



CENTRAL COALFIELDS LIMITED (CCL)

**TENDER DOCUMENT FOR
PLANNING, DESIGN, ENGINEERING, CONSTRUCTION,
FABRICATION, SUPPLY, ERECTION, INSTALLATION,
TESTING, TRIAL RUN AND COMMISSIONING OF
RENOVATION OF SURFACE BELT CONVEYOR
CONSISTING OF ALL ELECTRICAL, CIVIL, STRUCTURAL
AND ALL OTHER ACCESSORIES AND FACILITIES REQUIRED
TO MAKE IT COMPLETE IN ALL RESPECTS ON TURNKEY
BASIS**

AT

CHURI UNDERGROUND MINES, N K AREA CCL

VOLUME – I

[COMMERCIAL]

MARCH 2024

E&M DEPTT.

**Central Mine Planning and Design Institute Ltd.
(A Subsidiary of Coal India Ltd.)
Gondwana Place, Kanke Road, Ranchi -834031
(Jharkhand)**



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(A Subsidiary of Coal India Ltd.)
GONDWANA PLACE, KANKE ROAD
RANCHI – 834 008**

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SECTION-I

e-TENDER NOTICE



सैंट्रल कोलफील्ड्स लिमिटेड
CENTRAL COALFIELDS LIMITED
A Miniratna Company

(कोल इंडिया की अनुषंगी कम्पनी)
(A Subsidiary of Coal India Limited)
महाप्रबंधक (विद्युत् एवं यांत्रिकी)

Reg. Office Address: **GENERAL
MANAGER (E&M)**

दरभंगा हाउस, राँची – 834001, झारखण्ड
DARBHANGA HOUSE, RANCHI- 834001,
JHARKHAND

CIN NO: U10200JH1956GOI000581

दूरभाष संख्या / Phone : 0651-2360788, FAX :
0651-2360389

ई. मेल. / e-mail: gmenm.ccl@coalindia.in

वेब साइट / Website : www.centralcoalfields.in

NIT No.: GM(E&M)/e-tender/24/722
Tender Id No: 2024_CCL_306863_1

Date: 22.04.2024

e-TENDER NOTICE

1.Tenders are invited on-line on the website <https://coalindiaticenders.nic.in> from the eligible Bidders having Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA),Govt. of India and which can be traced upto the chain of trust to the Root Certificate of CCA, for the following work(s):

Description of work	Location	Date of commencement of work	Earnest Money (In ₹)	Period of Completion (in Days)
Planning, Design, Engineering, Construction, Fabrication, Supply, Erection, Installation, Testing, Trial Run and Commissioning of Renovation of Surface Belt Conveyor Consisting of all Electrical. Civil, Structural and all other accessories and facilities required to make it complete in all respects on Turnkey Basis AT CHURI Underground Mines, N K AREA CCL <i>THE ABOVE WORK SHALL BE CARRIED OUT IN SUCH A WAY THAT PLANT WILL NOT HAVE TO TAKE MAJOR SHUTDOWN.</i>	Churi Colliery of CCL located at N K Area, Dakra (Jharkhand)	Within 30 days from the issue of letter of acceptance and submission of Performance Security or seven days after handing over the site for the first activity as per PERT network chart, whichever is later	Rs 5,19,640/-	Total contract period: 180 days a) Renovation as per scope of work including testing, Commissioning & PGT: 180 days

Note: i) Estimated value (inclusive of GST) of work ₹ 4.1571 Crore
 ii) Estimated value put to tender is ₹ 4.1571 Crore, inclusive of GST.

DETAILS OF GST REGISTRATION OF CCL:

GSTIN of CCL	Jharkhand 20AAACC7476RHZT	West Bengal (WB)
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Note : (i). Availability of Input tax credit to CCL: Input tax credit is to be availed by CCL as per rule.

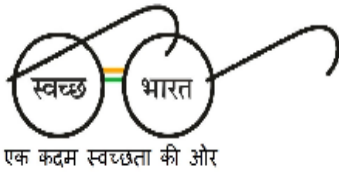
(ii).The bid documents will be available on the website (<https://www.coalindiatenders.nic.in>) and can be downloaded by the bidder up to the bid submission end date. The details of the tender will be mirrored on the Central Public Procurement (CPP) Portal of Govt. of India (<https://eprocure.gov.in>)

2. Time Schedule of Tender:

Sl.No.	Particulars	Date	Time (IST)
a.	Tender Publication Date	Date and Time as mentioned in the website	
b.	Document download Start Date		
c.	Document download End Date		
d.	Bid Submission Start Date		
e.	Bid Submission End Date		
f.	Start Date for seeking Clarification on-line		
g.	Last Date for seeking Clarification on-line		
h.	Date of Pre-bid Meeting		
i.	Bid Opening Date [Cover-I (Technical-bid)]		
j.	Bid Opening Date [Cover-II (Price-bid)]		

For details of qualification requirements, and complete tender document, visit our website <http://eprocure.gov.in/cppp>. Detailed Tender Notice is available at <https://coalindiatenders.nic.in>

NOTE: End user portal agreement of CIL is applicable for CCL also.



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Description of work	Location	Date of commencement of work	Earnest Money (In ₹)	Period of Completion (in Days)
Planning, Design, Engineering, Construction, Fabrication, Supply, Erection, Installation, Testing, Trial Run and Commissioning of Renovation of Surface Belt Conveyor Consisting of all Electrical, Civil, Structural and all other accessories and facilities required to make it complete in all respects on Turnkey Basis AT CHURI Underground Mines, N K AREA CCL <i>THE ABOVE WORK SHALL BE CARRIED OUT IN SUCH A WAY THAT PLANT WILL NOT HAVE TO TAKE MAJOR SHUTDOWN.</i>	Churi Colliery of CCL located at N K Area, Dakra (Jharkhand)	Within 30 days from the issue of letter of acceptance and submission of Performance Security or seven days after handing over the site for the first activity as per PERT network chart, whichever is later	Rs 5,19,640/-	Total contract period: 180 days a) Renovation as per scope of work including testing, Commissioning & PGT: 180 days

Note: i) **Estimated value (inclusive of GST) of work Rs. 4.1571 Crore**

ii) **Estimated value put to tender is Rs. 4.1571 Crores inclusive of GST.**

DETAILS OF GST REGISTRATION OF CCL:

GSTIN CCL	of	Jharkhand	West Bengal (WB)
		20AAACC7476RHZT	

Note : (i). Availability of Input tax credit to CCL: Input tax credit is to be availed by CCL as per rule.

(ii). The bid documents will be available on the website (<https://www.coalindiatenders.nic.in>) and can be downloaded by the bidder up to the bid submission end date. The details of the tender will be mirrored on the Central Public Procurement (CPP) Portal of Govt. of India (<https://eprocure.gov.in>)

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h.	Date of Pre-bid Meeting		
i.	Bid Opening Date [Cover-I (Technical-bid)]		
j.	Bid Opening Date [Cover-II (Price-bid)]		

***Note:**

i. If number of bids received online is found to be less than three, then last date of submission of Bid and Technical Bid Opening date will be automatically extended for a period of Four days ending at 17:00 hrs. The auto extension shall work on the basis of number of bids received only. In case of holiday, the due date of opening will be extended to next working day. Even after extension of four days, no bid is received then the tender will be cancelled.

ii. This extension will be also applicable in case of receipt of zero bid.

iii. Bidders will have right to modify / withdraw their bids during extended period of submission of bids.

iv. After extension, as stated above the tender shall be opened irrespective of available No. of bids on the extended date of opening of tender.

v. If the above extended date falls on Holiday i.e. a non-working day as defined in the e-procurement portal, then the same is to be re-scheduled to the next working day.

vi. The validity period of the tender should be decided based on the final end date of submission of bids.

vii. The Employer reserves the right to issue corrigendum/addendum and it shall be binding on part of the Bidders.

3. Deposit of EMD:

₹ 5,19,640/- (Rupees Five Lakhs Nineteen Thousand Six Hundred forty Rupees only) is to be deposited as Earnest Money/ Bid Security.

- 3.1 The Bidder will have to make the payment of EMD through online mode only. In Online mode the Bidder can make payment of EMD either through net-banking from designated Bank/s or through NEFT/ RTGS from any scheduled Bank.

Net-Banking: In case of payment through net-banking the money will be immediately transferred to designated Account.

NEFT/ RTGS: In case of payment through NEFT/ RTGS the Bidder will have to make payment as per the Challans generated by system on e-Procurement portal before submission of bid. The EMD payment through NEFT/ RTGS mode should be made well ahead of time to ensure that the EMD amount is transferred to account before bid submission.

- 3.2 Bidder will be allowed to submit his/her bid only when the EMD is successfully received in designated account and the information flows from Bank to e-Procurement system.

- 3.3 ~~In case of exemption of EMD, the scanned copy of document (attested by notary public) in support of exemption will have to be uploaded by the bidder during bid submission. However, this option is to be enabled only in those cases where the exemption of EMD to some bidders is allowed as per NIT.~~

In online payment of EMD, if the payment is made by the Bidder within the last date & time of bid submission but not received by the Company within the specified period due to any reason then the bid will not be accepted. However, the EMD will be refunded back to the Bidder.

Note: EMD exemption is not applicable for the instant tender.

4. **Seeking Online Clarification by bidder:** The bidder may seek clarification online within the specified period. The identity of the Bidder will not be disclosed by the system. The department will clarify as far as possible the relevant queries of bidders. The clarifications given by department will be visible to all the bidders intending to participate in that tender.
5. **Pre-Bid Meeting:** Pre-bid meeting will be held on 26.04.2024 at 11:00 AM in the office of GM(E&M), CCL via both offline and online mode if specified under Instructions to Bidders. The link to join Pre-Bid meeting through online mode is <https://call.lifesizecloud.com/21289572>

The purpose of the pre-bid meeting is to clarify the issues and to answer the questions on any matter that may be raised at that stage. Non-attendance at the pre-bid meeting will not be a cause for disqualification of Bidder and it shall be presumed that the Bidder does not require any clarification. If a Pre-Bid meeting is held then the minutes of the Pre-Bid meeting shall be uploaded on the Portal, before start date of bid submission which can be viewed by all interested Bidders.

6. **On-line user portal agreement:**

The Bidders have to accept the on-line user portal agreement, which contains the acceptance of all the Terms and Conditions of NIT and tender document, undertakings and the e-Procurement system through <https://coalindiatenders.nic.in> in order to become an eligible Bidder. This will be a part of the Agreement.

7. **ELIGIBLE TENDERERS:**

- 7.1 The Invitation for Bid(s) is open to all Bidders including an individual, proprietorship firm, partnership firm, company registered under Companies Act, any legal entity or

~~JV/Consortium.~~ The bidders shall be eligible to participate only if they fulfill the qualifying criteria laid down separately hereinafter.

7.2 A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the Works shall not be eligible to Bid.

7.3 ~~Joint Venture (JV)/ Consortium: Two or three companies/ contractors may jointly undertake contract/contracts. Each entity will be jointly and severally responsible for completing the task as per the contract.~~

~~JV/Consortium details:~~

~~Name of all Members of a JV/CONSORTIUM (not more than 3):~~

- ~~1. Lead Member (minimum participation share — 50%)~~
- ~~2. Member (minimum participation share — 20%)~~
- ~~3. Member (minimum participation share — 20%)~~

7.4 ~~JV/Consortium must comply the following requirements:~~

- ~~i. The qualifying criteria parameter e.g. experience, financial resources (of the relevant period) and the equipment/fleet strength of the individual member of the JV/CONSORTIUM will be added together and the total criteria should not be less than as spelt out in qualifying/eligibility criteria as specified in e-tender Notice. However, the required Working Capital shall be met by individual members of JV/CONSORTIUM as spelt out in the relevant Clause.~~
- ~~ii. The formation of JV/CONSORTIUM or change in the JV/CONSORTIUM character/ members after submission of the bid and any change in the bidding regarding JV/CONSORTIUM will not be permitted.~~
- ~~iii. The bid, and in case of a successful bid the agreement, shall be signed so as to legally bind all members jointly and severally and any bid shall be submitted with a copy of the JV/CONSORTIUM Agreement providing the joint and several liabilities with respect to the contract.~~
- ~~iv. The pre-qualification of a JV/CONSORTIUM does not necessarily pre-qualify any of its member individually or as a member in any other JV/CONSORTIUM. In case of dissolution of a JV/CONSORTIUM, each one of the constituent firms may pre-qualify if they meet all the pre-qualification requirements, subject to written approval of the employer.~~
- ~~v. The bid submission must include documentary evidence to the relationship between JV/CONSORTIUM members in the form of JV/CONSORTIUM Agreement to legally bind all partners jointly and severally for the proposed agreement which should set out the principles for the constitution, operation, responsibilities regarding work and financial arrangements, participation (percentage share in the total) and liabilities (joint and several) in respect of each and all of the firms in the JV/CONSORTIUM. Such JV/CONSORTIUM Agreement must evidence the commitment of the parties to bid for the facilities applied for (if pre-qualified) and to execute the contract for the facilities if their bid is successful.~~
- ~~vi. One of the members shall be nominated as 'In-charge' of the contract and shall be designated as Lead Partner. This authorization shall be evidenced by submitting with the bid a Power of Attorney signed by legally authorized signatories of all the members.~~
- ~~vii. The JV/CONSORTIUM must provide that the Lead Member shall be authorized to incur liabilities and receive instructions for and on behalf of any and all members of the JV/CONSORTIUM and the entire execution of the contract shall be done with active participation of the Lead Member.~~

~~viii. The contract agreement should be signed by each JV/CONSORTIUM members. Subsequent declarations/letters/documents shall be signed by lead member authorized to sign on behalf of the JV/CONSORTIUM or authorized signatory on behalf of JV/CONSORTIUM.~~

~~ix. The bid should be signed/digitally signed by the DSC holder submitting the Bid.~~

~~x. An entity can be a member in only one JV/CONSORTIUM. Bid submitted by JV/CONSORTIUM including the same entity as member will be rejected.~~

~~xi. The JV/CONSORTIUM agreement may specify the share of each individual member for the purpose of execution of this contract. This is required only for the sole purpose of apportioning the value of the contract to that extent to individual member for subsequent submission in other bids if he intends to do so for the purpose of the qualification in that Bid.~~

~~xii. The JV/CONSORTIUM agreement must specifically state that it is valid for the project for which bidding is done. If JV/CONSORTIUM breaks up midway before award of work and during bid validity period bid will be rejected.~~

~~If JV/CONSORTIUM breaks up midway before award of work and during bid validity/after award of work/during pendency of contract, in addition to normal penalties as per provision of bid document, all the members of the JV/CONSORTIUM shall be debarred from participating in future bids for a minimum period of 12 months.~~

~~xiii. JV/CONSORTIUM agreement shall be registered in accordance with law so as to be legally valid and binding on the members before making any payment.~~

~~Note: If the work is awarded to a JV/CONSORTIUM firm, they will register the JV/CONSORTIUM agreement under Registration Act in accordance with law.~~

~~xiv. JV/CONSORTIUM shall open a bank account in the name of JV/CONSORTIUM and all payments due to the JV/CONSORTIUM shall be credited by employer to that account only. To facilitate statutory deductions all statutory documents like PAN, GST registration etc. shall be submitted by JV/CONSORTIUM before making any payment.~~

~~xv. The JV/CONSORTIUM must enroll in the e-Procurement portal with the name of the firm as appearing in the JV/CONSORTIUM agreement.~~

7.5 Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) issued by Govt. of India as amended from time to time shall be applicable. The Company reserves its right to allow Public Enterprises purchase preference facility as admissible under prevailing policy.

7.6 No sub-letting of the work as a whole by the contractor is permissible. Prior permission is required to be taken from the principle employer for engagement of sub-contractors.

8. ELIGIBILITY CRITERIA: Eligibility Criteria to qualify for the award of contract and data/supporting documents to be uploaded online.

8.1. Eligibility criteria to qualify for award of the contract –

A. WORK EXPERIENCE: The intending tenderer must have in its name experience of having successfully completed similar works during last 7 (Seven) years ending last day of month previous to the one in which bid applications are invited i.e. e-publication date on procurement portal should be any of the following.

- i) Three similar completed works each costing not less than the amount equal to 20% of the estimated cost (with GST) put to tender.
Or
- ii) Two similar completed works each costing not less than the amount equal to 25% of the estimated cost (with GST) put to tender.
- iii) One similar completed work costing not less than the amount equal to 40% of the estimated cost (with GST) put to tender.

Definition of Similar Nature of Work:

Design, Supply, Installation, Construction and Commissioning of any of the following systems: Integrated Coal Handling Plant (CHP) or any other bulk material handling system with Conveyor system.

or,

Rapid Loading System (RLS) or Unit Train Loading System (UTLS) with Conveyor system.

or,

RCC or Structural Steel Silo/Bunker/ Surge Bin/Surge Hopper with Conveyor system.

#Note: Conveyor system includes Belt conveyor/ Pipe conveyor/ High angle conveyor/ Chain conveyor

The intending tenderer must submit documentary evidence in support of above in the form of (i) copy of work order, (ii) completion certificate indicating value and period of work, The TDS certificate be submitted during clarification, if any.

Note:

- 1). The experience towards overseas jobs, if submitted, should be vetted/endorsed by the relevant* embassy/high commission concerned, towards authenticity of document in English or translated in English language.

(*Relevant embassy/High Commission means the embassy/High Commission in India of the country where the bidder has executed the said work or country of origin of the bidder OR the Indian embassy in the country where bidder has executed the work or country of origin of the bidder.)

- 2) JV/Consortium, shall be allowed for participation in the bid with estimated cost Above Rs. 5.0 Crores.

~~The above qualification criteria shall be fulfilled by JV/CONSORTIUM in the following manner:~~

~~The qualifying criteria parameter e.g. experience of the individual partners of the JV/CONSORTIUM will be added together as deliberated hereinafter towards fulfillment of qualification criteria related to experience.~~

- ~~a) In case of completion of single work of similar nature costing, not less than the amount equal to 40% of the estimated cost put to tender: –~~

~~Any of the JV/CONSORTIUM partner shall have the experience of having completed successfully a single work of similar nature equal to 40% of the estimated cost put to tender.~~

OR

~~b) In case of completion of two works of similar nature each costing not less than the amount equal to 25% of the estimated cost put to tender:—~~

~~i) Any one partner can match the above requirement.~~

OR

~~ii) At least two partners should each have completed at least one work of similar nature each costing not less than the amount equal to 25% of the estimated cost put to tender.~~

OR

~~e) In case of completion of three works of similar nature, each costing not less than the amount equal 20% of the estimated cost put to tender:—~~

~~i) Any one partner can match the above requirement.~~

OR

~~ii) Any two partners shall match the above requirement through completion of at least two work by one partner and one work by other~~

~~partner of similar nature each costing not less than the amount equal 20% of the estimated cost put to tender:—~~

OR

~~iii) All the three partners shall match the above requirement through completion of at least one work of similar nature each costing not less than the amount equal 20% of the estimated cost put to tender.~~

Experience for those works only shall be considered for evaluation purposes, which match eligibility requirement stipulated above, on or before the last day of month previous to one in which tender has been invited (publication date of NIT). The experience of incomplete/ongoing works as on last date of eligibility period will not be considered for evaluation. If the referred work includes construction, operation as well as maintenance after construction, the experience of such work may be considered as 'acceptable' if the construction part is completed as on the last date of 'eligibility period', even if operation/maintenance work is ongoing, and the certificate issued clearly stipulates the same.

Completion of works means completion of works by undertaking entire responsibility from design, Supply, Installation, Construction and Commissioning.

In all the above cases, while considering the value of completed works, the full value of completed work be considered whether or not the date of commencement is within the said seven years' period.

Cost of previous completed work(s) shall be given a simple weightage of 7% per year to bring them at current price level, while evaluating the qualification requirement of the bidder. Such weightage shall be considered after end date of completion. The year can be considered as suitable consecutive 365 days till the last day of month previous to one in which bid has been invited. Updating will be considered for full or part of the year (total no. of days / 365) i.e.

considering 365 days in a year, till the last day of month previous to one in which bid has been invited.

Data to be furnished by the Bidders in the Evaluation Sheet in Cover-I:

- i. Start date & end date of each qualifying experience (similar nature)
- ii. Work order Number /Agreement Number of each experience
- iii. Name & address of Employer/Work Order Issuing authority of each experience
- iv. Percentage (%) share of each experience (In case the experience has been earned by the bidder as a partner in a JV/Consortium firm/partnership firm then the proportionate value of experience in proportion to actual share of bidder in that JV/Consortium firm/ partnership firm will be considered against eligibility else it shall be taken as 100%).
- v. Executed Value of work against each experience
- vi. In case the bidder is a JV/Consortium, work experience as above may be furnished as the work experience of the bidder.

Note:

Till the time of changes in the e-procurement portal regarding weightage from 5% to 7% is configured in the portal, the 5% weightage shall be considered for work experience for floating of tender on NIC portal.

Supporting Documents to be uploaded online:

For work experience Bidders are required to submit Work Experience (includes completed / ongoing) Certificate issued by the employer against the Experience of similar work containing all the information as sought on-line.

Work order, BOQ, TDS etc. may be sought during clarification or along with deficient documents.

B. FINANCIAL TURNOVER: Average annual financial turnover during the last 3(three) years, ending 31st March of 2023 financial year should be at least 30% of the estimated cost put to tender.

The intending bidders must submit the Financial Turnover certificate (with UDIN No.) issued by a Practicing Chartered Accountant having a membership number with Institute of Chartered Accountants of India, containing the information as furnished by bidder online.

The foreign partner(s) should submit Financial Turnover certificate based on IFRS (International Financial Reporting Standards) accounting standard certified by a local practicing public accountant/audit firm duly vetted/endorsed by the relevant *Embassy/High Commission concerned, towards authenticity of document.

(*Relevant embassy/High Commission means the embassy/High Commission in India of the country where the bidder has obtained Turnover certificate or country of origin of the bidder OR the Indian embassy in the country where the bidder has obtained Turnover certificate or country of origin of the bidder.)

Note:

- i) Financial turnover shall be given a simple weightage of 7% per year to bring them at current price level, while evaluating the qualification requirement of the bidder. Such weightage shall be considered from the end date of financial year. Updating will be considered for full or part of the year (total no. of days / 365) i.e. considering 365 days in a year, till the last day of month previous to one in which bid has been invited.

~~JV/Consortium shall meet the above eligibility requirement, in the following manner:~~

~~The qualifying criteria parameter e.g. financial resources of the individual partners of the JV/CONSORTIUM will be added together, for the relevant financial year, and the total should not be less than as spelt out above. This is applicable for 3.4(C) also.~~

Note:

Till the time of changes in the e-procurement portal regarding weightage from 5% to 7% is configured in the portal, the 5% weightage shall be considered for Financial Turnover for floating of tender on NIC portal.

In respect of the above eligibility criteria the bidders are required to furnish the following information on-line:

- i) Annual turnover of each of the last 3 (three) years ending 31st March of the previous financial year.
- ii) Name of the Chartered Accountant issuing the Profit and Loss A/c or the Turnover certificate.
- iii) Membership Number of the Chartered Accountant.
- iv) Date of certificate issued by Chartered Accountant.

Note:

- a. ~~In case the bidder is a JV/Consortium, the turnover of the individual partners of the JV/CONSORTIUM will be added together for each financial year and is to be furnished as the turnover of the bidder for that particular financial year. However, the information against Sl. No. (ii) & (iii) above will be given w.r.t. the lead partner of JV/CONSORTIUM only.~~
- b. ~~In case of JV/CONSORTIUM, if financial turnover of all the partners is not submitted, the JV/CONSORTIUM will not be disqualified and instead the required turnover will be calculated assuming zero value for partner/partners who has/have not submitted the financial turn-over certificate.~~

Special Note:

- (ii) Confirmation regarding possessing of Financial Turnover issued by Practicing Chartered Accountant in the form of Yes / No.
- (iii) Scanned copy of documents to be uploaded by bidders: Financial Turnover certificate having a Unique Document Identification Number (UDIN) with Institute of Chartered Accountants of India.

C. WORKING CAPITAL: The Bidder must submit the Certificate of possessing adequate Working Capital (at least 20% of the “Annualized value or Estimated value whichever is less” of this work) inclusive of access to lines of credit and availability of other financial resources to meet the requirement, issued by a Practicing Chartered Accountant having a Membership Number with Institute of Chartered Accountants of India. Such Certificate should contain the Unique Document Identification Number (UDIN). The bidder should possess the Working Capital issued within three months prior to the date of opening of tender.

In case, access to lines of credit constitutes the availability of Working Capital, Banker's Certificate (Scheduled Commercial Bank) shall also be submitted regarding availability of access to credit (issued within three months prior to the date of opening of tender) to meet the above eligibility criteria.

For foreign Partner(s), Banker's Certificate regarding availability of access to credit (issued within three months prior to the date of opening of tender) should be duly vetted/endorsed by the relevant Embassy/High Commission concerned, towards authenticity of document. Relevant Embassy/High Commission means the Embassy/High Commission in India of the Country where the bidder has obtained Banker's Certificate or Country of origin of the bidder).

Note: In case of tender of more than one-year period of construction of plant including trial run and performance guarantee test, the annualized value to be worked out as under:

Estimated cost of the work (including GST) put to tender.

(iv) Annualized value= -----X 365 days

(v) Period of construction of plant including trial run and performance guarantee test in days.

~~In case of JV/CONSORTIUM, the requirement of Working Capital under this clause shall be met as per following proportion:~~

- (vi) —
- a. ~~The lead member shall have to possess at least 50% share in the required Working Capital in order to qualify in this tender.~~
 - b. ~~All other members shall have to possess at least 25% share in the required Working Capital, in order to qualify in this tender.~~

SAMPLE CHECKLIST OF WORKING CAPITAL CERTIFICATE

THIS IS A SAMPLE CHECKLIST FOR WORKING CAPITAL CERTIFICATE. (FOR REFERENCE PURPOSE ONLY).

The Working Capital Certificate issued by CA should contain the following important parameters in line with the information furnished by the bidder online:

1. Name of Bidder:
2. Amount of Available Working Capital inclusive of lines of credit and availability of other financial resources:

SI No	Particulars	Value in Rs.
(1)	(2)	(3)
1	Current Asset (CA)	
2	Current Liability (CL)	
3	Working Capital (1-2)	
4	Access to lines of credit and availability of other financial resources	
5	Working Capital inclusive of Access to lines of credit and availability of other financial resources (3+4)	

Note: For eligibility Amount should be at least 20% of the Annualized value or estimated value whichever is less.

3. Date on which bidder possess working capital: (Should be within 3 months prior to the date of opening of tender).

4. Name of Chartered Accountant (CA) with Membership No.:
5. Date of issue of Certificate: (Should be within 3 months prior to the date of opening of tender).
6. Certificate should be issued by Practicing CA (having Membership No.) containing UDIN No.

Note:

1. Access to line of Credit and availability of other financial resources shall imply the Net availability of Funds* towards Working Capital, as on the date on which bidder possesses working capital.

* The net availability of funds is the availability of unutilized fund.

D. PERMANENT ACCOUNT NUMBER: The bidder should submit a Permanent Account Number (PAN) issued by Income tax Department.

~~In case of JV/CONSORTIUM, PAN card for each Indian partner of JV/CONSORTIUM and Verifiable Tax Residency Certificate of respective country for each foreign partner or JV/CONSORTIUM itself.~~

E. GOODS AND SERVICES TAX (NOT APPLICABLE FOR EXEMPTED SERVICES)

The bidder should be either GST Registered Bidder under regular scheme

OR

GST Registered Bidder under composition scheme

OR

GST unregistered Bidder

In respect of the above eligibility criteria the bidder is required to furnish the following information online:

- i). Confirmation in the form of Yes/No regarding possessing of required document as enlisted in NIT with respect to GST status of the bidder.

Scanned copy of documents to be uploaded by bidder(s) in Bidder space/ My Document.

GST Registration Certificate of the bidder.

Note:

~~i) In case of JV/CONSORTIUM, In case of JV/CONSORTIUM, Bidder should submit scanned copy of GST status of Lead Partner only or GST Registration Certificate of JV/CONSORTIUM itself.~~

~~ii) In case the work/service is awarded to a JV/Consortium participating in the tender they have to submit PAN, GST registration (as applicable in the tender and for the bidder status) etc. in the name of the JV/Consortium after Award of Work/Service before the payment of first running on account bill.~~

- iii) If turnover of bidder exceeds exemption/threshold limit, the bidder must have GST registration as per GST Act and rules.
- iv) During the execution of the contract if the GST status of the bidder changes, then the payment of GST, if any, to the contractor will be made as per the GST status declared by the bidder during tender stage based on which cost to company has been ascertained or at actuals, whichever is lower.

Scanned copy of documents to be uploaded by bidder(s) in support of information / declaration furnished online by the bidder against Eligibility Criteria as Confirmatory Document

F. LEGAL STATUS OF THE BIDDER:

Any one of the following documents:

1. Affidavit or any other document to prove proprietorship/individual status of the bidder.
 2. Partnership deed containing name of partners.
 3. Memorandum & Article of Association with certificate of incorporation containing name of bidder.
 4. ~~In case of Joint Venture Bidder, following documents are to be provided:-~~
 - ~~Scanned copy of JV agreement containing name of partners and lead partner, Power of Attorney to the lead partner and share of each partner.~~
 - ~~Power of attorney to the respective partners from the Board of Directors of the concerned Company, or from the partners of the entity, or from the proprietor, authorizing the signatory of the JV agreement on behalf of them.~~
 - ~~The document(s) (any of them as applicable) regarding legal status of all the individual partners of JV mentioned below:~~
 - a) ~~Affidavit or any other document to prove proprietorship/individual status of the bidder.~~
- ~~OR~~
- b) ~~Partnership deed containing name of partners.~~
- ~~OR~~
- c) ~~Memorandum & Article of Association with certificate of incorporation containing name of bidder.~~

Scanned copy of documents to be uploaded by bidders (BIDDER SPACE/ MY DOCUMENT/ Other Important Document (OID): Legal Status of the bidder.

G. DIGITAL SIGNATURE CERTIFICATE (DSC):

If the bidder himself is the DSC holder bidding on-line, then no document is required. However, if the DSC holder is bidding online on behalf of the bidder, then the Power of Attorney or any sort of legally acceptable document for the authority to bid on behalf of the bidder is required.

