatic polyurethane
solids volume 45%
dft 50 microns
- iii. After erection make good all damage by blast cleaning as necessary and building the whole system to completion.

b. Steelwork for stairs, handrailing, ladders etc. shall be :

- i. Shot blast as previously specified
- ii. Hot-dipped galvanised to 85 microns coating thickness (610 g/m² coating weight.
- iii. Degrease, apply mordant wash and etch primer.
- iv. Prime coat two-pack epoxy polyimide
solids volume 45 - 50%
dft 125 microns

At Site

Thoroughly wash with clean water, sweep blast if required for adhesion, apply two-pack aliphatic polyurethane, solids volume 45% dft 50 microns)

10.8.5.3 Protection and Painting of Metallic Materials

Structural and holding down bolts shall be hot dip spun galvanised minimum average coating 305 g/m² and painted as for adjacent galvanised steelwork. The nuts shall be not dipped and reamed out of newly threaded blank nuts which have been not dipped.

Steelwork partially encased in concrete or blockwork shall be protected at the junction by a strip of approved alkali resistant mastic filler.

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Machinery and cubicles, particularly of pressed metal may require additional paint treatment unless than manufacturer's standard finish is shown to be adequate and sufficiently durable for the duty.

Aluminium, unless of an alloy or grade resistant to corrosion, shall anodised to 40 microns or be adequately primed and painted or otherwise surface traced to provide the required durability.

Aluminium for external architectural applications shall have a natural anodized finish and thickness of the anodozing shall not be less than 40 microns.

The surface of copper pipes, brass fittings and similar items, shall be washed with pure white spirit, rubbed with fine emery paper and shall be painted with one coat zinc chromate primer two undercoats and once high gloss finishing coat. The paint type shall be suitable for the expected atmospheric conditions and alkyd base paint shall not be used for items exposed to outside environments.

All dissimilar metal contacts should be designed and / or protected with due regard for the potential electrochemical corrosion possibilities. For all non-current carrying applications, it is expected that metal to metal contact between dissimilar metals will be avoided by the use of suitable electrical insulation. Particular care should be taken in the use of aluminium, zinc, copper, nickel and their alloys in contact with each other or in contact with ferritic materials. Care should also be exercised in the use of these materials in contact with each other or in contact with ferritic materials in contact with alkaline solution, and / or materials (concrete, lime, plaster and cement) and in the exposure of such materials or material couples in rainwater drains and run offs from materials which could impact either acidic or alkaline characteristics to the water.

Material	To be isolated / insulated from
Aluminium and Zinc	Copper and its alloys, Nickel and its alloys, Steel and its alloys (also as below)

Non-ferrous metal generally Alkalis (concrete, cement, lime and plaster).

In addition to the above, protection shall be provided from rainwater run off from aggressive materials.

- Where non-ferrous metals are to be painted they shall be treated in the same way as ferrous materials, above the priming coat.

All non-ferrous metals shall be thoroughly degreased before painting in a solvent bath vapour degreaser or other means approved by the Engineer. The Contractor's attention is drawn to the importance of proper degreasing for non-ferrous metals. Any defective paintwork resulting from inadequate degreasing shall be stripped off, the metal degreased properly and the paint system reapplied at he Contractor's cost.

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Non-ferrous metals generally shall be treated up to and including the priming coat as follows:

Metal	Preparation		Suitable Primers
	Factory	Site	
Aluminium (smooth surface, e.g., sheet extrusions aluminised steel)	Phosphating Acid or alkalichromate baths Anodising (mainly as alternative to painting)	Degreasing compounds Emery and white spirit (not wire wool) Phosphoric acid treatments	Etch-primer (not after phosphating)
Aluminium (rough surface e.g., castings metal)	Smooth off nibs with emery paper. Clean off dust and dirt	Smooth off nibs with emery paper. Clean off dust and dirt	Etch-primer Zinc chromate (not lead-based and sprayed primer).
Zinc (sheet hot-dipped galvanised or electro-galvanised)	Degrease Phosphate and / or chromate treatments	Degrease with white spirit. Weathering for at least several months plus washing. Phosphoric acid treatment (not as effective as factory processed)	Calcium plubate etch- primer (not after phosphating) Zinc chromate primer Zinc dust / zinc oxide primer or Zinc rich paint.
Zinc (sprayed or sherardised coatings)	Clean off dust and dirt	Clean off dust and dirt	Etch-primer (preferably plus Zinc chromate primer)
Copper (also brass and bronze)	Special processes Electro-deposited tin.	Emery and white spirit. (Do not weather, do not abrade dry). Phosphoric acid treatments	Etch-primer Aluminium pigmented primer
Tin coatings	Degreasing	Light abrasion (do not abrade through coating). Degrease with white spirit.	Etch-primer Zinc chromate
Cadmium (coatings)	Phosphating	Emery and white spirit. Phosphate treatments. No weathering.	Etch-primer.

10.8.6 Planning and Milling

General

Bearing surfaces shall be milled to true planes. The ends of columns perpendicular to centreline axis of connection and mid depth, points at ends of columns shall be milled. The columns and bearing stiffeners shall be cut and fixed in such a manner to provide bearing across the entire cross section.

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Column Base Plates

- For column base plates of 2" through 4" thickness, straighten than by pressing.
- For column base plates exceeding 4" – plane the top of base plate for column bearing plane the bottom when bearing is on steel.

10.8.7 Fabrication Inspection

- As a minimum, all testing and inspection as per ASTM Standards.
- Inspections : Inspection of shop and field welding operations during welding performance shall be carried out as follows :
 - Verify that welders are certified.
 - Inspect every weld for quality and conformance
 - List of defective welds, including :
 - Location and type of weld.
 - a. Identification marks of welders
 - b. List of defective welds.
 - c. Manner of correction of defects.

It shall be confirmed that the welding equipment is used per manufacturer's recommendations, pre-heating is properly used, proper use of runout plates, jigs and fit-up, check structural steel to comply with the specified dimensional standard.

10.8.8 Workmanship and Construction

10.8.8.1 Conditions of Surface

- Prior to commencing with the erection of structural steel the contractor shall inspect the job site and verify that the structural steel may be erected in accordance with the Drawings and Specifications.
- Discrepancies
 - In the event of discrepancy, the contractor shall immediately notify the Owner in writing.
 - The contractor shall not proceed with construction in the region of the discrepancy until all such discrepancies have been resolved.

10.8.8.2 Preparation

- The Contractor shall secure field measurements required for proper and adequate fabrication and installation of the work covered in this Section and assume responsibility for exact measurements.

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- Templates shall be provided at exact locations of items that are to be embedded in concrete and masonry and any setting instruction required for installation.

10.8.8.3 Erection

- General

Structural steel shall be erected in accordance with the Drawings and Specifications.

Care shall be taken to protect work already installed from damages resulting from structural steel erection.

- Temporary Shoring and Bracing

Provide temporary bracing adequate to protect the structure against damage due to construction loads.

Provide temporary guy lines to achieve proper alignment of the structure as erection proceeds. In addition, guy lines shall be provided to brace the incomplete structure against loads such as wind and seismic forces comparable in intensity to that for which the structure was designed.

Provide temporary floors as required to erect the structure.

Items installed before concrete is placed shall be properly braced to prevent distortion by pressure of concrete. Watch and maintain bracing during concrete operations.

- Field Assembly

Set structural members to the lines and elevations indicated. Align and adjust the various members forming a part of the a complete frame or structure before permanently fastening to the total structure. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

Before assembly clean bearing surfaces and other surfaces which will be in permanent contact after assembly.

Members shall be spliced only where indicated on Structural Drawings or where accepted by the Engineer.

Do not use gas cutting torches in the field for correcting fabricating errors in the structural framing unless accepted by the Engineer. Finish gas cut sections equal to a sheared appearance shall be done wherever it is permitted by the Engineer.

The quality of field welds or bolting shall be the same as that performed in the shop.

Erection bolts for welded connection shall be tightened securely and left in place.

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- Setting Base Plates
 - Clean concrete bearing surfaces and roughen to improve bond. Clean the bottom surface of base plates.
 - Tighten anchor bolts after the supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the base plate prior to packing with grout.
 - Grout shall be installed and cured according to the manufacturer's recommendations such that no voids remain. All exposed surfaces shall be finished neat.
- Expansion/Chemical Anchor Bolts
 - Install in accordance with the manufacturer's recommendations.
 - Use washers on all bolts.
 - Use care to avoid cutting or damaging reinforcing bars.
 - When exposed to view in the final structure, bolts shall be of a length that will extend entirely through but not more than one quarter of an inch beyond the nuts unless otherwise shown on the Drawings. All such bolts are to be identified in the construction document.
- Weld
 - General

Weld shall be as per AISC procedures. Preheating shall be carried out where required.
 - Welding shall be carried out in such a manner to prevent warping or distortion of finished product. Use jigs, which will not restrain piece from moving during welding or cooling after welding. Sequence weld passes at a joint to prevent excessive heat build-up or cause shrinkage cracks to form. Adequately peen and brush joint after successive passes to prevent slag inclusions, open pockets and inadequate fusion.
- Bolting

Comply with AISC codes & specification.
- Frame Tolerances

Code of Standard Practice for General construction in Steel ASTM A6

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10.8.8.4 Touch-Up Painting

- Immediately after erection, clean and paint all field welds, bolted connections, anchor bolts and abraded areas.
- Use same materials and standards as for shop painting.

10.8.8.5 Field Quality Control

- All field welding shall be inspected by a full-time inspector employed by an independent testing laboratory approved by The Owner.
- Observe all Direct Tension Indicators to see if proper tightness was achieved or test bolt with calibrated manual torque wrenches.
- Field quality control shall, as a minimum, conform to the requirements specified under Source Quality Control.
- Expansion anchors shall be proof tested after installation
- Field Welds. Test all welds as per Fabrication inspection

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

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

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FABRICATION OF STRUCTURAL STEEL WORK

NOTE: This is a general technical specification for Fabrication of steel work at site. Many of the clauses may not be relevant to this tender.



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1.00.00 SCOPE

This specification covers supply, fabrication, testing, painting and delivery dispatch to site Port of structural steel work 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 port.
- 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.



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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

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- 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 1 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



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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.



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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 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



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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 \sqrt{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



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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.1 & 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



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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



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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 2 |) 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 2 |).

2.09.03 The weight of the zinc coating shall be at least 610 gm/m" - 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



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

2.10.00 STAINLESS STEEL HOPPERS

2.10.01 Material

Stainless steel hopper of grade SS 4 15M 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.
Sulphur	0.03%	Max.
Chromium	10.80% to 12.50%	
Nickel	1.50%	Max.
Titanium	0.75%	Max.
Nitrogen	0.03%	Max.



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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



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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 types 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.



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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.



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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



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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



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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



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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



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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



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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



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be considered satisfactory when at least 90% of the corresponding cut rivets is found to be sound. If the ratio is below 75%, all the rivets in the particular section or group shall be cut, removed and replaced and tested again at the Contractor's expense. For cases between 75% and 90% the engineer shall have the option to instruct cutting and replacing any number of further rivets at the Contractor's cost as he deems necessary.

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

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

3.03.00 Welded Construction

3.03.01 General

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

3.03.02 Preparation of material

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

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



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shall not be drawn into a sharper slope than two degrees (2°).

The work shall be positioned for flat welding whenever practicable.

3.03.04 Welding Sequence

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

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

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

3.03.05 Welding technique

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

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



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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-buttred 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.



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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



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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.



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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.



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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



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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.



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4.02.02

Welding

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

4.02.04

Rivets, bolts, nuts and washers

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

4.02.05

Shop painting

All paints and primers shall be of standard quality and procured from approved manufacturers and shall conform to the provisions of the relevant Indian Standards.



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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 IS: 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.



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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



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

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

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

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

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

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

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

5.00.00 INFORMATION TO BE SUBMITTED

5.01.00 With Tender

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

- a) Progress Schedule

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

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



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

b) Shop

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

5.02.00 After Award

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

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

6.00.00 RATES AND MEASUREMENT

6.01.00 Rates

6.01.01 The items of work in the Schedule of items describe the work in brief. The various items of the Schedule of items shall be read in conjunction with these specifications including amendments and additions, general conditions of contract, special conditions of contracts, and other tender documents, if any.



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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.

6.01.07 The bidder's rates for foundation bolts assembly shall include fabrication 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 materials not issued by the Owner.

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 zinc silicate primer.



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- 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 unutilized steel pieces to the Owner's store would be considered as wastage and recovery would be affected as per the provision of contract for structural steel consumption. This shall not include the weight of temporarily dismantled/supported members, connected member.
- 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.



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- 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, stainless steel beading, stainless steel cleats, stainless steel fasteners, neoprene gaskets, preparation of shop drawing but excluding the cost of glazing. The Owner for this item of work shall supply no material.
- 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.



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- 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.
- 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 0.2 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 0.2 sq.m. the actual profile of the plate shall be considered 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 0.2 sq.m. The weight shall be calculated by deducting the area of holes, if area of individual hole is more than 0.2 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



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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



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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 actual weight 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 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.

SECTION – “E”

SPECIAL CONDITIONS OF CONTRACT (SCC)

SPECIAL CONDITION OF CONTRACT (SCC)
FOR SUPPLY AND FABRICATION OF STRUCTURAL STEEL WORK

These conditions shall be read & construed along with General Condition of Contract, sent along with tender enquiry and in case of any conflict or inconsistency; the Provision of these special conditions of contract shall prevail.

1.0 CONSIGNEE:

PUBLIC ELECTRICITY CORPORATION,
PEC, Airport Street, P.O Box – 178,
Sana'a, Republic of Yemen.

Other details shall be given later.

2.0 ENTRY POINT IN YEMEN:

- Nearest Sea Port - ADEN Port
- Nearest airport - SANA'A Airport
- Nearest City – MARIB.

3.0 LOCATION IN INDIA: Sea Port / Mumbai.

4.0 TAXES & DUTIES ON SUPPLY:

4.1 DOMESTIC MANUFACTURER/ SUPPLIER's:

- i) This being a Physical Export Project, the benefit of movement of goods without payment of Excise duty on self-manufactured items and NIL Sales Tax against **Form-H** to FOR CHA Godown-Mumbai shall be available. The statutory changes in Taxes/ Duties and Levies, if any imposed by State/ Central Govt. during the contract delivery period on yourself manufactured items, shall be covered under this exemption .The bidder to note that exemption of excise duty and taxes on bidder's sub vendor items shall be covered under the undertaking (Refer 5.1 a-II). The bidder to consider NIL Excise duties & NIL CST of their sub vendor's items in their prices to BHEL.

In order to avail the Exemptions for payment of Excise duty, the following procedure shall be followed by the bidder.

a) CLEARANCE OF GOODS BY UNDERTAKING BY VENDOR:

- l) The bidder shall register their undertaking themselves with their local range Excise office by submission of undertaking for movement of goods without payment of Excise duty & the relevant ARE-1 Form. The ARE-1 Form shall be prepared in quintuplicate & signed by bidder & also same shall be signed by competent

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authority in BHEL-PSNR, NOIDA at the place provided as Exporter of goods to Yemen for above Expansion project. The complete responsibility of cancellations of the undertaking & ARE-1 with their local excise office, after the dispatch of materials to FOR CHA Godown-Mumbai, shall rest with the bidder without any participation by BHEL PSNR. However, relevant documents for cancellation of their undertaking after completion of dispatches i.e. Bill of Lading, copy of Shipping Bill & copy of the BHEL invoice raised to customer (if required) shall be provided by BHEL to respective bidder/ supplier.