H. BANNING:

The bidders would give a declaration that they have not been banned or delisted by any Govt. or Quasi Govt. agencies or PSUs. If a bidder has been banned or delisted by any Govt. or Quasi Govt. agencies or PSUs, this fact must be clearly stated and it may not necessarily be a cause for disqualification. If the declaration is not given, the bid will be rejected as non-responsive.

I. Valid Electrical License:

The contractor will have to submit valid H.T. Electrical Contractor's license issued by the electrical licensing board of state of execution or electrical contractor's license issued by any Indian state duly recognized/endorsed by electrical licensing board of state of execution, before execution of agreement.

J. PURCHASE PREFERENCE UNDER MAKE IN INDIA" POLICY FOR "LOCAL SUPPLIER".

Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) dated 16.09.2020, issued by Govt. of India as amended from time to time shall be applicable.

In terms of the above said policy, purchase preference shall be given to Class-I local supplier.

K.

In terms with the above said policy, Class-I local suppliers and Class-II local suppliers shall be eligible to bid.

The definitions of Class-I Local Supplier, Class-II local supplier, Non-Local supplier, Local Content and Margin of Purchase Preference as per above mentioned Order are as follows: -

A. 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under said order.

B. 'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 20% but less than 50%, as defined under said order.

C. 'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20% as defined under said order

D. 'Local Content' means the amount of value added in India which shall be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

E. 'Margin of Purchase Preference' means the maximum extent to which the price quoted by a Class-I local supplier may be above the L1 for the purpose of purchase preference. The margin of purchase preference is 20%.

In respect of the above eligibility criteria the bidder is required to furnish the following information online:

Confirmation in the form of Yes/No regarding possessing of required document indicating percentage of local content as enlisted in NIT.

Note:-

- a) If the estimated value of Procurement is less than Rs. 10 crores, all the Bidders at the time of bidding shall submit either self-certification indicating the percentage of local content in the offered items in Undertaking as per format.
- b) If the estimated value of procurement is more than Rs. 10 crores, all the Bidders shall submit along with its bid a certificate from the statutory auditor or cost auditor of the Company (in case of companies) or from a practicing cost accountant or practicing chartered account (in respect of suppliers other than companies) giving the percentage of local content.

Scanned copy of documents to be uploaded by bidder(s) in support of information / declaration furnished online by the bidder against Eligibility Criteria as Confirmatory Document.

Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) dated 16.09.2020, issued by Govt. of India as amended from time to time shall be applicable. (NOT APPLICABLE WHERE ESTIMATED COST PUT TO TENDER IS LESS THAN 5 LAKHS.)

In terms with the above said policy, Class-I local suppliers and Class-II local suppliers shall be eligible to bid. Non-local supplier is not eligible to bid. The purchase preference shall be given to Class-I local supplier only.

In terms of the above said policy, purchase preference shall be given to Class-I local suppliers in the following manner:

- I. In the procurement of works which are divisible in nature, the following procedure shall be followed: -
 - i) Among all qualified bids, the lowest bid will be termed as L-1. If L-1 is from a Class-I local supplier, the contract for full quantity will be awarded to L-1 at L-1 price by the Purchaser.
 - ii) If L-1 is not a Class-I local supplier, 50% of the order quantity shall be awarded to L-1. Thereafter, the lowest bidder among the Class-I local suppliers will be invited to match the L-1 price for the remaining 50% quantity subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract for that quantity shall be awarded to such local supplier subject to his matching the L-1 price. In case such lowest eligible Class-I supplier fails to match the L-1 price or accept less than the offer quantity, the next higher Class-I local supplier within the margin of purchase preference shall be invited to match the L-1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local supplier, then such balance quantity may also be ordered on L-1 bidder.
- II. In the procurement of works which are not divisible, and in procurement of services where the bid is evaluated on price alone, the following procedure shall be followed: -
 - i) Among all qualified bids, the lowest bid will be termed as L-1. If L-1 is from a Class-I local supplier, the contract will be awarded to L-1.
 - ii) If L-1 is not from a Class-I local supplier, the lowest bidder among the Class-I local suppliers, will be invited to match the L-1 price subject to Class-I local supplier's quoted

price falling within the margin of purchase preference, and the contract shall be awarded to such Class-I local supplier subject to matching the L-1 price.

- iii) In case such lowest eligible Class-I local supplier fails to match the L-1 price, the Class-I local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L-1 price and so on and contract shall be awarded accordingly. In case none of the Class-I local suppliers within the margin of purchase preference matches the L-1 price, then the contract may be awarded to the L-1 bidder.

Note: The confirmation from the bidder regarding matching of L1 price may be taken in confirmatory document link of e-Procurement portal by recycling 'Any other document' link.

Verification of local content:

- i) All the Bidders at the time of bidding shall submit self-certification indicating the percentage of local content in the offered items.
- ii) CIL/ Subsidiary may constitute committees with internal and external experts for independent verification of auditor's / accountant's certificates on random basis and in the case of complaints.
- iii) False declarations will attract Guidelines on Debarment of firms from Bidding for a period up to two year and with process in line with clause 19 of GTC.
- iv) A local supplier who has been debarred by any procuring entity for violation of above order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities.

8.2 If the bidder is a subsidiary of a company, the experience and resources of the holding company or its other subsidiaries will not be taken into account. However, if the bidder is a holding company, the experience and resources of its wholly owned subsidiaries will be taken into consideration.

8.3 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- a) Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or.
- b. record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.

8.4

a. **General Technical Evaluation (GTE) and Bidder's space/ My Document/ Other Important Document (OID):**

The bidders have to accept unconditionally in GTE (General Technical Evaluation) the Undertaking regarding Genuineness of the information furnished by him online & authenticity of the scanned copy of documents uploaded by him on-line in support of his eligibility criteria, PAN, GST, Legal Status of the bidder, Annexure I (Letter of Bid) and Annexure IX (Integrity Pact). No recycling will be done for the documents in the OID i.e. no further clarification will be sought from bidder.

Moreover, the following documents shall be considered from the Bidder's space/ My Document / Other Important Document (OID), and no recycling will be done for these documents i.e. no further clarification will be sought from bidder –

Sl. No.	Submission of Documents related to Eligibility Criteria	Scanned copy of document(s) uploaded by bidder in BIDDER'S SPACE/ MY DOCUMENT/ OTHER IMPORTANT DOCUMENT (OID)
1	2	3
1.	Permanent Account Number (PAN) <i>[Ref.Cl.No.8.1 (D) of e-Tender Notice]</i>	The bidder should submit a Permanent Account Number (PAN) issued by Income tax Department. In case of JV/CONSORTIUM, PAN card for each Indian partner of JV/CONSORTIUM and Verifiable Tax Residency Certificate of respective country for each foreign partner or JV/CONSORTIUM itself.
2.	Goods & Services Tax (GST) Registration. <u>(Not Applicable for Exempted Services)</u> <i>[Ref.Cl.No.8.1 (E) of e-Tender Notice]</i>	The bidder should be either GST Registered Bidder under regular scheme OR GST Registered Bidder under composition scheme OR GST unregistered Bidder In respect of the above eligibility criteria the bidder is required to furnish the following information online: i). Confirmation in the form of Yes/No regarding possessing of required document as enlisted in NIT with respect to GST status of the bidder. Scanned copy of documents to be uploaded by bidder(s) in Bidder space/ My Document. GST Registration Certificate of the bidder. Note: i). In case of JV/CONSORTIUM, In case of JV/CONSORTIUM, Bidder should submit scanned copy of GST status of Lead Partner only or GST Registration Certificate of JV/CONSORTIUM itself. ii). In case the work/service is awarded to a JV/Consortium participating in the tender they have to submit PAN, GST registration (as applicable in the tender and for the bidder status) etc. in the name of the JV/Consortium after Award of Work/Service before the payment of first running on account bill.

		<p>iii). If turnover of bidder exceeds exemption/threshold limit, the bidder must have GST registration as per GST Act and rules.</p> <p>iv). During the execution of the contract if the GST status of the bidder changes, then the payment of GST, if any, to the contractor will be made as per the GST status declared by the bidder during tender stage based on which cost to company has been ascertained or at actuals, whichever is lower.</p>
3.	<p>Legal Status of the Bidder (Ref. Clause No 8.1 (F) of e-Tender Notice)</p>	<p>Any one of the following documents:</p> <ol style="list-style-type: none"> 1. Affidavit or any other document to prove proprietorship/ Individual status of the bidder. 2. Partnership deed containing name of partners 3. Memorandum & Article of Association with certificate of incorporation containing name of bidder 4. In case of Joint Venture/Consortium Bidder, following documents are to be provided: <ul style="list-style-type: none"> ● Scanned copy of JV agreement containing name of partners and lead partner, Power of Attorney to the lead partner and share of each partner. ● Power of attorney to the respective partners from the Board of Directors of the concerned Company, or from the partners of the entity, or from the proprietor, authorizing the signatory of the JV agreement on behalf of them. ● The document(s) (any of them as applicable) regarding legal status of all the individual partners of JV mentioned below: <ol style="list-style-type: none"> a) Affidavit or any other document to prove proprietorship/individual status of the bidder. <p style="text-align: center;">OR</p> b) Partnership deed containing name of partners. <p style="text-align: center;">OR</p> e) Memorandum & Article of Association with certificate of incorporation containing name of bidder.
<p>Note: Only one file in .pdf format can be uploaded against each eligibility criteria. Any additional/ other relevant documents to support the information/declaration furnished by bidder online against eligibility criteria may also be attached by the bidder in the same file to be uploaded against respective eligibility criteria.</p>		

- b. All the bidders have to submit the information in objective manner confirmed by the uploaded documents. The documents related to the information furnished online by bidder, based on which the auto evaluation takes place, will only be considered. If the bidder uploads any other document, it will be given no cognizance.

The scanned copy of following documents (valid on the end date of bid submission) will be uploaded by the bidder while submitting bid online:

PART-I (Cover-I)

Sl. No.	Submission of Documents related to Eligibility Criteria	Scanned copy of documents to be uploaded by bidder in support of information/ declaration furnished online by the bidder against Eligibility Criteria as CONFIRMATORY DOCUMENT
1.	Work Experience [Ref.Cl.No.8.1 (A) of e-Tender Notice]	<p>For work experience, bidders are required to submit Work Experience Certificate issued by the employer against the experience of similar works containing all the information sought online. In case of sub- contractor, suitable document as per provisions of eligibility, if applicable.</p> <p>The intending tenderer must submit documentary evidence in support of above in the form of (i) certified copy of work order, (ii) completion certificate indicating value and period of work, The TDS certificate be submitted during clarification, if any.</p>
2.	Working Capital [Ref.Cl.No.8.1(C) of e-Tender Notice]	<p>The Bidder must submit the Certificate of possessing adequate Working Capital (at least 20% of the “Annualized value or Estimated value whichever is less” of this work) inclusive of access to lines of credit and availability of other financial resources to meet the requirement, issued by a Practicing Chartered Accountant having a Membership Number with Institute of Chartered Accountants of India. Such Certificate should contain the Unique Document Identification Number (UDIN). The bidder should possess the Working Capital issued within three months prior to the date of opening of tender.</p> <p>In case, access to lines of credit constitutes the availability of Working Capital, Banker’s Certificate (Scheduled Commercial Bank) shall also be submitted regarding availability of access to credit (issued within three months prior to the date of opening of tender) to meet the above eligibility criteria.</p> <p>For foreign Partner(s), Banker’s Certificate regarding availability of access to credit (issued within three months prior to the date of opening of tender) should be duly vetted/endorsed by the relevant Embassy/High Commission concerned, towards authenticity of document. Relevant Embassy/High Commission means the Embassy/High Commission in India of the Country where the bidder has obtained Banker’s Certificate or Country of origin of the bidder).</p>
3.	Financial Turnover [Ref.Cl.No.8.1(B) of e-Tender Notice]	<p>Average annual financial turnover during the last 3(three) years, ending 31st March 2023 financial year, should be at least 30% of the estimated cost put to tender.</p> <p>The intending bidders must submit the Financial Turnover certificate (with UDIN No.) issued by a Practicing Chartered Accountant having a membership number with Institute of Chartered Accountants of India, containing the information as furnished by bidder online.</p>

Sl. No.	Submission of Documents related to Eligibility Criteria	Scanned copy of documents to be uploaded by bidder in support of information/ declaration furnished online by the bidder against Eligibility Criteria as CONFIRMATORY DOCUMENT
		<p>The foreign partner(s) should submit Financial Turnover certificate based on IFRS (International Financial Reporting Standards) accounting standard certified by a local practicing public accountant/audit firm duly vetted/endorsed by the relevant *Embassy/High Commission concerned, towards authenticity of document.</p> <p>(*Relevant embassy/High Commission means the embassy/High Commission in India of the country where the bidder has obtained Turnover certificate or country of origin of the bidder OR the Indian embassy in the country where the bidder has obtained Turnover certificate or country of origin of the bidder.)</p>
4.	Digital Signature Certificate (DSC) [Ref.Cl.No.8.1(G) of e-Tender Notice]	<p>a. If the bidder himself is the DSC holder bidding on-line then no document is required.</p> <p>b. However, if the DSC holder is bidding online on behalf of the bidder, then, the Power of Attorney or any sort of legally accepted document for the authority to bid on behalf of the Bidder.</p>
5.	Local Supplier Status of Bidder [Ref.Cl.No.8.1(J) of e-Tender Notice]	<p>a. If the estimated value of Procurement is less than Rs. 10 crores, all the Bidders at the time of bidding shall submit self-certification indicating the percentage of local content in the offered items in Undertaking as per format.</p> <p>b. If the estimated value of procurement is more than Rs. 10 crores, all the Bidders shall submit along with its bid a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered account (in respect of suppliers other than companies) giving the percentage of local content.</p>
6.	Undertaking	(A) PROFORMA FOR UNDERTAKING TO BE UPLOADED BY BIDDER/S (ON THEIR LETTER HEAD) REGARDING RELATIVES AS EMPLOYEES OF COMPANY, ARBITRATION CLAUSE (IN CASE OF PARTNERSHIP FIRM/JV/CONSORTIUM), LOCAL SUPPLIER STATUS OF THE BIDDER ETC., as per Annexure-X.
<p>Note: Only one file in .pdf format can be uploaded against each eligibility criteria. Any additional/ other relevant documents to support the information/declaration furnished by bidder online against eligibility criteria may also be attached by the bidder in the same file to be uploaded against respective eligibility criteria.</p>		

Note: Copies of all documentary evidences are to be duly authenticated by the tenderers/ constituted attorney of the tenderer with full signature and seal. All signed declarations are to be made in the tenderer's letter head.

9. General Instructions for Submission of Bid (As per e-Procurement Guidelines)

- a. All the bids are to be submitted online on e-procurement portal of CIL. No bid shall be accepted offline.

In order to submit the Bid, the Bidders have to get themselves registered online on the e-Procurement portal of CIL with valid Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA), Govt. of India and which can be traced up to the chain of trust to the Root Certificate of CCA. The online Registration of the Bidders on the portal will be free of cost and one-time activity only. The registration should be in the name of Bidder, whereas DSC holder may be either Bidder himself or his duly authorized person. The Bidder is one whose name will appear as Bidder in the e-Procurement Portal.

- c. The Bidders have to accept unconditionally the online user portal agreement which contains the acceptance of all the Terms and Conditions of NIT including General and Special Terms & Conditions and other conditions, if any, along with on-line undertaking in support of the authenticity of the declarations regarding the facts, figures, information and documents furnished by the Bidder on-line in order to become an eligible Bidder. No conditional bid shall be accepted.
- d. **Letter of Bid:** The Letter of Bid addressed to the Tender Inviting Authority (TIA) will be given in Tender document containing name of the work, NIT No., Tender ID. This will be the covering letter of the Bidder for his submitted bid. The Bidders have to accept unconditionally the Letter of Bid in GTE (General Technical Evaluation) at the time of bid submission. This online acceptance during bidding through GTE shall be construed as submission of LOB by bidder.

- e. **Confirmatory Documents:**

All the Confirmatory documents as enlisted in the NIT in support of online information furnished by the Bidder are to be uploaded in Cover-I by the Bidder while submitting the bid online.

- f. **Price Bid (in Cover-II):**

The Price bid containing the Bill of Quantity will be in Excel format (password protected) and will be uploaded during tender creation. This will be downloaded by the Bidder and he will quote the rates for all items on this Excel file. Thereafter, the Bidder will upload the same Excel file during bid submission in Cover-II. The Price-bid will be in Item Rate/Percentage Rate BOQ format and the Bidder will have to quote for all the tendered items and the L-1 will be decided on overall quoted value. The Price-bids of the Bidders will have no condition. The Price Bid which is incomplete and not submitted as per instruction given above will be rejected. Any alteration/modification in the Excel format may lead to rejection of bid.

10. **Validity Period of Offer**

The rates offered in Part II (Price Bid) should be valid for 180 days after the last date of submission of Bid.

11. **Opening of Technical Bid:**

- 11.1 Opening of Technical bid: The Technical bid (Part-I/Cover-I) will be opened one day after the Bid submission end date or next working day whichever is later. Technical bid (Part-I/ Cover-I) will be decrypted and opened online by the “Bid Openers” with their Digital Signature Certificates on the prescheduled date & time of Tender Opening.
- 11.2 The e-Procurement System will evaluate the Technical bids automatically on the basis of relevant data provided by bidder through a form in an objective and structured manner while submitting bid. If the parameter given by bidder in objective and structured manner does not confirm to required eligibility criteria as specified in the tender document, then the bid will be rejected.
- 11.3. All the documents uploaded by bidder(s) including i.e. Letter of Bid & EMD exemption documents (if any) and the Evaluation sheets generated by the system online shall be downloaded after opening of Technical bid (Part-I/ Cover-I). After decryption and opening of Technical bid (Part-I/ Cover-I) the “technical bid opening summary” will be uploaded on the same day.

12. **Technical Evaluation of Tender:**

- i. After opening of Technical bid, the documents submitted by bidder(s) in cover I as enlisted in the NIT will be downloaded by the Evaluator and shall be put up to the Tender Committee. The Tender Committee will examine the uploaded documents against information/declarations furnished by the bidder(s) online. If it confirms to all of the information/ declarations furnished by the bidder online and does not change the eligibility status of the bidder then the bidder will be considered eligible for opening of price bid.
- ii. In case the Tender Committee finds that there is some deficiency in uploaded documents corresponding to the information furnished online or in case corresponding document have not been uploaded by bidder(s) then the same will be specified on line by Evaluator clearly indicating the omissions/shortcomings in the uploaded documents and indicating start date and end date allowing 7 days (7 x 24 hours) time for online re-submission by bidder(s). The bidder(s) will get this information on their personalized dashboard under “Upload confirmatory document” link. Additionally, information shall also be sent by system generated email and SMS, but it will be the bidder’s responsibility to check the updated status/information on their personalized dash board regularly after opening of bid. No separate communication will be required in this regard. Non-receipt of e-mail and SMS will not be accepted as a reason of non-submission of documents within prescribed time. The bidder(s) will upload the scanned copy of all those specified documents in support of the information/ declarations furnished by them online within the specified period of 7 days. If the bidder(s) fails to submit the specified document/s in 7(Seven) days (7 x 24 hours). No further document shall be sought from Bidder.
- iii. It is responsibility of Bidders to upload legible/clearly readable scanned copy of all the required documents as mentioned above.
- iv. The tender will be evaluated on the basis of documents uploaded by bidder(s) on line. The bidder(s) is/are not required to submit hard copy of any document through off line mode. Any document submitted off line will not be given any cognizance in the evaluation of tender.
- v. In case the bidder(s) submit(s) requisite documents online as per NIT, then the bidder(s) will be considered eligible for opening of Price Bid.
- vi. Seeking clarification shall be restricted to confirmation of submitted document/online

information only and it should be only for one time for a period of up to 7 days. The clarification shall be taken in online mode in the e- Procurement portal of CIL only.

- vii. In case bidder(s) fails to confirm the online submitted information(s)/ declaration(s) by the submitted documents as (B) above, their/his bid shall be rejected; however, if the confirmatory documents do not change eligibility status of the bidder in connection his submitted online information(s)/declaration(s), then his/their bid will be accepted for opening of Price Bid.
- viii. After Technical evaluation of tender, “Technical Evaluation Summary” will be uploaded by the evaluator and price bid shall be opened on preschedule date and time mentioned in the NIT online in the e- Procurement portal of CIL. However, in case there is any extension of date and time of price bid opening, it shall be notified online and price bid shall be opened online on e-Procurement portal of CIL at rescheduled date and time.
- ix. In case none of the bidder(s) complies the technical eligibility criteria as per NIT, then bidder(s) will be rejected online and re-tender (if required) will be done (with the same or different quantity, as per the instant requirement)
- x. Preference to Make in India (as applicable) vide Order No. P45021/2/2017-PP (BE-II) (Annexure-II) issued by Govt. of India as amended from time to time shall be applicable. Accordingly, provisions of these guidelines are to be modified suitably.

13. Price Bid Opening and Award of Work:

- A. The Tender Committee will recommend for award of work to the successful bidder after evaluation of the reasonableness of L-1 rates. The reasonableness of rates will be evaluated as per the provisions of Manual of CIL and other guidelines issued from time to time.
The approval for award of work to L-1 bidder will be accorded by the competent authority as per Delegation of Power based on the TC recommendation.
- B. After competent approval and financial concurrence of TCR, the work order to the L-1 bidder will be issued and the scanned copy of the Work Order will be uploaded on the e-Procurement portal and simultaneously the original copy will be sent to the bidder through registered/speed post.
- C. Any tender hosted on the e-Procurement site must be logically concluded i.e. either Award of work is issued at AOC page on e-Procurement portal in online mode or the tender is cancelled/ retendered online through corrigendum.
- D. If L1 bidder backs out (i.e. Techno commercially established L1 bidder), the EMD will be forfeited and the bidder will be debarred for minimum one (1) year from participating in tenders in CCL.
- E. The tenderer shall closely study all specifications in detail, which govern the rates for which he is tendering. However, banning shall be done as per Guidelines for Banning Business.

14. The Company is not under any obligation to accept the lowest Bid/Bids and reserves the right to reject any or all the Bids without assigning any reason whatsoever, and also to distribute the work and allot the work/works to more than one Bidder or accept the tender in part and not in its entirety, at its sole discretion.

15. The Company reserves the right to extend the date of submission and opening of bid or to cancel the bid without assigning any reason whatsoever.

16. Any addendum/corrigendum/date extension etc. in respect of above tender shall be issued on our website www.coalindiatenders.nic.in only. No separate notification shall be issued in the press. Bidders are therefore requested to visit our website regularly to keep themselves updated.
17. A) User portal agreement of e-Procurement portal shall be made a part of Contract document.
- B) The provisions regarding notification of award, formation of agreement, acceptance/rejection of Bid, cancellation/award with respect to the Tender etc shall be the Part of NIT.
18. The Bidder is required to sign the pre-contract integrity pact as per Annexure IX given in the Bid. (Applicable on Estimated cost of 05 Crores and above).

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Sd-
General Manager (E&M)

Section-II
INSTRUCTIONS TO BIDDERS

Section-II

INSTRUCTIONS TO BIDDERS

1. SCOPE OF TENDERER

1.1 The Central Coalfields Limited (referred to as Employer in these documents) invites bids for the construction on turnkey basis for the works (as defined in these documents and referred to as "the works") detailed in the table given in the Notice Inviting Tenders (NIT). The bidders may submit bid for all of the works detailed in the NIT.

1.2 The successful Bidder will be expected to complete the Work(s) within the Intended Completion period specified in the notice.

1.3 The total scope of supply and works & services shall be split into two contracts- one covering the supply part and the other covering the works

8.6 services part. Both contracts will contain a cross fall breach clause specifying the breach of any one contract will also constitute breach of the other contract and the whole contract combined.

2 ELIGIBLE TENDERERS:

2.1 The Invitation for Bid(s) is open to all Bidders including an individual, proprietorship firm, partnership firm, company registered under Companies Act, any legal entity or JV/Consortium. The bidders shall be eligible to participate only if they fulfill the qualifying criteria laid down separately hereinafter.

2.2 A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the Works shall not be eligible to Bid.

2.3 ~~Joint Venture (JV)/ Consortium: Two or three companies/ contractors may jointly undertake contract/contracts. Each entity will be jointly and severally responsible for completing the task as per the contract.~~

~~JV/Consortium details:~~

~~Name of all Members of a JV/CONSORTIUM (not more than 3):~~

- ~~1. Lead Member (minimum participation share—50%)~~
- ~~2. Member (minimum participation share—20%)~~
- ~~3. Member (minimum participation share—20%)~~

~~JV/Consortium must comply the following requirements:~~

~~i. The qualifying criteria parameter e.g. experience, financial resources (of the relevant period) and the equipment/fleet strength of the individual member of the JV/CONSORTIUM will be added together and the total criteria should not be less than as spelt out in qualifying/eligibility criteria as specified in e tender Notice. However, the required Working Capital shall be met by individual members of JV/CONSORTIUM as spelt out in the relevant Clause.~~

~~ii. The formation of JV/CONSORTIUM or change in the JV/CONSORTIUM character/ members after submission of the bid and any change in the bidding regarding JV/CONSORTIUM will not be permitted.~~

~~iii. The bid, and in case of a successful bid the agreement, shall be signed so as to legally bind all members jointly and severally and any bid shall be submitted with a copy of~~

~~the JV/CONSORTIUM Agreement providing the joint and several liabilities with respect to the contract.~~

- ~~iv. The pre-qualification of a JV/CONSORTIUM does not necessarily pre-qualify any of its member individually or as a member in any other JV/CONSORTIUM. In case of dissolution of a JV/CONSORTIUM, each one of the constituent firms may pre-qualify if they meet all the pre-qualification requirements, subject to written approval of the employer.~~
 - ~~v. The bid submission must include documentary evidence to the relationship between JV/CONSORTIUM members in the form of JV/CONSORTIUM Agreement to legally bind all partners jointly and severally for the proposed agreement which should set out the principles for the constitution, operation, responsibilities regarding work and financial arrangements, participation (percentage share in the total) and liabilities (joint and several) in respect of each and all of the firms in the JV/CONSORTIUM. Such JV/CONSORTIUM Agreement must evidence the commitment of the parties to bid for the facilities applied for (if pre-qualified) and to execute the contract for the facilities if their bid is successful.~~
 - ~~vi. One of the members shall be nominated as 'In charge' of the contract and shall be designated as Lead Partner. This authorization shall be evidenced by submitting with the bid a Power of Attorney signed by legally authorized signatories of all the members.~~
 - ~~vii. The JV/CONSORTIUM must provide that the Lead Member shall be authorized to incur liabilities and receive instructions for and on behalf of any and all members of the JV/CONSORTIUM and the entire execution of the contract shall be done with active participation of the Lead Member.~~
 - ~~viii. The contract agreement should be signed by each JV/CONSORTIUM members. Subsequent declarations/letters/documents shall be signed by lead member authorized to sign on behalf of the JV/CONSORTIUM or authorized signatory on behalf of JV/CONSORTIUM.~~
 - ~~ix. The bid should be signed/digitally signed by the DSC holder submitting the Bid.~~
 - ~~x. An entity can be a member in only one JV/CONSORTIUM. Bid submitted by JV/CONSORTIUM including the same entity as member will be rejected.~~
 - ~~xi. The JV/CONSORTIUM agreement may specify the share of each individual member for the purpose of execution of this contract. This is required only for the sole purpose of apportioning the value of the contract to that extent to individual member for subsequent submission in other bids if he intends to do so for the purpose of the qualification in that Bid.~~
 - ~~xii. The JV/CONSORTIUM agreement must specifically state that it is valid for the project for which bidding is done. If JV/CONSORTIUM breaks up midway before award of work and during bid validity period bid will be rejected.~~
- ~~If JV/CONSORTIUM breaks up midway before award of work and during bid validity/after award of work/during pendency of contract, in addition to normal penalties as per provision of bid document, all the members of the JV/CONSORTIUM shall be debarred from participating in future bids for a minimum period of 12 months.~~

~~xiii. JV/CONSORTIUM agreement shall be registered in accordance with law so as to be legally valid and binding on the members before making any payment.~~

~~Note: If the work is awarded to a JV/CONSORTIUM firm, they will register the JV/CONSORTIUM agreement under Registration Act in accordance with law.~~

~~xiv JV/CONSORTIUM shall open a bank account in the name of JV/CONSORTIUM and all payments due to the JV/CONSORTIUM shall be credited by employer to that account only. To facilitate statutory deductions all statutory documents like PAN, GST registration etc. shall be submitted by JV/CONSORTIUM before making any payment.~~

~~xv. The JV/CONSORTIUM must enroll in the e Procurement portal with the name of the firm as appearing in the JV/CONSORTIUM agreement.~~

2.5 Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) issued by Govt. of India as amended from time to time shall be applicable. The Company reserves its right to allow Public Enterprises purchase preference facility as admissible under prevailing policy.

2.6 No sub-letting of the work as a whole by the contractor is permissible. Prior permission is required to be taken from the principle employer for engagement of sub-contractors.

3. QUALIFICATION OF THE TENDERER:

3.1 All bidders shall provide in Part-1- Forms of Bid and Qualification Information, contractors bid and undertaking and in Part-II - a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

3.2 In the event that prequalification of potential bidders has been undertaken, only Bids from pre-qualified bidders will be considered for award of Contract.

3.3 If the employer has not undertaken pre-qualification of potential bidders, all bidders shall include the following information and documents with their bids as mentioned herein below in clause 3.4(copies of all documentary evidences are to be duly authenticated by the tenderers/ constituted attorney of the tenderer with full signature and seal. All signed declarations are to be made in the tenderer's letter head.)

3.4 To qualify for award of the contract –

A. Work Experience: The intending tenderer must have in its name experience of having successfully completed similar works during last 7 (Seven) years ending last day of month previous to the one in which bid applications are invited i.e. e-publication date on procurement portal should be any of the following.

i) Three similar completed works each costing not less than the amount equal to 20% of the estimated cost put to tender.

Or

iii) Two similar completed works each costing not less than the amount equal to 25% of the estimated cost put to tender.

- iv) One similar completed work costing not less than the amount equal to 40% of the estimated cost put to tender.

Definition of Similar Nature of Work:

Design, Supply, Installation, Construction and Commissioning of any of the following systems:

Integrated Coal Handling Plant (CHP) or any other bulk material handling system with Conveyor system.

or,

Rapid Loading System (RLS) or Unit Train Loading System (UTLS) with Conveyor system.

or,

RCC or Structural Steel Silo/Bunker/ Surge Bin/Surge Hopper with Conveyor system.

#Note: Conveyor system includes Belt conveyor/ Pipe conveyor/ High angle conveyor/ Chain conveyor

The intending tenderer must submit documentary evidence in support of above in the form of (i) copy of work order, (ii) completion certificate indicating value and period of work, The TDS certificate be submitted during clarification, if any.

Note:

- 1). The experience towards overseas jobs, if submitted, should be vetted/endorsed by the relevant* embassy/high commission concerned, towards authenticity of document in English or translated in English language.

(*Relevant embassy/High Commission means the embassy/High Commission in India of the country where the bidder has executed the said work or country of origin of the bidder OR the Indian embassy in the country where bidder has executed the work or country of origin of the bidder.)

3) JV/Consortium, shall be allowed for participation in the bid with estimated cost Above Rs. 5.0 Crores.

~~The above qualification criteria shall be fulfilled by JV/CONSORTIUM in the following manner.~~

~~The qualifying criteria parameter e.g. experience of the individual partners of the JV/CONSORTIUM will be added together as deliberated hereinafter towards fulfillment of qualification criteria related to experience.~~

- ~~b) In case of completion of single work of similar nature costing, not less than the amount equal to 40% of the estimated cost put to tender:—~~

~~Any of the JV/CONSORTIUM partner shall have the experience of having completed successfully a single work of similar nature equal to 40% of the estimated cost put to tender.~~

OR

- ~~b) In case of completion of two works of similar nature each costing not less than the amount equal to 25% of the estimated cost put to tender:—~~

~~iii) Any one partner can match the above requirement.~~

~~OR~~

~~iv) At least two partners should each have completed at least one work of similar nature each costing not less than the amount equal to 25% of the estimated cost put to tender.~~

~~OR~~

~~e) In case of completion of three works of similar nature, each costing not less than the amount equal 20% of the estimated cost put to tender:—~~

~~iii) Any one partner can match the above requirement.~~

~~OR~~

~~iv) Any two partners shall match the above requirement through completion of at least two work by one partner and one work by other~~

~~partner of similar nature each costing not less than the amount equal 20% of the estimated cost put to tender:—~~

~~OR~~

~~iv) All the three partners shall match the above requirement through completion of at least one work of similar nature each costing not less than the amount equal 20% of the estimated cost put to tender.~~

Experience for those works only shall be considered for evaluation purposes, which match eligibility requirement stipulated above, on or before the last day of month previous to one in which tender has been invited (publication date of NIT). The experience of incomplete/ongoing works as on last date of eligibility period will not be considered for evaluation. If the referred work includes construction, operation as well as maintenance after construction, the experience of such work may be considered as 'acceptable' if the construction part is completed as on the last date of 'eligibility period', even if operation/maintenance work is ongoing, and the certificate issued clearly stipulates the same.

Completion of works means completion of works by undertaking entire responsibility from design, Supply, Installation, Construction and Commissioning.

In all the above cases, while considering the value of completed works, the full value of completed work be considered whether or not the date of commencement is within the said seven years' period.

Cost of previous completed work(s) shall be given a simple weightage of 7% per year to bring them at current price level, while evaluating the qualification requirement of the bidder. Such weightage shall be considered after end date of completion. The year can be considered as suitable consecutive 365 days till the last day of month previous to one in which bid has been invited. Updating will be considered for full or part of the year (total no. of days / 365) i.e. considering 365 days in a year, till the last day of month previous to one in which bid has been invited.

Data to be furnished by the Bidders:

- i. Start date & end date of each qualifying experience (similar nature)

- ii. Work order Number /Agreement Number of each experience
- iii. Name & address of Employer/Work Order Issuing authority of each experience
- iv. Percentage (%) share of each experience (In case the experience has been earned by the bidder as a partner in a JV/Consortium firm/partnership firm then the proportionate value of experience in proportion to actual share of bidder in that JV/Consortium firm/ partnership firm will be considered against eligibility else it shall be taken as 100%).
- v. Executed Value of work against each experience
- vi. In case the bidder is a JV/Consortium, work experience as above may be furnished as the work experience of the bidder.

Note:

Till the time of changes in the e-procurement portal regarding weightage from 5% to 7% is configured in the portal, the 5% weightage shall be considered for work experience for floating of tender on NIC portal.

B. Financial Turnover: Average annual financial turnover during the last 3(three) years, ending 31st March of 2023 financial year should be at least 30% of the estimated cost put to tender.

The intending bidders must submit the Financial Turnover certificate (with UDIN No.) issued by a Practicing Chartered Accountant having a membership number with Institute of Chartered Accountants of India, containing the information as furnished by bidder online.

The foreign partner(s) should submit Financial Turnover certificate based on IFRS (International Financial Reporting Standards) accounting standard certified by a local practicing public accountant/audit firm duly vetted/endorsed by the relevant *Embassy/High Commission concerned, towards authenticity of document.

(*Relevant embassy/High Commission means the embassy/High Commission in India of the country where the bidder has obtained Turnover certificate or country of origin of the bidder OR the Indian embassy in the country where the bidder has obtained Turnover certificate or country of origin of the bidder.)

Note:

- ii) Financial turnover shall be given a simple weightage of 7% per year to bring them at current price level, while evaluating the qualification requirement of the bidder. Such weightage shall be considered from the end date of financial year. Updating will be considered for full or part of the year (total no. of days / 365) i.e. considering 365 days in a year, till the last day of month previous to one in which bid has been invited.

~~JV/Consortium shall meet the above eligibility requirement, in the following manner:~~

~~The qualifying criteria parameter e.g. financial resources of the individual partners of the JV/CONSORTIUM will be added together, for the relevant financial year, and the total should not be less than as spelt out above. This is applicable for 3.4(C) also.~~

Note:

Till the time of changes in the e-procurement portal regarding weightage from 5% to 7% is configured in the portal, the 5% weightage shall be considered for Financial Turnover for floating of tender on NIC portal.

In respect of the above eligibility criteria the bidders are required to furnish the following information on-line:

- v) Annual turnover of each of the last 3 (three) years ending 31st March of the previous financial year.
- vi) Name of the Chartered Accountant issuing the Profit and Loss A/c or the Turnover certificate.
- vii) Membership Number of the Chartered Accountant.
- viii) Date of certificate issued by Chartered Accountant.

Note:

- a. ~~In case the bidder is a JV/Consortium, the turnover of the individual partners of the JV/CONSORTIUM will be added together for each financial year and is to be furnished as the turnover of the bidder for that particular financial year. However, the information against Sl. No. (ii) & (iii) above will be given w.r.t. the lead partner of JV/CONSORTIUM only.~~
- b. ~~In case of JV/CONSORTIUM, if financial turnover of all the partners is not submitted, the JV/CONSORTIUM will not be disqualified and instead the required turnover will be calculated assuming zero value for partner/partners who has/have not submitted the financial turn over certificate.~~

Special Note:

Confirmation regarding possessing of Financial Turnover issued by Practicing Chartered Accountant in the form of Yes / No.

Scanned copy of documents to be uploaded by bidders: Financial Turnover certificate having a Unique Document Identification Number (UDIN) with Institute of Chartered Accountants of India.

C. WORKING CAPITAL: The Bidder must submit the Certificate of possessing adequate Working Capital (at least 20% of the “Annualized value or Estimated value whichever is less” of this work) inclusive of access to lines of credit and availability of other financial resources to meet the requirement, issued by a Practicing Chartered Accountant having a Membership Number with Institute of Chartered Accountants of India. Such Certificate should contain the Unique Document Identification Number (UDIN). The bidder should possess the Working Capital issued within three months prior to the date of opening of tender.

In case, access to lines of credit constitutes the availability of Working Capital, Banker’s Certificate (Scheduled Commercial Bank) shall also be submitted regarding availability of access to credit (issued within three months prior to the date of opening of tender) to meet the above eligibility criteria.

For foreign Partner(s), Banker’s Certificate regarding availability of access to credit (issued within three months prior to the date of opening of tender) should be duly

vetted/endorsed by the relevant Embassy/High Commission concerned, towards authenticity of document. Relevant Embassy/High Commission means the Embassy/High Commission in India of the Country where the bidder has obtained Banker's Certificate or Country of origin of the bidder).

Note: In case of tender of more than one-year period of construction of plant including trial run and performance guarantee test, the annualised value to be worked out as under:

Estimated cost of the work (including GST) put to tender.

(vii)
Annualised value= -----X 365 days
(viii)
Period of construction of plant including trial run
and performance guarantee test in days.

~~In case of JV/CONSORTIUM, the requirement of Working Capital under this clause shall be met as per following proportion:~~

- ~~(ix) —~~
- ~~a. The lead member shall have to possess at least 50% share in the required Working Capital in order to qualify in this tender.~~
 - ~~b. All other members shall have to possess at least 25% share in the required Working Capital, in order to qualify in this tender.~~

D. PERMANENT ACCOUNT NUMBER: The bidder should submit a Permanent Account Number (PAN) issued by Income tax Department.

~~In case of JV/CONSORTIUM, PAN card for each Indian partner of JV/CONSORTIUM and Verifiable Tax Residency Certificate of respective country for each foreign partner or JV/CONSORTIUM itself.~~

E. Goods and Services Tax (Not Applicable for Exempted Services)

The bidder should be either GST Registered Bidder under regular scheme

OR

GST Registered Bidder under composition scheme

OR

GST unregistered Bidder

In respect of the above eligibility criteria the bidder is required to furnish the following information online:

- i). Confirmation in the form of Yes/No regarding possessing of required document as enlisted in NIT with respect to GST status of the bidder.

Scanned copy of documents to be uploaded by bidder(s) in Bidder space/ My Document.

GST Registration Certificate of the bidder.

Note:

- ~~i) In case of JV/CONSORTIUM, In case of JV/CONSORTIUM, Bidder should submit scanned copy of GST status of Lead Partner only or GST Registration Certificate of JV/CONSORTIUM itself.~~
- ~~ii) In case the work/service is awarded to a JV/Consortium participating in the tender they have to submit PAN, GST registration (as applicable in the tender and for the bidder status) etc. in the name of the JV/Consortium after Award of Work/Service before the payment of first running on account bill.~~
- iii) If turnover of bidder exceeds exemption/threshold limit, the bidder must have GST registration as per GST Act and rules.
- iv) During the execution of the contract if the GST status of the bidder changes, then the payment of GST, if any, to the contractor will be made as per the GST status declared by the bidder during tender stage based on which cost to company has been ascertained or at actuals, whichever is lower.

Scanned copy of documents to be uploaded by bidder(s) in support of information / declaration furnished online by the bidder against Eligibility Criteria as Confirmatory Document

3.5 If the bidder is a subsidiary of a company, the experience and resources of the holding company or its other subsidiaries will not be taken into account. However, if the bidder is a holding company, the experience and resources of its wholly owned subsidiaries will be taken into consideration.

3.6 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- a) Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or.
- b. record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.

4. **ONE BID PER BIDDER**

Each Bidder shall submit only one Bid, either individually, or as a proprietor, or as a partner in a partnership firm or as a partner in a JV/Consortium or as a Company registered under Companies Act. A Bidder who submits or participates in more than one Bid (other than as a sub-Contractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified.

5. **COST OF BIDDING**

The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible or liable for those costs.

6. **SITE VISIT**

- 6.1 The Bidder, at the Bidder's own responsibility, cost and risk, is encouraged to visit and examine the Site of Works and its surroundings, approach road, soil condition, investigation report, existing works if any connected to the tendered work, drawings connected to the work if/ as available and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
- 6.2 It shall be deemed that the tenderer has visited the site/area and got fully acquainted with the working conditions and other prevalent conditions and fluctuations thereto whether he actually visits the site/area or not and has taken all the factors into account while quoting his rates and prices.
- 6.3 Site Investigation Reports: The Contractor, in preparing the bid, shall rely on the Site Investigation Report referred to in the contract data, supplemented by any information available to the Bidder
- 6.4 The bidder is expected, before quoting his rate, to go through the requirement of materials, workmanship, specification and conditions of contract.

7. **CONTENT OF BIDDING DOCUMENTS**

The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with Clause 9:

Section 1 Notice Inviting Tender
Section 2 Instructions to Bidders.

Section 3 Forms of Bid, Qualification Information, Contractors Bid and undertaking;

Section 4 Conditions of Contract;

Section 5 Specifications;

Section 6 Tender Drawings;

Section 7 Scope of work/procedure and form of bidding the price including weight and volume of major components of work

Section 8 Forms of Securities, Forms of Bank Guarantees and form of Article of Agreement.

Section 9 Pre-contract Integrity pact (if applicable)

8. **CLARIFICATION OF BIDDING DOCUMENTS**

- 8.1 Pre-Notice Inviting Tender (NIT) Conference: In complex and innovative procurement cases or where the procuring entity may not have the required knowledge to formulate tender provisions, a pre-NIT conference may help the procuring entity in obtaining inputs from the industry. Such conferences should be widely publicized so that different potential suppliers can attend.

For a successful pre-NIT Discussion, a provisional set of Bid documents, covering all aspects of Scope of work, eligibility-criteria (if any), technical parameters (If any) and conditions of contract be prepared and hosted in the web-site.

The provisional bid document shall cover a notice for pre-NIT discussion on a suitable date. The notice shall request participation of interested bidders and offer comments/suggestion for incorporation in the final document.

Such comments / suggestions (on any/all aspect of the document) may be suitably incorporated, if found necessary, and final bid document be drafted. This final draft, after due approval shall be the final bid document. Bids be invited thereafter as per standard practice

8.2 Pre-bid meeting: In case of turnkey contract(s) or contract(s) of special nature for procurement of sophisticated and costly work/ services/ equipment or wherever felt necessary, a suitable provision is to be kept in the bidding documents for inviting the bidders or their official representatives to attend one or more pre-bid conference at a specified place and time, for clarifying issues and clearing doubts, if any, about the specifications/ Terms of Reference and other allied technical/ commercial details of the work, services, plant, equipment and machinery etc.

Bidders should be asked to submit written queries in advance of the conference. After the conference, Minutes of the pre-bid meeting including all the questions and replies shall be prepared and approved by the tender inviting authority. In order to bring clarity to replies, all questions/ answers and needed amendments should be merged in the sequence of clauses in the bidding document. It is a good practice to consolidate all queries received either as part of pre-bid meeting or just after issuing bidding documents and deal with in a comprehensive way. Minutes of the meeting, including the text of the questions raised and the responses given, shall be uploaded in the portal. The techno-commercial requirements may be revised if considered necessary by way of issue of a formal corrigendum (mere minutes of the meeting of pre-bid conference would not suffice) and uploaded in the portal. These pre-bid minutes shall be published along with the bid documents on the appropriate website including CPPP.

Any significant change in condition necessitated from Pre-Bid meeting shall require approval of respective FDs and subsequently, Document download date, Bid submission end date and bid opening date shall be shifted to a date 15 days beyond the date on which changed condition is uploaded. The seek clarification end date shall be adjusted as per e-Procurement Manual for works and services of CIL.

Notice inviting authority may decide to incorporate pre-bid meeting in the bid-notice. Non-attendance in the pre-bid meeting will not be a cause for disqualification of the bidder. Relevant issues raised and clarification given may be hosted in the web-site without disclosing the name of the bidder.

Pre-bid meeting may take place, if required, after publication of Tender but in any case, at least 1 (one) day before the start date of Bid submission. If a Pre-Bid meeting is held then the minutes of the Pre-Bid meeting shall be uploaded on the Portal, before start date of bid submission which can be viewed by all interested bidders

For procurement of highly technological and complex works, tender submission dates may be extended by the CIL/Subsidiaries in order to reply queries in the pre-bid meetings or any other justifiable reason.

8.3 **Online clarification:** The Bidder may seek clarification online within the specified period. The identity of the Bidder will not be disclosed by the system. The department will clarify as far as possible the relevant queries of Bidders. The clarifications given by department will be visible to all the Bidders intending to participate in that tender.

The clarifications may be asked from the day of e-Publication of NIT. The period for seeking clarification by Bidder will be up to 7 (seven) days before the end date of bid submission. The replies to clarifications sought by Bidders should be given by the department at least 2 (two) days before the end date of bid submission.

In exceptional cases where a large number of queries from Bidders are expected, the period for seeking clarification may be kept maximum upto 15 (fifteen) days before the end date of bid submission, but the minimum period given to the Bidders for seeking clarification should not be less than 10 (ten) days in such cases.

The Tender Inviting Authority will be responsible for replying/responding to the clarifications online within the prescribed time frame. However, if the Tender Inviting Authority feels that the query is of such a nature that advice of tender committee or any other authority is required to give clarification, he may do so to reply the queries within the prescribed time limit. The queries of Bidders clarified online and also unanswered queries of Bidders shall be referred in the TCR.

9. AMENDMENT OF BIDDING DOCUMENTS

- 9.1 Before the deadline for submission of Bids, the Employer may modify the bidding documents by issuing addenda.
- 9.2 Any addendum thus issued shall be part of the bidding documents and shall be uploaded on the portal.
- 9.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer shall extend, as necessary, the deadline for submission of Bids, in accordance with Sub-clause 17.2 below.

10. LANGUAGE OF BID

All documents relating to the Bid shall be in the English language.

11. BID PRICES

- 11.1 The bidder shall closely study all specification in detail and scope of work which govern the rates he is quoting. The contract shall be for the whole Works as described in Sub-Clause 1.1, based on the scope of work as detailed in the bidding document.
- 11.2 The Bidder shall submit rates and prices for all items of the Works described in the scope of works
- 11.3 All duties, taxes excluding Goods and Services Tax (GST) & GST Compensation Cess (if applicable) only and other levies payable by the Bidder/Contractor under the Contract, or for any other cause as applicable on the last date of submission of Bid, shall be included in the rates, prices and the total Bid Price submitted by the Bidder. Applicable GST, either payable by Bidder or by Company under reverse charge mechanism shall be computed by system in BOQ sheet as per pre-defined logic.

All investments, operating expenses, incidentals, overheads, leads, lifts, carriages etc. as may be attendant upon execution and completion of works shall also be included in the rates, prices and total Bid price submitted by the Bidder.

However, such duties, taxes, levies etc. which is notified after the last date of submission of Bid and/or any increase over the rate existing on the last date of

submission of Bid shall be reimbursed by the Company on production of documentary evidence in support of payment actually made to the concerned authorities.

Similarly, if there is any decrease in such duties, taxes and levies the same shall become recoverable from the Contractor.

11.4 The item wise rate quoted by Bidder shall be inclusive of all taxes, duties & levies but excluding GST & GST Compensation Cess, if applicable. The payment of GST and GST Compensation Cess by service availer (i.e. CIL/Subsidiary) to Bidder/Contractor (if GST payable by Bidder/Contractor) would be made only on the latter submitting a Bill/invoice in accordance with the provision of relevant GST Act and the rules made thereunder and after online filing of valid return on GST portal. Payment of GST & GST Compensation Cess is responsibility of Bidder/Contractor.

However, in case Contractor is GST unregistered Bidder/dealer or GST registered under composition scheme in compliance with GST rules, the Bidder/dealer shall not charge any GST and/or GST Compensation Cess on bill/invoice. In case of unregistered dealer/Bidder, GST, if applicable will be deposited by CIL/Subsidiary directly to concerned authorities in terms with GST provisions.

Input tax credit is to be availed by CIL/Subsidiary as per rule.

If CIL/Subsidiary fails to claim Input Tax Credit(ITC) on eligible Inputs, input services and Capital Goods or the ITC claimed is disallowed due to failure on the part of supplier/vendor of goods and services in incorporating the tax invoice issued to CIL/Subsidiary in its relevant returns under GST, payment of CGST & SGST or IGST, GST (Compensation to State) Cess shown in tax invoice to the tax authorities, issue of proper tax invoice or any other reason whatsoever, the applicable taxes & cess paid based on such Tax invoice shall be recovered from the current bills or any other dues of the supplier/vendor along with interest, if any.

Note: During the execution of the contract if the GST status of the bidder changes, then the payment of GST, if any, to the Contractor will be made as per the GST status declared by the bidder during tender stage based on which cost to Company has been ascertained or at actuals, whichever is lower.

11.5 The rates and prices quoted by the Bidder shall be fixed for the duration of the contract and shall not be subject to variations on any account except to the extent variations allowed as per the conditions of the contract indicated in the bidding document.

12. **CURRENCIES OF BID AND PAYMENT**

The unit rates and prices shall be quoted by the Bidder entirely in Indian Rupees.

13. **BID VALIDITY**

13.1 Bid shall remain valid for a period not less than one hundred and eighty (180) days after the deadline for bid submission specified in the e-tender portal. A bid valid for a shorter period shall be rejected by the Employer.

13.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidder's responses shall be made in writing or by e-mail. A bidder may refuse the request without forfeiting his bid security. A bidder

agreeing to the request will not be required or permitted to modify his bid but will be required to extend the validity of his bid security for a period of the extension, and in compliance with the tender document in all respects.

Reasons for seeking extension of bid validity should be recorded by the procuring officers.

14. BID SECURITY/EARNEST MONEY DEPOSIT

14.1 The Bidder shall furnish, as part of his bid, a Bid Security/Earnest Money of the amount as shown in e-tender notice and in the form as deliberated below:

The Bidder will have to make the payment of EMD through ONLINE mode only. No Offline mode of Payment of EMD/Bid security shall be applicable and acceptable.

In online mode the Bidder can make payment of EMD either through net-banking from designated Banks/s or through NEFT/RTGS from any scheduled Bank. In case of payment through net-banking the money will be transferred to CIL/ Subsidiary designated Account. In case of payment through NEFT/RTGS the Bidder will have to make payment as per the Challan generated by system on e-Procurement portal. Bidder will be allowed by the system to submit the bid only when the EMD is successfully received in CIL/Subsidiary designated account and the information flows from Bank's Server to e-Procurement portal. The Earnest Money/ bid security for the unsuccessful Bidder shall be refundable as promptly as possible. The EMD shall bear no interest. No Bid will be accepted unless accompanied by requisite Bid Security/ Earnest Money Deposit as stated above.

14.2. Any Bid not accompanied by an acceptable Bid Security/EMD shall be rejected by the employer as nonresponsive unless otherwise exempted in the Bid document.

14.3 The EMD of rejected Bidders will be refunded at any stage directly to the account from where it had been received (except the cases where EMD is to be forfeited).

14.4 The Bid Security / EMD of successful Bidder may be retained and adjusted with Performance Security / Security Deposit at Bidder's option.

14.5 The Bid Security/Earnest Money may be forfeited:

- a. if the Bidder withdraws the Bid after the end date of Bid submission during the period of Bid validity / extended validity with mutual consent; or
- b. in the case of a successful Bidder, if the Bidder fails within the specified time limit to furnish the required Performance Security Deposit;

Additionally, the Company shall debar such defaulting Contractor from participating in future bids for a minimum period of 12(twelve) months.

14.6 The Bid Security/ EMD deposited with the Employer will not carry any interest.

14.7 No claim from the Bidders will be entertained for non-receipt of the refund in any account other than the one from where the money is received.

14.8 If the refund of EMD is not received by the Bidder in the account from which the EMD has been made due to any technical reason, then it will be paid through conventional system of e-payment. For this purpose, Bidder should submit e-Mandate form as per Clause No.7 during bid submission.

14.9 In case the tender is cancelled then EMD of all the participating Bidders will be refunded unless it is forfeited by the Department.

If the Bidder withdraws the bid online (i.e. before the end date of submission of tender) then the EMD will be refunded automatically after the opening of tender.

15. ALTERNATIVE PROPOSALS BY BIDDERS

15.1 Bidders shall submit offers that comply with the requirements of the Bidding documents, including the basic technical design as indicated in the drawings and specifications. Alternatives will not be considered, unless specifically allowed in the Bidding Data. If so allowed, Sub-Clause 15.2 shall govern.

15.2 If so allowed in the bid document, Bidders wishing to offer technical alternatives to the requirements of the Bidding documents must also submit a Bid that complies with the requirements of the Bidding documents, including the basic technical design as indicated in the drawings and specifications. In addition to submitting the basic Bid, the Bidder shall provide all information necessary for a complete evaluation of the alternative by the Employer, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements stipulated in the bidding document shall be considered by the Employer.

16. SUBMISSION OF BID:

- a. In order to submit the Bid, the bidders have to get themselves registered online on the e-Procurement portal (<https://coalindiatenders.nic.in>) with valid Digital Signature Certificate (DSC) issued from any agency authorized by Controller of Certifying Authority (CCA), Govt. of India and which can be traced up to the chain of trust to the Root Certificate of CCA. The online Registration of the Bidders on the portal will be free of cost and one-time activity only. The registration should be in the name of bidder, whereas DSC holder may be either bidder himself or his duly authorized person.
- b. The Bidder will submit their bid online. No off-line bid shall be accepted.
- c. The Bidders will have to accept unconditionally the online User Portal Agreement which contains the acceptance of all the Terms and Conditions of NIT including General and Special Terms & Conditions, Integrity Pact and other conditions, if any, along with online undertaking in support of the authenticity of the declarations regarding the facts, figures, information and documents furnished by the Bidder online in order to become an eligible Bidder. No conditional bid shall be allowed/accepted.

This User Portal Agreement of Guidelines for e-Procurement of Works and Services will be a part of NIT/Contract Document.

d. The Bidders will have to accept unconditionally in GTE (General Technical Evaluation) the Undertaking regarding Genuineness of the information furnished by him on-line & authenticity of the scanned copy of documents uploaded by him on-line in support of his eligibility criteria, declaration w.r.t Make in India order and compliance w.r.t procurement from Bidder of a country which shares a land border with India etc. and Letter of Bid. All such undertakings requiring unconditional acceptance and where no input from Bidder is required in the undertaking shall be included in the GTE Template and shall be accepted by the Bidder during Bid submission.

In the undertaking given by Bidder online through acceptance in GTE, there will be provision for penal action, if any information/declaration furnished online by the Bidder against eligibility criteria is found to be wrong at any stage which changes the eligibility status of the Bidder.

e. The Bidder will have to make the payment of EMD through online mode only.

In Online mode the Bidder can make payment of EMD either through net-banking from designated Bank/s or through NEFT/RTGS from any Scheduled Bank. In case of payment through net-banking the money will be immediately transferred to CIL/Subsidiary's designated Account. In case of payment through NEFT/RTGS the Bidder will have to make payment as per the Challans generated by system on e-Procurement portal and will have to furnish online the UTR Numbers before submission of bid. Bidder will be allowed to submit his/her bid only when the EMD is successfully received in CIL/Subsidiary account and the information flows from Bank to e-Procurement system.

~~In case of exemption of EMD the scanned copy of document in support of exemption will have to be uploaded by the Bidder during bid submission. However, this option is to be enabled only in those cases where the exemption of EMD to some Bidders is allowed as per NIT.~~

f. The EMD for Tenders for Turnkey Contracts will be as per Contract Management Manual and EMD for Civil, E&M and other tenders will be as per Manual of Civil Engineering Works of CIL and the existing policy of CIL.

g. The qualification in bid will also be subject to the receipt and acceptance of EMD ~~(except in case of EMD exempted Bidder)~~ within schedule date and time as mentioned in the NIT.

h. The information will be provided by the Bidder by filling up relevant data through a form in an objective and structured manner. The software will use the information provided by the Bidders to evaluate the technical bid automatically.

i. For online submission of tender the Bidders will have to upload the following-

For Two Part System- All the confirmatory documents as prescribed in the NIT and TPS (if applicable) in Cover-I and "Price-bid" in Cover-II (Both are to be decrypted separately).

~~In case of EMD exemption, one more document in support of the claim of EMD exemption will have to be uploaded by the Bidder at specified folder.~~

- i). Letter of Bid: The Letter of Bid addressed to the Tender Inviting Authority (TIA) will be given in Tender document containing name of the work, NIT No., Tender ID. This will be the covering letter of the Bidder for his submitted bid. The Bidders have to accept unconditionally the Letter of Bid in GTE (General Technical Evaluation) at the time of bid submission. This online acceptance during bidding through GTE shall be construed as submission of LOB by bidder.
- ii). ~~Technical Parameter Sheet (TPS) (If applicable as per standard NIT and compatible with the e-procurement portal): The Technical Parameter Sheet containing the technical specification parameters for the tendered work/service will be in Excel format (password protected) and will be uploaded during tender creation. This will be downloaded by the Bidder and he will furnish all the required information on this Excel file. Thereafter, the Bidder will upload the same Excel file during bid submission in General Technical Evaluation (GTE). The Technical Parameter Sheet which is incomplete and not submitted as per instruction given above will be rejected.~~
DELETED
- iii). Confirmatory Documents: All the confirmatory documents as enlisted in the NIT in support of online information submitted by the Bidder are to be uploaded in Cover-I or through “My Document” link in Bidder space by the Bidder while submitting his/her bid.
- iv). Price bid: The Price bid containing the Bill of Quantity will be in .xls format (password protected) and will be uploaded during tender creation. This will be downloaded by the Bidder and he will quote the rates for all items on this Excel file. Thereafter, the Bidder will upload the same Excel file during bid submission in Cover-I/ Cover-II, as specified for One Part system and in Cover-II for Two Part system. The Price-bid will be in Item Rate or Percentage Rate BOQ or Mixed Rate BOQ format and the Bidder will have to quote for all the tendered items and the L-1 will be decided on overall quoted value (i.e. Cost to Company). The Price-bids of the tenderers will have no condition. The Price Bid which is incomplete and not submitted as per instruction given above will be rejected.
- v). ~~However, in case of tenders having provision for exemption of EMD, the Bidder claiming for exemption will have to upload the requisite document as specified in NIT in support of their claim for exemption of EMD.~~ **DELETED**

17. DEADLINE FOR SUBMISSION OF BIDS

- 17.1 Bids shall be submitted online on the e-procurement portal of CIL within the deadlines prescribed in the e-tender portal.
- 17.2 The Employer may extend the deadline for submission of Bids by issuing a Corrigendum in accordance with Clause 9, in which case, all rights and obligations of the Employer and the Bidders previously subject to the original deadline will then be subject to the new deadline.
- 17.3 If number of bids received online is found to be less than three, then last date of submission of Bid and Technical Bid Opening date will be automatically extended for a period of Four days. The auto extension shall work on the basis of number of bids received only. In case of holiday, the due date of opening will be extended to next

working day. Even after extension of four days, no bid is received then the tender will be cancelled.