- II) PSNR supplier shall cover the supplies of their sub-vendor under the above undertaking registered with their local range Excise Office, for availing the exemption in payment of excise duty at the time of movement of goods from their sub-vendor works/ BOI either to BHEL's CHA Godown at Mumbai OR to their works as Physical Export for Yemen Expansion Project. The requisite ARE-1 Form shall be dealt between the PSNR supplier & their BOI supplier. The cancellation of the said undertaking shall remain the responsibility of the PSNR's supplier without any involvement of PSNR NOIDA. However, any document, if required by the PSNR supplier from BHEL-PSNR as main exporter for the registration of their undertaking OR for cancellation of Export Obligations shall be provided. The requisite documents shall be identified by the PSNR supplier with BHEL-PSNR at enquiry stage under commercial clarifications OR before the price bid opening.

The supplier has to give an undertaking in writing to PSNR, NOIDA along with Price Schedule that all Export benefits as applicable for self manufactured or their BOI have been considered in line with above Conditions of SCC while making price offer to BHEL-PSNR.

Note:

- 1. Presently it has been decided to ship all material of Indian origin through Mumbai Port. In case of change, it shall be intimated to you.**
- 2. Please note if any Vender is unable to obtain Excise exemption from their local Excise Authorities for the material supplied by their sub-venders, BHEL shall not issue A.R.E.-1 authorization in the name of their sub-venders. They should quote accordingly.**

b) EXEMPTION OF EXCISE DUTY BY BLOCK TRANSFER & ARE-1 by BHEL-PSNR, NOIDA:

Alternatively, BHEL PSNR shall register the Excise Bond with Excise Commissioner NOIDA for this Project for permission to dispatch the goods without payment of Excise Duty from their vendor's works anywhere in India, by Block Transfer & ARE-I.

In this regard, BHEL-PSNR, NOIDA shall issue the Block Transfer (CT-1) & ARE-1 to the supplier for availing above-mentioned exemptions. In order to get the Excise duty

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Block Transfer & ARE-1 issued from BHEL-PSNR, the bidder shall give request in writing before the dispatch of goods to BHEL-PSNR indicating the exact amount of Excise duty

involved, rate of excise duty including Education cess, items descriptions, Tariff Head/ chapter etc. for issuing Block Transfer & ARE-1 to the supplier, to their respective Excise range/ Office out of the Main Excise Block registered by BHEL PSNR NOIDA with the office of Excise Commissioner, NOIDA.

The ARE-1 in quintuplicate shall be issued by BHEL PSNR NOIDA as **Main Exporter** to the successful bidder (only to the supplier on whom order is placed) and bidder shall also sign on all copy of ARE-1 with their Company Seal at the respective place provided in the ARE-1 (as Co-exporter). The cancellation of such Block Transfer shall be done by BHEL-PSNR, NOIDA. However, the supplier shall be responsible & bound to forward **pink copy of the ARE-1 to the BHEL PSNR** required as one of the enclosure for cancellation of the Excise Bond OR copy of the letter from the Local / Range Excise Office forwarding the PINK copy of the ARE-1 directly to the Office of the Excise Commissioner NOIDA, shall be given by the supplier to BHEL-PSNR, NOIDA.

Note: Above procedure is applicable for Venders of Indian origin. Venders of Foreign origin to follow their own system and should quote accordingly. Please note buyer shall not be responsible for any Taxes applicable for the goods originating other than India.

c) Central Sales Tax:

- i) For Central Sales Tax/ VAT purposes, BHEL-PSNR shall provide H-Form to the respective bidder supplier after the dispatches to avail the benefit of NIL Sales Tax. Thus NIL Excise duty & NIL Sales Tax to be charged by bidders in their quoted prices in the BID for their Packages to the BHEL. For obtaining H-form by supplier from PSNR, SEPARATE REQUEST SHALL BE MADE BY SUPPLIER ENCLOSING THEIR INVOICES AND LIST OF package (Number) dispatched.
- ii) Before dispatch of materials, bidder shall get all Cases/ Boxes stamped by Superintendent Excise of their area/ range, so as to avoid the opening/inspection of these boxes by Custom Authority at Port of dispatch in India.

4.2 a) The bidder/ supplier to note that No custom duties/ Foreign exchange etc. on the Equipment/ assemblies required by bidder for their Assemblies/ finished equipment/ supplies for MARIB GTPS Ph. II, YEMEN shall be admissible. BHEL shall not bear any liability arising out of foreign Exchange Rate Variation (ERV) OR on account of statutory variation in custom duty for any of the items imported by the bidder for supplies to BHEL for MARIB GTPS Ph. II, YEMEN.

b) In the circumstances, if supplier is importing raw material/ component for manufacturing to physical export to MARIB GTPS Ph. II, YEMEN, the supplier shall pay the custom duty on Raw materials at port on copper etc. as per Law and shall avail drawback duty paid to

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custom later by himself without involving BHEL. The supplier shall declare this raw material CIF contents at enquiry stage separately in their prices to BHEL-PSNR before

price bid opening. The supplier shall declare to BHEL-PSNR that nil custom duty has been considered for the identified imported raw materials in their offer to BHEL PSNR. The supplier at enquiry stage shall identify the documents required from BHEL PSNR for duty drawback. BHEL shall consider giving the Disclaimer certificate OR any other documents needed for custom duty drawback to the supplier after physical export of finished supplies from the said supplier to MARIB GTPS Ph. II, YEMEN.

OR

Alternatively, the supplier shall obtain advance license from DGFT for availing NIL custom duty on raw materials/ components. BHEL shall provide the necessary customer contract documents for obtaining such Advance License by supplier. Also cancellation of export liability for advance license shall remain with the supplier; however their License number shall be included in the B/L OR AWB at the time of dispatch as proof of utilization of raw material and export shipment. Any other documents like Disclaimer certificates if required shall be given by BHEL PSNR to facilitate the advance License utilization/cancellation by the supplier for MARIB GTPS Ph. II, YEMEN.

- 4.3** The bidder to quote their firm prices up to **FOR Mumbai Port**, i.e. up to BHEL Dock Office, Mumbai Port Trust, Mumbai.

The Concerned BHEL office address is:

Regional Operations Division
Bharat Heavy Electricals Ltd.,
14/15th Floors, World Trade Centre-1,
Cuffe Parade, Mumbai - 400005,
Maharashtra, India

- 4.3.1** For any dangerous goods/inflammable goods like Gas, paint, oil, etc, the vendor to furnish the chemical composition/ specifications, dangerous goods HAZ certificate & safety certificate by authorized agencies prior to dispatch.

5.0 INSURANCE:

Inland Insurance up to Mumbai Port:

- a) The inland insurance covering the vendor material from their works to the Mumbai Port shall be taken by BHEL and the details of the same shall be intimated to the successful bidder before dispatch of consignments to Mumbai port.
- b) Vendor shall not take any inland insurance for MARIB GTPS Ph. II, YEMEN.

6.0 BILLING SCHEDULE/SHIPPING LIST FOR SUPPLY:

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Billing Schedule shall be prepared by the vendor and submitted to BHEL-PSNR for approval (in the event order is placed by BHEL-PSNR). The freezing of Billing Schedule in CAT-I approved is must before commencement of dispatches. No payment shall be made in the absence of approved Billing Schedule.

- a) Lists of all items of total scope of supply both manufactured at vendors works and sub-vendor's items with unit and total price (F.O.R. Mumbai Port) along with Gross and Net weight. No item is to be made as free issue required for completion of supply scope/system.
- b) Quantity shall be indicated only in numbers and not as Sets or Lots.

The Billing Schedule for Mandatory Spares/ Recommended Spares as applicable as per the enquiry requirement shall be approved separately by BHEL-PSNR in consultation with Engineering before the dispatches of such Spares.

7.0 INVOICES VIS-VIS PAYMENT:

7.1 Billing documents are given as below:

- a) Supplier Invoice
- b) Packing List as per sl. no. 12.0 duly signed by PSNR inspection agency/ supplier.
- c) ARE-1 Copy (both side after endorsement of the Custom Authority at Mumbai Port)
- d) BHEL-CQS (Region) CQ-IR indicating Code-A for all inspected items as finally accepted./ Third Party Inspection (Independent Surveyor) Inspection Release Note./ Manufacturing control certificate or inspection certificate issued by PEEGT. (if equipment is tested in the presence of PEEGT representative)
- e) Third Party Packaging Inspection (Independent Surveyor) Release Note.
- f) BHEL-PSNR MDCC in original.
- g) In case of air freighted consignment (as 3rd country import by Indian Supplier), one original of AWB consigned and notified to parties as in Sr.No.1.0, is required together with 5 copies of the same.
- h) Original LR Copy duly receipted materials by BHEL-ROD Mumbai/ BHEL CHA at Mumbai Port.
- i) Material Test Certificate issued by the Manufacturing factory.

The requirement of any more documents, if needed for release of supplier payment shall be informed later to the successful bidder at the time of placement of LOI/PO.

8.0. GUARANTEE PERIOD:

Guarantee period for equipment supplies shall be as per Clause no 14.2of GCC.

9.0 Packing Instructions Prior to Dispatch by BHEL-PSNR's Sub-Vendors:

Packing information shall be given later. However all packing shall be sea-worthy.

10.0 Packing List:

Copy of the format is attached as Annexure-I. This format is to be strictly followed by the supplier/ bidder (applicable for those bidders on whom order shall be placed by PSNR). The format corresponds to requirement of export packing list of Indian customs. The format is unified and its completeness with regard to measurement, quantities, item numbers, marks and numbers by the supplying units/ their sub-vendors and their inspection agencies has to be ensured prior to packing and authorizing dispatch clearance (MDCC) by PSNR.

11.0 Completeness of Contents of each packing case:

Concerned CQA / Third Party Inspection Agency for PSNR NOIDA scope (ordered on PSNR supplier) will verify the completeness of contents of each package w.r.t packing list both in terms of quality and quantity before authorizing dispatch of the consignment before obtaining MDCC from PSNR, NOIDA.

12.0 Routing of Packing Lists:

Packing list is an extremely important document, which forms a part of Export Documentations in connection with the processing of customs formalities. **Packing List has to be generated by units/ Unit vendors and sent to IO-EPC Thermal at Lodi Complex, New Delhi, and ROD, Mumbai (both at the same time), one week in advance, for processing and obtaining shipping bills' clearances and avoiding octroi payment through 'N' form at Mumbai.** All PSNR's suppliers to note that Mumbai would be the major port of shipment from India.

13.0 ADVANCE INTIMATION ABOUT DESPATCHES TO BHEL-ROD Mumbai, BHEL IO Project, New Delhi & BHEL-PSNR NOIDA:

An advance fax intimation of dispatch of materials/ Equipments and expected date to reach at Octroi Naka at Port Mumbai, shall be intimated by the supplier to PSNR NOIDA, BHEL IO (P) Lodi Complex, New Delhi and BHEL-ROD Mumbai (The contract person & Tel. no. & address of ROD Mumbai etc. shall be furnished **later**).

All PSNR's suppliers will give at least **one month advance intimation** to ROD, Mumbai & IO-Projects along with package details/ Packing List before actual dispatches to arrange for the storage/ shipping arrangements by ROD Mumbai and customs invoicing by IO-Projects. **Information must be sent to consolidate the details and arrange for shipments in time.**

14.0 Excise Attestation at Works:

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To avoid opening of big cases for examination by customs at Port of Shipment, the supplying unit/ PSNR's sub-vendors may arrange to get the packing cases sealed by local excise authorities and the relevant invoices and packing lists will be got endorsed from Superintendent, Central Excise. For this purpose, Units / PSNR's sub-vendors should send the packing lists to IO-Projects **at least 2 weeks in advance** to enable prepare Shipping

Invoices for furnishing to the units/ PSNR's sub-vendor for requisite attestations and sending to ROD Mumbai through fastest means for a smoother and faster customs clearance under intimation to PSNR, NOIDA.

15.0 Provision of Inspection Windows on Packages:

Unit/supplier should provide inspection window for customs examination for all such packages involving Panels of any kind. Care would be taken to ensure that all packages are properly sealed to avoid ingress of moisture, rodents etc.

16.0 Drawings for Heavy Weight/ ODC consignment:

Detailed engineering documents (at least 4 sets) for all items of the above category will be furnished by respective units /PSNR to issue shipment enquiries in a proper manner. **The drawing has to include center of gravity of the item clearly. Units / PSNR's sub-vendors to identify such items and notify to IO-Projects group through BHEL-PSNR as soon as the Engineering Documents are released.**

17.0 Lifting Beams:

All heavy lifts for which safe handling is essentials at the port of dispatch shall be accompanied by lifting beam on non-returnable basis and sufficient number of sleepers.

18.0 Proper Capacity of Trailers for inland Transport in India:

The PSNR's suppliers making arrangements for inland transport in India for the goods ordered by BHEL-PSNR should ensure that the trailers would be **able to carry the actual weight (not designed weight) of the equipment. No overhanging of the cases should be permitted. This is essential to avoid any damage to the consignment en-route to the port of dispatch.**

The truck carrying the cargo shall be covered with a Tarpaulin to meet the weather vagaries in inland transport.

19.0 Shipping Documentation including those covered by customs requirements:

Customs Invoices: Values to be allocated by IO-Projects **(Alternatively, Excise attested invoices where the package is sealed and dispatched by the units / PSNR's sub-vendors)**

- Packing Lists
- ARE-1 Forms/Excise Gate pass corresponding to Unit invoice values and Delivery challans.

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- DEEC Original License, wherever duty free facility for import is availed. DEEC book to be retained by ROD Mumbai till project supplies are complete.
- Chartered Engineer's Certificate, wherever entries in DEEC license is required. **Care should be taken to ensure that usage of the materials shown in C.E. certificate out of DEEC goods is not disproportionate.**
- Catalogues/ literature/ write-up in case of customs endorsement for discharging exports obligation in case of DEEC imports to be made available to ROD before arrival of goods in the city of port of dispatch.
- Copy of Advance License.

20.0 **Guidelines for Dispatches from Units/ Indian Vendors:**

- Vehicle drivers shall carry excise gate pass in original / ARE-1 (White + Buff in original as applicable). Each consignment carried by the vehicle shall have a separate gate pass/ ARE-1 and it must be ensured that materials under one gate pass / ARE-1 gets transported in the same truck/trailer.
- In order to avoid any problems at port of dispatch from the point of view of i) shipping bill preparation and passing thereof ii) 'N' form at Octroi check post and iii) control and movement of cargo within Mumbai Port and iv) physical examination of cargo by customs, the materials under the category, i.e. a) DEEC cargo, b) Free shipping bill cargo, c) DEPB (duty entitlement pass book scheme) and d) duty drawback, must be sent in the same truck/ trailer & **v) Physical Export.**

PSNR Vendors to ensure that designated Regional Operations division (ROD) is communicated very clearly the type of shipping bills to be prepared, well before the materials are dispatched from the works.