18. **MODIFICATION AND WITHDRAWAL OF BIDS**

Modification of the submitted bid shall be allowed on-line only before the deadline of submission of tender and the Bidder may modify and resubmit the bid on-line as many times as he may wish.

Bidders may withdraw their bids online within the end date of bid submission and their EMD will be refunded. However, if the Bidder once withdraws his bid, he will not be able to resubmit the bid in that particular tender. For withdrawal of bid after the end date of bid submission, the Bidder will have to make a request in writing to the Tender Inviting Authority. Withdrawal of bid may be allowed till issue of work order/LOA with the following provision of penal action:

The penal actions are-

1. If the request of withdrawal is received before online notification for opening of price bid, the EMD will be forfeited and Bidder will be debarred for a minimum period of one year from participating in tenders in CIL/Subsidiary. The Price-bid of remaining Bidders will be opened and the tender process shall go on.
2. If the request of withdrawal is received after online notification for opening of price bid, the EMD will be forfeited and the Bidder will be debarred for a minimum period of one year from participating in tenders in CIL/Subsidiary. The Price-bids of all eligible Bidders including this Bidder will be opened and action will follow as under:
 - i). If the Bidder withdrawing his bid is other than L-1, the tender process shall go on.
 - ii). If the Bidder withdrawing his bid is L-1, then re-tender will be done.

Note:

In case the Accepting Authority of the work is Board or Empowered Committee or FDs or CMD of CIL/Subsidiary Company, then the Competent Authority for forfeit of EMD and debarment shall be CMD of CIL/Subsidiary Company.

- b) In case the Accepting Authority of the work is up to the level of Director of CIL/Subsidiary Company, then the Competent Authority for forfeit of EMD and debarment shall be Director of CIL/Subsidiary Company.
 - i. In case of above penal actions, Guidelines on Debarment of Firms from Bidding is to be followed.
 - ii. Penal action against clauses above will be enforced from the date of issue of such order.
 - iii. The standard operating procedure to handle withdrawal of bid after end date of submission shall be as per Guidelines for e-Procurement of Works and Services.

19. **BID OPENING**

- 19.1 The Technical bid (Cover-I) will be opened one day after the Bid submission end date or next working day whichever is later. Technical bid (Cover-I) will be decrypted and opened online by the “Bid Openers” with their Digital Signature Certificates on the prescheduled date & time of Tender Opening.
- 19.2 All the documents uploaded by Bidder(s) ~~including EMD exemption documents (if any)~~ and the Evaluation sheets generated by the system online shall be downloaded after opening of Technical bid (Cover-I). After decryption and opening of Technical bid (Cover-I) the “technical bid opening summary” will be uploaded on the same day.
- 19.3 The e-Procurement System will evaluate the Technical bids automatically on the basis of relevant data provided by Bidder through a form in an objective and structured manner while submitting bid. If the parameter given by Bidder in objective and structured manner does not confirm to required eligibility criteria as specified in the tender document then the bid will be evaluated by system as non-complied and shall be rejected automatically by the system.
- 19.4 Acceptance of Bidder in a general form of online declaration will be recognized and accepted as the certification regarding authenticity of all the information and documents furnished by them online and acceptance of all terms and conditions of the bid document, since such acceptance by Bidder with Digital Signature Certificate is legally tenable.

20. PROCESS TO BE CONFIDENTIAL

- 20.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid. However, the Tender Status will be in public domain and anyone visiting the site can view it by identifying the tender.

It will be the bidder’s responsibility to check the status of their Bid online regularly, after the opening of bid till award of contract. Additionally, information shall also be sent by system generated e-mail and SMS at nodal points (Date of bid opening, Requisition for Clarification on Confirmatory document from bidder(s), award of work etc.). No separate communication will be required in this regard. Non-receipt of e-mail and SMS will not be accepted as a reason of non-submission of Confirmatory documents within prescribed time.

- 20.2 Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.
- 20.3 From the time of bid opening to the time of contract award, no bidder shall contact the Procuring Entity on any matter related to the bid, except on request and prior written permission.

21. CLARIFICATION OF BIDS

- 21.1 To assist in the examination, evaluation, and comparison of Bids, the Employer may, at the Employer's discretion, ask any Bidder for clarification of the Bidder's Bid, including breakdowns of unit rates.

21.2 No document presented by the bidder after closing date and time of submission of bid will be considered unless otherwise called for during scrutiny / evaluation and shall be against written request only.

22. EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS

22.1 Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid:

- a. meets the eligibility criteria defined in Clause 3;
- b. is accompanied by the required securities and
- c. is substantially responsive to the requirements of the Bidding documents.

22.2 A substantially responsive Bid is one which conforms to all the terms, conditions & specifications of the Bidding documents without material deviation or reservation. A material deviation or reservation is one:

- a. which affects in any substantial way the scope, quality, or performance of the works;
- b. which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or
- c. whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

22.3 If a Bid is not substantially responsive, it may be rejected by the Employer at its sole discretion.

23. EVALUATION AND COMPARISON OF BIDS

23.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Clause 22. Price bid of the bidder will have no condition.

23.2 The Employer reserves the right to accept or reject any variation, deviation and other factors that are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the employer shall not be taken into account in Bid evaluation.

23.3 No document presented by the bidder, after closing date and time of bid, will be taken into account by the evaluation committee unless otherwise called for during scrutiny / technical scrutiny by the tender committee as clarification. If a bidder offers a rebate unilaterally after the closing date and time of the bid, it will not be taken into account for evaluation purpose by the tender committee, but if that bidder emerges as the lowest evaluated, the rebate offer will be taken into account for determination of the total offer.

23.4 If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract, the Employer may require the Bidder to produce detailed price analyses for any or all items of the work, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed.

24. AWARD CRITERIA

Subject to Clause 25, the Employer will award the Contract to the best qualified Bidder whose Bid has been determined to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price. Employer shall be the sole judge in this regard.

25. EMPLOYER'S RIGHT TO ACCEPT ANY BID, NEGOTIATE AND TO REJECT ANY OR ALL BIDS

25.1 Notwithstanding Clause 24, the Employer reserves the right to accept, negotiate, or reject any Bid, and to cancel the bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

25.2 (A) Negotiations

i) Normally, there should be no negotiation. Negotiations should be a rare exception rather than the rule and may be resorted to only in exceptional circumstances. If it is decided to hold negotiations for reduction of prices, they should be held only with the lowest acceptable bidder (L1), who is techno-commercially responsive and on whom the contract would have been placed but for the decision to negotiate. In no case, including where a cartel/ pool rates are suspected, should negotiations be extended to those who had either not tendered originally or whose tender was rejected because of unresponsiveness of bid, unsatisfactory credentials, inadequacy of capacity or unworkable rates. The circumstances where negotiations may be considered could be:

- a) Where the procurement is done on nomination basis;
- b) Procurement is from single or limited sources;
- c) Procurements where there is suspicion of cartel formation which should be recorded; and
- d) Where the requirements are urgent and the delay in re-tendering for the entire requirement due to the unreasonableness of the quoted rates would jeopardize essential operations, maintenance and safety, negotiations with L1 bidder(s) may be done for bare minimum quantum of requirements. The balance bulk requirement should, however, be procured through a re-tender, following the normal tendering process.

The decision whether to invite fresh tenders or to negotiate and with whom, should be made by the tender accepting authority limited to CMD of CIL/ Subsidiary based on the recommendations of the TC. Convincing reasons must be recorded by the authority recommending negotiations. The CA should exercise due diligence while accepting a tender or ordering negotiations or calling for a re-tender and a definite timeframe should be indicated.

iii) Normally all counter offers are considered negotiations by other means and the principles of negotiations should apply to such counter offers. For example, a counter offers to L1, in order to arrive at an acceptable rate, shall amount to a negotiation. However, any counter offers to L2, L3, and so on (at the rates accepted by L1) in case of splitting of quantities shall not be deemed to be a negotiation.

iv) After the CA or TC has decided to call a specific bidder for negotiation, the following procedure should be adopted:

- a) Negotiations must be carried out by the CA or TC only;
- b) It must be understood that, if the period of validity of the original offer expires before the close of negotiations, the original offer will not be available for acceptance. The period of validity of the original offer must, therefore, be extended, wherever necessary, before negotiations;
- c) The tenderer to be called in for negotiations should be addressed as per the format of letter laid down in Annexure-XII, so that the rates originally quoted by him shall remain open for acceptance in the event of failure of the contemplated negotiation;
- d) A negotiations meeting should be started only after obtaining a signed declaration from the negotiating contractor as per Annexure-XII; and Revised bids should be obtained in writing from the selected tenderers at the end of the negotiations in the format of letter laid down in Annexure-XIII. The revised bids so obtained should be read out to the tenderers or their representatives present, immediately after completing the negotiations. If necessary, the negotiating party may be given some time to submit its revised offer. In case, however, the selected bidder prefers to send a revised bid instead of being present at the negotiation, the offer should be taken into account. In case a bidder does not submit the revised bid, its original bid shall be considered.

B) In case, negotiation with L-1 does not yield a reasonable rate, re-tendering should be done straightway.

However, in case there is an emergency and the time required for re-tendering cannot be allowed, the case of awarding work to the L-1 Bidder at negotiated rate may be considered by an authority one step higher than the otherwise Competent Authority after recording the reasons.

Where CFDs is the approving authority, approval shall be from CFDs only. However, TAA shall be in accordance with current prevalent DoP of CIL/Subsidiary.

1. If there are more than one lowest Bidder & splitting up of the work is allowed then work can be split to all bidders at L-1 Price.
2. If there are more than one lowest Bidder & splitting up of the work is not considered necessary, L-1 may be decided as under:

All L-1 Bidders may be advised to submit the reduced price online & final L-1 may be decided on the basis of revised (reduced) Price.

OR

Through “Reverse Auction” amongst the L-1 Bidders online, if “Reverse Auction” is available in online mode.

The above Principle may be followed for offline tenders also.

All factual details including complaints and negotiations, if any, to be brought out and reasons for recommendation of award to be recorded in TCR in detail.

The tender committee submits final recommendations (covering Part-I & Part-II) in detail along with minutes of the negotiation, if any and decision of the tender committee at each stage. The tender committee recommendations with the supporting documents are sent for approval of the competent authority through associate finance.

26. NOTIFICATION OF AWARD AND SIGNING OF AGREEMENT

26.1 The Bidder, whose Bid has been accepted, will be notified of the award by the Employer prior to expiration of the Bid validity period through e-Procurement portal and confirmed by registered letter. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion ~~and maintenance~~ of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called "the Contract Price").

The offline communication of LOA shall not be mandatory.

26.2 The notification of award will constitute the formation of the Contract.

The works should be completed within the period specified in the NIT from expiry of *30(Thirty) days from the issue of letter of acceptance issued by department or within 7 days of handing over of the site, whichever is later.

26.3 The Agreement will incorporate all agreements between the Employer and the successful Bidder, work programme etc. within 60(sixty) days following the notification of award along with the letter of Acceptance and / or Work Order issued by department.

In case of failure to submit performance security and enter in to agreement in specified period or extended period, on written request of contractor, if any, the department in addition to other penal measures as per clause 14.5 of ITB shall debar the selected bidder from participating in re-tender. In addition, the department may debar the bidder from participating in future bids in accordance with Guidelines for Debarment of firms from Bidding.

26.4 In the bidding process, the cause of rejection of Bid of any bidder should be intimated to non-qualified bidder after the award of the work to the successful one. The Security / Earnest Money shall be refunded to unsuccessful bidders as per provision of Cl. 14.3.

26.5 The contractor shall enter into and execute contract agreement in the prescribed form. The cost of the stamp papers for the contract agreement shall be borne by the contractor. Two sets of contract document/agreements shall be prepared and signed by both the parties One of the sets shall be stamped "Original" and the other "Duplicate". The duplicate copy will be supplied to the contractor free of cost and the original is to be retained by the company. For any additional copy, additional cost to be charged.

All additional copies should be certified by the Engineer-in-Charge.

The contractor shall keep copy of these documents on the site/place of work in proper manner so that these are available for inspection at all reasonable times by the Engineer-in-charge, his representatives or any other officials authorized by the company for the purpose.

The contract document shall not be used by the contractor for any purpose other than this contract and the contractor shall ensure that all persons employed for this contract strictly adhere to this and maintain secrecy, as required of such documents.

27. PERFORMANCE SECURITY/ SECURITY DEPOSIT/PERFORMANCE GUARANTEE

Security Deposit shall consist of two parts;

- a) Performance Security to be submitted at award of work and
- b) Retention Money to be recovered from running bills.

The Security Deposit shall bear no interest.

For details refer Clause No. 3 of Conditions of Contract (General terms and Conditions)

28. EMPLOYMENT OF LABOUR

28.1 Contractors are to employ, to the extent possible (as per policy decision of the company valid from time to time), local project affected people and pay wages not less than the minimum wages as per minimum Wages Act of Central or state govt. (whichever is higher) or HPC wages of CIL as applicable and mentioned in NIT.

Payment of Provident Fund for the workmen employed by him for the work as per the Law prevailing under provision of CMPF/EPF and allied scheme valid from time to time shall be responsibility of the contractor which shall be in accordance with the given guidelines:

1. The Contractor must be mandatorily registered as employer under the CMPF Act and allied scheme and shall submit details of their workers with the CMPF number, wherever required. The contractor shall submit CMPF registration certificate before signing of agreement.
2. If any employee of a Contractor is not a member of any Provident Fund, he shall be required to become a member of CMPF scheme immediately, for availing benefits therefrom.
3. Where the employees of a Contractor are members of EPF scheme, the Contractor shall provide appropriate facilitation to those employees who voluntarily opt for conversion from EPF Schemes to CMPF Schemes

In all the cases mentioned above, the contractor needs to ensure that the employee has become a member of any of the provident fund as the case may be and the unique membership number of the CMPF/EPF or Allied Scheme needs to be submitted to Employer.

In addition to the above, the Contractor shall provide a copy of the updated passbook having entry made in the CMPF/EPF or Allied Scheme(s) of Provident fund as the case may be by the competent authority annually /as and when asked. Bidder shall also submit copies of statutory returns.

The contractor shall also comply with the provisions of the CMPF/ EPF and regularly deposit the contributions in accordance with the same. The Company shall have no liability whatsoever in this regard

Note:

However, if the basic rate of wages of labour as fixed by CIL (i.e. with respect to HPC wages) is revised during the contract period then the incremental difference shall be reimbursed on actual basis through a suitable mechanism as decided by CIL/Subsidiary.

28.2 The Contractor shall comply with statutory requirements of various acts including Child Labour (Prohibition & Regulation) Act, 1986 as amended from time to time and all rules, regulations and schemes framed thereunder from time to time in addition to other applicable labour laws.

28.3 The payment to the contractor's labourers has to be made through Bank only.

28.4 Bonus is to be paid to the contract workers engaged by the Contractors as per the provisions of Payment of Bonus Act, 1965 as amended from time to time.

28.4 The contractors shall register themselves on the Contract Labour Payment Management Portal (CLPMP) of CIL within 30 days of issue of work order and will have to enter and update periodically the following details in the portal:

a. Work Order details

b. Details of Contractor workers and payment of wages in respect of each Work Order each month.

28.5 All the contract workers shall be covered with the Bio-metric attendance system for payment of wages.

28.6 Contractors should deploy suitably experienced workers as mentioned in relevant Govt. circular.

NOTE: In case company decides/ circulates separate wages for such works within mine premises, the same may be allowed based on appropriate circular. Clause 28.1 shall stand amended to this extent before notification of bid.

29. **LEGAL JURISDICTION**

Matter relating to any dispute or difference arising out of this tender and subsequent contract awarded based on the bid shall be subject to the jurisdiction of Ranchi (Dist.) court only.

30. **DEEMED EXPORTS**

If the bidder has quoted any item/ items under the deemed exports then it will be the responsibility of the Bidder to get all the benefits under deemed exports from the Government. The Company's responsibility shall only be limited to the issuance of required certificates. The quotation of the Bidder will be unconditional and phrases like "Subject to availability of deemed exports benefit" will not find place in it.

31. **CONSULTANTS NOT TO BID & VICE-VERSA:**

A firm which has been engaged by the Company to provide Goods or Works for a project or any of its affiliates will be barred from providing consultancy services for the same project. Conversely, a firm hired to provide consultancy services for the preparation or implementation of a project and any of its affiliates will be barred from

subsequently providing Goods or Works or services related to the initial assignment for the same project.

32. SUB-CONTRACTOR/ SUB-VENDOR:

32.1 The contract agreement will specify major items of supply of services for which the contractor proposes to engage Sub-Contractor/ Sub-Vendor. The contractor may from time to time propose any addition or deletion from any such list and will submit the proposals in this regard to the Engineer in Charge/ Designated Officer in Charge for approval well in advance so as not to impede the progress of work. Such approval of the Engineer in Charge/ Designated Officer will not relieve the contractor from any of his obligation, duties and responsibilities under the contract.

32.2 If a contractor submits his bid, qualifies and does not get the contract because of his not being the lowest, he will be prohibited from working as a sub-contractor for the contractor who is executing the work.

32.3 The total value of subcontracted work should not exceed the percentage of the contract price specified in the contract (say 25%). Sub-contracting by the contractor without the approval of the Procuring Entity shall be a breach of contract, unless explicitly permitted in the contract.

33. e-payment:

The bidders have to furnish the details of their bank A/c Nos. Name and Address of the Bank and Branch Code along with the Bid. Successful Bidder/ Bidders are required to submit an Authorization form duly signed for e-payment to them. Enclosed Annexure be filled in and submitted along with the Bid.

34. Integrity Pact (Applicable for bids with estimated cost exceeding Rs. 5 Crores):

34.1 Bidders are required to accept unconditionally the Pre-Contract Integrity Pact in GTE as per enclosed format, Annexure-IX

34.2 Code of Integrity for Public Procurement (CIPP)

Bidders are required to accept the CIPP as available in the Bid document (Annexure IXA) online at e-procurement portal of CIL. This will be signed by the authorized signatory of the Bidder (s) with name, designation and seal of the Company at time of execution of formal agreement. In case of Partnership Firms/JV/CONSORTIUM all partners shall sign at the time of agreement.

35. Changes in Firms Constitution to be intimated

Previous approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the Firm. If previous approval is not obtained the same will be treated as a breach of contract and shall have same consequences due to such breach of contract.

36. Miscellaneous:

36.1 The bidders should fill the bid document properly and carefully. They should avoid quoting absurd rates.

- 36.2 The contractor will have to submit valid H.T. Electrical Contractor's license issued by the electrical licensing board of state of execution or electrical contractor's license issued by any Indian state duly recognized/endorsed by electrical licensing board of state of execution before execution of agreement.
- 36.3 After opening of the Tender if the company decides to seek clarification, the tenderer should be in a position to depute their representative, at short notice, with full authority on technical and other matters.
- 36.4 Throughout the bidding documents, the terms 'bid' and tender and their derivatives are synonymous.
- 36.5 The company shall not be responsible for any delay/difficulties/inaccessibility of the downloading facility for any reason whatsoever.
- i) The bidders will be required to submit an undertaking that they will accept the Bid documents as available in the website and their Bid shall be rejected if any tampering in the Bid documents is found to be done during opening or at any time after opening of Bid and during pendency of the contract. The Undertaking enclosed with the bid covers this aspect.
- ii) In case of any discrepancy between the Bid documents downloaded from the website and the master copy downloaded from website and available in the office, the latter shall prevail and will be binding on the Bidders. No claim on this account will be entertained.
- 36.6 Instruction to Bidders shall be a part of contract agreement.
37. Restriction on Procurement from a bidder of a country which share a land border with India and on sub-contracting to Contractors from such countries:
- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or Company, including any member of a consortium or JV/Consortium (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means. -
- a. An entity incorporated, established or registered in such a country; or
- b. A Subsidiary of an entity incorporated, established or registered in such a country; or
- c. An entry substantially controlled through entities incorporated, established or registered in such a country; or
- d. An entity whose beneficial owner is situated in such a country; or e. An Indian (or other) agent of such an entity; or
- f. A natural person who is a citizen of such a country; or

- g. A consortium or JV/Consortium where any member of the consortium or JV/Consortium falls under any of the above
- IV. The beneficial owner for the purpose of (III) above will be as under
- 1. In case of a Company or Limited Liability Partnership, the beneficial owner is the natural persons, who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means
Explanation--
 - a. “Controlling ownership interest” means ownership of or entitlement to more than twenty-five percent of shares or capital or profits of the Company
 - b. “Control” shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
 - 2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership:
 - 3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural persons, who, whether acting alone or together, or through one or more juridical person has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals,
 - 4. Where no natural person is identified under (1) or (d) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
 - 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

SECTION -III

CONDITIONS OF CONTRACT

SECTION -III

CONDITIONS OF CONTRACT

SUB-SECTION – I

GENERAL TERMS AND CONDITIONS OF CONTRACT

1. DEFINITIONS:

The word "Company" or "Employer" or "Owner" wherever occurs in the conditions, means the Central Coalfields Limited, represented at the headquarters of the Company by the General Manager (E&M)/HOD or his authorised representative or any other officer specially deputed for the purpose.

- ii. The word "Principal Employer" or "Engineer" wherever occurs, means the authorised representative or any other officer specially deputed by the Company for the purpose of contract.
- iii. "Bid" (including the term 'tender', 'offer', 'quotation' or 'proposal' in certain contexts) means an offer to supply goods, services or execution of works made in accordance with the terms and conditions set out in a document inviting such offers.
- iv. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any eligible person or firm or company, including a JV/Consortium (that is an association of several persons, or firms or companies), participating in a procurement process with a Procuring Entity.
- v. "Bid security" (including the term 'Earnest Money Deposit'(EMD), in certain contexts) means a security from a bidder securing obligations resulting from a prospective contract award with the intention to avoid: the withdrawal or modification of an offer within the validity of the bid, after the deadline for submission of such documents; failure to sign the contract or failure to provide the required security for the performance of the contract after an offer has been accepted; or failure to comply with any other condition precedent to signing the contract specified in the tender documents.
- vi. "Class-I local supplier" means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-I local supplier' under the Public Procurement (Preference to Make in India), Order 2017.
- vii. "Class-II local supplier" means a supplier or service provider, whose goods, services or works offered for procurement, meets the minimum local content as prescribed for 'Class-II local supplier' but less than that prescribed for 'Class-I local supplier' under the Public Procurement (Preference to Make in India), Order 2017.
- viii. "Local Content" means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.
- ix. "Non-Local supplier" means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than that prescribed for 'Class-II local supplier' under the Public Procurement (Preference to Make in India), Order 2017.
- x. "Notice inviting tenders" (including the term 'Invitation to bid' or 'request for proposals' in certain contexts) means a document and any amendment thereto published or notified by the Procuring Entity, which informs the potential bidders that it intends to procure goods, services and/or works.
- xi. "Prospective bidder" means anyone likely or desirous to be a bidder.
- i. The word "Contractor"/"Contractors" or "Manufacturer" wherever occurs means the successful Bidder/Bidders who has/have deposited the necessary Earnest Money and has/have been given written intimation about the acceptance of tender and shall include legal representative of such individual or persons composing a firm or a company or the successors and permitted assignees of such individual, firm or company, as the case may be.
- xiii. "Site" means the land and places including any building and erection thereon, over, under, in or through which the Permanent works or Temporary works

designed by the Engineer-in-Charge are to be executed and any other lands and places provided by the Employer for working space or any other purpose as may be specifically designated in the Contract as forming part of the site.

- xiv. The term "sub-contractor", as employed herein, includes those having a direct contract with contractor either on piece rate, items rate, time rate or on any other basis and it includes one who furnishes work to a special design according to the plans or specifications of this work but does not include one who merely supplied materials.
- xv. "Consulting Engineer"/"Consultant" shall mean any firm or person duly appointed as such from time to time by the owner.
- xvi. 'Accepting authority' shall mean the management of the company and includes an authorised representative of the company or any other person or body of persons empowered in this behalf by the company.
- xvii. A 'Day 'shall mean a day of 24 hours from midnight to midnight.
- xviii. Engineer-in-charge/Designated Officer-in-charge who is of an appropriate seniority will be responsible for supervising and administering the contract, certifying payment due to the contractor, valuing variations to the contract, awarding extension of time and valuing compensation events. Engineer-in-charge/Designated Officer-in-charge may further appoint his representatives i.e. another person/ Project Manager or any other competent person and notify to the contractor who is directly responsible for supervising the work being executed at the site, on his behalf under the Delegation of Powers of the company. However, overall responsibility, as far as the contract is concerned will be that of the Engineer-in-charge/Designated Officer-in-charge.
- xix. The "Procurement contract" (including the terms 'Purchase Order' or 'Supply Order' or 'Withdrawal Order' or 'Work Order' or 'Consultancy Contract' or 'Contract for other services' under certain contexts), means an agreement relating to the subject matter of procurement, entered into between the Procuring Entity and the supplier, service provider or contractor on mutually acceptable terms and conditions and which are in compliance with all the relevant provisions of the laws of the country. The term "contract" will also include "rate contract" and "framework contract".

The agreement shall include the notice inviting tender, the tender/bid as accepted by the company, the work order issued to the contractor, and the formal contract agreement executed between the company and the contractor together with the documents referred to therein including general terms and conditions, special conditions, if any, frozen terms and conditions/technical parameters/scope of work and revised offer, if any, specifications, drawings, including those to be submitted during progress of work, schedule of quantities with rates and amounts.

Until the formal agreement is signed between the Owner and contractor, LOA/Work order together with contract document accepted by the bidder (i.e., bid/ tender/ proposal/ offer) shall constitute the contract.

The 'works' shall mean and include the furnishing of equipment, labour, and the services in accordance with the contract or parts thereof as the case may be and shall also include all extra or additional, altered or substituted works or any work of emergent nature, which

in the opinion of the Engineer-in-charge, become necessary during the progress of the works to obviate any risk or accident or failure or become necessary for security.

- xxi. "Specification" shall mean the technical specifications forming a part of the contract and such other schedules and drawings as may be mutually agreed upon.
- xxii. 'Contract price' shall mean the total sum for which tender is accepted by the company.
- xxiii. 'Written notice' shall mean a notice or communication in writing and shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an office of the Corporation/Company for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.
- xxiv. "Letter of Acceptance" of the tender shall mean the official notice issued by the company notifying the contractor that his tender has been accepted.
- xxv. "Date of Contract" shall mean the date on which both the parties have signed the contract agreement.
- xxvi. "Manufacturer's Works' or Contractor's Works" shall mean the place of work used by the Manufacturer, the Contractor, their collaborators or sub-contractors for the performance of the works.
- xxvii. "Inspector" shall mean the Owner or any person nominated by the Owner from time to time, to inspect the equipment stores or Works under the contract and/or the duly authorised representative of the owner.
- xxviii. When the words "Approved", "Subject to Approval", "Satisfactory", "Equal to", "Proper", "Requested", "As directed", "Where directed", "When directed", "Determined by", "Accepted", "Permitted", or words and phrases of like import are used, the approval, judgment, direction etc. is understood to be a function of the Owner/Engineer/Engineer-in-Charge.
- xxix. "Test of Completion" shall mean such tests as prescribed in the contract to be performed by the contractor before the Works is taken over by the Owner.
- xxx. "Start-up" shall mean the time period required to bring the equipment covered under the Contract from an inactive condition, when construction is essentially complete, to the state ready for trial operation. The start-up period shall include preliminary inspection and check out of equipment and supporting sub-systems; initial operation of the complete equipment covered under the Contract to obtain necessary pre-trial operation data, perform calibration and corrective action; shut down inspection and adjustment prior to the trial operation period.
- xxxi. "Initial operation" shall mean the first integral operation of the complete equipment covered under the contract with sub-systems and supporting equipment in service.
- xxxii. "Trial Operation", "Reliability Test", "Trial Run", "Complete Test" shall mean the extended period of time after the "Start-up" period. During this trial operation period the unit shall be operated over the full load range. The length of Trial Operation shall be as determined by the Engineer, unless otherwise specified elsewhere in the Contract.

xxxiii. "Performance and Guarantee Tests" shall mean all operation checks and tests required to determine and demonstrate capacity, efficiency, and operating characteristics as specified in the contract document.

"Commercial Operation" shall mean the condition of operation in which the complete equipment covered under the contract is officially declared by the owner to be available for continuous operation at different loads upto and including rated capacity. Such declaration by the owner however, shall not relieve or prejudice any of the contractor's obligation under this contract.

xxxv. "Final Acceptance" shall mean the owner's written acceptance of the works performed under the contract, after successful completion of performance and guarantee tests.

xxxvi. "Guarantee Period/Maintenance Period" shall mean the period during which the contractor shall remain liable for repair or replacement of any defective part of the works performed under the contract.

xxxvii. "Drawings"/"Plans" shall mean all:

- (a) drawings furnished by the owner/consultant as a basis for proposals,
- (b) supplementary drawings furnished by the Owner/Consultant to clarify and to define in greater detail the intent of the contract,
- (c) drawings submitted by the contractor with his proposal provided such drawings are acceptable to the Owner/Consultant,
- (d) drawings furnished by the Owner/Consultant to the Contractor during the progress of the work, and
- (e) engineering data and drawings submitted by the Contractor during the

progress of the work provided such drawings are acceptable to the Engineer, xxxviii. "Codes" shall mean the following, including the latest amendments, and/or replacements, if any:

- (a) Standards of Bureau of Indian Standards relevant to the works under the contract and their specifications.
- (b) Other Internationally approved Standards and/or rules and regulations touching the subject matter of the contract.
 - (i) A.S.M.E. Test codes.
 - (ii) A.I.E.E. Test codes.
 - (iii) American Society of Materials Testing Codes.
 - (iv) Indian Electricity Act and Rules and Regulations made thereunder.
 - (v) Indian Explosive Act and Rules and Regulations made thereunder.
 - (vi) Indian Petroleum Act and Rules and Regulations made thereunder.
 - (vii) Indian Mines Act and Rules and Regulations made thereunder.
- (c) Any other laws, rules, regulations and Acts applicable in the country with respect to labour, safety, compensation, insurance etc.

xxxix. Words importing singular only shall also include the plural and vice-versa

where the context so requires.

xl. Words importing "Person" shall include firms, companies, corporations, and associations or bodies of individuals, whether incorporated or not.

xli. Terms and expressions, not defined herein, shall have the same meaning as are assigned to them in the Indian Sale of Goods Act, failing that in the Indian Contract Act, and failing that in the General Clauses Act.

xlii. "Commissioning" the plant/project shall mean completion in all respects of construction rendering the plan/project ready for performance test and commercial operation as per xxv.

xliii. "Government Approvals" shall mean all permits, licenses, authorisations, consents, clearances, decrees, waivers, privileges, approvals from and filing with government instrumentalities necessary for the development, construction and operation of the plant/project.

xliv. "Month" shall mean a calendar month according to the Gregorian calendar.

xlvi. "Bank Guarantee" shall mean the Bank Guarantee to be provided by

to.....

xlvii. "Tender Accepting Authority (TAA)/ Awarding Authority" shall mean the management of the Company and includes an authorized representative of the Company or any other person or body of persons empowered in this behalf by the Company to approve the Tender.

Tender Accepting Authority (TAA)/Awarding Authority at any time after the award of tender till the finalization of contract shall be construed as the authority as per the prevalent DoP of CIL/Subsidiary.

Note: Interpretation of Tender Accepting Authority (TAA)/ Awarding Authority as above is applicable for the existing and future contracts.

2. **CONTRACT DOCUMENTS:**

The following documents shall constitute the contract documents:

(i) Articles of Agreement,

(ii) Notice Inviting Tender and Instruction to Bidders,

(iii) Conditions of Contract, including General Terms and Conditions, Additional Terms and Conditions, Special Conditions, if any etc. forming part of the Agreement,

(iv) Letter of Acceptance of Bid indicating deviations, if any, from the Conditions of Contract incorporated in the Bid/Tender document issued to the Bidder,

(v) Scope of works/Bills of Quantities,

(vi) Finalized work programme,

(vii) Integrity Pact as applicable as decided by different Subsidiary Companies

(viii) Guidelines for Debarment of firms from Bidding,

(ix) Code of Integrity for Public Procurement.

(x) Any other document, if required.

- 2.1 After acceptance of tender the Contractor shall be deemed to have carefully examined all Contract Documents to his satisfaction. If he shall have any doubt as to the meaning of any portion of the Contract Documents, he shall before signing the Contract, set forth the particulars thereof, and submit them to the Owner in writing in order that such doubt may be removed. The Owner will provide such clarifications as may be necessary in writing to the Contractor. Any information otherwise obtained from the Owner or the Engineer shall not in any way relieve the Contractor of his responsibility to fulfill his obligations under the Contract.
- 2.2 The Contractor shall enter into a Contract Agreement with the Owner within 60 (sixty) days from the date of 'Acceptance of Tender' or within such extended time as may be granted by the owner. The performance Bank Guarantee for the proper fulfillment of the contract shall be furnished by the contractor in the prescribed form within twenty one (21) days of 'Acceptance of tender'. The performance Guarantee shall be as per terms prescribed in clause 3.0 herein after.
- 2.3 The owner, after the issue of the letter of Acceptance of Tender, will send one copy of the final agreement to the contractor for his scrutiny and approval.
- 2.4 The agreement, unless otherwise agreed to, shall be signed within 60 days of the issue of the letter of Acceptance of tender, at the office of the owner on a date and time to be mutually agreed. The contractor shall provide for signing of the contract, performance guarantee in copies as required, appropriate power of attorney and other requisite materials. In case it is agreed mutually that the contract is to be signed beyond the stipulated time, the bid guarantee submitted with the tender will have to be extended accordingly.
- 2.5 The agreement will be signed in six originals and the contractor shall be provided with one signed original and the rest will be retained by the owner. None of these documents shall be used by the contractor for any purpose other than this contract and the contractor shall ensure that all persons employed for this contract strictly adhere to this and maintain secrecy, as required of such documents.
- 2.6 The contractor shall provide free of cost to the owner all the engineering data, drawings and descriptive materials submitted with the bid, in at least six (6) copies to form a part of the contract immediately after issue of letter of acceptance.
- 2.7 Subsequent to signing of the contract, the contractor at his own cost shall provide the owner with at least six (6) true copies of agreement within thirty (30) days after the signing of the contract.
- 2.8 The date of commencement shall be reckoned from the expiry of 30 days from the issue of letter of acceptance and submission of Performance Security or seven days after handing over the site for the first activity as per PERT network chart, whichever is later.
- 2.9 The laws applicable to this contract shall be the laws in force in India. The courts of Ranchi, Jharkhand shall have exclusive jurisdiction in all matters arising under this contract.

3.0 PERFORMANCE GUARANTEE/SECURITY DEPOSIT:

- 3.1 Security Deposit shall consist of two parts:
- a) Performance Security to be submitted at award of work and
 - b) Retention Money to be recovered from running bills.

The security deposit shall bear no interest.

3.1.1 Performance Security should be 5% of contract amount and should be submitted by the successful bidder within 21 days of issue of LOA in any of the form given below after which bid security/earnest money will be refunded to the contractor.

- a Bank Guarantee in the form given in the bid document from any schedule bank acceptable to the owner. Bank guarantee issued by out station bank shall be operative at their local branch at Ranchi or their branch at Ranchi.

- Govt. Securities, FDR or any other form of deposit stipulated by the owner and duly pledged in favour of owner.

- Demand Draft drawn in favour of Central Coalfields Limited on any Scheduled Bank payable at its Branch at Ranchi.

However, Company may approve submission of Performance Security beyond 21 days by another 14 days with proper justification on a case to case basis.

The Earnest Money/ Bid Security deposited shall be discharged when the Bidder has signed the Agreement and furnished the required Performance Security/ 1st part of security deposit.

The bid security deposited may be adjusted against the Performance security at bidder's option.

Work shall commence only after submission of Performance Security.

3.1.2 If Performance Security is provided by the successful Bidders in the form of Bank Guarantee it shall be issued either –

(a) at Bidder's option by a Scheduled Bank or

(b) by a Foreign Bank located in India and acceptable to the Employer.

(c) The validity of the Bank Guarantee shall be for a period of "one year" or "ninety days beyond the period of contract/extended period of contract (if any)", whichever is more. However, if the contract period is for more than 03 years, then period of validity of the BG should be for at least 03 years with a provision that timely action for extension of the BG should be undertaken at least 03 months before the end of validity.

The subsequent extension shall be for a period of "one year" or "ninety days beyond the period of contract/extended period of contract" if balance period is less than 3 years, else the process will repeat as above.

Not less than 30 (thirty) days prior to expiry of a Performance Security, the Contractor shall furnish an extended, renewed or replacement Performance Security to the Authority, failing which the Authority shall be entitled to, after giving 5 (five) days' notice to the Contractor, draw down the full remaining value of the Performance

Security, and hold the amount as security for performance of the Contractor's obligations under this Agreement.

The BG shall be encashed at least 07 days (excluding date of intimation and bank holiday) prior to expiry of BG.

Bank Guarantee (BG) is to be submitted in the format prescribed by the Company. Bank Guarantee shall be irrevocable and it shall be issued by any Indian Nationalized Bank/Scheduled Bank on Structured Financial Messaging System (SFMS) platform which is payable / enforceable at Ranchi.

The paper BG would be delivered by Issuing Bank to the Beneficiary under Speed Post/Registered Post (AD). Original Bank Guarantee shall be accepted from Issuing Bank only. However, the paper BG would be operative only on receipt of a separate advice through SFMS and confirmed by the Advising Bank (i.e. Beneficiary Bank). The confirmation of issuance of BG through SFMS from Advising Bank shall be obtained through electronically as well as print out of the said message from Advising Bank with seal and signature.

The details of Beneficiary for issue of BG under SFMS platform is furnished below:

Name of Beneficiary & its details	Name	Central Coalfields Limited
	Area	CCL HQ
	Bank Account No. of beneficiary	10106155123
	Customer ID/CIF no of beneficiary	80288731402
	Department	E&M
Beneficiary Bank, Branch & Address	Beneficiary's Bank	State Bank of India
	Branch & Address	SME Branch, Doranda, Ranchi - 834002
	SFMS Code / IFSC Code	SBIN0009620
In case of Foreign BG Swift Code	SBININBB387	

The above particulars are to be incorporated by the Issuing Bank properly while issuing BG under SFMS mode to avoid any problem in future.

Original Bank Guarantee (issued by the Issuing Bank) shall be sent by the Issuing Bank to concerned Department by Registered Post (AD).

Note:

Safe Custody and Monitoring of Securities-

The BG Details after confirmation and acceptance shall be entered in SAP by Associate Finance and its validity expiry shall be monitored through SAP. The BG shall be sent by Associate Finance to Finance Department of CIL/ Subsidiary for safe custody. Extension of bank guarantees and other instruments, where warranted, should be sought immediately and implemented within their validity period.

For release of BGs, the proposal shall be forwarded by EIC with their recommendations in accordance with the contract conditions, for approval by the CA with the concurrence of the Finance Division.

In case the successful Bidder fails to submit the Performance Security within the stipulated time then the award of work may be cancelled with forfeiture of the Bid Security/Earnest Money.

Additionally, the Company shall debar such defaulting Contractor from participating in future tenders in concerned Subsidiary/CIL HQ for a period of minimum one year from the date of issue of such letter.

In case of JV/CONSORTIUM/Partnership firm, the debarment shall also be applicable to all individual partners of JV/CONSORTIUM/Partnership firm.

3.1.3 Retention Money should be deducted at 5% from running on account bills. Total of performance security and Retention Money should not exceed 10% of contract amount or lesser sum indicated in the bid document. Retention Money may be refunded against equivalent Bank Guarantee, on written request of the contractor, on its accumulation to a minimum amount of Rs 25 lakhs.

However, Bank Guarantee against retention money shall be with suitable validity based on nature of work which shall be 90 days beyond the defect liability period, but in no case less than the period of one year.

3.2 The Guarantee amount shall be payable to the Employer without any condition whatsoever.

3.3 Performance Security / Retention Money shall be converted into Performance Guarantee on successful completion of work in accordance with contract and upon satisfactory PG Test.

Performance security/ Retention Money/ security deposit submitted in the form of BG which shall be valid for 90 days after the end date of scheduled completion and to be extended for minimum period of 1(one) year in one instance which must cover the time period of 90 days beyond completion of Defect Liability period.

3.4 The Performance Guarantee shall cover additionally the following guarantees to the Employer:

- (a) The successful bidder guarantees the successful and satisfactory operation of the equipment furnished and erected under the contract, as per the specifications and documents,
- (b) The successful bidder further guarantees that the equipment provided and installed by him shall be free from all defects in design, material and workmanship and shall upon written notice from the employer, fully remedy free of expenses to the Employer such defects as developed under the normal use of the said equipment within the period of guarantee specified in the relevant clause of the Conditions of Contract.

3.5 The Contract Performance Guarantee is intended to secure the performance of the entire Contract.

However, it is not construed as limiting the damages under clause entitled 'Equipment Performance Guarantee' in section Technical Conditions of Contract and damages stipulated in the other clauses in the bidding documents.

3.6 All Bank Guarantees are to be submitted in the format prescribed by the company in the bid document. Bank Guarantee shall be irrevocable and it shall be from any Scheduled Bank

acceptable to the owner. The BG issued by outstation bank shall be operative at its local branch at SBI SME Branch Doranda , branch at Ranchi

- 3.7 The Company shall be at liberty to deduct/appropriate from the Contract Performance Guarantee/Security Deposit such sums as are due and payable by the contractor to the company as may be determined in terms of the contract, and the amount appropriated from the Contract Performance Guarantee/Security Deposit shall have to be restored by Contractor subsequently.
- 3.8 Performance Security deposit shall be returned to the Contractor after successful completion of ~~3 (Three) years of Defect Liability Period without any interest.~~ The balance SD i.e. Retention Money shall be released without any interest after successful completion of ~~entire period of the Defect Liability. Any defect/defects in the work, if detected during Guarantee Period/Defect Liability Period shall be rectified or equipment/ system shall be replaced to the satisfaction of the engineer In charge within the said defect liability/ operation/ maintenance/guarantee period or its due extension till completion of the rectification/ replacement works as required.~~
- 3.9 In case the successful bidder fails to submit the Performance security within the stipulated time then the award of work may be cancelled with forfeiture of the bid security/ earnest money.

Additionally, the company shall ban such defaulting contractor as per the Guidelines of Debarment of firms from Bidding. In case of JV/CONSORTIUM/Partnership firm, the debarment shall also be applicable to all individual partners of JV/CONSORTIUM/Partnership firm.

4.0 ASSIGNMENT AND SUBLETTING OF CONTRACT

- 4.1 Sub-contracting: The contract may provide for the contractor to get specified works executed from sub-contractors included in the pre-qualification application or later agreed to by the Procuring Entity, with a caveat that the responsibility for all sub-contract work rests with the prime contractor. Sub-contracting may be for specialized items of work, such as reinforced earth retaining walls, pre-stressing works, and so on. Procurement of material, hiring of equipment or engagement of labour will not mean sub-contracting. The total value of subcontracted work should not exceed the percentage of the contract price specified in the contract (say 25%). Sub-contracting by the contractor without the approval of the Procuring Entity shall be a breach of contract, unless explicitly permitted in the contract.
- 4.2 The contractor may, after informing the engineer and getting his written approval, assign or sub-let the contract or any part thereof other than for raw materials, for minor detail or any part of the plant for which makes are identified in the contract. Suppliers of the equipment not identified in the contract or any change in the identified supplier shall be subject to approval by the engineer. The experience list of the equipment vendors under consideration by the contractor for this contract shall be furnished to the engineer for approval prior to procurement of all such items/equipments. Such assignment sub-letting shall not relieve the contractor from any obligation, duty or responsibility under the contract. Any assignment as above without prior written approval of engineer shall be void.
- 4.3 For components/equipments procured by the contractors for the purposes of the contract, after obtaining the written approval of the owner, the contractor's purchase specifications and enquiries shall call for quality plans to be submitted by the suppliers along with their proposals. The quality plans called for from the vendors shall set out,

during the various stages of manufacture and installation, the quality practices and procedures followed by the vendor's quality control organization, the relevant reference documents/standards used, acceptance level, inspection documentation raised, etc. Such quality plans of the successful vendor shall be discussed and finalised in consultation with the engineer and shall form a part of the purchase order/contract between the contractor and the vendor. Within 3 weeks of the release of the same purchase order/contracts for such bought out items/ components, a copy of the same without price details but together with detailed purchase specifications, quality plans and delivery conditions shall be furnished to the engineer by the contractor.

5.0 PATENT RIGHTS AND ROYALTIES

Royalties and fees for patent covering materials, articles, apparatus, devices, equipment or processes used in the works shall be deemed to have been included in the contract price. The contractor shall satisfy all demands that may be made at any time for such royalties or fees and he alone shall be liable for any damages or claims for patent infringements and shall keep the owner indemnified in that regard. The contractor shall, at his own cost and expense, defend all suits or proceedings that may be instituted for alleged infringement of any patent involved in the works, and, in case of an award of damages, the contractor shall pay for such award. In the event of any suit or other proceedings instituted against the owner, the same shall be defended at the cost and expense of the contractor who shall also satisfy/comply and decree, order or award made against the owner. But it shall be understood that no such machine, plant, work, material or thing has been used by the owner for any purpose or any manner other than that for which they have been furnished and installed by the contractor and specified under these specifications. Final payment to the contractor by the owner will not be made while any such suit or claim remains unsettled. In the event any apparatus or equipment, or any matter thereof furnished by the contractor, is in such suit or proceedings held to constitute infringement, and its use is enjoined, the contractor shall, at his option and at his own expense, either procure for the owner, the right to continue use of said apparatus, equipment or part thereof, replace it with non-infringing apparatus or equipment or modify it, so it becomes non-infringing.

6.0 TIME - THE ESSENCE OF CONTRACT

- 6.1 The time and the date of completion of the works as stipulated in the contractor's proposal and accepted by the owner without or with modifications, if any and so incorporated in the award letter shall be deemed to be the essence of the contract. The contractor shall so organise his resources and perform his work as to complete it not later than the date agreed to.
- 6.2 The contractor shall submit a detailed PERT network within the time frame agreed above consisting of adequate number of activities covering various key phases of the works such as design, procurement, manufacturing, shipment and field erection activities within fifteen (15) days after the date of acceptance of tender. This network shall also indicate the interface facilities to be provided by the owner and the dates by which such facilities are needed. Contractor shall discuss the network so submitted with the owner and the agreed network which may be in the form as submitted or in revised form in line with the outcome of discussions and shall form part of the contract to be signed within sixty (60) days from the date of letter of acceptance of notice of award of contract. During the performance of contract, if in the opinion of the engineer proper progress is not maintained suitable changes shall be made in the contractor's operations to ensure proper progress.
For the purpose of this detailed time and progress/ PERT chart, the works shall be deemed to have commenced on the expiry of 30 days from the issue of letter of acceptance or seven days after handing over the site of work, whichever is later.

- 6.3 The above PERT network shall be reviewed and periodic review reports shall be submitted by the contractor as directed by the engineer.
- 6.4 Subsequent to the award of the contract, the contractor shall make available to the engineer, a detailed manufacturing programme, in line with the agreed contract network. Such manufacturing programme shall be reviewed, updated and submitted to the Engineer, once every two months thereafter.

7.0 CONTRACT PRICE

The lump sum prices quoted by the contractor in his bid with additions and deletions as may be agreed before signing of the contract, for the entire scope of the work including furnishing and erection of equipment covered under the specifications and documents and shall be treated as the contract price.

8.0 CHANGED QUANTITY

The owner reserves the right to vary the quantities of items or groups of items to be ordered as specified in the accompanying technical specifications, as may be necessary, during the execution of the contract, but such variations unless otherwise specified in the accompanying technical specifications shall be limited to plus or minus twenty percent (20%) of the original quantity ordered.

9.0 DEDUCTIONS FROM CONTRACT PRICE

9.1 All costs, damages or expenses which the owner may have paid, for which under the contract the contractor is liable, will be claimed by the owner. All such claims shall be intimated by the owner to the contractor regularly as and when they fall due. Such claims shall be supported by appropriate and certified vouchers or explanations, to enable the contractor to properly identify such claims. Such claims shall be paid by the contractor within fifteen (15) days of the receipt of the corresponding claims and if not paid by the contractor within the said period, the owner may then deduct the amount, from any moneys due or becoming due by him to the contractor under the contract or may be recovered by actions of law or otherwise, if the contractor fails to satisfy the owner of such claims and to recover the amount from any money due to the contractor on any account or under any other contract including contracts awarded by Coal India Ltd. or other subsidiaries and in the event of any shortfall, the contractor shall be called upon to pay the same on demand.

10.0 CONTRACT PRICE ADJUSTMENT

- 10.1 All adjustments in the contract price shall be computed in accordance with the conditions and formulae prescribed in the relevant clauses of 'Additional Terms and Conditions of Contract', the accompanying technical specifications and further satisfying the requirements specified herein.
- 10.2 The contract price stated in the contract agreement is the base price. A certain fixed percentage of the base price as indicated in the technical specifications shall not be subject to any price adjustment. The balance percentage viz. the cost portion shall only be subject to price adjustment.
- 10.3 Price adjustment shall be applicable to the cost portion, only if changes in the cost of labour and materials (either increases or decreases) occur during the contract period, directly affecting the cost portion.

- 10.4 Variations in the cost of materials shall be determined by comparing published material indices as on the last date of submission of bid (inclusive of price part) or the revised price bid, whichever is later, with the same indices published during the manufacture at the respective cut off periods for material as specified in clause 2.0 of Additional Terms and Conditions of Contract. Variations in the cost of labour shall be determined by comparing the wages as per the Minimum Wages Act of Central or state govt. (whichever is higher) or HPC wages of CIL as applicable and mentioned in NIT as on the last date of submission of bid (inclusive of price part) or the revised price bid, whichever is later, with the same wages as per the Minimum Wages Act of Central or state govt. (whichever is higher) or HPC wages of CIL as applicable and mentioned in NIT, during the work/manufacture applicable to the place of work/manufacture at the respective cut off periods for labour as specified in clause 2.0 of Additional Terms and Conditions of Contract of this Volume.
- 10.5 The total computed variation in the contract price shall be restricted to a limiting percentage as specified in clause 2.5 of Additional Terms and Conditions of Contract of this volume.
- 10.6 The price adjustment for the erection shall be made on the value of erection work done as indicated in each billing.
- 10.7 Every three months after the award of contract, and a month prior to shipment of equipment (in the case of ex-factory price component of contract price), and every month after establishing his site office (in the case of erection) the contractor shall submit to the engineer a written notice of the changes, if any, that have occurred in the specified material and labour indices during the previous reporting period containing the effective date of such change, the amount of change, the amount of contract price adjustment and documentary evidence to substantiate the price adjustment.
- 10.8 The contract price adjustment provisions detailed above, shall only be applicable if so specified in the Additional Terms and Conditions of Contract.

11.0 PACKING, FORWARDING AND SHIPMENT

- 11.1 The contractor, wherever applicable, shall after proper painting, pack and crate all equipment in such a manner as to protect them from deterioration and damage during rail and road transportation to the site and storage at the site till the time of erection. The contractor shall be held responsible for all damages due to improper packing.
- 11.2 The contractor shall notify the owner of the date of each shipment from his works, and the expected date of arrival at the site for the information of the owner.
- 11.3 The contractor shall also give all shipping information concerning the weight, size and content of each packing including any other information the owner may require.
- 11.4 The following documents shall be sent by registered post to the owner within 3 days from the date of shipment, to enable the owner to make progressive payments to the contractor: the payment shall be made only after receipt and acceptance of material at site in good condition.

Application for payment in the standard format of the owner (3 copies),
Invoice (6 copies),
Packing list (6 copies),

Pre-dispatch clearance certificate, if any (3 copies), Test certificate, wherever applicable (3 copies),

11.5 The contractor shall prepare detailed packing list of all packages and containers, bundles and loose material forming each and every consignment dispatched to site. The contractor shall further be responsible for making all necessary arrangements for loading, unloading and other handling right from his works up to the site and also till the equipment is erected, tested and commissioned. He shall be solely responsible for proper storage and safe custody of all equipment.

12.0 DEMURRAGE, WHARFAGE, ETC.

All demurrage, wharf age and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the contractor.

13.0 INSURANCE

13.1 The contractor shall arrange, secure and maintain insurance as may be necessary and for all such amounts to protect his interests and the interests of the owner, against all risks as detailed herein in the joint names of the Owner and the Contractor with the condition that payments against all claims shall be payable by insurers to the owner as elaborated at clause 13.5. All premiums and other charges of the said insurance policies shall be paid by the contractor. The form and the limit of such insurance, as defined herein together with the under-writer thereof in each case shall be acceptable to the owner. However, irrespective of such acceptance, the responsibility to maintain adequate insurance coverage on comprehensive all risks basis at all time during the period of contract shall be that of the contractor alone. The contractor's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations.

13.2 Any loss of damage to the equipment, during handling, transporting, storage and erection, till such time the plant is taken over by the owner, shall be to the account of the contractor. The contractor shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/or replacement of the portion of the works damaged or lost. The transfer of title shall not in any way relieve the contractor of the above responsibilities during the period of the contract. The contractor shall provide the owner with a copy of all insurance policies and documents taken out by him in pursuance of the contract. Such copies of document shall be submitted to the owner immediately after such insurance coverage. The contractor shall also inform the owner in writing at least sixty (60) days in advance, regarding the expiry, cancellation and/or change in any of such documents and ensure revalidation/renewal, etc. as may be necessary well in time.

13.3 The risk that are to be covered under the insurance shall include, but not be limited to, the loss or damage in transit, storage at site, theft, pilferage, riot, civil commotion, weather conditions, accidents of all kinds, fire, etc. The scope of such insurance shall cover the entire value of the works from time to time.

13.4 All costs on account of insurance liabilities covered under the contract will be on contractor's account and will be included in contract price. However, the owner may from time to time, during the pendency of the contract, ask the contractor in writing to limit the insurance coverage risks and in such a case, the parties to the contract will agree for a mutual settlement for reduction in contract price to the extent of reduced premium amounts.

13.5 All insurance claims, payable by the insurers, shall be paid to the Owner which shall be released to the contractor in installments as may be certified by the Engineer-in-charge for the purpose of rebuilding or replacement or repair of the works and/or goods destroyed or damaged for which payment was received from the insurers.

13.6 The clause entitled insurance under the section erection terms and conditions of contract of this volume, covers the additional insurance requirements for the portion of the works to be performed at the site of work.

14.0 LIABILITY FOR ACCIDENTS AND DAMAGES

Under the contract, the contractor shall be responsible for loss or damage to the plant until the plant is taken over in accordance with clause entitled 'Taking Over' in section technical terms and conditions of contract of this volume.

15.0 LIQUIDATED DAMAGES FOR DELAY IN COMPLETION & INCENTIVES/ BONUS FOR EARLY COMPLETION

15.1 If the contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law to the company on account of such breach, pay as compensation/ Liquidated Damages @ half percent (1/2%) of the contract price per week or part thereof of delay. The aggregate of such compensation/ compensations shall not exceed 10 (ten) percent of the total value as shown in the contract.

This will also apply to items or group of items for which separate period of completion has been specified. The amount of compensation may be adjusted or setoff against any sum payable to the contractor under this or any other contract with the company.

15.1.1 The company, if satisfied, that the works can be completed by the contractor within a reasonable time after the specified time of completion, may allow further extension of time at its discretion with or without the levy of L.D. In the event of extension granted being with L.D, the company will be entitled without prejudice to any other right or remedy available in that behalf, to recover from the contractor as agreed damages equivalent to half percent of the contract value of the works for each week or part of the week subject to a ceiling of 10% of the contract price.

15.1.2 The company, if not satisfied that the works can be completed by the contractor, and in the event of failure on the part of the contractor to complete work within further extension of time allowed as aforesaid, shall be entitled, without prejudice to any other right, or remedy available in that behalf, to rescind the contract.

15.1.3 The company, if not satisfied with the progress of the contract and in the event of failure of the contractor to recoup the delays in the mutually agreed time frame, shall be entitled to terminate the contract.

15.1.4 In the event of such termination of the contract as described in clauses 15.1.2 or 15.1.3 or both, the company, shall be entitled to recover L.D. up to ten percent (10%) of the contract value besides recovery of compensation for damage/loss for termination as provided in 20.6 of General Terms and Conditions of Contract.

15.2 The company may waive the payment of compensation, depending upon merit of the case, on request received from the contractor if the entire work is completed within the date as specified in the contract or as validly extended without stipulating any penalty.

15.3 Incentives/ Bonus

Provision of incentives for completion of work before schedule should be sparingly made after careful assessment of tangible benefits therefrom and disclosed in the tender documents in clear monetary terms with approval of Estimate Approving Authority.

Incentives/ Bonus of one percent of the contract value per month subject to a maximum of five percent of contract value, for early completion be built into the contract very judiciously. To avail the incentive clause, it shall be mandatory on the part of the contractor to report the actual date of completion to the concerned Engineer-in-charge. The Engineer-in-charge shall report the actual date of completion of the works as soon as possible so that the report is received within seven days of such completion by the concerned CA. The completion of work shall mean here satisfactory completion of work without any defects to the satisfaction of EIC. The payment of incentives/ bonus shall be done after the completion of ~~defect liability period (DLP)~~. ***This clause shall be applicable for Original Works (valuing not less than Rs.100 crore including GST) only.***

16.0 CONTRACTOR'S DEFAULT

16.1 If the contractor shall neglect to execute the works with the diligence and expedition or shall refuse or neglect to comply with any reasonable orders given to him, in writing by the engineer in connection with the works or shall contravene the provisions of the contract, the owner may give notice in writing to the contractor to make good the failure, neglect or contravention complained of. Should the contractor fail to comply with the notice within thirty (30) days from the date of service thereof, then and in such case the owner shall be at liberty to employ other workmen and forthwith execute such part of the works as the contractor may have neglected to do or if the owner shall think fit, it shall be lawful for him, without prejudice to any other right he may have under the contract, to take the works wholly or in part thereof and in that event the owner shall have free use of all contractor's equipment that may have been at the time on the site in connection with the works without being responsible to the contractor for fair wear and tear thereof and to the exclusion of any right of the contractor over the same, and the owner shall be entitled to retain and apply any balance which may otherwise be due on the contract by him to the contractor, or such part thereof as may be necessary, the payment of the cost of executing the said part of the works or of completing the works as the case may be. If the cost of completing the works or executing a part thereof as aforesaid shall exceed the balance due to the contractor, the contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay which the contractor shall have to pay if the completion of works is delayed.

16.2 In addition, such action by the owner as aforesaid shall not relieve the contractor of his liability to pay liquidated damages for delay in completion of works as defined in clause 15.0 of this section.

16.3 The termination of the contract under this clause shall not entitle the contractor to reduce the value of the performance bank guarantee nor the time thereof. The performance guarantee shall be valid for the full value and for the full period of the contract including guarantee period.

16.4 The bidding documents will clearly state that, if the contractor fails to complete the work and the order is cancelled, the amount due to him on account of work executed by him, if payable, shall be paid to him only after due recoveries as per the provisions of the contract and that too after alternative arrangements to complete the work has been made.

17.0 FORCE MAJEURE

17.1 Force majeure is herein defined as any cause which is beyond the control of the contractor or the owner as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:

- (a) natural phenomena, including but not limited to floods, draughts, earthquakes and epidemics:
- (b) acts of any government, including but not limited to war, declared or undeclared, priorities, quarantines, embargoes, provided either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such causes.