21.0 **Clearing Agents:**

Details to be provided **later**

22.0 **Octroi Clearance:**

Contact details of agents at Octroi Naka to be given **later**. Copies of the dispatch documents must be sent to ROD Mumbai by i) Fax, ii) e-mail through scanning of the documents with copy to IO-Projects.

23.0 **Transportation of Heavy Lifts/ODC Packages:**

Keeping in mind the need to avoid multiple handlings of the consignments of the above nature with a view to avoid either ship detention or trailer detention resulting into costs to the company and avoidable inconvenience, the ships availability at the port of dispatch and reaching of the trailers at the port of dispatch has to be synchronized in such a manner that the trailer should reach maximum 48 to 72 hours prior to the berthing of the vessel. Towards this, each consignment shall be escorted by the units / PSNR's sub-vendors by a responsible executive and is recommended to be provided with a mobile for monitoring & control on movement of the cargo.

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Items shipped from Mumbai require the goods to pass through Octroi check post. Exemption from payment of Octroi duty against 'N' Form is subject to the conditions that the goods are shipped within 7 days of their clearance from Octroi check post.

24.0 Telephonic Intimation by PSNR's Sub-vendors to ROD Mumbai regarding the Movement of Vehicles:

Vehicle drivers to be instructed by PSNR vendors, the contact point of ROD Mumbai, regarding movement of vehicles on daily basis, especially 2 days before arrival at Mumbai, so that suitable directives can be given to the driver of the vehicle for further transportation of the goods either to dock or godown.

25.0 Customs formalities Period:

Packages arriving at the port shall have a minimum time of 3 working days for customs examination and other related formalities in respect of the cargo under shipment. The goods received after arrival of the ship may not be loaded if either sufficient time does not exist or space available in the ship is booked by the carrier for other exporters due to lack of availability of the goods at the port in time for shipment from BHEL. In cases, where the committed cargo to the carrier based upon information received from all the units does not reach in time of scheduled shipment at the port of dispatch, IO-Projects would be within its right to decide the priority of loading as per the project schedule requirements given the condition that adequate space in the ship is not available to accommodate the cargo.

26.0 Duplicate ARE-1 Forms for Cancellation of Bonds:

It is necessary that the **contractors ensure that ARE-1 Forms (White & Buff as original) are sent to ROD Mumbai.** After ROD Mumbai effects the shipment, endorsement of customs on White & Buff colour of ARE-1 Form would be obtained by ROD Mumbai and returned to the concerned unit/ PSNR at the earliest for cancellation of the Excise Bond taken by PSNR for this project.

27.0 Shipping Procedures and ROD Responsibilities:

Consolidation of Packages and Storage in Warehouse: ROD Mumbai either themselves or through their CHA would ensure the following:

- Proper storage of goods at an elevated level if stored in open to avoid damages to the consignments during rainy season (All the packages to be covered with a proper tarpaulin in open storage).

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- All Electrical and C&I items to be stored indoors.
- Consolidation of the goods as per summary packing lists.
- Check marks and numbers on packages. Carry out the corrections, if necessary.

- Label the packages linking to the proposed shipping carrier to ensure that package does not get left out.

28.0 Terms for Deploying Vessel for domestic supplies to Yemen:

ROD Mumbai / IO-Projects will make shipping arrangements for shipping cargo from Mumbai up to Yemen port as per INCOTERMS 2000 on hook-to-hook basis.

Shipping vessels are not to be older than 15 years and would be used only after ensuring that valid certificate of hull of the vessel or handling gears by Lloyds or such other authorized agencies exist

29.0 EXPORT PACKING/ PACKAGING INSPECTION:

The packing shall conform to the packaging procedure given along with the technical specification and should be SEA worthy & to withstand the Sea & Salt laden conditions. The timber used shall be of best quality as laid down in PSNR approved packaging procedure. The packages shall be made in line with the packaging Drg. & procedures approved in Cat-I by BHEL PSNR Noida. The packaging procedure approved by PSNR in cat-I must be available with PSNR's supplier before making of the boxes and commencement of the packaging inspection for their ordered scope. All the bidders to note that -

- a) If the main supplies is/ are inspected by BHEL-CQS alone only, then the packaging inspection shall be done by BHEL-CQS only.
- b) In case, the main supplies inspection is carried out by BHEL-CQS & Third Party Independent Surveyor independently OR jointly, then, the packaging inspection shall be undertaken **by Third Party independent surveyor only** based upon PSNR approved packaging procedure without calling BHEL-CQS for packaging inspection. It may be noted that NO package shall be sealed /nailed without the acceptance of packaging agency (Independent third party inspection agency appointed by PSNR, who shall undertake packaging inspection also) as listed at a) OR b) above for clearance to obtain the MDCC from PSNR) to move the goods.
- c) **The charges of independent Packaging agency shall be borne by BHEL.**
- d) The bidders to give a check list to BHEL-PSNR as well as Packaging Inspection agency, indicating the despatchable identified goods under his scope of supply, size &

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dimension of the box /packages & its weight for the purpose of shipment on to the vessel and also handling at Port.

- e) The independent packaging agency Release Note OR BHEL-CQS Packaging Inspection clearance certificate as applicable shall be necessary & submitted to BHEL-PSNR for obtaining MDCC.

Packing commensurate with international standards and accepted norms will be ensured by CQA/ Third Party Inspection Agency. As far as possible, the packing has to be rectangular in shape for optimum space utilization in the ship and economize on shipping costs. **Projections on packages are prohibited.**

The packing list has to be checked and certified by the Inspection agency(ies) with due signatures. In case, it is impractical to obtain such signatures for any reasons whatsoever, a certificate with regard to the completeness of packing list has to accompany the shipping documents,

Container, as a means of packing cases would only be limited to items which are difficult to pack in a proper manner e.g. cable trays, small structure materials, Insulation etc. This is essential as site space for keeping hundreds of containers is unavailable.

30.0 Marks & Numbers on Packing Cases:

Details shall be given later.

31.0 Marking for Safe Handling:

To ensure safe handling, packing cases will be marked to show the following:

- Upright position.
- Sling position and Centre of Gravity position.
- Storage category.
- Fragile components **(to be marked properly with a clear warning for safe handling).**

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SECTION – “F”

**GENERAL COMMERCIAL TERMS AND
CONDITIONS OF CONTRACTS**

(GCC)

PART – A: INSTRUCTIONS TO BIDDERS

PART – B: GENERAL COMMERCIAL TERMS & CONDITIONS



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR – NORTHERN REGION
HRDI & PSNR COMPLEX
PLOT NO. 25, SECTOR – 16A,
NOIDA – 201 301 (U.P.)**

DEFINITION OF TERMS

Throughout the Tender Documents including the Enquiry Letter, the following words shall have the meanings assigned to them herein, unless the subject matter or the context requires otherwise.

- 1 The **Purchaser** shall mean M/s **Bharat Heavy Electricals Limited** (A Govt. of India Undertaking) incorporated under the Companies Act 1956 acting through its **Power Sector – Northern Region**, HRDI & PSNR COMPLEX, PLOT NO. 25, SECTOR – 16A, NOIDA – 201 301 (U.P.) which expression shall include its successors and assigns. It may also be referred to as **BHEL**.
- 2 The **Owner** shall mean the Customer or Client for whose project, the enquiry has been issued by the purchaser and shall include his successors and assigns as well as authorised officer(s)/ representative(s), which may also be referred as **Customer** or **Owner/ Customer**.
- 3 The **Consultant** shall mean the agency appointed by the Owner or Purchaser to provide consultancy services for the project and shall include his successors and assigns as well as authorised officer(s)/ representative(s).
- 4 The **Tenderer** shall mean the Firm/ Company/ Organisation, which quotes against the Tender Enquiry issued by the purchaser. It may also be referred as **bidder** or **vendor**.
- 5 **Acceptance of offer** shall mean issue of letter of intent/ award or memorandum or detailed Order/ Contract communicating the acceptance of offer, to the successful tenderer.
- 6 The **Order/ Contract** shall mean and include the general conditions, bidding conditions, specific conditions, specifications, schedules, drawings, form of tender, covering letters, schedule of prices and quantities, letter of intent/ award of the Purchaser, “Integrity Pact (IP) (as and when applicable)”, any special conditions applicable to the particular Order/ Contract and subsequent amendments mutually agreed upon. It may also be referred as **order** or **contract/ order** or **purchase order** or **contract**.
- 7 The **Seller/ Contractor** shall mean the firm/ company/ organisation with whom the Order/ Contract is made and shall be deemed to include his successors, representatives, heirs, executors, administrators and permitted assigns, as the case may be. It may also be referred as **contractor, seller or supplier**.
- 8 The **Sub-contractor** shall mean the person/ firm/ company/ organisation to whom any part of the work has been sub-contracted by the Seller/ Contractor, with the written consent of the purchaser and shall include sub contractor’s heirs, executors, administrators, representatives and assigns.
- 9 The **Engineer** shall mean officer of the purchaser as may be duly appointed and authorized in writing by the purchaser to act as the engineer on his behalf for the purpose of the Order/ Contract.

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- 10 The **Specification** shall mean the specifications contained in the Tender Documents and any subsequent modifications thereof and the drawings, schedules etc. attached thereto, if any.
- 11 The **Site** shall mean and include the land and place on, into or through which the power station and the related facilities are to be constructed and any adjacent land, path, street or reservoir which may be allocated or used by the owner or Seller/ Contractor in the performance of the Order/ Contract.
- 12 **Tests on completion** shall mean such tests as are prescribed by the specifications and/ or tests mutually agreed upon by the purchaser and the Seller/ Contractor, to be performed by the Seller/ Contractor after erection of the equipment to establish satisfactory operation as required by the specifications.
- 13 **Commissioning** shall mean successful completion of **trial operations** and readiness of the contracted/ ordered plant and materials for commercial use. This will include all consumables and inputs required for pre-commissioning.
- 14 **Initial operation or Trial operation or Reliability run** shall mean continuous integrated operation of the contracted/ ordered plant and materials under varying loads to furnish proof of satisfactory operation, for a specified period.
- 15 **Temporary work** shall mean all temporary works of every kind required in or for the execution, completion or maintenance of the works.
- 16 **Approved** means approved in writing including subsequent written confirmation of previous verbal approval and **approval** means approval in writing including as aforesaid.
- 17 **Inspection Agency (IA)** shall mean any person(s), who may be duly authorized by the purchaser/ owner to inspect the stores included in the Order/ Contract, at the contractor's/ sub-contractor's works. List of zone-wise inspection agencies is given in Annexure – V. Vendors to raise inspection call on BHEL – CQS web site
- 18 **Month** shall mean calendar month and **week** shall mean 7 days.
- 19 **Consignee** shall mean the official(s)/ person(s) to whom the stores are required to be delivered in the manner indicated in the Order/ Contract.
- 20 **Plant/ Equipment/ Stores** shall mean the goods, machinery, components, parts, spares, etc. required to be supplied by the Seller/Contractor as per Order/ Contract.
- 21 **Contract Engineer/ Purchase Engineer** shall mean the official who has signed the Order/ Contract on behalf of the Purchaser.
- 22 **Site Engineer** shall mean officer of the purchaser/ owner as may be duly appointed and authorized in writing by the purchaser to act as the Site Engineer on his behalf for the purpose

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of receipt & verification of in-coming stores and issue of Material Receipt Certificate (MRC)/ Stores Receipt Voucher (SRV).

23 **Site Inspection Agency (Site IA)** shall mean any person(s), who may be duly authorized by the purchaser/ owner to inspect the stores/ works included in the Order/ Contract, at the Project Site.

24 **GENERAL**

The words incorporating singular shall include plural and vice-versa, in the words importing masculine gender shall include feminine and vice-versa and the words importing persons shall include bodies, corporate, limited liability companies, partnership and other legal entities.

25 **ABBREVIATIONS**

CIF	Cost Insurance Freight
CQ	Corporate Quality
CVD	Countervailing Duty
E&C	Erection and Commissioning
LC	Letter of Credit
MDCC	Material Despatch Clearance Certificate
MRC	Material Receipt Certificate
MSMED	Micro Small and Medium Enterprises Development
NIT	Notice Inviting Tender
QS	Quality Surveillance.
SAD	Special Additional Duty
SCC	Special Conditions of Contract
	SDPBG Security Deposit cum Performance Bank Guarantee

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PART – “A” - INSTRUCTIONS TO BIDDERS

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1.0 GENERAL INSTRUCTIONS

- 1.1 Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. The specifications and terms and conditions shall be deemed to have been accepted unless otherwise specifically commented upon in the deviation sheets by the tenderer in his offer. Non-compliance with any of the requirements and instructions of the Tender Enquiry may result in the rejection of the tender.

Integrity Pact (IP) will be applicable for all tenders/ contracts valuing more than Rs. 10 crores. This Integrity Pact shall be issued as part of the bidding documents and shall be returned by the bidder along with techno – commercial bid, duly signed by the authorized signatory who signs the bid. Only those vendors/ bidders who have entered into such an Integrity Pact with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

- 1.2 All commercial terms and conditions except price should be submitted as part of techno-commercial offer which may be opened first. The price part (Part-II) is to be submitted in a separate sealed cover along with techno-commercial offer (Part-I). Purchaser reserves the right to open both the parts at the same time.
- 1.3 A declaration as per **Annexure III must** be sent before opening of Price Bids.

2.0 **PROCEDURE FOR SUBMISSION & OPENING OF TENDERS**

- 2.1 Tenders shall be submitted in **two parts** as described below on or before the due date by **2 p.m.**

PART - I : TECHNO-COMMERCIAL BID

Containing Technical offer, Annexure-I & II, Commercial Terms & Conditions and Unpriced Copy of Price Bid, in three (3) sets.

PART-II : PRICE BID

Containing Prices, to be submitted in Two sets strictly as per enclosed Price Schedule Format (One original + one copy of the original), for complete scope of the Tender Enquiry.

NOTE: Any changes in the specified price format, if made, other than those specified and accepted in the un-priced format, the offer is liable to be rejected.

- 2.1.1 PART-I (techno-commercial bid) may be opened on the due date and time as specified in the Enquiry Letter, in the presence of tenderers who may like to attend.

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Incomplete offers are liable to be rejected. Purchaser reserves the right to open both the parts i.e. Part-I and Part-II together.

- 2.1.2 PART-II containing prices shall be submitted along with Part-I, but in a separate sealed cover.

Any corrections/ amendments shall be properly and fully authenticated. If not done so, the offer is liable to be rejected.

- 2.1.3 In case it becomes necessary for the tenderer to make any changes in his original price bid (Part-II) on account of technical/ commercial confirmations/ clarifications, against the changes raised by the purchaser, to bring the offer in line with the requirement of the specifications, the impact of such changes on price shall be submitted. Revised price bid only if requested by the purchaser shall be submitted, in a separate sealed cover. Impact/ discount/ Revised price bid shall be duly super scribed as:

DISCOUNT/ IMPACT/ REVISED PRICE BID (PART-II) (DELETE WHICHEVER IS NOT APPLICABLE), REVISION NO ____ AGAINST TENDER ENQ. NO. _____ DATED _____”.

- 2.1.4 However if any bidder on his own offers price discount or reduce prices. The same would be acceptable. Other bidders in such a case would also be informed and can submit reduced prices, if so desired by them. No price increase is acceptable till the validity of offer.

- 2.2 After the tenders have been technically & commercially examined and the necessary clarifications etc. obtained, Part-II containing FINAL REVISED PRICE BID, if submitted, otherwise, the original Price Bid along with price impact and discount, if any, shall be opened, for which the date and time shall be intimated to the technically and commercially acceptable tenderers only, in case of public opening.

NOTE: BHEL also reserves the right to open the earlier price bids, if any, submitted by the bidders, if required.

- 2.3 No correspondence shall be entertained from the tenderers after the opening of Part-II (Price bid) of the tender.

- 2.4 Not more than two representatives will be permitted to be present for the tender opening.

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

2.6 MARKING ON ENVELOPES

- 2.6.1 The following shall be super-scribed on the envelopes which shall be addressed to the Official inviting Tenders, by name & designation.

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PART-I :

1. TENDER ENQUIRY NO. AND ITEM DESCRIPTION
2. DUE DATE FOR OPENING
3. "TECHNO-COMMERCIAL BID".

PART II :

1. TENDER ENQUIRY NO AND ITEM DESCRIPTION
2. DUE DATE FOR OPENING
3. "PRICE BID".

2.6.1a Impact/ discount through e-mail or letter without proper superscription on the envelope is not acceptable.

2.6.2 Both Parts - I & II shall be submitted in separate sealed covers duly superscribed as indicated above and shall be enclosed further in a **main cover** duly sealed and superscribed as:

"TENDER FOR _____ AGAINST TENDER ENQ. NO.
DUE ON _____ CONTAINING
PART-I & PART-II BIDS".

2.6.3 Envelope not marked with tender enquiry number is liable to be ignored and may not be opened.

2.7 BID SUBMISSION

2.7.1 The tenders shall be addressed to the official inviting Tenders by designation and sent at the following address:

**SR. ENGINEER/Purchase
Bharat Heavy Electricals Ltd.
Power Sector – Northern Region
HRDI & PSNR Complex,
Plot NO. 25, Sector – 16A,
NOIDA – 201 301 (U.P.)**

2.7.2 Tenders can either be delivered in person or sent at the above mentioned address by **COURIER/ REGISTERED POST**, to the official inviting tender(s). It shall be the responsibility of the bidder to ensure that the tender is delivered in

time as tenders received after the **Due Date** and **Time** of submission are liable to be rejected.

2.8 Unsolicited tenders shall not be entertained.

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2.9 Order/ Contract when finalised will be issued in the name of the successful bidder only and consideration for change of name during tender evaluation and after submission of the tender is subject to the discretion of BHEL/ Owner.

3.0 **PART-I (TECHNO-COMMERCIAL BID) - CONTENTS & CHECKLIST**

3.1 The tender shall be submitted in specified number of copies in separate sections for main equipment, recommended spares, etc., as per scope defined.

3.2 Technical offer for main equipment shall contain:

- a) Technical specifications/ write-ups.
- b) Scope of supply & bill of material.
- c) Catalogues, literature & drawings/data sheets and P&ID with terminals marked up.
- d) Schedule of commissioning spares and mandatory spares (to be given separately) giving only description of each item and quantity, **as per given format if any.**
- e) Optional items as per BHEL price schedule format.
- f) Recommended list of spare parts for three years operation as applicable.
- g) Schedule of supervision for erection & commissioning services, if required.
- h) Schedule of maintenance/ erection tools and tackles covered in the scope of supply as per BHEL price schedule format.
- i) Guarantee offered for the capacity of the system/ equipment, auxiliary power consumption & consumables like chemicals etc. as applicable.
- j) Listing of technical deviations
- k) Listing of exceptions & assumptions
- l) Services and materials to be provided by the purchaser.
- m) Names of main sub-vendors/ contractors.
- n) Quality plans.
- o) All other details/ documents as listed in tender documents.

3.3 Commercial offer shall contain:

- a) Agreed terms & conditions (Annexure-II).
- b) Listing of Commercial Deviations, if any w.r.t. GCC & SCC.
- c) Unpriced copy of the Price Bid (Part-II), indicating the BOQ as per the Technical Specifications.
- d) Delivery schedules
- e) Validity of offer

4.0 **PART II (PRICE BID) - CONTENTS AND CHECK LIST**

4.1 The BEST offer with FIRM prices in the given **PRICE SCHEDULE FORMAT** shall be submitted in specified number of copies in separate sections for main equipment, O&M spares and supervision of erection and commissioning offer, as per scope defined.

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- 4.2 ~~In case any bidder insists for price variation clause (PVC where NIT specifies firm price) the offer should contain:-~~
- a/ ~~PVC Formula~~
 - b/ ~~Ceiling for PVC.~~
 - c/ ~~Base date and applicable indices for base date.~~
~~Open ended PVC formula is not acceptable. Indices shall be based on Government of India/ RBI publications/ IEEMA/ LME etc. However, BHEL reserves the right to accept/ reject the offer with PVC.~~
- 4.3 Price Bid for MAIN EQUIPMENT shall cover basic equipment price including packing with excise duty, sales tax, freight etc, as per format enclosed.
- 4.4 ~~Price Bid for recommended spares shall cover Item-wise Ex-works including packing rate and total value, excise duty, sales tax, freight, etc. as per format enclosed.~~
- 4.5 ~~Offer for supervision of erection & commissioning/offer for E&C shall cover the following (if applicable):-~~
- a) ~~Scope of work.~~
 - b) ~~Schedule of tools & plants, civil work, consumables, control & instrumentation, manpower requirement (to be provided by the purchaser in case of supervision offer).~~
 - c) ~~Supervision charges on man-day basis and total period in man-months of supervision required, indicating services and facilities to be provided by the tenderer.~~

~~OR~~

~~Erection and commissioning lump sum charges/ unit-wise charges for elements of Main equipment as applicable.~~

~~**Note** — The total Erection and commissioning charges should be minimum 10% of the total quoted price of the package failing which break up of prices shall be adjusted accordingly for evaluation & ordering.~~

- 4.6 **Authority of person signing the tender on behalf of the tenderer:**
A person signing the tender or any other document in respect of the Order/ Contract on behalf of the tenderer, without disclosing his authority to do so shall be deemed to warrant that he has authority to bind the tenderer. If it is discovered at any time that the person so signing had no authority to do so, the purchaser may, without prejudice to any other right or remedy, cancel the Order/Contract and make or authorise the purchase of the stores at the risk and cost of such person and hold such person liable to the purchaser for all costs and damages arising from the cancellation of the Order/Contract including any loss which the purchaser may sustain on account of such purchase.

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Notes

- a) All bids of Indian origin shall be in Indian Rupees only.
- b) ~~All bids of foreign suppliers shall be preferably in the currency of the country of origin and shall be on FOB basis. Details of Shipping arrangements shall be included in the Order/ Contract by purchaser.~~
- c) The authorized representative/ agent can only represent one bidder for the given package.

5.0 **CLARIFICATIONS REQUIRED BY BIDDERS**

Technical and commercial clarifications required, if any, before submission of tender, should be given separately in duplicate addressed to the official inviting the tenders.

6.0 **TECHNICAL SPECIFICATIONS**

- 6.1 The tenderer is advised to study the technical specifications, schedules and data sheets carefully and submit all required information in his tender including scope of supply, bill of materials etc.

6.2 **CATALOGUES AND LITERATURES**

The tenderer shall submit detailed catalogues, literatures, drawings, technical write-ups, etc., on all equipments offered in the tender, along with each copy of Techno-Commercial Bid.

7.0 **DEVIATIONS - LISTING**

- 7.1 Tenders shall be submitted strictly in accordance with the requirements of tender documents. Deviations (Technical as well as Commercial), if any, shall be listed out separately. Technical deviations and Commercial deviations shall be furnished in separate sheets under the headings "**TECHNICAL DEVIATIONS**" and "**COMMERCIAL DEVIATIONS**" respectively, along with reasons for taking such deviations. Deviation(s) mentioned elsewhere but not included in the Schedule of Deviations as above, shall not be accepted.
- 7.2 Deviations from the specifications, will not ordinarily be allowed. In case the tenderer offers an alternative/ nearest equivalent equipment/ specifications, the alternate offer shall be submitted by the tenderer in a separate sealed cover. The tenderer shall guarantee the performance of the store(s) for the same conditions and ensure as specified in the technical specifications.

8.0 **ASSUMPTIONS - LISTING**

If the tenderer has made any assumptions while making technical offer, the same shall be listed separately under the heading "**ASSUMPTIONS**".

9.0 **DELIVERY/COMPLETION SCHEDULE**

- 9.1 **ZERO DATE:** The date of LOI/ Order/ Contract whichever is earlier shall be treated as the Zero Date for contractual purpose.

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9.2 DELIVERY PERIOD & PACKING OF MATERIAL

9.2.1 The delivery of Plant/ Equipment/ Stores as per scope of the Order/ Contract shall be quoted by the bidders as per N.I.T.

9.3 ~~In case of E & C packages the completion of Erection & Commissioning including successful completion of Performance Guarantee (PG)/ Demonstration Test(s), as per scope of the Order/ Contract shall be quoted by the bidders as per N.I.T.~~

9.4 In case of long lead time and involving more than one consignment, delivery schedule quoted shall be for sequential supplies as per erection & commissioning requirements.

9.5 ~~The mandatory and recommended spares shall not be packed along with the main equipment and shall be packed separately.~~

10.0 STORAGE INSTRUCTIONS

The successful tenderer shall be required to submit detailed instructions for storage of supplies within three (3) months of the date of award of the LOA/Order/Contract.

11.0 VALIDITY OF OFFER

Offer shall be submitted with following validity periods:

- i/ Original offer shall be valid for six months from part-I opening.
- ii/ If revised price/ impact is being asked the validity of the same shall be two months from the date of price bid opening.
- iii/ Valid till successful completion of contract for Recommended spares and Mandatory Spares (wherever it is optional item).
- iv/ Unit prices for scope addition/deletion: to be kept valid till successful Completion of contract.

NOTE:

- a) Discount offered, if any, shall be for the full duration of validity. Offers of shorter validity or discount for shorter duration are liable to be rejected.
- b) Any conditional discount shall not be considered for evaluation and ordering.**

12.0 LANGUAGE & CORRECTIONS

- a/ The tenderer shall quote the rates in Hindi/ English language and international numerals only. The rates shall be entered in figures as well as in words. For the purpose of tender, the metric system of units shall be used.

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- b/ All entries in the tender shall either be typed or written legibly in ink. Erasurement and over-writings are not permitted and may render such tenders liable for rejection.
- c/ Tenderer's offer, remarks and deviations, shall be with reference to sections and clause numbers given in the tender documents.
- d/ All cancellations and insertions shall be duly attested by the tenderer.

13.0 CHANGE OF TERMS & CONDITIONS/ PRICE

- 13.1 Any revision or changes in quoted prices and/ or conditions of offer made after tender opening, which will give benefit to the tenderer over others, may result in rejection of the tender.
- 13.2 Under no circumstances, tenderer shall alter his quoted Prices/ Rates during the validity period after tenders have been opened. Any tenderer who does so, resulting into re-calling of tenders by the purchaser or additional expenditure to the purchaser, shall run the risk of being black-listed by the purchaser, who reserves the right to recover the damages resulting therefrom.

14.0 TENDERER TO INFORM HIMSELF FULLY

- 14.1 The tenderer shall closely peruse all the clauses, specifications and drawings etc., indicated in the tender documents, before quoting. Should the tenderer have any doubt about the meaning of any portion of the tender specifications or find discrepancies or omissions in the drawings or the tender documents issued are incomplete or shall require clarifications on any of the technical aspect, scope of work etc. he shall at once contact the official inviting the tender, for clarifications, before submission of the tender.
- 14.2 The tenderer shall make independent enquiries as to the conditions and circumstances affecting his tender estimates and to the possibility of executing the supplies/works as described. In assessing the tender, the tenderer shall be deemed to have inspected and examined the site and its surroundings and to have satisfied himself (as far as practicable) as to the form and nature of the site, the quantities and materials necessary for the completion of the work and the means of transport and access to the site, the accommodation he may require, the general labour position at the site and to have quoted his prices taking into consideration, the risks, contingencies and other circumstances which may influence or affect the execution of the Order/ Contract.
- 14.3 It is the responsibility of the tenderer to keep himself informed of the correct rates of customs and other duties and taxes leviable for the materials/ services as prevailing at the time of tendering. If the rates assumed by the tenderer are less than the tariff rates prevailing at the time of tendering, the tenderer will be himself responsible for such under quotations.

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15.0 **REVERSE AUCTION –**

BHEL/ PSNR reserve the right to go for reverse auction by BHEL appointed service provider instead of opening the submitted sealed bid which will be decided after techno-commercial evaluation.

16.0 **INTEGRITY PACT:-**

The vendors shall have to enter into an Integrity Pact in case the order value is more than Rs. 10 crores (Refer annexure XI)

17.0 **REJECTION OF TENDER AND OTHER CONDITIONS**

17.1 BHEL/ PSNR reserve the right to reject any bidder if the past performance is found unsatisfactory.

17.2 The acceptance of tender will rest with the purchaser and does not bind him to accept the lowest or any tender and reserves to itself full rights for the following without assigning any reasons, whatsoever :

- a) to reject any or all the tenders.
- b) to split up the work amongst two or more tenderers.(Applicable for the contract where E&C is not in the scope of tenderers)
- c) to award the work in part. (Applicable for the contract where E&C is not in the scope of tenderers)
- d) to increase or decrease the quantities.
- e) to reject any commercial or technical deviation given in offer.

17.3 Standard pre-printed conditions of the tenderer attached to the offer will not be accepted and only those mentioned in the body of his offer will be considered.

17.4 Purchaser will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the award of the Order/Contract. Purchaser may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Seller/Contractor concerned.

17.5 If the tenderer deliberately gives wrong information in his tender, purchaser reserves the right to reject such a tender at any stage or to cancel the Order/Contract, if awarded and **forfeit** the security deposit and Bank Guarantee.

18.0 **FOREIGN BIDDERS**

18.1 Quotations/ offers shall be submitted by the Principals themselves and not by their Indian agents/representatives. In exceptional cases, however, due to any constraint, if the Principals are unable to submit the Quotations/ offers themselves, they should give an undertaking that Quotation/offer shall be submitted by their Indian agent/ representative (specifying the name and address) and that they will be responsible for all commitments made by such

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Indian agent/representative and all such commitments shall be fully honoured by them.