17.2

- (a) The successful Bidder/ Contractor will advise, in the event of his having resort to this clause by a registered letter duly certified by the local chamber of commerce or statutory authorities, the beginning and end of the cause of delay, within fifteen days of the occurrence and cessation of such Force Majeure condition. In the event of delay lasting over two months, if arising out of Force Majeure, the contract may be terminated at the discretion of the company.
- (b) For delays arising out of Force Majeure, the successful Bidder/ Contractor will not claim extension in completion date for a period exceeding the period of delay attributable to the causes of Force Majeure and neither company nor the successful Bidder/ Contractor shall be liable to pay extra costs (like increase in rates, remobilisation advance, idle charges for labour and machinery etc.) provided it is mutually established that the Force Majeure conditions did actually exist.
- (c) If any of the Force Majeure conditions exists in the place of operation of the bidder even at the time of submission of bid he will categorically specify them in his bid and state whether they have been taken into consideration in their quotations.

17.3 The contractor or the owner shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/or defined above. The date of completion will, subject to hereinafter provided, be extended by a reasonable time even though such cause may occur after contractor's performance of his obligations has been delayed for other causes.

18.0 DELAYS BY OWNER OR HIS AUTHORISED AGENT

18.1 Delays in Execution

- i) A work may be completed ahead of schedule or delayed due to unforeseen fortuitous circumstances, extra effort or developments beyond the control of the procuring entity or the tenderer and it is sometimes difficult to apportion credit or responsibility. The contractor may experience delay or disruption due to his own actions or inaction, those of his sub-contractor or other contractors, those of the procuring entity or the engineer, or other causes. Such delays expose the non-performing party to various sanctions under the contract.

These sanctions include extension of time, damages or default termination of the contract. While examining the request of the contractor for extension of time, the engineer shall consider all circumstances and categorise the delays as follows:

- a) Excusable delays - Force Majeure (FM), that is, acts of God, abnormal weather, floods, and so on, applies;
 - b) Compensable delays – or Compensation Events, which put full burden of responsibility on the Procuring Entity as covered in the GCC; and
 - c) Inexcusable delay (contractor's own faults), which puts the full burden of responsibility on the contractor.
 - d) Concurrent delays - when two or more events responsible for delay overlap each other. The delays may be attributable to the Procuring Entity or the contractor or none, and fall in above categories. The eligibility for extension of time (EOT) should be determined by plotting each contributing concurrent delay on the critical path. The Procuring Entity should see that the concurrent delays do not result in unnecessary extra extension of time.
- ii) Once the delay is categorised, it should then be determined not only whether the contractor is eligible for time extension but also whether sanctions, such as Liquidated Damage (LD) or default termination, can be imposed on the contractor.

18.2 In case the contractor's performance is delayed due to any act of omission on the part of the owner or his authorised agents, then the contractor shall be given due extension of time for the completion of the works, to the extent such omission on the part of the owner has caused delay in the contractor's performance of his work. Regarding reasonableness or otherwise of the extension of time, the decision of the engineer shall be final.

19.0 EXTENSION OF DATE OF COMPLETION

19.1 On happening of any events causing delay as stated hereinafter, the contractor shall intimate immediately in writing the Engineer-in-charge:

- a. due to any reasons defined as Force Majeure.
- b. non-availability of stores which are the responsibility of the owner to supply
- c. non-availability or breakdown of tools and plant to be made available or made available by the owner
- d. delay on the part of the contractors or tradesmen engaged by the owner not forming part of the contract, holding up further progress of the work
- e. non-availability of working drawings/work programme in time, which are to be made available by the company during progress of the work
- f. any other causes which, at the sole discretion of the company is beyond the control of the contractor.

19.2 A "Hindrance Register" shall be maintained by both the Company and the Contractor at site to record the various hindrances, as mentioned above, encountered during the course of execution.

19.3 The contractor may request the company in writing for extension of time within 15 days of happening of such event causing delay stating also, if practicable, the period for

which extension is desired. The company may, considering the eligibility of the request, give a fair and reasonable extension of time for completion of the work. Such extension shall be communicated to the contractor in writing by the company through the Engineer-in-charge within 1 month of the date of receipt of such request. The contractor shall however use his best efforts to prevent or make good the delay by putting his endeavors constantly as may be reasonably required of him to the satisfaction of the Engineer-in-charge.

19.4 Interim extension of time may also be granted by the Engineer -In-charge during the course of execution, on written request for extension of time within 15 (fifteen) days of happening of such events as stated above, reserving the company's right to impose/ waive liquidated damages at the time of granting final extension of time as per contract agreement.

19.5 When the period fixed for the completion of the contract is about to expire, the question of extension of the contract may be considered at the instance of the Contractor or the Company or the both. The extension will have to be by party's agreement, expressed or implied.

19.6 In case the Contractor does not apply for grant of extension of time within 15 (fifteen) days of hindrance occurring in execution of the work and the Company wants to continue with the work beyond the stipulated date of completion for reason of the work having been hindered, the Engineer-in-charge at his sole discretion can grant interim extension of time even in the absence of application from the Contractor. Such extension of time granted by the Engineer-in-charge is valid provided the Contractor accepts the same either expressly or implied by his actions before and subsequent to the date of completion. Such extension of time shall be without prejudice to Company's right to levy compensation under the relevant clause of contract.

19.7 All interim extensions of time shall be granted by Tender Accepting Authority limited to Director (Tech) for works approved by Chairman/FDs/Board and Area GM for area works and all final extension of time shall be granted by Tender Accepting Authority limited to Chairman/ CMD of CIL/ Subsidiary.

Effort should be made to complete the work within the original contract period or extended period.

20.0 CANCELLATION, TERMINATION, SUSPENSION & FORECLOSURE OF CONTRACT

20.1 Cancellation of Contract-The owner shall, in addition to other remedial steps to be taken as provided in the conditions of contract, be entitled to cancel the contract in full or in part, if the contractor

- a. makes default in proceeding with the works with due diligence and continues to do so even after a notice in writing from the Engineer-in-charge, then on the expiry of the period as specified in the notice

or

- b. commits default/breach in complying with any of the terms and conditions of the contract and does not remedy it or fails to take effective steps for the remedy to the satisfaction of the Engineer-in-charge, then on the expiry of the period as may be specified by the Engineer-in-charge in a notice in writing

or

fails to complete the work or items of work with individual dates of completion, on or before the date/dates of completion or as extended by the company, then on the expiry of the period as may be specified by the Engineer-in-charge in a notice in writing

or

- d. shall offer or give or agree to give any person in the service of the company or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for act/acts of favour in relation to the obtaining or execution of this or any other contract for the company.

or

- e. Shall try to obtain a contract with the company by way of ring tendering or other non-bonafide method of competitive tendering.

or

- f. transfers, sublets, assigns the entire work or any portion thereof without the prior approval in writing from the Engineer-in-charge. The Engineer-in-charge may by giving a written notice, cancel the whole contract or portion of it in default.

20.2 The owner shall in such an event give fifteen (15) days' notice in writing to the contractor of his decision to do so.

20.3 The contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and contracts to the extent they are related to the work terminated and terms satisfactory to the owner, stop all further sub-contracting or purchasing activity related to the work terminated, and assist the owner in maintenance, protection, and disposition of the works acquired under the contract by the owner.

20.4 Termination of Contract-The contract shall stand terminated under the following circumstances unless the owner is satisfied that the legal representatives of the individual contractor or of the proprietor of the proprietary concern and in the case of partnership the surviving partners, are capable of carrying out and completing the contract and the owner shall in any way not be liable to payment of any compensation to the estate of deceased contractor and/or to the surviving partners of the contractor's firm on account of the termination of the contract.:

- a. If the contractor being an individual in the case of proprietary concern or in the case of a partnership firm any of its partners is declared insolvent under the provisions of insolvency act for the time being in force, or makes any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors amounting to proceedings for liquidation or composition under any insolvency act.
- b. In the case of the contractor being a company, its affairs are under liquidation either by a resolution passed by the company or by an order of court, not being a voluntary liquidation proceedings for the purpose of amalgamation or reorganisation, or a receiver or manager is appointed by the court on the application by the debenture holders of the company, if any.
- c. If the contractor shall suffer an execution being levied on his/their goods, estates and allow it to be continued for a period of 21 days.

On the death of the contractor being a proprietary concern or of any of the partners in the case of a partnership concern and the company is not satisfied that the legal representative of the deceased proprietor or the other surviving partners of the partnership concern are capable of carrying out and completing the contract. The decision of the company in this respect shall be final and binding which is to be intimated in writing to the legal representative or to the partnership concern.

20.5 If the contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the contractor is a partnership concern and one of the partners dies, then unless the owner is satisfied that the legal representatives of the individual contractor or of the proprietor of the proprietary concern and in the case of partnership the surviving partners, are capable of carrying out and completing the contract the owner shall be entitled to cancel the contract as to its incomplete part without being in any way liable to payment of any compensation to the estate of deceased contractor and/or to the surviving partners of the contractor's firm on account of the cancellation of the contract.

The decision of the owner that the legal representatives of the deceased contractor or surviving partners of the contractor's firm cannot carry out and complete the contract shall be final and binding on the parties. In the event of such cancellation the owner shall not hold the estate of the deceased contractor and/or the surviving partners of the estate of the deceased contractor and/or the surviving partners of the contractor's firm liable to damages for not completing the contract.

20.6 On cancellation of the contract or on termination of the contract, the Engineer-in-charge shall have powers

- a. To take possession of the site and any materials, constructional plant, implements, stores, etc. thereon.
- b. In such an event, the contractor shall be liable for loss/damage suffered by the employer because of action under this clause and to compensate for this loss or damage, the employer shall be entitled to recover higher of the following:
 - i) Forfeiture of security deposit comprising of performance guarantee and retention money at the disposal of the employer.
 - or
 - ii) 20% of value of incomplete work (Contract Value minus already executed value of the work).

The amount to be recovered from the contractor as determined above, shall, without prejudice to any other right or remedy available to the employer as per law or as per agreement, will be recovered from any money due to the contractor on any account or under any other contract and in the event of any shortfall, the contractor shall be liable to pay the same within 30 days. In case of failure to pay the same the amount shall be debt payable.

In the event of above course being adopted by the Engineer-in-charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased materials, equipment or entered into agreement or made advances on any account or with a view to the execution of work or performance of the contract. And in case action is taken under any of provision aforesaid, the contractor shall not be entitled to recover or to be paid any sum for any work thereof or actually performed under this contract unless and until the engineer-in-charge has certified in writing the performance of such work and value payable in respect thereof and he shall only be entitled to be paid the value so certified.

The need for determination of the amount of recovery of any extra cost/expenditure or of any loss/damage suffered by the company shall not however arise in the case of termination of the contract for death/demise of the contractor.

20.7 Suspension of Contract- The company shall have power to suspend the progress of the work or any part thereof and the Engineer-in-charge may direct the contractor in writing to suspend the work, for such period and in such manner as may be specified therein, on account of any default on the part of the contractor, or for proper execution of the work for reasons other than any default on the part of the contractor, or on ground of safety of the work or part thereof. In the event of suspension for reason other than any default on the part of the contractor, extension of time shall be allowed by the company equal to the period of such suspension. Any necessary and demonstrable costs incurred by the contractor as a result of such suspension of the works will be paid by the owner, provided such costs are substantiated to the satisfaction of the engineer. The owner shall not be responsible for any liabilities if suspension or delay is due to some default on the part of the contractor or his sub-contractor.

The work shall, throughout the stipulated period of contract, be carried out with all due diligence on the part of the contractor. In the event of termination or suspension of the contract, on account of default on the part of the contractor, as narrated hereinbefore, the security deposit and other dues of this work or any other work done under this company shall be forfeited and brought under the absolute disposal of the company provided, that the amount so forfeited shall not exceed 10% of the contract value.

20.8 Foreclosure of Contract (in full or in part) - If at any time after acceptance of the tender, the company decides to abandon or reduce the scope of the work for any reason whatsoever the company, through its Engineer-in-charge, shall give notice in writing to that effect to the contractor. In the event of abandonment/reduction in the scope of work, the company shall be liable:

- a. to pay the contractor at the contract rates full amount for works executed and measured at site upto the date of such abandonment/reduction in the work.
- b. to pay reasonable amount assessed and certified by the Engineer-in-charge of the expenditure incurred, if any, by the contractor on preliminary works at site. e.g. temporary access roads, temporary construction for labour and staff quarters, office accommodation, storage of materials, water storage tanks and supply for the work including supply to labour/staff quarters, office, etc.
- c. to pay for the materials brought to site or to be delivered at site, which the contractor is legally liable to pay, for the purpose of consumption in works carried out or were to be carried out but for the foreclosure, including the cost of purchase and transportation and cost of delivery of such materials. The materials to be taken over by the company should be in good condition and the company may allow at its discretion the contractor to retain the materials in full or part if so desired by him and to be transported by the contractor from site to his place.
- d. to take back the materials issued by the company but remaining unused, if any, in the work on the date of abandonment/reduction in the work, at the original issued price less allowance for any deterioration or damage caused while in custody of the contractor
- e. to pay for the transportation of tools and plants of the contractor from site to contractor's place or to any other destination, whichever is less.

The contractor shall, if required by the Engineer-in-charge, furnish to him books of accounts, papers, relevant documents as may be necessary to enable the Engineer-in-charge to assess the amount payable in terms of para 20.8 (b), (c) and (e) above, the contractor shall not have any claim for compensation whatsoever either for abandonment or for reduction in the scope of work, other than those as specified above.

21.0 NO WAIVER OF RIGHTS

Neither the inspection by the owner or the engineer or any of their officials, employees or agents nor any order by the owner or the engineer for payment of money or any payment for or acceptance of, the whole or any part of the works by the owner or the engineer, nor any extension of time, nor any possession taken by the engineer shall operate as a waiver of any provision of the contract, or of any power herein reserved to the owner, or any right to damages herein provided, nor shall any waiver of any breach in the contract be held to be a waiver of any other or subsequent breach.

22.0 CERTIFICATE NOT TO AFFECT RIGHT OF OWNER AND LIABILITY OF CONTRACTOR

No interim payment certificate of the engineer, nor any sum paid on account, by the owner, nor any extension of time for execution of the works granted by the engineer shall affect or prejudice the rights of the owner against the contractor or relieve the contractor of his obligations for the due performance of the contract, or be interpreted as approval of the works done or of the equipment furnished and no certificate shall create liability for the owner to pay for alterations, amendments, variations or additional works not ordered, in writing, by the engineer or discharge the liability of the contractor for the payment of damages whether due, ascertained, or certified or not, or any sum against the payment of which he is bound to indemnify the owner, nor shall any such certificate nor the acceptance by him of any sum paid on account or otherwise affect or prejudice the rights of the contractor against the owner.

23.0 GRAFTS AND COMMISSIONS ETC.

Any graft, commission, gift or advantage given, promised or offered by or on behalf of the contractor or his partner, agent, officers, director, employee or servant or any one of his or their behalf in relation to the obtaining or to the execution of this or any other contract with the owner, shall, in addition to any criminal liability which it may incur, subject the contractor to the cancellation of this and all other contracts and also to payment of any loss or damage to the owner resulting from any cancellation. The owner shall then be entitled to deduct the amount so payable from any moneys otherwise due to the contractor under the contract.

24.0 LANGUAGE AND MEASURES

All documents pertaining to the contract including specifications, schedules notices, correspondence, operating and maintenance instructions, drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in the contract.

25.0 RELEASE OF INFORMATION

The contractor shall not communicate or use in advertising, publicity, sales releases or in any other medium photographs or other reproduction of the works under this contract, or descriptions of the site, dimensions, quantity, quality or other information, concerning the works unless prior written permission has been obtained from the owner.

26.0 CONSTRUCTION OF THE CONTRACT

- 26.1 In case, Owner hands over his equipment to the Contractor for executing, then the Contractor shall at the time of taking delivery of the equipment/ despatch documents be required to execute an indemnity bond in favour of the Owner in the form acceptable to the Owner for keeping the equipment in safe custody and to utilise the same exclusively for the purpose of the said contract
- 26.2 The contract shall in all respects be construed and governed according to Indian Laws.
- 26.3 It is clearly understood that the total consideration for the contract (s) has been broken up into various components only for the convenience of payment of advance under the contract (s) and for the measurement of deviations or modifications under the contract (s).

27.0 COMPLETION OF CONTRACT

Unless otherwise terminated under the provisions of any other relevant clause, this contract shall be deemed to have been completed at the expiration of the guarantee period as provided for under the clause entitled 'Guarantee' in this section.

28.0 ENFORCEMENT OF TERMS

The failure of either party to enforce at any time of the provisions of this contract or any rights in respect thereto or to exercise any option herein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may have hereunder.

29.0 ENGINEER'S DECISION

- 29.1 In respect of all matters which are left to the decision of the engineer including the granting or with holding of the certificates, the engineer shall, if required to do so by the contractor give in writing a decision thereon.
- 29.2 If in the opinion of the contractor, a decision made by the engineer is not in accordance with the meaning and intent of the contract, the contractor may file with the engineer within fifteen (15) days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time will be considered as acceptance of the engineer's decision and the decision shall become final and binding.
- 29.3 The engineer's decision and the filing of the written objection thereto shall be a condition precedent to the right to any legal proceedings. It is the intent of the agreement that there shall be no delay in the execution of the works and the decision of the engineer as rendered shall be promptly observed.

30.0 CO-OPERATION WITH OTHER CONTRACTORS AND CONSULTING ENGINEERS

The contractor shall agree to co-operate with the owner's other contractors and consulting engineers and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The engineer shall be provided with three copies of all correspondence addressed

by the contractor to other sub-contractors and consulting engineers in respect of such exchange of technical information,

31.0 TRAINING OF OWNER'S PERSONNEL

- 31.1 The contractor shall undertake to train free of cost, engineering personnel selected and sent by the owner at the works of the contractor unless otherwise specified in the technical specifications. The period and the nature of training for the individual personnel shall be agreed upon mutually between the contractor and the owner. These engineering personnel shall be given special training in the shops, where the equipment will be manufactured and/or their collaborator's works and where possible, in any other plant where equipment manufactured by the contractor or his collaborator is under installation or test, to enable those personnel to become familiar with the equipment being furnished by the contractor.
- 31.2 All traveling and living expenses for the engineering personnel to be trained during the total period of training will be borne by the owner. These engineering personnel while undergoing training shall be responsible to the contractor for discipline.
- 31.3 In the event of the owner, for any reason, failing to avail of the training facilities, he shall not be entitled for any rebate whatsoever on this account.

32.0 POWER TO VARY OR OMIT WORK

- 32.1 No alterations, amendments, omissions, suspensions or variations of the works (hereinafter referred to as 'Variation') under the contract as detailed in the contract documents, shall be made by the contractor except as directed in writing by the engineer, but the engineer shall have full power subject to the provision hereinafter contained from time to time during the execution of the contract, by notice in writing, to instruct the contractor to make such variation without prejudice to the contract. The contractor shall carry out such variation and be bound by the same conditions as far as applicable as though the said variation occurred in the contract documents. If any suggested variation would, in the opinion of the contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the contract, he shall notify the engineer there of in writing and the engineer shall decide forthwith, whether or not the same shall be carried out and if the engineer confirm his instructions, contractor's obligations and guarantees shall be modified to such an extent as may be mutually agreed. Any agreed difference in cost occasioned by any such variation shall be added to or deducted from the contract price as the case may be.
- 32.2 In the event of the engineer requiring any variation, such reasonable and proper notice shall be given to the contractor to enable him to work his arrangements accordingly, and in cases where goods or materials are already prepared or any design, drawings of pattern made or work done requires to be altered, a reasonable and agreed sum in respect there of shall be paid to the contractor.
- 32.3 In any case in which the contractor has received instructions from the engineer as to the requirement of carrying out the altered or additional substituted work which either then or later on, will in the opinion of the contractor, involve a claim for additional payments, the contractor shall immediately and in no case later than thirty (30) days, after receipt of the instructions aforesaid and before carrying out the instructions, advise the engineer to that effect. But the engineer shall not become liable for the payment of any charges in respect of any such variations, unless the instructions for the performance of the same shall be confirmed in writing by the engineer.

- 32.4 If any variation in the works, results in reduction of contract price, the parties shall, agree, in writing, so to the extent of any change in the price, before in contractor proceeds with the change.
- 32.5 In all the above cases, in the event of a disagreement as to the reasonableness of the said sum, the decision of the engineer shall prevail.
- 32.6 Notwithstanding anything stated above in this clause, the engineer shall have the full power to instruct the contractor, in writing, during the execution of the contract, to vary to quantities of the items or groups of items. The contractor shall carry out such variations and be bound by the same conditions, as though the said variations occurred in the contract documents. However, the contract price shall be adjusted at the rates and the prices provided for the original quantities in the contract.

33.0 GUARANTEE/ DEFECT LIABILITY

- 33.1 The contractor shall warrant that the equipment will be new and in accordance with the contract documents and be free from defects in material, design, manufacture and workmanship ~~for a period of sixty (60) calendar months~~ commencing immediately upon the satisfactory completion of the Performance Guarantee (PG) Test. The contractor's liability shall be limited to the replacement of any defective parts in the equipment of his own manufacture or those of his sub-contractor (s)/ sub-vendor (s) or replacement of the complete equipment, under normal use and arising solely from faulty design, manufacture, materials, and/or workmanship provided always that such defective parts/ equipment are repairable at the site/ replacing the equipment as a whole without hampering the operation of the plant. Such replaced defective parts/ old equipment shall be returned to the contractor unless otherwise arranged. ~~No repairs or replacements shall be carried out by the engineer in charge of the employer during the 60 calendar months, as the plant is under the supervision of the contractor's supervisory engineers/staff.~~
- 33.2 The operation of the plant will be done departmentally by the respective subsidiary companies or by the EPC contractor, as per provisions of tender document. ~~However, in both cases the successful EPC contractor shall be responsible for maintaining the plant during 60 calendar months including repair, replacement of the spare parts, components, equipment etc. free of cost.~~
- 33.3 ~~If the facilities or any part thereof cannot be used by reason of such defect and/or making good such defect, 60 calendar months (i.e. five years of Defect liability period (DLP) including maintenance of plant by contractor or five years of Operation & Maintenance of plant by contractor,~~ as per the provisions of tender document) of any facilities or such part, as the case may be, shall be extended by a period equal to the period during which the facilities or such part cannot be used by the employer because of aforesaid reasons.
- 33.4 ~~In case of failure of any equipment/system in during the initial period of 60 calendar months (i.e. five years of Defect liability period (DLP) including maintenance of plant by contractor or five years of DLP including Operation & Maintenance of plant by contractor,~~ as per the provisions of tender document) the EPC contractor shall repair/replace the equipment/system etc. at his own cost.

All the equipment should be guaranteed for a minimum of 90% availability of plant during defect liability period from the date of commissioning calculated on quarterly basis.

The following formula may be adopted to calculate percentage availability: -

$$\frac{(Total\ shift\ hours - breakdown\ hours - maintenance\ hours)}{Total\ shift\ hours} \times 100$$

Total shift hours = 8 × No. of shifts operated in 3 or 12 months as elaborated (quarterly/annual basis) including those on scheduled holidays.

In the event that equipment fails to achieve the availability herein provided, measured over each quarter, contractor shall be liable for and pay to the employer, as penalty, a sum equal to as indicated hereunder to be adjusted against running bill/performance guarantee:

- a. 0.25% of contract price (excluding GST) for reduction in every percentage or part thereof from guaranteed availability of 90%, calculated on quarterly basis.
- b. In case the availability falls below 80%, 10% of contract price (excluding GST) shall be deducted as penalty calculated on annual basis.

However, the total penalty on account of failure in guaranteed availability shall not exceed 10% of contract price (excluding GST). This will be in addition to Liquidated damages (LD) for delay in completion and failure in PG Test.

34.0 REPLACEMENT OF DEFECTIVE PARTS AND MATERIALS

34.1 If during the progress of the works the engineer shall decide and inform in writing to the contractor, that the contractor has manufactured any plant or part of the plant unsound or imperfect or has furnished any plant inferior than the quality specified, the contractor on receiving details of such defects or deficiencies shall at his own expense within seven (7) days of his receiving the notice, or otherwise, within such time as may be reasonably necessary for making it good, proceed to alter, re-construct or remove such work and furnish fresh equipment upto the standards of the specifications. In case the contractor fails to do so, the engineer may on giving the contractor seven (7) days' notice in writing of his intentions to do so, proceed to remove the portion of the works so complained of and, at the cost of the contractor, perform all such work or furnish all such equipment provided that nothing in this clause shall be deemed to deprive the owner of or affect any rights under the contract which the owner may otherwise have in respect of such defects and deficiencies.

34.2 The contractor's full and extreme liability under this clause shall be satisfied by the payments to the owner of the extra cost, of such replacement procured, including erection, as provided for in the contract, such extra cost being the ascertained difference between the price paid by the owner for such replacements and the contract price portion for such defective plant and repayments of any sum paid by the owner to the contractor in respect of such defective plant. Should the owner not so replace the defective plant, the contractor's extreme liability under this clause shall be limited to repayment of all sums paid by the owner under the contract for such defective plant.

35.0 DEFENCE OF SUITS

If any action in court is brought against the owner or engineer or an officer or agent of the owner. for the failure or neglect on the part of the contractor to perform any acts, matters, covenants or things under the contract, or for damage or injury caused by the alleged omission or negligence on the part of the contractor, his agents, representatives or his sub-contractors, workmen, suppliers or employees, the contractor shall in all such cases indemnify and keep the owner, and the engineer and/or his representative, harmless from all losses, damages, expenses or decrees arising of such action.

36.0 LIMITATIONS OF LIABILITIES

Except in cases of criminal negligence or willful misconduct,

- i) Notwithstanding anything herein to the contrary, no party shall be liable for any indirect, special, punitive, consequential or exemplary damages, whether foreseeable or not, arising out of or in relation to this contract, loss of goodwill or profits, lost business however characterized, any/or from any other remote cause whatsoever.
- ii) The contractor shall not be liable to the Owner for any losses, claims, damages, costs or expenses whatsoever arising out of or in connection with this contract in excess of the contract value of the work which caused such losses, claims, damages, costs or expenses.
- iii) However, the limitation of liability of the contractor indicated above shall not apply to liquidated damages.

37.0 MARGINAL NOTES

The marginal notes to any clause of the contract shall not affect or control the construction of such clause.

38.0 TAXES, PERMITS & LICENCES

38.1 The contractor shall be liable and pay all- Indian taxes, (other than GST) duties, levies, royalties, whether local, municipal, provincial or central lawfully assessed against the owner or the contractor in pursuance of the contract. In addition, the contractor shall be responsible for payment of all Indian duties, levies and taxes lawfully assessed against the contractor for his personal income and property only. This clause shall be read in conjunction with clause 11.3 of Instruction to Bidders.

The contractor, along with his bills, shall submit proper documents in the name of the Company to enable the Company Claim Input Tax Credit under the applicable laws. The invoice shall be in compliance with the relevant rules.

CIL/ Subsidiary is entitled to avail Input Tax Credit on account of: CGST, SGST/UTGST, IGST and GST Compensation Cess, as applicable for indigenous product/imported products. Hence set off allowed against CGST, SGST/UTGST, IGST and GST Compensation Cess as per relevant rules/act. Contractor shall submit relevant document as desired by CIL/ Subsidiary at the time of supply, along with the bills/invoice as per relevant rules for enabling CIL/ Subsidiary to claim Input tax credit benefit.

38.2 The Company shall deduct Income Tax as per prevalent rate from time to time from the gross amount(excluding GST) of the bill payable to the contractor; at present the rate of deduction is 1% for individual/proprietorship firm and 2% for others. However, if the contractor produces a certificate from the Income Tax authorities for no deduction of tax/deduction of tax at reduced rate, the same shall be complied with by the Company.

38.3 An amount of 1% of the work value payable to the contractor will be deducted from all bills towards the workers welfare under “The Building And Other Construction Workers’ Welfare Cess Act, 1996” and “The Building And Other Construction Workers’ Welfare Cess Rule, 1998, if applicable.

39.0 PROGRESS REPORTS AND PHOTOGRAPHS

During the various stages of the works in the pursuance of the contract, the contractor shall at his own cost submit periodic progress reports as may be reasonably required by the engineer with such materials as charts, net-works, photographs, test certificates, etc. such progress report shall be in the form and size as may be required by the engineer and shall be submitted in at least three (3) copies.

40.1 LONG TERM AVAILABILITY OF SPARES

40.1 The contractor shall guarantee the long term availability of spares to the owner for the full life of the equipments covered under the contract. The contractor shall guarantee that before going out of production of spare parts of the equipment covered under the contract, he shall give the owner at least twelve (12) months advance notice so that the latter may order his bulk requirement of spares, if he so desires. The same provision will also be applicable to sub-contractor. Further, in case of discontinuance of manufacture of any spares by the contractor or his sub-contractors the contractor will provide the owner two years in advance, with full manufacturing drawings, material specifications and technical information required by the owner for the purpose of manufacture of such items.

40.2 Further, in case of discontinuance of supply of spares by the contractor or his sub-contractors the contractor will provide the owner with full information for replacement of such spares with other equivalent makes, if so required by the owner.

40.3 The contractor shall provide the owner with a "directory" of his sub-contractors giving the addresses and other particulars of his sub-contractors. The owner, if he so desires, shall have the right to procure the spares directly from sub-contractors.

40.4 Notwithstanding anything stated elsewhere in the bid documents, the prices of all spares which may be procured to cover long term requirements beyond ~~the Sixty (60) calendar months, will be generally in accordance with the mutually agreed prices.~~

40.5 The contractor will indicate in advance the delivery period of the items of spares, which the owner may procure in accordance with the sub-clause 40.4. In case of emergency requirements of spares, the contractor would make every effort to expedite the manufacture and delivery of such spares on the basis of mutually agreed time schedule.

40.6 The procedure specified in clause 40.4 and 40.5 shall apply for future procurement of items included in stand by spare list, mandatory spares lists, optional spares list and special tools, plants and equipment list, if any, specified in the bid documents.

40.7 The Contractor shall indemnify the owner for the availability of long time spares as per the terms and conditions laid down above in clause 40.1 to clause 40.6.