- 18.2 Foreign bidders quoting directly, who have Indian agents/ representatives providing service facilities in India should note the following before submitting the offer:
- 18.2.1 Tenderers will be required to indicate the name and address of the agent/ associate/ representative in India.
- 18.2.2 Foreign Bidders are required to quote FOB price inclusive of the amount of agency commission/remuneration etc. payable to the Indian agent/ associate/ representative. The amount payable to the Indian agent as mentioned above, should also be indicated separately. The foreign bidder is required to submit his offer duly signed, directly to the official inviting the tenders.
- 18.2.3 The Indian agent's commission/ remuneration finally payable to the Indian agent/ associate/ representative in terms of the agreement and as indicated in the offer shall be paid only after successful completion of the Order/ Contract, in Indian rupees converted by applying the rate of exchange (TT selling rate of State Bank of India) prevailing on the date of the price bid opening or the date of L/C negotiations whichever is lower. The above shall not be subject to any further exchange variation.
- 18.2.4 Foreign bidders are required to indicate percentage and the specific value on which Indian agent's commission/ remuneration is to be computed and the rate of exchange taken for this purpose, while submitting the bid.
- 18.2.5 In the event of breach or default on the part of the principal/ manufacturer to disclose the agent/ associate/ representative in India, the foreign bidder/ principal/ manufacturer will be liable for banning of business, for this tender as well as subsequent tenders.
- 18.2.6 The Quotation/offer shall, in addition to the other details, include the following information:
- i/ The precise relationship between the foreign bidder and the agent.
 - ii/ Mutual interest between the foreign bidder and the Indian agent/ associate/ representative being in the business with each other.
 - iii/ Any payment the Indian agent/ associate/ or representative receives in India or abroad from the principal/ manufacturer over and above the agency commission/ remuneration given above, whether it is as a commission/ remuneration for the contract/ enquiry or as a general retainer fee.
 - iv/ Details of the services that will be rendered by Indian agent/ associate/ representative whether of general nature or in relation to the particular contract/ enquiry.
 - v/ Permanent income tax account number of the Indian agent/ associate/ representative.
 - vi/ Income tax account number of the foreign bidder.

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19.0 **LOADING FOR DEVIATIONS & TENDER EVALUATION**

19.1 **LOADING FOR DEVIATIONS**

19.1.1 Deviations (Commercial as well as Technical) from the Tender Specifications are generally not acceptable. However, if any deviation is considered by the Purchaser, the same shall be loaded for comparison, while evaluating the offer.

19.1.2 Loading/ loading criteria in respect of the deviation(s), shall be as specified in part-B of this GCC. If a bidder unconditionally withdraws any deviation before Price Bid opening, the same shall not be loaded.

19.1.3 Interest Rate for loading other than specified in Annexure - X will be taken as double the Prime Lending Rate of State Bank of India (prevailing on the date of NIT) plus 2% for Administrative Charges.

19.1.4 In case of deviation from BHEL G.C.C., the tenderer shall separately quote the price for withdrawal of such deviations in Sealed Cover.

20.0 **PRICE DISCREPANCY**

The following shall be considered for evaluation and ordering.

If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, the corrected calculated price shall be considered for evaluation and ordering.

If there is a discrepancy between words and figures, the correct calculated price shall be considered for evaluation and ordering.

Unit prices quoted only shall be considered as correct for evaluation and ordering.

Taxes and duties if not specified clearly as extra shall be considered as included in the basic price & therefore shall not be reimbursed.

21.0 **DISCOUNTS**

Discount offered by any bidder, against the present Tender Enquiry, which is also indicated to be applicable to any other Enquiry, shall be considered against

the present Tender Enquiry only. In case only percentage discount is indicated, the same shall be applicable for optional prices also.

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22.0 **EVALUATION CRITERIA**

- 22.1 Though, Foreign Bidders are required to quote FOB price, Price evaluation and comparison shall be made on the basis of Free Delivery on Project site.
- 22.2 Tenders will be evaluated on the basis of delivered cost i.e. total cost to the Purchaser, taking into consideration loadings, if any, and all available financial advantages, including those available from the Owner, taxation, etc.
- 22.3 For evaluation exchanged rate (TT selling rate of State Bank of India as on the date of Part II (price bid) opening shall be considered).
- 22.4 In case of foreign bidders the quoted F.O.B. price shall be loaded by following factors to arrive at total FOR site price:

Marine freight and insurance - @ 3% for Europe/ Asia/ Africa and 5% for USA/ American continent.

Custom duty {including Countervailing Duty (CVD) & Special Additional Duty (SAD)} as per SCC – ‘as prevailing at the time of price bid opening’. For projects outside India: Rates of custom duty, as applicable.

Port handling/ clearing charges - @ 1.0% of CIF.

Inland freight including L/C charges @ 1% of CIF value.

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1.0 CONTRACT

The Contract between the Purchaser and Seller/ Contractor is merely a Contract only and shall not be treated as a partnership between the parties to the Contract.

2.0 PRICES

2.1 BASIC PRICES

Basic prices shall be for the entire scope of work in line with all instructions, specifications and terms and conditions specified in the Tender Documents.

3.0 TAXES AND DUTIES

3.1 EXCISE DUTY:

3.1.1 Seller/ contractor is required to ensure that excise duty including surcharge if any is quoted as per the existing tariff on the date of the offer and all benefits as per existing rules have been considered.

3.1.2 Excise duty actually incurred by Seller/ contractor on self manufactured items alone shall be reimbursed at actual against requisite documentary evidence.

3.1.3 The invoice cum Excise duty gate pass (Excise Invoice) should contain the name of ultimate consignee as specified in the Order/ Contract. If excise duty is paid under protest or dispute, it shall not be reimbursed until and unless the dispute has been finally settled.

3.1.4 No excise duty shall be payable by purchaser on inputs, bought out items, raw materials and components consigned directly to site from sources other than Seller/ contractor's factory/works.

3.1.5 If required by purchaser, the seller/ contractor will provide a certificate stating that **CENVAT** benefit has been availed of on the inputs and the same has been passed on to the purchaser.

3.1.6 If the Seller/ contractor claims/ obtains any refund of the excise duty paid and gets reimbursed, the same shall be refunded to the purchaser immediately.

3.1.7 Excise duty shall be paid at actuals against documentary evidence but restricted to the amount and percentage shown in the Order/ Contract.

3.1.8 No statutory variations shall be permissible beyond the contractual delivery period.

3.2 SALES TAX/ VALUE ADDED TAX:

3.2.1 Central Sales Tax/ Value Added Tax shall be reimbursed only if the same is payable by the Seller/ Contractor to the respective Govt. authorities meeting all statutory requirements and availing all exemptions/ concessions under the

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respective Central Sales Tax/ Value Added Tax Acts. The offer should clearly indicate CST/ VAT percentage and the total amount along with concessional form/s if any.

- 3.2.2 Purchaser is registered in NOIDA / U.P. State vide Registration Number: -
UP TIN No. : **09365800914**
- 3.2.3 Central Sales Tax/ Value Added Tax on direct sales by the Seller/ contractor to the purchaser shall be reimbursed, as per tariff applicable on the approved items, but restricted to the percentage and amount shown in the Order/ Contract. If it is shown as included in the quoted price, it will not be eligible for reimbursement by the purchaser.
- 3.2.4 Purchaser proposes to make sale-in-transit under section 6 (2) (b) of Central Sales Tax Act where goods are moving interstate. "C" form shall be issued and exchanged against E1/E2 forms based on quarterly transactions. Seller/ Contractor is required to submit his request in the format enclosed as Annexure-VII. No concessional form will be issued for goods moving within the State of U.P.
- 3.2.5 If documents are submitted through bank, issuance of Form "C" shall not be insisted upon at the time of retirement of document(s).
- 3.2.6 VAT (if applicable) invoice, in proper format prescribed by respective state sales tax act has to be submitted in the name of nodel agency specified in SCC.
- 3.3 SERVICE TAX:**
Service tax paid by the seller/ contractor to the Govt. Authorities directly shall only be reimbursed at actuals but restricted to the rate and amount mentioned in the order/ contract The offer should clearly indicate the percentage and the total amount.
- 3.4 OTHER TAXES & LEVIES**
All other taxes and levies other than ED, Sales tax, service tax shall be deemed to be included in the basic prices unless specified otherwise by bidder in price bid. No variation in other taxes and duties shall be payable by purchaser.
- 3.5 CUSTOMS DUTY:**
- 3.5.1 The customs duty element for imported items as per SCC shall be included in the basic prices. No variation in customs duty and exchange rate for imported items shall be payable by purchaser.
- 3.5.2 Seller/ contractor shall arrange for his own import license, if required, since purchaser will not provide any import license. Therefore, Seller/ contractor alone shall be responsible for any delay in getting import license or non-availability of the same or completion of other related formalities. Purchaser shall not be responsible for any financial liability, whatsoever, on this account.

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3.5.3 Essentiality or Project Authority (PA) certificate as per Import Policy, if required, to avail concessional customs duty, shall be clearly specified in the offer. The import contents (CIF) in terms of as list of items, quantity (CIF value in rupees), foreign currency, country of origin, etc., shall be submitted as part of Price bid. For details refer SCC.

3.6 DIRECT TAX:

3.6.1 Purchaser shall not be liable towards income tax of whatever nature including variations thereof, arising out of this Order/ Contract, as well as tax liability of the Seller/ contractor and his personnel.

3.6.2 Deductions of tax at source at the prevailing rates shall be effected by the purchaser before release of payment, as a statutory obligation, if applicable. TDS certificate will be issued by the Purchaser as per provision in Govt. Rules.

4.0 STATUTORY VARIATIONS

4.1 If the rates for taxes and duties in respect of the quoted materials and/or services assumed by the Seller/ contractor are less than the tariff rates prevailing at the time of tendering, Seller/ contractor will be responsible for such under quotations. However, if the rates assumed are higher than the correct rates prevailing at the time of tendering, the difference will be to the credit of the Purchaser.

4.2 Statutory variations in Excise Duty, Service Tax and central Sales Tax/Value Added Tax only on self manufactured items/services rendered by vendor himself on the rates prevailing at the time of delivery in comparison to the date of offer, will be to the account of the purchaser. No other variations such as on customs duty, exchange rate, minimum wages, prices of controlled commodities, any other input etc., shall be payable by the purchaser.

4.3 Notwithstanding the above, where the actual completion of the supply occurs beyond the period stipulated in the Order/ Contract or any extension thereof, variations referred to above, will be limited to the rates prevailing on the dates of such agreed completion periods only. For variations after the agreed completion periods, the Seller/ contractor alone shall bear the impact for the upward revisions and for downward revisions; purchaser shall be given the benefit of reduction in taxes/duties. This will be without prejudice to the levy of penalty for delay in delivery/completion schedule.

5.0 TRANSPORTATION & FREIGHT CHARGES

5.1 All dispatches shall be only through road carriers approved by the Purchaser/ Scheduled Banks.

5.2 Road permit/ entry permit, if required, as per laws of the state shall be arranged by the Purchaser.

5.3 Freight charges shall be payable after delivery of the goods at the project site.

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6.0 **VARIATION**

The prices shall remain firm (or with PVC as specified in NIT) for any increase or decrease in the Order/ Contract value upto plus or minus 30% unless specified otherwise in technical specification/ price format. The purchaser shall have the right to increase or decrease quantities and scope upto the above extent of value and Seller/ contractor shall be bound to accept the same at the contracted prices without any escalation.

7.0 **SECURITY DEPOSIT CUM CONTRACT PERFORMANCE BANK GUARANTEE**

7.1 **TIME FOR SUBMISSION**

7.1.1 The successful tenderer shall submit security deposit-cum-contract performance bank guarantee as per format given in Annexure-IV, within 30 days of LOI/ Order/ Contract to cover the due performance of the LOI/ Order/ Contract and to fulfill the guarantee conditions stipulated in the Order/ Contract.

7.2 **VALUE**

The value of bank guarantee shall be 10% of the Order/ Contract value excluding taxes, duties and freight charges. If the value of the Order/ Contract gets enhanced at any time, the Seller/ contractor shall submit the Bank Guarantee correspondingly to the enhanced value at the time of claiming first payment after Contract amendment, failing which the purchaser shall recover the equivalent amount from the payments due to the Seller/ contractor.

However BG value can be proportionately reduced after successful completion of erection at site which is presumed as fixed period of 12 month from the date of receipt of first lot at site/ start of erection.

Note: No SD-cum-PBG shall be required for Order/ Contract value (excluding taxes, duties and freight) upto Rs.10.0 Lacs. However, vendor to submit Corporate Guarantee in lieu of SD-cum-PBG.

7.3 **VALIDITY**

7.3.1 For supply Order/ Contract, the validity of the bank guarantee shall be up-to the contractual delivery period, initially. It shall be later extended to cover the entire period, i.e. 12 month from the date of receipt of first lot at site/ start of erection.

~~7.3.2 For Order/ Contract inclusive of erection and commissioning (E&C), the validity of bank guarantee shall be up to the contractual E&C completion period, initially. It shall be later extended to cover the entire guarantee period, two months before expiry of its validity period.~~

7.4 The purchaser shall reserve the right and it shall be lawful on its part to forfeit and en-cash the bank guarantee, in the event of any default, failure or neglect on the part of the Seller/ contractor, in fulfillment of performance of the Order/ Contract.

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- 7.5 The Security deposit-cum-contract performance bank guarantee shall be revalidated by the seller/ contractor, whenever it is warranted, till the complete fulfillment of the contractual obligations. The bank guarantee shall be extended by the seller/ contractor at his cost, for a period not less than three months at a time, on the same terms for full value of the Order/ Contract, before expiry of the bank guarantee.
- 7.6 Equivalent amount shall be recovered from the payments due to the Seller/ contractor before releasing any payment, in the absence of a valid Bank Guarantee.
- 7.7 The BG should be from Public Sector Banks/Consortium Banks and shall be directly furnished by bank to BHEL/PSNR, NOIDA. The BGs from Co-operative Banks are not acceptable. However, BG of other than consortium bank/ public sector bank can be accepted subject to an overall exposure limit (at the unit/ region level) of Rs. 10 Crores for banks with net worth of more than Rs.500 Crores as on the last balance sheet date and Rs.5.0 Crores for banks with net worth between Rs.350-500 Crores (a certificate and a copy latest balance sheet to be given by the bank to the purchaser with BG.
- 7.7.1 In case of private sector banks, a clause to be incorporated in the text of BG that it can be enforceable by being presented **at any branch** of the bank.
- 7.7.2 In case of foreign vendors our consortium bank in India should confirm the BG issued by foreign banks.
- 7.7.3 In case of BGs given by non-Consortium banks (Private sector or Public sector), the BGs are to be enforceable in the town/ city in which the purchaser is located.
- 7.7.4 The genuineness of the said BG has to be confirmed with the issuing bank.
- 7.7.5 The list of Consortium Banks is as per Annexure XII.

8.0 TERMS OF PAYMENT

- 8.1.1. **Eighty five per cent (85%)** of basic price of materials supplied, as per approved billing schedule along with applicable taxes and duties for the consignment shall be paid against dispatch documents on pro-rata basis.
- 8.1.2. **Ten per cent (10%)** of basic price along with freight, Export packing charges, and any other taxes if any, will be released on pro-rata basis after submission of **Material Receipt Certificate (MRC)**, which is issued by the BHEL Regional operation Division responsible for shipping of materials
- 8.1.3. Last **Five per cent (5%)** of the total basic price shall be released after i) submission of all final documents including as built drawings as applicable in four equal installments within one year after receipt of material at Marib Site, Yemen. If any rework is carried out on the fabricated structure supplied by the vendor the rework cost on quarterly basis shall be recovered from the payment to be made.

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Notes:-

All payment shall be released within 45 days of submission of complete documents as per contract.

For indigenous supplies all bank charges to vendor's account.

8.2. DOCUMENTS TO BE SUBMITTED FOR CLAIMING PAYMENTS AGAINST SUPPLY.

3 SETS – (1 Set consisting of following documents):-

- a. Invoice
- b. LR
- c. Packing List
- d. MDCC
- e. CQIR Report
- f. Test certificate and Guarantee certificates

8.3 ~~LOADING DETAILS IN CASE OF DEVIATIONS:-~~

~~The loading details in respect to deviation in payment terms and LD indicated in Annexure—X.~~

8.4 BHEL BANKERS FOR LC PAYMENT

As per list of Consortium banks attached (Refer- Annexure- XII).

8.5 MODE OF PAYMENT

The payment shall be made directly to the Seller/ contractor, by E-transfer. Seller/ contractor to provide necessary information for the same as per annexure IX

8.6 No interest shall be payable by the purchaser on the security amount, bank guarantee amount or balance which may be lying with the purchaser or any money which may become due owing to difference or misunderstanding or any dispute between the purchaser and the contractor, or any delay on the part of purchaser in making periodical or final payment or any other aspects incidental thereto.

9.0 RECOVERY OF OUTSTANDING AMOUNT

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

10.0 DELIVERY/COMPLETION SCHEDULE

10.1 The Seller/ contractor shall so organize his resources and perform the Order/ Contract so as to complete it as per stipulated delivery/ completion schedule.

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- 10.2 Supply of plant/ equipment/ stores shall not be considered complete until they have been inspected and accepted at the place and destination specified for delivery, by the time stipulated under the terms & conditions of the Order/ Contract. Mere payment by itself shall not constitute acceptance of the goods or materials in any manner, whatsoever.
- 10.3 Supply of plant/equipment/ stores shall adhere to the quality and specifications as per Order/ Contract and shall be delivered at the destination specified in the Order/ Contract.
- 10.4 Date of despatch for indigenous supplies (RR/ GR date) and shipment (AWB/ B/L date) for imported supplies shall be treated as **the date of delivery** for the purpose of levying **Liquidated Damages as per clause 13**.

10.5 Terms of delivery shall be FOR despatch station.

11.0 INSPECTION AND TESTING AT CONTRACTOR'S PREMISES

- 11.1 Inspection Agency, CQS (BHEL) unless specified otherwise in the contract shall have, at all reasonable times, access to the Seller/ contractor's premises or works, and shall have the power at all reasonable times to inspect drawings of any portion of the work or examine the materials and workmanship of the stores during its manufacture, and if part of the stores is being manufactured at other premises, the Seller/ contractor shall obtain from the Inspection Agency, permission to inspect, examine and test as if the store is being manufactured on the Seller/ contractor's premises.

An inspection call is to be raised by the Seller/ contractor on BHEL CQS Website.

Such inspection, examination and testing by itself shall not relieve the Seller/ contractor from any obligation under the Order/ Contract. Non-conformance from the contract specifications shall be reported by the Seller/ contractor as per part – I of Annexure – V.

- 11.2 The Seller/ contractor shall give the Inspection Agency, reasonable notice of any material being ready for testing, and the Inspection Agency shall (unless the inspection of tests is voluntarily waived), on giving reasonable notice to the Seller/ contractor, attend at the Seller/ contractor's premises within fifteen (15) days of the date on which the material is notified as being ready. All standard shop tests, physical and chemical tests required by the standards or as may be prescribed or approved as per Order/ Contract, shall be conducted by the Seller/ contractor. The Inspection Agency reserves the right to waive any of the above tests requirements and to prescribe new tests, if found necessary, to complete the work so as to conform to the best practices. The Seller/ contractor shall forthwith forward to the Inspection Agency, duly certified copies of the **test certificates in quadruplicate**, for approval. Further copies of the shop test certificates shall be bound with the instruction manuals referred to in "Seller/ contractor's documents, drawings and instruction manuals".

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11.3 Where the Order/ Contract provides for tests/ inspections at the premises or works of the Seller/ contractor or any sub-contractor, the Seller/ contractor, except specified otherwise, shall provide free of charge, such assistance, labour, materials, electricity, fuel, water, stores, apparatus, measuring instruments and test equipment including any other facilities as may be reasonably required to carry out such tests efficiently.

11.4 **INSPECTION MEASURING AND TEST EQUIPMENTS**

11.4.1 Inspection measuring and test equipments (IMTE) whether used by the Seller/ contractor or sub-contractor shall be calibrated, maintained and controlled. Calibration shall be valid and IMTE maintained in sound condition during usage.

11.4.2 In addition to above, Seller/ contractor shall ensure the following:

- a/ Measurement uncertainty is known and consistent with required measurement capability of the IMTE.
- b/ Selection of IMTEs is compatible with the necessary accuracy and precision of required measurement.
- c/ IMTEs are calibrated at the required intervals against certified equipments having known valid relationship to nationally recognised standards, at recognised calibration labs.
- d/ Calibration records are available and traceable to the particular IMTE.
- e/ In case, during recalibration, the IMTE is found out of calibration, report on action taken to validate the previous results along with both calibration records of the IMTE to be furnished to Inspection Agency.
- f/ IMTEs are stored, handled and preserved such that accuracy and fitness are maintained and safeguarded from adjustments.

NOTE: Purchaser's decision on acceptability of the product in such cases shall be binding.

11.4.3 Responsibility of usage of valid and calibrated IMTEs by his sub-contractor(s) shall be of the Seller/ contractor.

11.4.4 In case, calibration records are required by purchaser, copies of the same shall be furnished.

11.5 Seller/ contractor shall be fully responsible for the Quality of products supplied by sub-contractors.

12.0. **MATERIAL DESPATCH CLEARANCE CERTIFICATE (MDCC)**

12.1 When the tests have been satisfactorily completed at the Seller/ contractor's works, the Inspection Agency shall issue a certificate to that effect within fifteen (15) 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 fifteen (15) days of the receipt of the test certificates by the Inspection Agency.

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- 12.2 Purchaser/Owner will issue MDCC to the Seller/ contractor based on the QS Note/Report from the Inspection Agency.
- 12.3 **Seller/ contractor will not despatch any material before issue of MDCC by the Purchaser/ Owner.**
- 12.4 The satisfactory completion of these tests or the issue of MDCC, shall not bind the purchaser/ Owner to accept the supply/equipment, should it, on further tests after erection, be found not to comply with the contract provisions.

13.0 **DELIVERY FAILURE AND TERMINATION/ LIQUIDATED DAMAGES**

- 13.1 The parties hereto agree that the timely despatch/ delivery and completion of other schedules as stipulated in Order/ Contract shall be the essence of the Order/ Contract. If the seller/ contractor fails to complete the despatch/ delivery and other schedules within the time period stipulated in the Order/ Contract, or within any extension of time granted by the purchaser, it shall be lawful for the purchaser to recover damages for breach of Order/ Contract without prejudice to any other rights and/ or remedies provided for, in the Order/ Contract and hereunder.

13.2 **DELAYED DELIVERY**

- 13.2.1 The purchaser reserves the right to recover from the Seller/ contractor, as agreed liquidated damages and not by way of penalty, a sum equivalent to half percent (½%) of the undelivered contract price per week or part thereof, subject to a maximum of ten per cent (10%) of the total contract price excluding elements of taxes, duties and freight, if the seller/ contractor has failed to deliver any part of the ordered stores within the period stipulated in the Order/ Contract.

NOTE: If the Order/ Contract involves supply for two or more Units/Sets/lots of the Power Project, total value of the Order/ Contract to be taken for levy of Liquidated Damages, shall be the Order/ Contract value of the particular Unit/ Set/ lot for which the delay has taken place, provided delivery stipulated in the Order/ Contract is Unit/ Set/ lot wise for **supply packages**. In case of **turnkey packages** LD shall be leviable on the total value (supply and E & C) in case of delay in E & C. No LD shall be withheld from supply payments.

- 13.2.2 The purchaser reserves the right to purchase from elsewhere on account of and at the risk and cost of the seller/ contractor with notice to the seller/ contractor of the stores due for delivery but not so delivered or their equivalent, without canceling the Order/ Contract in respect of the stores not yet due for delivery. The manner and the method of such purchase shall be at the discretion of the purchaser.
- 13.2.3 Purchaser reserves the right to cancel the Order/ Contract or a portion thereof for the stores not so delivered at the risk and cost of the seller/ contractor and the seller/ contractor shall be liable to the purchaser for any excess costs thereof.

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13.2.4 Seller/ contractor shall continue the performance of the Order/ Contract under all circumstances, to the extent not cancelled.

14.0 **GUARANTEE FOR PLANT/ EQUIPMENT/ STORES**

14.1 Like manufactured product guarantee / warranty is not applicable for fabricated structures, however vendor to ensure that all fabrication is carried out as per fabrication drawings approved.

14.2 It is expected that GT hall erection shall be completed within 12 months from the date of receipt of first consignment of fabricated structure/ start of erection. Therefore wherever necessary modification shall be carried out by BHEL at site and cost shall be debited to the vendor.

14.3. Security deposit cum contract performance bank guarantee shall be extended to remain valid for the period specified in clause no. 14.2.

14.4. The decision of the purchaser with regard to Seller/ contractor's liability and the amount involved, if any, payable by the Seller/ contractor under the guarantee shall be final, conclusive and binding.

15.0 **INSURANCE**

15.1 Insurance shall be arranged by BHEL.

15.2 Bidders/Vendors shall inform the insurance company, appointed/ nominated by BHEL/ Purchaser, the details of despatches under intimation to BHEL such as LR no. & date, Truck nos., P.O. no., project & value.

15.3 Insurance as applicable for field work such as third party liability, workmen compensation, Seller/ contractor's own Tools & Plants and automobile shall be arranged by the seller/ contractor.

16.0 **INTER-CHANGEABILITY AND CHANGES**

16.1 All similar components or parts of similar equipment supplied by the seller/ contractor shall be interchangeable with one another.

16.2 Even though all the work and materials necessary for satisfactory completion of the works may not be detailed in the specifications and schedules, the cost will be considered to be within the contract price and no extra charges shall be payable. However, if there are substantial changes in the specifications of the stores/ plant, consequential changes in prices shall be mutually agreed between the purchaser and the seller/ contractor.

17.0 **PACKING**

17.1 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.

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17.2 Packing list shall be submitted as per standard format along with advance set of documents for claiming payment which shall also indicate:

- a/ Packing size.
- b/ Gross weight and net weight of each package.
- c/ Contents of the package with quantity of each item separately.

17.3 In case of shipment by sea, the packing shall be sea-worthy and of international standard.

17.4 PACKING FOR SPARES

17.4.1 Different types of spares i.e. start-up/commissioning spares and initial spares (mandatory spares and recommended O&M spares) are to be packed separately.

17.4.2 Documents for spares should have stamp/ marking for easy identification and separation from Main Equipment.

17.5 COLOUR CODING OF TAGS/MARKING/STICKERS

17.5.1 Aluminium stickers are required to be attached to large components but plastic sheet tags should be tied with small components, giving details regarding purchase order, description of the components, quantity etc.

17.5.2 Tags should be of the colour as mentioned below:

Main equipment:	Yellow or white tag
Mandatory spares:	Pink or red tag
Start-up/Commissioning spares:	Blue tag
O&M spares:	Green tag

17.5.3 Similar colour scheme should be followed wherever stickers are pasted on components.

18.0 MATERIAL RECEIPT CERTIFICATE

The Seller/ contractor shall arrange Material Receipt Certificate from the concerned project site, duly signed by the purchaser/owner Site Engineer, after receipt of the material at site and its physical verification wherever E&C is in the scope of seller/ contractor.

For supply packages – MRC shall be arranged by BHEL. However vendor to provide copy of receipted LRs to enable BHEL to obtain MRC from site.

19.0 CONSIGNEE'S RIGHT OF REJECTION

19.1 Notwithstanding any approval which Purchaser or the Engineer may have given in respect of the stores or any materials or other particulars or the work or workmanship involved in the performance of the Order/ Contract (whether with or

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without any test carried out by Seller/ contractor or the Inspection Agency or under the direction of the Contract Engineer), and notwithstanding delivery of the stores where so provided to the consignee, it shall be lawful for the consignee, on behalf of the purchaser, to reject the stores or any part, portion or consignment thereof, within 30 days after actual delivery, thereof to him at the stipulated place or destination, if such stores or part, portion of consignments thereof is not in all respects in conformity with the terms and conditions of the Order/ Contract whether on account of any loss, storage, deterioration or damage before despatch or otherwise, whatsoever.

- 19.2 Rejected goods or materials shall be removed by the seller/ contractor within a period of 15 days from the date of receipt of notice of such rejection. The expenses to be incurred in respect thereof shall entirely be borne by the seller/ contractor.

20.0 RISK IN STORES (FOR E & C CONTRACTS)

The seller/ contractor shall perform the Order/ Contract in all respects in accordance with the terms and conditions thereof. The stores and every constituents part thereof, whether in the possession or control of the Seller/ contractor, his agents or servants, or a carrier, or in the joint possession of the seller/ contractor, his agent or servants and the purchaser, his agents or servants shall remain in every respect at the risk of Seller/ contractor until their actual delivery to the consignee at the stipulated place or destination or where so provided in the acceptance of offer, until their delivery to a person specified by the purchaser as interim consignee for the purpose of despatch to the consignee. The Seller/ contractor shall be solely responsible for all loss, destructions, damage or deterioration of or to the stores from any cause whatsoever, while the stores after approval by the Inspection Agency are awaiting despatch.

21.0 SHORTAGES/DAMAGES

21.1 FOR SUPPLY PACKAGES

Shortages in sound cases shall be replenished free of cost as early as possible by vendor.

Shortages/ Damages during transit/ handling at site, vendor shall supply replacements as early as possible at old contractual rates upon intimation to vendor within 3 months of receipted LR.

21.2 FOR E & C PACKAGES -

Any shortages or damages during unloading and handling at site, including at the time of erection and commissioning, shall be made good by the Seller/ contractor at his risk and costs, to meet the project schedule. In case of faults/discrepancies in any material, component, sub-assembly, assembly, etc., the same shall be supplied/ replenished free of cost to enable the equipment to be put in service.

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22.0 **CONFIDENTIALITY**

Seller/ contractor shall, at all times, undertake to maintain complete confidentiality of all data, information, software, drawings & documents, etc. belonging to the purchaser and also of the Systems, procedures, reports, input documents, manuals, results and any other company documents discussed and/ or finalised during the course of execution of the Order/ Contract.