~~40.8 In case of equipment/ system (including manufactured domestic and overseas) the availability of spare parts for additional sixty (60) calendar months after sixty (60) calendar months (i.e. five years of Defect liability period (DLP) including maintenance of plant by contractor or five years of Operation & Maintenance of plant by contractor, as per the provisions of tender document) shall have to be guaranteed by the contractor. In this regard, the contractor will have to provide, an undertaking from the respective OEMs regarding supply of spare parts and maintenance support as and when required during the said period, before starting of Defect Liability Period.~~

41.0 PAYMENT

41.1 The payment to the contractor for the performance of the works under the contract will be made by the owner as per the guidelines and conditions specified herein. All payment made during the contract shall be on account payments only. The final payment will be made on completion of all the works and on fulfillment by the contractor of all his liabilities under the contract. The payment to the contractor will be made through Electronics Mode.

41.2 CURRENCY OF PAYMENT

All payments under the contract shall be in Indian Rupees only.

41.3 DUE DATES FOR PAYMENT

Owner will make progressive payment as and when the payment is due as per the terms of payment set forth in the accompanying technical specifications. Payment will become due and payable by the owner within thirty (30) days from the date of receipt of contractor's bill/invoice/debit note by the owner, provided the documents submitted are complete in all respects.

41.4 PAYMENT SCHEDULE

The contractor shall prepare and submit to the engineer for approval, a break-up of the contract price. This contract price break-up shall be interlinked with the agreed detailed PERT network of the contractor setting forth his starting and completion dates for the various key phases of works prepared as per condition of this section. While preparing the PERT network, the supply of P&M Equipment shall be linked to construction of respective Civil and Structural Works. Any payment under the contract shall be made only after the contractor's price break-up is approved by the engineer. The aggregate sum of the contractor's price break-up shall be equal to the lump sum contract price.

41.5 INTERIM PAYMENTS

41.5.1 The contractor shall submit running bill for the payment in the prescribed proforma of the owner to be supplied in due course at the time of payment.

41.5.2 Each such running bill shall state the amount claimed and shall set forth in detail, in the order of the payment schedule, particulars of the works including the works executed at site and of the equipment shipped/brought on to the site pursuant to the contract up to the date mentioned in the bill and for the period covered since the last preceding certificate, if any.

41.5.3 Every interim payment claim shall indicate the contract value of the works executed up to the date mentioned in the running bill, provided that no sum shall be included in any running bill in respect of the works that, according to the decision of the engineer, does not comply with the contract, or has been performed, at the date of certificate prematurely.

41.6 TERMS OF PAYMENTS

41.6.1 Payment: Since the total job is on turn-key basis, any payment to the Contractor before the final payment shall be treated as interim payment towards the total contract value.

The Contractor may at intervals of not less than one month submit claims/ bills for payment on account of work done after proper scrutiny and certification of the same by the Employer. The progressive payment shall be made in respect of the following:

- a) Design engineering
- b) Civil construction including foundation and buildings c)Structural fabrication and erection
- d) Supply of equipment
- e) Machinery Erection
- f) Trial Run and commissioning

All such payments shall be made by the Employer online within a month from the date of the submission of claims/bills. Payment will also be governed by Clauses of 3.0 of General Terms & Conditions of Contract. Any sum due from the Contractor shall be deducted from the first or next subsequent on account of payments as the case may be, in general the following procedure of payment shall be followed:

41.6.1.1 Design and Engineering.

- a) 90% payment on completion of approval of system, mechanical, electrical, civil, structural design, drawings etc. as per contract on pro-rata basis.
- b) 5% payment on Preliminary acceptance of the works after start-up and trial operation as per General Technical Conditions.

5% on issue of final acceptance certificate of the works after performance and guarantee test as per General Technical Conditions.

41.6.1.2 Civil/Structural Works:

- a) 95% payment on progress of work completed, duly measured and certified by the engineer.
- b) 5 % on issue of final acceptance certificate of the works after performance guarantee test as per General Technical Conditions.

41.6.1.3 Supply of Equipment:

- a) 90% payment on receipt of the equipment conforming to stipulated specifications and quality in good condition at site to be certified by the site engineer.
- b) 5% on preliminary acceptance of the works after start-up and trial operation as per General Technical Conditions.
- c) 5% on issue of final acceptance certificate of the works after performance and guarantee test as per General Technical Conditions.

Note: The supply of equipment should commensurate with mutually agreed BAR/PERT chart.

41.6.1.4 Installation & Commissioning:

- a) 90% progress payment based on the installation and commissioning of plant and equipment duly certified by site engineer.
- b) 5% payment on preliminary acceptance of the works after start-up and trial operation as per General Technical Conditions.

- c) 5% on issue of final acceptance certificate of the works after performance and guarantee test as per General Technical Conditions.

41.6.1.5 Final Bill:

As soon as possible after completion of the works to the satisfaction of the Employer the Contractor shall forward a certified final bill. It shall be accompanied by all relevant vouchers, such as royalty clearance certificate (if any) from appropriate authorities, submission of copies of working drawings, technical documents as required documents showing therein all additions and alternations etc. in the process of execution, completion certificate for embedded and covered up works, plant handing over certificate etc. as applicable. The Contractor shall be paid full and final payment only after deduction of amounts paid against on account bill and any other amount due etc. payable by Contractor.

In cases where the Preliminary Acceptance Test (start-up & trial operation) and Final Acceptance Test (Performance Guarantee Test) is not completed for reasons not attributable to the contractor, the payment which is to be released after Preliminary Acceptance & Final Acceptance certificate will be released against equivalent amount of Bank Guarantee with validity upto actual completion (Initial BG validity should for 1(one) year and to be extended till actual completion of respective tests.

~~41.7 The total amount for maintenance shall be divided into 60 equal parts for Defect Liability Period of 60 months. The contractor shall raise monthly bill for payment for each part in the first week of next month. Payment will become due and payable by the owner within 21 days from the date of receipt of contractor's bill/invoice/debit note by the owner after adjustment of dues if any, provided the documents submitted are complete in all respect.~~

42. SETTLEMENT OF DISPUTES WITH THE CONTRACTOR

It is incumbent upon the contractor to avoid litigation and disputes during the course of execution. However, if such disputes take place between the contractor and the department, effort shall be made first to settle the disputes at the company level.

The contractor should make request in writing to the Engineer-in-charge for settlement of such disputes/ claims within 30 (thirty) days of arising of the cause of dispute/ claim failing which no disputes/ claims of the contractor shall be entertained by the company.

Effort shall be made to resolve the dispute in two stages:

In first stage dispute shall be referred to Area General Manager. If difference still persist the dispute shall be referred to a committee constituted by the owner. The committee shall have one member of the rank of Director of the company who shall be chairman of the committee.

If differences still persist, then matter shall be resolved through conciliation.

Conciliation:

The party initiating conciliation shall send a written invitation to the other party to conciliate and proceedings shall commence when the other party accepts the initiations to conciliation. The parties may agree on the name of a sole conciliator or each party may appoint one conciliator. The conciliation shall assist the parties to reach an amicable settlement of their dispute. When the parties sign the settlement agreement, it shall be final and binding on the parties. The conciliator shall authenticate the settlement agreement and furnish a copy thereof to each party.

If differences still persist, the settlement of the dispute shall be resolved in the following manner:

Disputes or differences relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprise (CPSEs) / Port Trusts inter se and also between CPSEs and Government Departments/ Organizations (excluding disputes relating to Railways, Income Tax, Customs & Excise Department), shall be taken up by either party for its resolution through Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD) as mentioned in DPE OM No. 05/003/2019-FTS-10937 dated 14th December 2022 and the decision of AMRCD on the said dispute will be binding on both the parties.

In case of parties other than above Agencies, the redressal of the dispute may be sought through Arbitration (THE ARBITRATION AND CONCILIATION ACT, 1996 as amended by AMENDMENT ACT of 2015).

42.0 A SETTLEMENT OF DISPUTES THROUGH ARBITRATION

- (i) Normally, there should not be any scope of dispute between the employer (department) and the contractor after entering into a mutually agreed valid contract. However, due to various unforeseen reasons, disputes may arise during the progress of the contract between the employer (department) and the contractor.

Therefore, the conditions governing the contract shall contain suitable provision for settlement of such disputes / differences binding on both the parties.

- (ii) Mode of settlement of such disputes/differences shall be through Arbitration.

However, when a dispute/difference arises, then, depending on the position of the case, either the employer (department) or the contractor shall give notice to the other party of its intention to commence arbitration. The applicable arbitration procedure will be as per the Arbitration and Conciliation Act, 1996 as amended by Amendment Act of 2015.

- (iii) Venue of Arbitration: The venue of arbitration shall be the place from where the contract has been issued.

- (iv) Applicable Law: The contracts shall be interpreted in accordance with the laws of the Union of India.

- (v) Legal Advice:

While processing a case for arbitration, the purchase organization is to take legal advice, at appropriate stages from competent authorities viz their Legal Department.

- (vi) Following clause shall be included in the General Conditions of the Contract (GCC):

Sole Arbitration Clause:

In the event of any question, dispute or difference arising under these terms & conditions or any condition contained in this contract or interpretation of the terms of, or in connection with this Contract (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of a person, appointed to be the arbitrator by the Chairman, CIL/ CMD of Subsidiary

Company (as the case may be). The award of the arbitrator shall be final and binding on the parties of this Contract.

(a) In the event of the Arbitrator dying, neglecting or refusing to act or resigning or being unable to act for any reason, or his/her award being set aside by the court for any reason, it shall be lawful for the Chairman, CIL / CMD of Subsidiary Company (as the case may be) to appoint another arbitrator in place of the outgoing arbitrator in the manner aforesaid.

(b) It is further a term of this contract that no person other than the person appointed by the Chairman, CIL / CMD of Subsidiary Company (as the case may be) as aforesaid should act as arbitrator and that, if for any reason that is not possible, the matter is not to be referred to Arbitration at all.

Subject as aforesaid, Arbitration and Conciliation Act, 1996 as amended by Amendment Act of 2015, and the rules thereunder and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under this clause.

The venue of arbitration shall be the place from which the contract is issued or such other place as the Chairman, CIL / CMD of Subsidiary Company (as the case may be) at his discretion may determine.

(vii) Contracts with Partnership firm/ JV/Consortium:

A partner is the implied authority to bind the firm in a contract coming in the purview of the usual business of the firm. The implied authority of a partner, however, does not extend to enter into arbitration agreement on behalf of the firm. Therefore, while entering into a contract with partnership firm /JV/Consortium care should be taken to obtain consent of all the partners to the arbitration agreement.

A suitable clause for obtaining consent of all the partners to the arbitration agreement shall be included in the General Conditions of the Contract (GCC).

(viii) In cases where CIL/ Subsidiary has challenged an arbitral award and as a result, the amount of the arbitral award has not been paid, 75% of the arbitral award (which may include interest up to date of the award) shall be paid by CIL/ Subsidiary to the contractor/ concessionaire against a Bank Guarantee (BG). The BG shall only be for the said 75% of the arbitral award as above and not for the interest which may become payable to CIL/ Subsidiary should the subsequent court order require refund of the said amount.

The payment may be made into a designated Escrow Account with the stipulation that the proceeds will be used first, for payment of lenders' dues, second, for completion of the project and then for completion of other projects of CIL/ Subsidiary as mutually agreed/ decided. Any balance remaining in the escrow account subsequent to settlement of lenders' dues and completion of projects of CIL/ Subsidiary may be allowed to be used by the contractor/ concessionaire with the prior approval of the lead banker and

CIL/ Subsidiary. If otherwise eligible and subject to contractual provisions, retention money and other amounts withheld may also be released against BG.

The only circumstances in which such payment need not be made is where the contractor declines, or is unable, to provide the requisite bank guarantee and/or fails to open an escrow account as required. Persons responsible for not adhering to are liable to be held personally accountable for the additional interest arising, in the event of the final court order going against the procuring entity.

(ix) Arbitration /court awards should be critically reviewed. In cases where there is a decision against CIL/Subsidiary the decision to appeal should not be taken in a routine manner, but only when the case genuinely merits going for the appeal and there are high chances of winning in the court/ higher court. There is a perception that such appeals etc. are sometimes resorted to postpone the problem and defer personal accountability. Casual appealing in arbitration / court cases has resulted in payment of heavy damages / compensation / additional interest cost, thereby causing more harm to the exchequer, in addition to tarnishing the image of the Government.

(x) Legal department of CIL/Subsidiary should monitor the success rate of appealing against arbitration awards. There should be a clear delegation to empower officials to accept arbitration / court orders. A special board / committee may be set up by legal department of CIL/ Subsidiary to review the case before an appeal is filed against an order. Arbitration /court awards should not be routinely appealed without due application of mind on all facts and circumstances including realistic probability of success. The board / committee or other authority deciding on the matter shall clarify that it has considered both legal merits and the practical chances of success and after considering the cost of, and rising through, litigation / appeal / further litigation as the case may be, it is satisfied that such litigation / appeal /further litigation cost is likely to be financially beneficial compared to accepting the arbitration / court award.

43.0 GST ON WORKS CONTRACTS

All duties, taxes (excluding Goods and Services Tax (GST) and GST Compensation Cess (if applicable) only) and other levies payable by the Bidder/Contractor under the Contract, or for any other cause as applicable on the last date of submission of Bid, shall be included in the rates, prices and the total Bid Price submitted by the Bidder. Applicable GST, either payable by Bidder or by Company under reverse charge mechanism shall be computed by system in BOQ sheet as per predefined logic.

All investments, operating expenses, incidentals, overheads etc. as may be attendant upon execution and completion of works shall also be included in the rates, prices and total bid price submitted by the Bidder.

However, such duties, taxes, levies etc. which is notified after the last date of submission of Bid and/or any increase over the rate existing on the last date of submission of Bid shall be reimbursed by the Company on production of documentary evidence in support of payment actually made to the concerned authorities.

Similarly, if there is any decrease in such duties, taxes and levies the same shall become recoverable from the Contractor. The details of such duties, taxes and other levies along with rates shall be declared by the Bidder.

The item wise rate quoted by Bidder shall be inclusive of all taxes, duties & levies but excluding GST & GST Compensation Cess if applicable. The payment of GST and GST Compensation Cess by service availer (i.e. CIL/Subsidiary) to Bidder/Contractor (if GST

payable by Bidder/Contractor) would be made only on the latter submitting a Bill/Invoice in accordance with the provision of relevant GST Act and the rules made thereunder and after online filing of valid return on GST portal. Payment of GST & GST Compensation Cess is responsibility of Bidder/Contractor.

However, in case Contractor is GST unregistered Bidder/dealer or GST registered under composition scheme in compliance with GST rules, the Bidder/dealer shall not charge any GST and/or GST Compensation Cess on Bill/Invoice. In case of unregistered dealer/Bidder, GST, if applicable will be deposited by CIL/Subsidiary directly to concerned authorities in terms with GST provisions.

Input tax credit is to be availed by CIL/Subsidiary as per rule.

If CIL/Subsidiary fails to claim Input Tax Credit (ITC) on eligible Inputs, input services and Capital Goods or the ITC claimed is disallowed due to failure on the part of supplier/vendor of goods and services in incorporating the tax invoice issued to CIL/Subsidiary in its relevant returns under GST, payment of CGST & SGST or IGST, GST (Compensation to State) Cess shown in tax invoice to the tax authorities, issue of proper tax invoice or any other reason whatsoever, the applicable taxes & cess paid based on such Tax invoice shall be recovered from the current bills or any other dues of the supplier/vendor along with interest, if any.

The company reserves the right to deduct/withhold any amount towards taxes, levies, etc. and to deal with such amount in terms of the provisions of the Statute or in terms of the direction of any Statutory authority and the company shall only provide with certificate towards such deduction and shall not be responsible for any reason whatsoever.

Note: During the execution of the contract if the GST status of the Bidder changes, then the payment of GST, if any, to the Contractor will be made as per the GST status declared by the Bidder during tender stage based on which cost to Company has been ascertained or at actuals, whichever is lower.

45.0 Discrepancies in contract documents & Adjustments thereof

45.1 In the event of varying or conflicting provision in any of the document(s) forming part of the contract, the Accepting Authority's decision/clarification shall hold good with regard to the intention of the document or contract as the case may be.

45.2 Any error in description, quantity or rate in Bill of Quantities or any omission there from, shall not vitiate the contract or release the contractor from discharging his obligations under the contract including execution of work according to the Drawings and Specifications forming part of the particular contract document.

46.0 E-way Bill:

The e-way bill required in connection with supply of goods or services, if any, shall be arranged by the supplier/vendor. However, the e-way bill will be arranged by CIL/Subsidiary if the supplier/vendor is unregistered one or if provisions of the relevant Act and the rules made there under specifically states that the e-way bill is required to be issued by recipient of goods.

47.0 In the event of recovery of any claim towards LD Charges, Penalty, fee, fine or any other charges (Except EMD) from the supplier/vendor, the same will be recovered along with the

applicable GST and the amount shall be adjusted with the payment to be made to the supplier/vendor against their bill/invoice or any other dues.

SECTION -III

CONDITIONS OF CONTRACT

SUB-SECTION -II

ADDITIONAL TERMS AND CONDITIONS OF CONTRACT

SUB-SECTION – II

ADDITIONAL TERMS & CONDITIONS OF CONTRACT

The following additional terms & conditions are also acceptable to the company.

The tenderers are requested not to quote any additional conditions in their tender.

1. MOBILISATION ADVANCE:

- i) In the case of works whose estimated value is more than Rs.100.00 Crores, a maximum of 10% of the total contract value of work will be paid as mobilization advance subject to submission of Bank Guarantee for 110% advance amount.
- ii) Mobilization Advance against survey, soil investigation, design & engineering will be paid in two equal installments - one after signing of the agreement and the second after the system design drawings have been completed and detailed design work is to be taken up by the contractor.
- iii) Mobilization Advance against supply of equipments shall be released only after the contractor has finalized their vendors/suppliers for the specific equipment and the amount of advance shall be proportionate to the value of equipment for which vendors/suppliers have been finalized vis-à-vis the total value of equipments offered in the contract limited to 10% of the contract value.
- iv) Mobilization Advance against works contract for site activities shall be paid in two equal installments. First installment shall be paid after the contractor has opened their site office and having finalised their subcontractors. The second installment shall be paid for taking procurement action of construction materials like reinforcing steel and structural steel by the contractor.
- v) The mobilization advance shall be recovered from the bills of the contractor from the second running on account bills onward @ 20% of the advance amount paid. However, the full amount of mobilization advance will be recovered maximum within scheduled date of completion as per agreement excluding Defect Liability period.

Though the 'Mobilization Advance' shall be given interest free but the interest shall be charged as per the rate of CIL's borrowing rate under cash credit arrangement as varying from time to time to be compounded quarterly, on delayed recoveries either due to the late submission of bill by the Contractor or any other reason attributable to the Contractor besides the reason giving rise to encashment of BG as stated in the Clause for 'Mobilization Advance' elsewhere.

In addition to the above, interest will be charged as per aforesaid rate on Mobilization Advance in case the contract is terminated due to default of the Contractor.

- vi) The value of Bank Guarantee may be reduced to the extent such advance is recovered by the company subject to the conditions that the value of Bank Guarantee amount at any time is more than the recoverable outstanding advance. Bank Guarantee shall be irrevocable and from a Nationalized Bank /Scheduled Bank.
- vii) Part Bank Guarantee" (BGs) against the Mobilization Advance shall be taken in as many numbers as the proposed recovery instalments and shall be equivalent to 110% of the amount of each instalment.
- viii) In case of "Machinery and Equipment advance", insurance and hypothecation to the employer shall be ensured.

- ix) Mobilization advance will be given in instalments and subsequent instalments will be released after getting satisfactory utilization Certificate from the contractor for the earlier instalments.

2. PRICE VARIATION CLAUSE:

2.1 The contract price shall remain firm without any price variation due to escalation for the portions of survey, geo-engineering investigations, design and engineering and supply of equipments, plant and machineries as envisaged in the scope of work and the price agreed thereon as per the contract except the statutory increase/decrease in taxes and duties.

2.2 If the contract is to be extended beyond the stipulated period for completion of the work due to fault on the part of the contractor escalation on prices should not be allowed further if not provided otherwise in the accepted contract.

2.2 For the portions of civil and structural works and erection and commissioning works of the plant & machineries, the price variation due to escalation shall be allowed to the extent as detailed hereinafter:

2.2.1 If the prices of materials (not being materials supplied at fixed issue rates by the company) and wages of labour, required for execution of the work, increase, the contractor shall be compensated for such increase as per provisions detailed below:

- a) The amount of the contract shall accordingly be varied, subject to the condition that such compensation for variation in prices shall be available only for the work done during the stipulated period of the contract as per the work programme agreed including such period for which the contract is validly extended under the provisions of the contract without any penal action.
- b) The base date for working out such price variation shall be as on the last date of submission of bid (inclusive of price part) or the revised price bid (inclusive of revised offer if any), whichever is later.
- c) The compensation of Price variation shall be worked out at quarterly intervals and shall be with respect to the cost of work done during the previous three months. The first such payment shall be made at the end of three months after the month (Excluding) in which the tender was accepted and thereafter at three months' interval.

2.2.1.1 Price Variation for Labour:

The amount paid to the contractor for the work done shall be adjusted for increase or decrease in the cost of labour and the cost shall be calculated quarterly in accordance with the following formula:

$$VL=W \times [A/100] \times [(L- Lo)/ Lo]$$

Where:

VL =Variation in labour cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

W =Value of work done during the period under reckoning to which the price variation relates as indicated in clause no. 2.3 of the 'ADDITIONAL TERMS & CONDITIONS OF CONTRACT'.

A = Component of labour expressed as percentage of the total value of work adopted from Table-1

Lo = Minimum wages for unskilled workers payable as per the Minimum Wages Act of Central or state govt. (whichever is higher) or HPC wages of CIL as applicable and mentioned in NIT, applicable to the place of work as on the last date stipulated for receipt of the Price bids or Revised Price bids whichever is later.

L = Revised minimum wages of unskilled workers corresponding to Lo during the period to which the escalation relates.

2.2.1.2 Price Variation on Materials:

The amount to be paid to the contractor for the work done shall be adjusted for increase or decrease in the cost of materials and the cost shall be calculated quarterly in accordance with the following formula:

$$V_m = W \times \frac{B}{100} \times \frac{M - M_o}{M_o}$$

Where :

V_m = Variation in material cost i.e. increase or decrease in the amount in rupees to be paid or recovered.

W = Value of work done during the period under reckoning to which the price variation relates as indicated in clause no. 2.3 of the ' ADDITIONAL TERMS & CONDITIONS OF CONTRACT'.

B = Component of material expressed as percentage of the total value of work adopted from Table-1

M = Average All India Wholesale Price Index for all commodities for the period to which price variation relates as published by the RBI Bulletin, Ministry of Industry & Commerce, Govt. Of India.

M_o = All India Wholesale Price Index for all commodities as published by the RBI Bulletin, Ministry of Industry & Commerce, Govt. Of India, relating to the last date on which the price bids or revised price bids whichever is later were stipulated to be received.

2.2.1.3 Price Variation on POL :

The amount to be paid to the contractor for the work done shall be adjusted for increase or decrease in the cost of POL and the cost shall be calculated quarterly in accordance with the following formula:

$$V_f = W \times \frac{C}{100} \times \frac{F - F_o}{F_o}$$

Where :

Vf = Variation in the cost of fuel , oil & lubricants increase or decrease in the amount in rupees to be paid or recovered.

W = Value of work done during the period under reckoning to which the price variation relates as indicated in clause no. 2.3 of the 'ADDITIONAL TERMS & CONDITIONS OF CONTRACT'.

C = Component of POL expressed as percentage of total value of work adopted from Table-1

= Average Index Number for Wholesale Price for the group of fuel , power, light and lubricants as published by Economic Advisor , Ministry of Industry , Govt. Of India prevalent on the last date of receipt of price bids whichever is later.

F o = Index Number for Wholesale Price for the group of “Fuel, power, light and lubricants” as published by the Economic Advisor, Ministry of Industry, Govt. Of India prevalent on the last date stipulated for receipt of the Price bids or Revised Price bids whichever is later.

2.3 WHILE CALCULATING THE VALUE OF "W" THE FOLLOWING MAY BE NOTED:

The cost on which the escalation/price variation shall be payable shall be reckoned as 85% of the cost of work as per the bills to which escalation relates, and from this amount the value of materials supplied or services rendered at the prescribed charges under the relevant provisions of the contract, and proposed to be recovered in the particular bill, shall be deducted before the amount of compensation for escalation/price variation is worked out. Further the cost shall not include any work for which payment is made at prevailing market rates.

2.4 In the event the price of materials and/ or wages of labour required for execution of the work decreases, there shall be downward adjustment of the work so that such price of materials and/or wages of labour shall be deductible from the cost of work under this contract and in this regard the formulae hereinbefore stated under this clause shall mutatis /mutandis apply.

For all other works not listed above, the component of labour , material and POL of the total cost of work shall be as specifically indicated in the tender document.

The price variation clause as stated above will be applied for extended time frame of a contract by following the principles as under

- i) Normally, if and when it is understood that a contract is not going to be completed within the scheduled time period, the contract is kept operative by extending the time of completion provisionally. During this provisional extended period the operation of the Price Variation Clause will remain suspended.
- ii) If and when it is decided at the end of the successful completion of the work that the delay was due to causes not attributable to the contractor, then the Price Variation Clause will be revived and applied as if the scheduled date of completion has been shifted to the approved extended date.

iii) If it is decided at the end of successful completion of the work that the delay was due to the fault of the contractor then the Price Variation Clause will not be revived and no payment will be made to the contractor on this account. Additionally, the Clause related to Compensation for delay will be applied.

In some cases the total delay may be partially due to causes not attributable to the contractor and partially due to his fault. It may be difficult to exactly quantify the total delay proportionately in such cases. The Price Variation Clause under such condition will be made operative for the entire extended time period by freezing the relevant indices on the date of the scheduled date of completion as originally fixed in the contract/ agreement. At the same time the Clause related to the compensation for delay will also be applied.

Table - 1

Value of A , B & C in the Price variation formula in the 'Additional Terms and Conditions of Contract :

Sl.	Particulars	A	B	C	Remarks
		Labour component	Material component	POL component	
1.	For Building works	25	75	NIL	
2.	For Road works	15	80	05	
3.	For external sewerage, external water supply and external electrification	10	90	NIL	
4.	For external water supply, external sanitary and external electrification (Through labour rate contract)	75	25	NIL	
5.	For steel structural works	15	85	NIL	
6.	For steel structural works with Department free supply of rolled steel sections (Through labour rate contract)	75	25	NIL	
7.	For Coal Handling Plant Civil works	25	75	NIL	
8.	For underground civil works such as Incline Drivage, Shaft Sinking etc.	35	65	NIL	
9	For Erection and Commissioning of P&	65	35	NIL	

2.5 CEILING ON PRICE VARIATION DUE TO ESCALATION

There shall be a ceiling on price variation due to escalation covered under clauses mentioned hereinbefore on the contract, limited to 10% of that portion of the price for which price variation is applicable.

2.6 VARIATION IN THE TAXES, DUTIES, LEVIES ETC.

Other statutory variation due to increase in taxes, duties, levies etc. by Govt. (Central or State or Local) as on the last date of submission of bid, with the taxes, duties, levies etc. during the manufacture/works/ supply, as the case may be, shall be borne by the owner. Similarly decrease in taxes, duties, levies etc. shall be returned/deducted to/by the owner.

SECTION -III

CONDITIONS OF CONTRACT

SUB-SECTION -III

GENERAL TECHNICAL CONDITIONS

1.0 GENERAL

This part covers technical conditions pursuant to the contract and will form an integral part of the contract. The following provisions shall supplement all the detailed technical specifications and requirements brought out in the accompanying technical specifications. The contractor's proposal shall be based on the use of equipment and materials complying fully with the requirements, specified herein. It is recognised that the contractor may have standardised on the use of certain components, materials, processes or procedures different than those specified herein. Alternate proposals offering similar equipment based on the manufacturer's standard practice will also be considered provided such proposals meet the specified designs, standard and performance requirements and are acceptable to the owner.

2.0 LIMIT OF CONTRACT

Equipment furnished shall be complete in every respect with all mountings, fittings, fixtures and standard accessories normally provided with such equipment and/or needed for erection, completion and safe operation of the equipment as required by applicable codes though they may not have been specifically detailed in the technical specifications unless included in the list of exclusions. All similar standard components/parts of similar standard equipment provided, shall be inter-changeable with one another.

3.0 EQUIPMENT PERFORMANCE GUARANTEE

- 3.1 The performance tests of the equipment under the scope of the contract are detailed in the technical specifications. These guarantees shall supplement the general performance guarantee provisions covered under general terms & conditions of contract in clause entitled "Guarantee".
- 3.2 Liquidated damages for not meeting performance guarantee during the performance and guarantee tests shall be assessed and recovered from the contractor, as detailed in the General Technical Conditions. Such liquidated damages shall be without any limitation whatsoever and shall be in addition to damages, if any payable under any other clauses of conditions of contract.

4.0 ENGINEERING DATA

- 4.1 The furnishing of engineering data by the contractor shall be in accordance with the schedule for each set of equipment as specified in the technical specifications. The review of these data by the engineer will cover only general conformance of the data to the specifications and documents, interfaces with the equipment provided under the specifications, external connections and of the dimensions which might affect plant layout. This review by the engineer may not indicate a thorough review of all dimensions, quantities and details of the equipment, materials, any devices or items indicated or the accuracy of the information submitted. This review and/or approval by the engineer shall not be construed by the contractor, as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements, specified under these specifications and documents.
- 4.2 All engineering data submitted by the contractor after final process including review and approval by the engineer shall form part of the contract documents and the entire works covered under these specifications shall be performed in strict conformity, unless otherwise expressly requested by the engineer in writing.