23.0 **DEFAULT/BREACH OF CONTRACT, INSOLVENCY AND RISK PURCHASE**

23.1 If the Seller/ contractor fails to deliver the goods or materials or any installment thereof within the period(s) fixed for such delivery or delivers goods or materials not of the contracted quality and failing to adhere to the contract specifications or at any time repudiates or otherwise abandons the contract before expiry of such period or refuses or is unable to supply goods or materials covered by the Order/ Contract either in whole or in part or otherwise fails to perform the Order/ Contract or commits any breach of the Order/ Contract not herein specifically provided for or in the event of the death or insanity or if the Seller/ contractor being an individual or if a firm on a partnership thereof, shall at any time, be adjudged insolvent or shall have a receiving order for administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any assignment of the Order/ Contract or enter into any arrangement or composition with his creditors or suspend payment or if the firm dissolved under the Partnership Act or if the Seller/ contractor being a company is wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the debenture holders and creditors is appointed or circumstances shall have arisen which entitles the Court of debenture holder and creditors to appoint a receiver, liquidator or manager, the purchaser without prejudice to his right to recover any expenses, losses or damages to which the purchaser may be put to incur or sustain by reason of the Seller/ contractor's default or breach of Order/ Contract shall be entitled to cancel the Order/ Contract either in whole or portion thereof without compensation to the Seller/ contractor and if the purchaser so desires, he may procure upon such terms and in such manner as he deems appropriate, stores not so delivered or others of a similar description where stores exactly complying with particulars are not, in the opinion of the purchaser, which shall be final, readily procurable, at the risk and cost of the Seller/ contractor and the Seller/ contractor shall be liable to the purchaser for any excess costs provided that the Seller/ contractor shall continue the performance of the Order/ Contract to the extent not cancelled under the provisions of this clause. The Seller/ contractor shall on no account be entitled to any gain on such repurchases.

23.2 Cost of the purchases made by the Purchaser at the risk and cost of the seller/ contractor shall be worked out after levying 30% overheads as departmental charges on the ex-works cost of materials purchased.

24.0 **TERMINATION OF THE CONTRACT**

24.1 The purchaser shall have the right to cancel the Order/ Contract, wholly or in part, in case he is obliged to do so on account of any decline, diminution, curtailment or

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stoppage of his business and in that event, the Seller/ contractor compensation claim shall be settled mutually.

- 24.2 The purchaser shall also have the right to cancel the Order/ Contract at the risk and cost of the Seller/ contractor in case either the Seller/ contractor himself or any of his representative or agent is found to have been a previous employee of the purchaser immediately before the retirement and has within a period of two years of such retirement accepted the employment of the Seller/ contractor either as a Seller/ contractor or as an employee without having obtained the prior permission of the purchaser.
- 24.3 In case of cancellation of main supply order/ contract, all other associated orders/ contracts like, mandatory spares/recommended spares/ E & C/ supervision of E & C also get cancelled.

25.0 TRANSFER, SUB-LETTING/ ASSIGNMENT/ SUB-CONTRACTING

- 25.1 The seller/ contractor shall not sublet, transfer or assign this Order/ Contract or any part thereof or interest therein or benefit or advantage thereof save with the prior consent in writing of the purchaser. In the event of seller/ contractor sub-letting, transferring or assigning this Order/ Contract or any part thereof or interest therein or benefit or advantage thereof without such permission, the purchaser shall be entitled to cancel the Order/ Contract and to purchase the stores from elsewhere at risk and costs of the seller/ contractor and the seller/ contractor shall be liable for any loss or damage which the purchaser may sustain in consequence of, or arising out of such risk purchase.
- 25.2 If the seller/ contractor is an individual or a proprietary concern and the individual or the proprietor dies or the partnership is dissolved or substantially affected, then unless the purchaser is satisfied that the legal representative of the individual seller/ contractor or the proprietor of proprietary concern and in the case of partnership, surviving partners are capable of carrying out and completing the Order/ Contract, the purchase shall be entitled to cancel the Order/ Contract as to its incomplete and without being in any way liable to payment of any compensation to the estate of seller/ contractor and/or to the surviving partners of the seller's/contractor's firm on account of the cancellation of the Order/ Contract.
- 25.3 Terms and Conditions shall not get affected in case of merger/ amalgamation/ re-arrangement/ takeover etc.
- 25.4 The decision of the purchaser that the legal representatives of the deceased seller/ contractor or surviving partners of the seller's/ contractor's firm can not carry out and complete the Order/ Contract shall be final and binding on the parties hereto.

26.0 FORCE MAJEURE

- 26.1 Notwithstanding anything contained in **clause 14.0**, if at any time, during the continuance of the Order/ Contract the performance in whole or in part by either

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party, of any obligations under this Order/ Contract shall be prevented or delayed by reason of any war hostilities, acts of the public enemy, restrictions by Govt. of India, civil commotion, sabotage, fires, floods, explosion, epidemics, quarantine restrictions, strike, lock-outs, or acts of God (hereinafter referred to as 'event'), then, provided notice of the happening of such event is given by either party to other within fifteen (15) days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate this Order/ Contract nor shall have any claim for damages against each other in respect of such non-performance and delay in performance. Performance under the Order/ Contract shall be resumed immediately after such event has come to an end or ceased to exist and decision of the purchaser as to whether the deliveries have to be resumed or not shall be final, conclusive and binding on the parties hereto.

- 26.2 In the event of the parties hereto not able to agree that a force majeure event has occurred, the parties shall submit the disputes for resolution pursuant to the provisions hereunder, provided that the burden of proof as to whether a force majeure event has occurred shall be upon the party claiming such an event.
- 26.3 Notwithstanding the above provisions, Purchaser shall reserve the right to cancel the Order/ Contract, wholly or partly, in order to meet the overall Project schedule and make alternative arrangements for completion of delivery and other schedules.

27.0 **INDEMNIFICATION**

Seller/ contractor shall fully indemnify and keep indemnified the Purchaser against all claims of whatsoever nature arising during the course and out of the execution of this Order/ Contract.

28.0 **CONTRACT PERFORMANCE EVALUATION**

Performance of the Seller/ contractor in the present Order/ Contract shall be evaluated by the Purchaser as per Performance Evaluation System detailed in Annexure – VII. The Seller/ contractor may be de-listed or put under hold or retained based on the performance in the present Order/ Contract.

29.0 **SETTLEMENT OF DISPUTES**

- 29.1 Except as otherwise specifically provided in the Order/ Contract, all disputes concerning questions of the facts arising under the Order/ Contract, shall be decided by purchaser, subject to written appeal by the Seller/ contractor to the purchaser, whose decision shall be final.
- 29.2 Any disputes or differences shall be to the extent possible settled amicably between the parties hereto, failing which the disputed issues shall be settled through arbitration.
- 29.3 The Seller/ contractor shall continue to perform the Order/ Contract, pending settlement of dispute(s).

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30.0 **ARBITRATION**

30.1 In the event of any dispute or difference arising out of the execution of the Order/ Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision by the Seller/ contractor in any manner touching upon the Order/ Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred to the arbitration of the person appointed by the competent authority of the Purchaser.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act, 1996 (India) or statutory modifications or reenactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The venue of arbitration shall be at New Delhi.

30.2 In case of order/ contract on Public Sector Enterprises (PSE) or a Govt. Deptt., the following clause shall be applicable:-

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Order/ Contract, such dispute or difference shall be referred to by either party to the arbitration of one of the arbitrators in the department of public enterprises. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law secretary, Deptt. of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties hereto finally and conclusively.

30.3 The cost of the arbitration shall be borne equally by the parties.

31.0 **LAWS GOVERNING THE CONTRACT**

The Contract including all matters connecting with this contract shall be governed by the Indian Law both substantive and procedural, for the time being in force including modification thereto, and shall be subject to the exclusive jurisdiction of Indian courts at Delhi/ New Delhi.

32.0 **JURISDICTION OF COURT**

Courts at Delhi/ New Delhi shall have exclusive jurisdiction to decide the dispute, if any, arising out of or in respect of the contract(s) to which these conditions are applicable.

1.0. PRICE SCHEDULE

Name of Package: Supply of Fabricated Steel Structures up to Mumbai Port.

Project: Marib, Republic of Yemen.

Sl. No.	Description	Price (Rs.) (In figures and words)
1.1	<p>TOTAL FIRM PRICE inclusive of all prevailing taxes, duties and other levies etc., for Supply of fabricated steel structures including painting / Galvanization, preparation of detailed fabrication drawings and erection marking drawings based on design/ drawings issued by BHEL, Necessary inspection and testing, Sea worthy Export packing, and Transportation up to Mumbai Port for further shipment to Republic of Yemen.</p> <p>(Break-up to be given as at 2.0 of this Annexure)</p>	

Notes:

- a) Item wise breakup of the Prices shall be as per price format (enclosed). Bidders to quote supply price in INR only.
- b) Bidder should note that total price indicated above at 1.0 shall be considered for Price Evaluation and hence should be complete in all respect for the full scope defined and considering all terms and conditions agreed. However, Price of optional items, if any, shall not be considered for Price Evaluation.
- c) Any item not included in the price quoted above and shown separately will not be considered.
- d) In case, price indicated above does not match with the break up given at 2.0, the highest price so calculated shall be considered for evaluation but in case of order, the same shall be placed at the lowest price.
- e) Prices to be quoted shall be for finished product and weight shall be calculated on standard sectional weight basis.
- f) Per MT price quoted shall be applicable for all purposes, i.e. addition, deletion or recovery as the case may be.
- g) Terminal Excise Duty (TED) is not payable since physical export. CT – 1 and necessary ARE – 1 forms shall be issued for your own manufactured items to enable you to dispatch without payment of Excise duty.
- h) Sales Tax / VAT is also not payable. BHEL shall issue necessary form “H”.
- i) Detail information regarding octroi applicable in Mumbai has been mentioned in the SCC. Necessary form “N” shall be got issued by BHEL.
- j) Vendor to necessarily quote separate price for export packing which reflects the true value of job content.

2.0. BREAK UP OF PRICE GIVEN IN 1.1 ABOVE

4X100 MW MARIB GTPS-PHASE-II,YEMEN					
BILL OF QUANTITY FOR SUPPLY OF FABRICATED STRUCTURAL STEEL					
ITEM NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE IN Rs. PER MT	AMOUNT IN Rs.
2.1	<p>Supply of Fabricated structural steel as per drawings for erection at site consisting of sections conforming to standards as per Section – “A” such as rolled sections, built up section fabricated with plates, combination of plates and rolled sections, in columns, beams, gantry girders, roof trusses, portals, laced purlins, space frames, shear connectors, 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, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails, toe plates, pipes, chequered plates, MS Rungs, insert plates, edge angles, posts, stays, louvers, lacings, gusset plates, safety chains for walkways adjacent to crane girders etc., straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, assembly, edge preparation, preheating (& use of low hydrogen/ radiogenic electrodes as per specification), 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, complete with all labour, material, electrodes and other consumables, equipment, testing (mechanical and non-destructive), preparation of detailed fabrication and Erection marking drawings based on design drawings issued by BHEL for structural steel works.</p> <p>Note: 1. All materials shall be packed for export. 2. Marking & Numbering instructions shall be given later. 3. Transit Insurance is in BHEL scope.</p>	MT	2000		

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

ITEM NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	RATE IN Rs. PER MT	AMOUNT IN Rs.
2.2	Extra over item No. 1 for surface preparation & shop paint coats constituting of following:	MT	1980		
	i. blast cleaning of steel structures to near white metal surface (Sa 2 1/2) as per specification.				
	ii. prime Coat of single pack inorganic zinc silicate solids volume 55 - 60% of dry film thickness (DFT) 75 microns of approved make				
	iii. Undercoat of two-pack epoxy polyimide solids volume 60-65% of dry film thickness (DFT) 125 microns of approved make.				
2.3	Extra over item No. 1 for surface preparation & shop paint coats constituting of following for stairs, hand railing, ladders etc.:	MT	20		
	i. blast cleaning of steel structures to near white metal surface (Sa 2 1/2) as per specification/ acid cleaning whichever is applicable.				
	ii. Hot dipped galvanisation to 85 microns coating thickness (610 g/m ² coating weight)				
	iii. Degreasing, applying mordant wash and etch primer				
	iv. Prime coat of two pack epoxy polyimide solids volume 45-50% dry film thickness (DFT) 125 microns				
2.4	Export sea worthy packing for protection against damage in transit	MT	2000		
2.5	Transportation of above fabricated structural steel, handrails, grating, bolts etc. from fabrication yard up to Mumbai Sea port and handing over to concerned BHEL authority including all statutory permits, taxes/ challans and unloading at the specified delivery site complete of all costs in all respects.	MT	2000		
2.6	Total of 2.1 to 2.5	MT	2000		

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

ANNEXURES

No.	DESCRIPTION
I	OFFER SUBMISSION AS PER NIT
II	TERMS & CONDITIONS CONFIRMATION
III	DECLARATION
IV	SECURITY – CUM – PERFORMANCE BANK GUARANTEE BOND
V	NON-CONFORMANCE REQUEST (NCR)
VI	INSPECTION AUTHORITY DETAILS
VII	REQUEST FOR ISSUE OF “C” FORM
VIII	PERFORMANCE EVALUATION SYSTEM
IX	NEFT DETAILS
X	INTEGRITY PACT
XI	LIST OF CONSORTIUM BANKS



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR – NORTHERN REGION
HRDI & PSNR COMPLEX
PLOT NO. 25, SECTOR – 16A,
NOIDA – 201 301 (U.P.)**

(To be filled up by the Bidders)

Ref. No. :

Dated :

**M/s Bharat Heavy Electricals Ltd.,
Power Sector Northern Region,
HRDI & PSNR COMPLEX,
PLOT NO. 25, SECTOR – 16A,
NOIDA – 201 301 (U.P.)**

ATTENTION:

Dear Sir,

1. Having examined the tender documents against your tender Enquiry No. _____ dated _____ and having understood the provisions of the said tender documents and having thoroughly studied the requirements of BHEL related to the work tendered for, in connection with _____ (name of work & project site), we hereby submit our offer for the proposed work in accordance with terms and conditions mentioned in the tender documents, at the prices quoted by us in your price schedule format and as per the indicated delivery schedule.
2. If the work or any part thereof is awarded to us, we undertake to submit security-cum-contract performance bank guarantee as per your requirement, within thirty days of receipt of Letter of Intent/ Order/ Contract.
3. We have annexed to this tender the following documents:-

Part-I (Techno Commercial Bid) - in a properly sealed cover

- i/ Complete Techno-Commercial Offer. (in five sets)
- ii/ Agreed Terms and Conditions (Annexure-II).
- iii/ Schedule of Commercial Deviations giving clause references.
- iv/ Schedule of Technical Deviations giving clause references.
- v/ Unpriced copy of Price Schedule using format given by BHEL.
- vi/ Any other documents (Please specify).

Part-II (Price Bid) - in a separate, properly sealed cover, in duplicate in the format given by BHEL.

Thanking you,

Yours faithfully,

(Signature of the bidder with Name, Designation and Company's Seal)

AGREED TERMS AND CONDITIONS

(This format duly filled in, signed and stamped must form part of the techno-commercial (Part-I) bid. Clauses confirmed hereunder need not be repeated in the bid.)

S.No.	Description	Bidder's confirmation (YES/ NO/ NA)
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- 1(a) Acceptance of Technical Specifications (Vol. IIB), Schedules and Data Sheets (Vol. III) and scope of supply as per Tender Enquiry.
- 1(b) In case of deviations, the same have been highlighted separately giving clause references under the heading "**TECHNICAL DEVIATIONS**".
- 2(a) Acceptance of Terms and Conditions included in the Enquiry letter and all Vol-I General Conditions of Contract (Part-A: Instructions to bidders, Part-B: General Commercial Terms & Conditions) and Special Conditions of Contract, if applicable.
- 2(b) In case of deviations, the same have been highlighted separately giving clause references under the heading "**COMMERCIAL DEVIATIONS**".
- 3(a) **PRICES**: Quoted prices shall remain FIRM/ with PVC till complete execution of the Order/ Contract.
- 3(b) Prices have been filled up in the Price Schedule format attached with the tender documents.
- 3(c) Rates of excise duty, central sales tax/ VAT & service tax and requirement of concessional forms, have been indicated in the unpriced copy of price bid, enclosed.
4. **Payment Terms**: Acceptance of relevant terms of payment as specified in the Tender Documents.
5. **Bank Guarantee**: Security-cum-performance BG shall be furnished as specified in the Tender Documents.
6. **Delivery**: Indicate the shortest delivery period, which shall not exceed the delivery requirement as per this Tender Enquiry. Date of **LR/ RR/ AWB/ BL** shall be considered as date of delivery.
7. **Liquidated Damages**: In case of delay in delivery/completion schedule, LD clause as per tender documents acceptable.

S.No.	Description	Bidder's confirmation (YES/ NO/ NA)
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8. Part order will be acceptable (Not applicable for turnkey packages)
9. Validity of Offer as per clause no. 11.0 of "Instructions to Bidders" acceptable.

Note: The order of preference shall be N.I.T. covering letter/ SCC/ GCC terms/ Region GCC (if applicable)

(Signature of Bidder with Name, Designation and Company's Seal)

ANNEXURE-III

DECLARATION

It is hereby declared that the original/ revised* price bids being opened for _____ (Name of Package) for _____ project is complete in all respects and contains prices for complete scope of supply, including tests etc., as per BHEL's requirement. If in the original/revised* price bids where itemised price is not available for any part of scope of supply, including tests, etc., the same should be treated to have been included in our original/revised* price bid. Also revised price bid, if any, even though generally governed by the terms and conditions indicated in the original commercial/Price bid (unless indicated to the contrary), any price discount, if not mentioned specially in the revised price bid, the one mentioned, if any in the original price bid shall be applicable for computing final price.

It is also agreed that no further chance for seeking clarification/confirmation to any missing point will be necessary.

Absence of itemised prices against some items does not mean that they are not included. Even though itemised prices are given for major items, those items which are not specially shown, are also included to meet the entire system as per BHEL requirements.

Signature of authorised Representative

Name and Designation:

Name & Address of the Bidder

Date

Forwarded to:

M/s Bharat Heavy Electricals Limited
Power Sector – Northern Region
HRDI & PSNR Complex
Plot No. 25, Sector – 16 A
NOIDA – 201 301 (U.P.)

(Please delete whichever is not applicable.)

ANNEXURE-IV

SECURITY-CUM-PERFORMANCE BANK GUARANTEE BOND

1. In consideration of **BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR NORTHERN REGION** (hereinafter called the "**Company**") having agreed from M/s _____ (hereinafter called the said **Contractor** which term includes supplier for the purpose of the bond) to accept the demand under the terms and conditions of the Agreement No. _____ dated _____ made between _____ and _____ (hereinafter called the said **agreement**) of Security Deposit for the due fulfillment by the said contractor of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs. _____ (Rupees _____ only) we, _____ (indicate the name of the Bank) (hereinafter referred to as the **Bank**) at the request of _____ [Contractor(s)] do hereby undertake to pay to the Company an amount not exceeding Rs. _____ against any loss or damage caused to or suffered by or would be caused to or suffered by the Company by reasons of any breach by the said Contractor(s) of any of the terms and conditions contained in the said Agreement.

2. We, _____ (indicate the name of the Bank) _____, do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Company stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the company by reasons of breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by reasons of the Contractor(s) failure to perform the said Agreement. Any such demand made on the bank, shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

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

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

4. We, _____ (indicate the name of the Bank) _____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Company under or by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till _____ office/ Department/ Division of Bharat Heavy Electricals Limited certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor(s) and also including the satisfactory performance of the equipment during guarantee period and accordingly discharge this guarantee. Unless a demand or claim under this guarantee is

made on us in writing on or before the _____* __, we shall be discharged from all the liability under this guarantee thereafter.

5. We, _____ (indicate the name of the Bank) further agree with the Company that the Company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the company against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by any reason of any such variation or extension being granted to the said contractor(s) or for any forbearance, act or omission on the part of the company or any indulgence by the company to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We, _____ (indicate the name of the Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing.

Date _____ Day of _____
for _____ (indicate the name of the Bank)

(Signature of Authorised signatory)

- * This date to be indicated should not be earlier than 60 days after the date contemplated under the contract.

ANNEXURE-V

INSTRUCTIONS FOR THE VENDOR REGARDING NON-CONFORMANCE REQUEST (NCR)

3. Photo-copies of the NCR Form can be used by the Vendor, whenever required.
4. Non-conformances, due to the following and/ or other reasons, shall be raised by the Vendor, in this form, in order to obtain BHEL decision on the same.
 - a) Changes from Bid Specification and Deviations agreed during negotiations
OR
Changes from Contract Specification required as a result of detailed design and preparation of drawings by the Vendor.
 - b) Changes in Contract Drawings and Documents approved by BHEL.
 - c) Inaccurate workmanship, procedure or practice.
 - d) Use of material other than the size, type of grade as called for in the specification/ drawing.
3. Vendor shall send two copies of the NCR to :
 - a) Contract Engineer (CE) of BHEL, PSNR, for non-conformances required as a result of detailed design and preparation of drawings by the Vendor etc.
 - b) Inspection Agency (IA) for all non-conformances during manufacture/ fabrication, assembly etc.
 - c) Site Inspection Agency (Site IA) for all non-conformances during site fabrication, erection and commissioning.
4. Vendor shall mark copies of NCRs and all correspondence, in this respect, to Contract Engineer (CE) of BHEL, PSNR.
5. The names and addresses of Inspection Agency and Site Inspection Agency are given in the Letter of Intent/ Purchase Order.
6. Non-conformances raised in this form only, will be entertained by BHEL.
7. NCRs shall be kept to a minimum.
8. A summary of non-conformances granted, if any, shall be included by the Vendor in the Quality Assurance Document Package to be forwarded to BHEL & Customer, on satisfactory completion of inspection and tests.
9. Granting of NCR by BHEL does not entitle the Vendor to any increase in price or extension of schedule.

INSPECTION AUTHORITY DETAILS
CQS JURISDICTION

Code No	CQS Centre	Telephone No.	Fax No.	Jurisdiction
A	Centre Head Kribhco Bhawan, 2 nd Floor Sector -1, A8-10, Noida – 201-301 (UP)	0120-2443496 0120-2443497	0120-2443492 0120-2443493	DELHI,GWALIOR (MP) HARYANA,PUNJAB, RAJASTHAN, HP, UTTAR PRADESH,UTTARANCHAL
B	Centre Head 1 st floor EVR Periyar Building No. 690 (old No.474) Anna Salai, Nandanam Chennai – 600-035	044-24314294 044-24314298	044-24314296	KERALA, PONDICHERRY, TAMIL NADU Excluding Hosur (Ref. CQS-Bangalore) TIRUPATI (AP), VIZAG
C	Centre Head 3 rd Floor, DJ 9/1 Salt Lake City, Kolkata – 700 091	033-23216308 033-23216318	033-23216495	ASSAM,BIHAR,ORRISSA, WEST BENGAL
D	Centre Head 2 nd floor CTI Building BHEL Complex Prof. CNR Rao Circle Opp. Indian Institute of Science Malleswaram Bangalore – 560-012	080-23367608 080-23367609	080-23367637	GOA,KARNATAKA, KOLHAPUR,RATNAGIRI, SANGLI (MAH) HOSUR (TN)
E	Centre Head 15 th floor, World Trade Centre-1 Cuffe Parade, Colaba Mumbai	022-22187969 022-22181571	022-22151460 022-22187850	MAHARASHTRA (Excluding Ratnagiri & Sangli (Ref. CQS- Bangalore) Jalgaon & Nagpur (Ref. CQS Bhopal) Aurangabad & Walchandnagar (Ref. CQS Secunderabad) GUJRAT (Excluding Vadodara & Anand, Ref. CQS,Bhopal) DAMAN
F	Centre Head “Ek Tara” Building 39, Sarojini Devi Road Secunderabad -500 003	040-27801129 040-27704290	040-27701147	ANDHARA PRADESH (excluding Tirupathi (Ref. CQS- Chennai) AURANGABAD & WALCHANDNAGAR (MAH) Kirloskarwadi
G	Centre Head Block VI Annexe P.O. Piplani Bhopal	0755-2502366	0755-2685233	1) MADHYA PRADESH (Excluding Gwalior (Ref. BHEL,CQS, Noida) 2) CHHATTISGARH 3) JALGAON & NAGPUR OF MAHARASHTRA 4)VADODARA & ANAND OF GUJARAT

Reallocated areas to different CQ Centers from 1/7/07 Units placing P.O.s on above & onwards dates respective Centers can be contacted for inspection & other follow up. Po's prior to above dates, respective Centers take up inspection.

Note:

Inspection agency for goods of foreign origin shall be intimated, if inspection is required as per Quality Plan

ANNEXURE-VII

(Request for Issue of "C" Form)

Head (Finance Deptt.)
PEM/BHEL, First Floor
BHEL House,
SIRIFORT,
NEW DELHI-110 049

Dear Sir,

Sub: **Request for Issue of "C" Forms**

We request you to issue us "C" forms for the invoices for which following details are being given herewith :

- I P.O. NO. & Date :
- II PROJECT :
- II Invoice number and date :
- IV Items/ Description :
- V "C" Form value :
- VI. LR/R/GR number and date :

We are enclosing herewith photocopies of Bill/Invoice and LR/RR/GR.

Thanking you,

Yours faithfully,

(Signature of the bidder with Name, Designation and Company's Seal)

ANNEXURE-VIII

PERFORMANCE EVALUATION SYSTEM

1. PERFORMANCE EVALUATION

Performance of the Seller/Contractor shall be calculated for each Order/Contract, with respect to the following main factors and their weightages:

<u>Rating</u>	<u>Weightage</u>
Quality	= 60
Delivery	= 30
Service	= 10
Total	100

1.1 Quality Rating (QR) 60% weightage

Quality rating is based on acceptable quantity of material delivered by the Seller/Contractor.

$$\text{Quality Rating (QR)} = \frac{(Q1 + 0.75 \times Q2 + 0 \times Q3) \times 60}{Q}$$

Where Q = Quantity inspected
 Q1 = Quantity accepted
 Q2 = Quantity accepted with concession/deviation
 Q3 = Quantity rejected

1.2 Delivery Rating (DR) 30% weightage

Seller/Contractor will be rated on delivery parameters as follows :

- (a) - Adherence to P.O. delivery - 30
- (b) - One mark shall be deducted for each day's delay.

In case of rectification/ replacement of item, the delivery to be reckoned from date of completion of rectification/ replacement and not the original supply date.

1.3. Service Rating (SR) 10% weightage

Service Rating shall be given on the basis of the following criteria :

Cooperation and readiness to help in emergency; Submission of	}
Support documents such as GA Drawings, TC, GC etc., as	} 5
applicable; Submission of final technical documents, O & M	}
manuals and as built drawings complete and in time.	}
Promptness in reply/ attending quality problems at site	5

The above rating will also be subject to further feedback from Inspection Agency on the following criteria:

- a) Item not offered as per Inspection Requirement.
- b) Non - availability of calibrated instruments at the time of inspection at Seller/ Contractors' works.
- c) Acceptance after rework.

In above cases, Seller/Contractor will be allocated negative five marks (-5) for service rating.

Total Rating (TR) of the Seller/ Contractor = QR + DR + SR

2.0 DEMERIT FACTOR

Total Rating of the Seller/Contractor will be multiplied by the demerit factor (DF) to calculate the final Seller/Contractor's Performance Score (SPR). The demerit factor is determined as detailed below :

- | | |
|--|-----|
| a) Items /systems meets all design and guarantee parameters | 1.0 |
| b) Items / systems satisfy the design / guarantee parameter with minor deviations & functionally acceptable. | 0.9 |
| c) Items / systems are put into service with rework at site | 0.8 |
| d) Contractual requirements like timely erection /warranty obligations/service after sales etc. not met | 0.7 |
| e) Items / systems rejected & replaced due to not meeting design / performance requirement. | 0.5 |

$SPR = TR \times DF.$

3.0 Based on the SPR, performance will be rated as below :

SPR	RATING	ACTION
100	A1	To be retained in the Vendor List as Preferred Seller/Contractor
Above 90 but less than 100	A	To be retained in the Vendor List
80-90	B	To be retained in the Vendor List provided there is specific commitment to improve the area of deficiency in a time bound manner
60-79	C	Tender Enquiry may not be issued in future. However, under special circumstances, enquiry may be issued with the approval of competent authority only.
Below 60	D	To be de-listed/put under HOLD.

NEFT Application Form

Name of the party

Name of the Bank

Address of the Bank

Party's A/c no

Type of A/c

IFSC CODE

Vendor's E-MAIL ADDRESS

Authorised Signatory

Seal

THE ABOVE DETAILS ARE TO BE SUBMITTED ON THE COMPANY'S LETTERHEAD .

THE DETAILS MAY EITHER BE ATTESTED BY YOUR BANKERS OR ACCOMPANIED BY A CANCELLED CHEQUE LEAF WITH IFSC CODE & A/C NO.PRINTED ON IT.

UNDERTAKING TO REPORT IMMEDIATELY ANY CHANGES IN THE ABOVE TO BE SUBMITTED ON THE COMPANY'S LETTER HEAD

INTEGRITY PACT

Between

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

and

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

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

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

Section 1 – Commitments of the Principal

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

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

- 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender processor the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PCAAct; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

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

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidders(s)/ Contractor(s) from the tender process or take action as per the separate

“Guidelines for Suspension of Business Dealings with Suppliers/ Contractors” framed by the Principal.

Section 4 – Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

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

- 6.1 The Bidder(s)/ Contractor(s) undertake(s) to demand from his sub-contractors a commitment consistent with this Integrity Pact. This commitment shall be taken only from those sub-contractors whose contract value is more than 20% of Bidder's/ Contractor's contract value with the Principal.
- 6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

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

Section 8 –Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s)/ Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

- 9.1 This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.
- 9.2 If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.
- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would-be competent to participate in the bidding. In other words, entering into this agreement would be preliminary qualification.

For & On behalf of the Principal
(Office Seal)

For & On behalf of the Bidder/ Contractor
(Office Seal)

Place-----
Date-----

Witness: _____
(Name & Address) _____

Witness: _____
(Name & Address) _____

LIST OF CONSORTIUM BANKS

1. State Bank of India
2. ABN Amro Bank N. V.
3. Bank of Baroda
4. Canara Bank
5. Citi Bank N. A.
6. Corporation Bank
7. Deutsche Bank
8. HDFC Bank Ltd.
9. The Hongkong and Shanghai Banking Corporation Ltd.
10. ICICI Bank Ltd.
11. IDBI Ltd.
12. Punjab National Bank
13. Standard Chartered Bank
14. State Bank of Travancore
15. State Bank of Hyderabad
16. Syndicate Bank