5.0 DRAWING

- 5.1 All drawings submitted by the contractor including those submitted at the time of bid shall be sufficiently detailed to indicate the type, size, arrangement, weight of each component, break-up for packing and shipment, the external-connections, fixing arrangements required, the dimensions required for installation and inter-connections with other equipment and materials, clearances and spaces required between various portions of equipment and any other information specifically requested in the specifications.
- 5.2 Each drawing submitted by the contractor shall be clearly marked with the name of the owner, the unit designation, the specifications title, the specification number and the name of the project. If standard catalogue pages are submitted the applicable items shall be indicated therein. All titles, notings, markings and writings on the drawing shall be in English. All the dimensions should be in metric units.
- 5.3 The owner may use a 35 mm microfilm system in processing drawings. All drawings shall be suitable for microfilming. Drawings which are not suitable for microfilming will not be accepted. A copy of each drawings reviewed will be returned to the contractor as stipulated herein. The owner may also accept and use floppies/ disks for computer based drawings.
- 5.3.1 Copies of drawings returned to the contractor will be in the form of a print with the owner's marking, or a print made from a microfilm of the marked up drawing or in the form of aperture cards if the contractor has facilities to process such cards or print made from floppies for computer based drawings.
- 5.4 The drawings submitted by the contractor shall be reviewed by the engineer as far as practicable within four (4) weeks and shall be modified by the contractor if any modifications and/or corrections are required by the engineer. The contractor shall incorporate such modifications and/or corrections and submit the final drawings for approval. Any delay arising out of failure by the contractor to rectify the drawings in good time shall not alter the contract completion date and it will be on the Contractor's account.
- 5.5 Approval by the Nodal Officer or his Nominee: the Contractor shall submit specifications and drawings showing the proposed Temporary Works to the Nodal Officer/Engineer-in-charge or his Nominee, who is to approve them if they comply with the specifications and drawings. The Contractor shall be responsible for design of Temporary Works.
- The Nodal Officer/Engineer-in-charge or nominee's approval shall not alter the contractor's responsibility for design of the Temporary Works.
- 5.6 The drawings sent for approval to the engineer shall be in quintuplicate. One print of such drawings will be returned to the contractor by the engineer marked approved/approved with corrections. The contractor shall thereupon furnish the owner with nine prints and one reproducible original of the drawings after incorporating all corrections.
- 5.7 Further work by the contractor shall be in strict accordance with these drawings and no deviation shall be permitted without the written approval of the engineer, if so required.
- 5.8 All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawings shall be at the contractor's risk. The contractor may make any

changes in the design which are necessary to make the equipment conform, to the provisions and intent of the contract and such changes will again be subject to approval by the engineer. Approval of contractor's drawings or work by the engineer shall not relieve the contractor of any of his responsibilities and liabilities under the contract.

5.9 Drawings shall include all installation and detailed piping drawings wherever applicable. All piping 100 mm and larger shall be routed in detail and smaller pipe shall be shown schematically or by isometric drawings. All drawings shall be fully corrected to agree with actual as built construction.

5.10 Operating and Maintenance Manual: If “as built” drawings and/or operating and Maintenance Manuals are required the contractor shall supply them by the dates stated in the contract data.

If the Contractor does not supply the drawings and/or Manuals by the dates stated in the contract data, or they do not receive the Nodal Officer or his Nominee’s approval, the Nodal Officer or his Nominee shall withhold the amount stated in the contract data from payments due to the contractor.

6.0 INSTRUCTION MANUALS

6.1 The contractor shall submit to the engineer, preliminary instruction manuals for all the equipment, covered under the contract within the time agreed upon between the owner & the contractor. The final instruction manuals complete in all respects shall be submitted by the contractor thirty (30) days before the first shipment of the equipment. The instruction manuals shall contain full details and drawings of all the equipment furnished, the erection procedures, testing procedures, operation and maintenance procedures of the equipment. These instruction manuals shall be submitted in the form of one (1) reproducible original and twelve (12) copies.

6.2 If after the commissioning and initial operation of the plant, the instruction manuals require any modifications/ additions/changes, the same shall be incorporated and the updated final instruction manuals in the form of one (1) reproducible original and twelve (12) copies shall be submitted by the contractor to the owner.

6.3 The contractor shall furnish to the owner, twelve (12) sets of spare parts catalogue.

7.0 FIRST FILL OF CONSUMABLE, OILS AND LUBRICANTS

All the first fill of consumable such as oils, lubricants and essential chemicals etc., which will be required to put the equipment covered under the scope of the specifications, into successful trial operation, shall be furnished by the contractor unless specifically excluded under the exclusions in the specifications and other documents.

8.0 MANUFACTURING SCHEDULE

The contractor shall submit to the engineer his manufacture and delivery schedules for all equipment within thirty (30) days from the date of issuance of the letter of acceptance of tender. Such schedules shall be in line with the detailed net-work for all phases of the work of the contractor. Such schedules shall be reviewed, up-dated and submitted to the engineer, once every two (2) months thereafter, by the contractor. Schedule shall also include the materials and equipment purchased from outside suppliers.

9.0 REFERENCE STANDARDS

9.1 The codes and/or standards referred to in these specifications shall govern, in all cases wherever such references are made. In case of a conflict between such codes and/or standards and the specifications, the latter shall govern. Such codes and/or standards referred to shall mean the latest revisions, amendments/changes adopted and published by the relevant agencies. In case of any further conflict in this matter, the same shall be referred to the engineer whose decision shall be final and binding.

9.2 Other internationally acceptable standards which ensure equal or higher performance than those specified shall also be accepted.

10.0 DESIGN IMPROVEMENT

10.1 The engineer or the contractor may propose changes in the specification of the equipment or quality thereof and if the parties agree upon any such changes the specification shall be modified accordingly.

10.2 If any such agreed upon change is such that it affects the price and schedule of completion, the parties shall agree in writing as to the extent of any change in the price and/or schedule of completion before the contractor proceeds with the change. Following such agreement, the provision thereof, shall be deemed to have been amended accordingly.

11.0 QUALITY ASSURANCE

11.1 Quality Assurance Programme

To ensure that the equipment and services under the scope of this contract whether manufactured or performed within the contractor's works or at his sub-contractor's premises or at the owner's site or at any other place of work are in accordance with the specifications, the contractor shall adopt suitable quality assurance programme to control such activities at all points necessary. Such programme shall be outlined by the contractor on acceptance of LOA and before execution of the agreement and shall be finally accepted by the engineer after discussions before execution of the work. A quality assurance programme of the contractor shall generally cover the following:

- a. his organisation structure for the management and implementation of the proposed quality assurance programme:
- b. documentation control system:
- c. qualification data for bidder's key personnel:
- d. the procedure for purchase of materials, parts components and selection of sub-contractor's services including vendor analysis, source inspection, incoming raw-material inspection, verification of materials purchased etc.:
- e. system for shop manufacturing and site erection control including process control and fabrication and assembly controls:
- f. control of non-conforming items and system for corrective actions:
- g. inspection and test procedure both for manufacture and field activities:
- h. control of calibration and testing of measuring and testing equipment:
- i. system for indication and appraisal of inspection status:
- j. system for quality audits:
- k. system for authorising release of manufactured product to the owner:
- l. system for maintenance of records:
- m. system for handling storage and delivery: and

- n. a quality plan detailing out the specific quality control procedure adopted for controlling the quality characteristics relevant to each item of equipment furnished and each work at different stages executed at work site.

11.2 Quality Assurance Documents

The contractor shall be required to submit the following Quality Assurance Documents within three weeks after despatch of the equipment:

- i. all non-destructive examination procedures stress relief and weld repair procedure actually used during fabrication.
- ii. welder and welding operator qualification certificates.
- iii. welder identification list, listing welder's and welding operator's qualification procedure and welding identification symbols.
- iv. material mill test reports on components as specified by the specification.
- v. the inspection plan with verification, inspection plan check points, verification sketches, if used, and methods used to verify that the inspection and testing points in the inspection plan were performed satisfactorily.
- vi. sketches and drawings used for indicating the method of traceability of the radiographs to the location on the equipment.
- vii. all non-destructive examination result reports including radiography interpretation reports.
- viii. stress relief time temperature charts.
- ix. factory test results for testing required as per applicable codes and standard referred in the specifications.
- x. the engineer or his duly authorised representative reserves the right to carry out quality audit and quality surveillance of the systems and procedures of the contractor/his vendor's quality management and control activities.

12.0 ENGINEER'S SUPERVISION

12.1 To eliminate delays and avoid disputes and litigation it is agreed between the parties to the contract that all matters and questions shall be referred to the engineer and his decision shall be final.

12.2 The work shall be performed under the direction and supervision of the engineer. The scope of the duties of the engineer, pursuant to the contract, will include but not be limited to the following:

- a. interpretation of all the terms and conditions of these documents and specification.
- b. review and interpretation of all the contractor's drawings, engineering data etc.
- c. witness or authorise his representative to witness tests and trials either at the manufacturer's works or at site, or at any place where work is performed under the contract.
- d. inspect, accept or reject any equipment, material and work under the contract.

- e. issue certificate of acceptance and/or progressive payment and final payment certificates.
- f. review and suggest modifications and improvements in completion schedules from time to time.
- g. supervise the quality assurance programme implementation at all stages of the works.
- h. to receive and endorse the despatch documents enabling the contractor to clear the consignments.

13.0 INSPECTION, TESTING AND INSPECTION CERTIFICATE

- 13.1 The engineer, his duly authorised representative and/or outside inspection agency acting on behalf of the owner shall have at all reasonable times access to the contractor's premises or works and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the works during its manufacture or erection and if part of the works is being manufactured or assembled at other premises or works, the contractor shall obtain for the engineer and for his duly authorised representative permission to inspect as if the works were manufactured or assembled on the contractor's own premises or works.
- 13.2 The contractor shall give the Engineer/Inspector fifteen (15) days written notice of any material being ready for testing. Such tests shall be to the contractor's account except for the expenses of the Inspector. The Engineer/Inspector, unless witnessing of the tests is virtually waived, will attend such tests within fifteen (15) days of the date on which the equipment is notified as being ready for test/inspection, failing which the contractor may proceed with the test which shall be deemed to have been made in the Inspector's presence and he shall forthwith forward to the Inspector duly certified copies of tests in triplicate.
- 13.3 The Engineer or Inspector shall within fifteen (15) days from the date of inspection as defined herein give notice in writing to the contractor, of any objection to any drawings and all or any equipment and workmanship which in his opinion is not in accordance with the contract. The contractor shall give due consideration to such objections and shall either make the modifications that may be necessary to meet the said objections or shall confirm in writing to the Engineer/Inspector giving reasons therein, that no modifications are necessary to comply with the contract.
- 13.4 When the factory tests have been completed at the contractor's or sub-contractor's works, the Engineer/Inspector shall issue a certificate to this effect within fifteen (15) days after completion of tests but if the tests are not witnessed by the Engineer/Inspector, the certificate shall be issued within fifteen (15) days of the receipt of the contractor's test certificate by the Engineer/Inspector. Failure of the Engineer/Inspector to issue such a certificate shall not prevent the contractor from proceeding with the works. The completion of these tests or the issue of the certificate shall not bind the owner to accept the equipment should it, on further tests after erection, be found not to comply with the contract.
- 13.5 In all cases where the contract provides for tests whether at the premises or works of the contractor or of any sub-contractor, the contractor, except where otherwise specified, shall provide free of charge such items as labour, materials, electricity, fuel, water, stores, apparatus and instruments as may be reasonably demanded by the Engineer/Inspector or his authorised representative to carry out effectively such tests of

the equipment in accordance with the contract and shall be given facilities to the Engineer/Inspector or to his authorised representative to accomplish testing.

13.6 The inspection by Engineer and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the contractor in respect of the agreed quality assurance programme forming a part of the contract.

14.0 TEST

14.1 Start up

14.1.1 On completion of erection of the equipment and before start-up, each item of the equipment shall be thoroughly cleaned and then inspected jointly by the Engineer and the contractor for correctness and completeness of installation and acceptability of start-up, leading to initial pre-commissioning tests at site. The list of pre-commissioning tests to be performed shall be as mutually agreed and included in the contractor's quality assurance programme.

14.1.2 The contractor's commissioning/start-up engineers specifically identified as far as possible shall be responsible for carrying out all the pre-commissioning tests. On completion of inspection, checking and after the pre-commissioning tests are satisfactorily over, the complete equipment shall be placed on initial operation during which period the complete equipment shall be operated integral with sub-systems and supporting equipment as a complete plant referred hereinafter as plant.

14.2 Trial Operation

14.2.1 The plant shall then be on trial operation during which period all necessary adjustments shall be made while operating over the full load-range enabling the plant to be made ready for performance and guarantee tests.

14.2.2 The duration of trial operation of the complete equipment shall be fourteen

days out of which at least seventy-two (72) hours shall be continuous operation on full load or any other duration as may be agreed to, between the engineer and the contractor. The trial operation shall be considered successful, provided that each item of the equipment can operate continuously at the specified operating characteristics, for the period of trial operation.

14.2.3 For the period of trial operation, the time of operation with any load shall be counted. Minor interruptions not exceeding four (4) hours at a time, caused during the continuous operation shall not affect the total duration of trial operation. However, if in the opinion of the engineer, the interruption is long, the trial operation shall be prolonged for the period of interruption.

14.2.4 A trial operation report comprising of observations and recordings of various parameters to be measured in respect of the above trial operation shall be prepared by the contractor. This report, besides recording the details of the various observations during trial run, shall also include the dates of start and finish of the trial operations and shall be signed by the representatives of both the parties. The report shall have sheets, recording all the details of interruptions occurred, adjustments made and any minor repairs done during the trial operation. Based on the observations, necessary modifications/ repairs to the plant shall be carried out by the contractor to the full satisfaction of the engineer to enable the later to accord permission to carry out performance and guarantee tests on the plant. However, minor defects which do not

endanger the safe operation of the equipment, shall not be considered as reasons for withholding the aforesaid permission.

14.3 Performance and guarantee test

14.3.1 The final test as to the performance and guarantees shall be conducted at site, by the owner. Such tests will be commenced within a period of two (2) months after successful completion of trial operations. Any extension of time beyond the above two (2) months shall be mutually agreed upon.

14.3.2 These tests shall be binding on both the parties of the contract to determine compliance of the equipment with the performance guarantees.

14.3.3 The available instrumentation and control equipment will be used during such tests and the engineer will calibrate, all such measuring equipment and devices as far as practicable. However, un-measurable parameters shall be taken into account in a reasonable manner by the engineer, for the equipment of these tests. The tests will be conducted at the specified load points and as near the specified cycle condition as practicable. The engineer will apply proper corrections in calculation, to take into account conditions which do not correspond to the specified conditions.

14.3.4 Any special equipment, tools and tackles required for the successful completion of the performance and guarantee tests shall be provided by the contractor, free of cost.

14.3.5 The guaranteed performance figures of the equipment shall be proved by the contractor during these performance and guarantee tests. Should the results of these tests show any decrease from the guaranteed values, the contractor shall modify the equipment as required to enable it to meet the guarantees. In such case, performance and guarantee tests shall be repeated within one month, from the date the equipment is ready for re-tests and all cost for modifications including labour, materials and the cost of additional testing to prove that the equipment meets the guarantees, shall be borne by the contractor. Duration of performance guarantee tests will be of one month of which 6 (six) days continuous on load operation is the minimum requirement and in case it fails, the process of performance guarantee tests will be repeated.

14.3.6 The specific tests to be conducted on equipment has been brought out in the technical specifications.

14.3.7 Performance and guarantee test shall make allowance for instrumentation errors as may be decided by the engineer-in-charge.

14.4 TEST CODES

The provisions outlined in the ASME performance test codes or other international and Indian approved equivalents shall generally be used as a guide for all the above test procedures unless otherwise specified in the technical specifications.

15.0 PACKING

All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at site till the time of erection. While packing all the materials, the limitation from the point of view of

availability of railway wagon sizes in India should be taken into account. The contractor shall be responsible for any loss or damage during transportation, handling and storage due to improper packing.

16.0 PROTECTION

All coated surfaces shall be protected against abrasions, impact, discoloration and any other damages. All exposed threaded portions shall be suitably protected with either a metallic or a non-metallic protecting device. All ends of all valves and piping and conduit equipment connections shall be properly sealed with suitable devices to protect them from damage. The parts which are likely to get rusted, due to exposure to weather, should also be properly treated and protected in a suitable manner.

17.0 PRESERVATIVE SHOP COATING

17.1 All exposed metallic surfaces subject to corrosion shall be protected by shop application of suitable coatings. All surfaces which will not be easily accessible after the shop assembly, shall before hand be treated and protected for the life of the equipment. All surfaces shall be thoroughly cleaned of all mill scale, oxide and other coatings and prepared in the shop. The surfaces that are to be finish painted after installation or require corrosion protection until installation, shall be shop painted with at least two coats of primer. Transformers and other electrical equipment, if included shall be shop finished with one or more coats of primer and two coats of high grade resistance enamel. The finished colours shall be as per manufacturer's standards, to be selected and specified by the engineering at a later date.

17.2 Shop primer for all steel surface which will be exposed to operating temperature below 95 °C shall be selected by the Contractor after obtaining specific approval of the engineer regarding the quality of primer proposed to be applied. Special high temperature primer shall be used on surfaces exposed to temperatures higher than 95 °C and such primers shall also be subject to the approval of the engineer.

17.3 All other steel surfaces which are not to be painted shall be coated with suitable dust preventive compound subject to the approval of the engineer.

18.0 PROTECTIVE GUARDS

Suitable guards shall be provided for protection of personnel on all exposed rotating and/or moving machine parts. All such guards with necessary spares and accessories shall be designed for easy installation and removal for maintenance purposes.

19.0 DESIGN CO-ORDINATION

The contractor shall be responsible for the selection and design of appropriate equipment to provide the best co-ordinated performance of the entire system. The basic design requirements are detailed out in Technical Specifications. The design of various components, sub-assemblies and assemblies shall be so done, so that it facilitates easy field assembly and maintenance. All the rotating components shall be so selected that the natural frequency of the complete unit is not critical at or close to the operating range of the unit.

20.0 DESIGN CO-ORDINATION MEETING

The contractor will be called upon to attend design co-ordination meetings with the engineer, other contractors and the consultants of the owner during the period of contract. The contractor shall attend such meetings at his own cost at ----- or at mutually agreed venue as and when required and fully co-operate with such persons and agencies involved during those discussions.

21.0 TOOLS AND TACKLES

The contractor shall supply with the equipment one complete set of all special tools and tackles for the erection, assembly, dis-assembly and maintenance of the equipment. However, these tools and tackles shall be separately packed and brought on to site.

22.0 NOISE LEVEL

The equivalent 'A' weighted sound level measured at a distance of 1.5 metres above floor level in elevation and one metre horizontally from the base of any equipment furnished and installed under these specifications, expressed in decibels to a reference of 0.0002 microbar, shall not exceed 85 dB.

23.0 TAKING OVER

Upon successful completion of all the tests to be performed at site on equipment furnished and erected by the contractor, the engineer shall issue to the contractor a taking over certificate as a proof of the final acceptance of the equipment. Such certificate shall not unreasonably be withheld nor will the engineer delay the issuance thereof, on account of minor omissions or defects which do not affect the commercial operation and/or cause any serious risk to the equipment. Such certificate shall not relieve the contractor of any of his obligations which otherwise survive, by the terms and conditions of the contract after issuance of such certificate.

24.0 INDIAN STANDARDS

Normally Indian Standards as published by BUREAU OF INDIAN STANDARDS shall be followed. Wherever relevant Indian Standard is not published by the BIS, International Standards or American Standard or German Standard or British Standard, as decided by the Engineer in consultations with the Consultants employed by the Owner, shall be followed.

25.0 WELDING

If the manufacturer has special requirements relating to the welding procedures for welds at the terminals of the equipment to be procured by the owner under separate specifications, the requirements shall be submitted to the engineer in advance of commencement of erection work.

26.0 LUBRICATION

Equipment shall be lubricated by systems designed for continuous operation. Lubricant level indicators shall be furnished and marked to indicate proper levels under both stand-still and operating conditions.

27.0 EQUIPMENT BASES

A cast iron or welded steel base plate shall be provided for all rotating equipment which is to be installed on a concrete/structural steel base unless otherwise agreed to by the engineer. Each base plate shall support the unit and its drive assembly, shall be of a neat design with pads for anchoring the units, shall have a raised lip all around, and shall have threaded drain connections.

28.0 RATING PLATES, NAME PLATES AND LABELS

28.1 Each main and auxiliary items of plant is to have permanently attached to it in a conspicuous position a rating plate of non-corrosive material upon which is to be engraved the manufacturer's name, equipment, type or serial number, together with details of the loading conditions under which the item of plant in question have been designed to operate, and such diagram plates as may be required by the engineer.

28.2 Each item of plant is to be provided with a nameplate or label designating the service of the particular equipment. The inscriptions are to be approved by the engineer or shall be as detailed in the appropriate sections of the technical specifications.

28.3 Such nameplates or labels are to be of white non-hygroscopic material with engraved black lettering or, alternatively, in the case of indoor circuit breakers, starters etc. of transparent plastic material with suitably coloured lettering engraved on the back.

28.4 Items of plant such as valves, which are subject to handling, are to be provided with an engraved chromium plated nameplate or label with engraving filled with enamel.

28.5 All such name plates, instruction plates, lubrication charts etc. shall be bilingual with Hindi inscription first, followed by English. Alternatively, two separate plates one with Hindi and the other with English inscriptions may be provided.

29.0 COLOUR CODE FOR PIPE SERVICES

All pipe services wherever applicable are to be painted in accordance with the owner's standard colour scheme, by the contractor.

30.0 SERVICE BY THE OWNER

30.1 The following services shall be provided by the owner:

- i. Drinking water at one point within 100 metres of the work site, charges to be decided by the company.
- ii. Auxiliary power for construction at one point within 100 metres of the work site, charges to be decided by the company.

30.2 In the event of the contractor requiring these services at parameters other than those specified above, for any systems, equipment, instrument etc. he shall make the necessary arrangements himself.

SECTION -III

CONDITIONS OF CONTRACT

SUB-SECTION -IV

ERECTION CONDITIONS OF CONTRACT

SUB-SECTION – IV

ERECTION CONDITIONS OF CONTRACT

1.0 GENERAL

- 1.1 The following shall supplement the conditions already contained in the other parts of these specifications and documents and shall govern that portion of the work of this contract to be performed at site.
- 1.2 The contractor upon signing of the contract shall, in addition to a project co-ordinator, nominate another responsible officer as his representative at site suitably designated for the purpose of overall responsibility and co-ordination of the works to be performed at site. Such person shall function from the site office of the contractor during the pendency of contract.

2.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES

- 2.1 The contractor shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the minimum wages act, 1948 and the payment of wages act (both of the Government of India and the local State Government) and the rules made thereunder in respect of any employee or workman employed or engaged by him or his sub-contractor. The contractor shall make all necessary payments of the Provident Fund for the workmen employed by him for the work as per the laws prevailing under provisions of CMPF and Allied Schemes and CMPF and Miscellaneous Provisions Act 1948 or Employees Provident Fund and Miscellaneous Provisions Act 1952 as the case may be.
- 2.2 All registration and statutory inspection fees, if any, in respect of his work pursuant to this contract shall be to the account of the contractor. However, any registration, statutory inspection fees lawfully payable under the provisions of the rules and regulations of the Government and any other statutory laws and its amendments from time to time during erection in respect of the plant equipment ultimately to be owned by the owner, shall be to the account of the owner. Should any such inspection or registration need to be arranged due to the fault of the contractor or his sub-contractor, the additional fees for such inspection and/or registration shall be borne by the contractor.

3.0 OWNER'S LIEN ON EQUIPMENT

The owner shall have lien on all equipment including those of the contractor brought to the site for the purpose of erection, testing and commissioning of the plant. The owner shall continue to hold the lien on all such equipment throughout the period of contract. No material brought to the site shall be removed from the site by the contractor and/or his sub-contractors without the prior written approval of the engineer.

4.0 INSPECTION, TESTING AND INSPECTION CERTIFICATES

The provisions of the clause entitled inspection testing and inspection certificates under section GTC shall also be applicable to the erection portion of the works. The engineer shall have the right to re-inspect any equipment though previously inspected and approved by him, at the contractor's works, before and after the same are constructed and/or erected at site. If by the above inspection, the engineer rejects any work or equipment, the contractor shall make good for such rejection either by replacement or modifications/repairs as may be necessary, to the satisfaction of the engineer. Such replacement will also include the replacement or re-execution of such of those works of other contractors and/or agencies, which might have got damaged or affected by the replacements or re-work done to the contractor's work.

5.0 ACCESS TO SITE AND WORKS ON SITE

- 5.1 Suitable access to and possession of the site shall be accorded to the contractor by the owner in reasonable time.
- 5.2 The works so far as it is carried out on the owner's premises, shall be carried out at such time as the owner may approve and the owner shall give the contractor reasonable facilities for carrying out the works.
- 5.3 In the execution of the works, no persons other than the contractor or his duly appointed representative, sub-contractor and workmen, shall be allowed to do work on the site, except by the special permission, in writing of the engineer or his representative.

6.0 CONTRACTOR'S SITE OFFICE ESTABLISHMENT

The contractor shall establish a site office at the site and keep posted an authorised representative for the purpose of the contract. Any written order or instruction of the engineer or his duly authorised representative, shall be communicated to the said authorised resident representing the contractor and the same shall be deemed to have been communicated to the contractor at his legal address.

7.0 CO-OPERATION WITH OTHER CONTRACTORS

- 7.1 The contractor shall co-operate with all other contractors or tradesmen of the owner, who may be performing other works on behalf of the owner and the workmen who may be employed by the owner and doing work in the vicinity of the works under the contract. The contractor shall also so arrange to perform his work as to minimise, to the maximum extent possible, interference with the work of other contractors and his workmen. Any injury or damage that may be sustained in the employees of the other contractors and the owner, due to the contractor's work shall promptly be made good at his own expense. The engineer shall determine the resolution of any difference or conflict that may arise between the contractor and other contractors or between the contractor and the workmen of the owner in regard to their work. If the works of the contractor is delayed because of any acts or omissions of another contractor, the contractor shall have no claim against the owner on that account other than an extension of time for completing his works.
- 7.2 The engineer shall be notified promptly by the contractor of any defects in the other contractor's works that could affect the contractor's works. The engineer shall determine the corrective measures if any, required to rectify this situation after inspection of the works and such decisions by the engineer shall be binding on the contractor.

8.0 DISCIPLINE OF WORKMEN

The contractor shall adhere to the disciplinary procedure set by the engineer in respect of his employees and workmen at site. The engineer shall be at liberty to object to the presence of any representative or employees of the contractor at the site, if in the opinion of the engineer such employee has mis-conducted himself or be incompetent or negligent or otherwise undesirable and then the contractor shall remove such a person objected to and provide in his place a competent replacement.

9.0 CONTRACTOR'S FIELD OPERATION

- 9.1 The contractor shall keep the engineer informed in advance regarding his field activity plans and schedules for carrying out each part of the works. Any review of such plan or schedule or method of work by the engineer shall not relieve the contractor of any of his responsibilities towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the engineer or the owner or any of his representatives and no claim of the contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The contractor shall be solely responsible for the safety, adequacy and efficiency of plant and equipment and his erection methods.
- 9.2 The contractor shall have complete responsibility for the conditions of the work site including the safety of all persons employed by him or his sub-contractor and all the properties under his custody during the performance of the work. This requirement shall apply continuously till the completion of the contract and shall not be limited to normal working hours. The construction review by the engineer is not intended to include review of contractor's safety measures in, on or near the work-site, and their adequacy or otherwise.

10.0 PHOTOGRAPHS AND PROGRESS REPORT

- 10.1 The contractor shall furnish three (3) prints each to the engineer of progress photographs of the work done at site. Photographs shall be taken as and when indicated by the engineer or his representative. Photographs shall be adequate in size and number to indicate various stages of erection. Each photograph shall contain the date, the name of the contractor and the title of the photograph.
- 10.2 The above photographs shall accompany the monthly progress report detailing out the progress achieved on all erection activities as compared to the schedules. The report shall also indicate the reasons for the variance between the scheduled and actual progress and the action proposed for corrective measures wherever necessary.

11.0 MAN-POWER REPORT

- 11.1 The contractor shall submit to the engineer, on the first day of every month, a man hour schedule for the month, detailing the man hours scheduled for the month, skill wise and area-wise.
- 11.2 The contractor shall also submit to the engineer on the first day of every month, a man power report of the previous months detailing the number of persons scheduled to have been employed and actually employed, skill-wise and areas of employment of such labour.

12.0 PROTECTION WORK

The contractor shall have total responsibility for protecting his works till it is finally taken over by the engineer. No claim will be entertained by the owner or the engineer for any damage or loss to the contractor's works and the contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the specifications and drawings. Should any such damage to the contractor's works occur because of other party not under his supervision or control, the contractor shall make his claim directly with the party concerned. If dis-agreement or conflict or dispute develops between the contractor and the other party or parties concerned regarding the responsibility for damage to the contractor's works the same shall be resolved as per the

provisions of the clause 7.0 above entitled co-operation with other contractors. The contractor shall not cause any delay in the repair of such damaged works because of any delay in the resolution of such disputes. The contractor shall proceed to repair the work immediately and the cause thereof will be assigned pending resolution of such dispute.

13.0 EMPLOYMENT OF LABOUR

13.1 Contractors are to employ, to the extent possible (as per policy decision of the company valid from time to time), local project affected people and pay wages not less than the minimum wages as per minimum Wages Act or such other legislations or award of the minimum wage fixed by respective State Govt. or Central Govt. as may be in force.

No female labour shall be employed after darkness. No persons below the age of eighteen years shall be employed.

13.2 All traveling expenses including provisions of all necessary transport to and from site lodging allowances and other payments to contractor's employees shall be the sole responsibility of the contractor.

13.3 The hour of work on the site shall be decided by the owner and the contractor shall adhere to it. Working hours will normally be eight (8) hours per day-Monday to Saturday.

13.4 Contractor's employees shall wear identification badges while on work at site.

13.5 Payment of Provident Fund for the workmen employed by him for the work as per the Law prevailing under provision of CMPF/EPF and allied scheme valid from time to time shall be responsibility of the Contractor which shall be in accordance with the given guidelines:

1. The Contractor must be mandatorily registered as employer under the CMPF Act and allied scheme and shall submit details of their workers with the CMPF number, wherever required. The contractor shall submit CMPF registration certificate before signing of agreement.
2. If any employee of a Contractor is not a member of any Provident Fund, he shall be required to become a member of CMPF scheme immediately, for availing benefits therefrom.
3. Where the employees of a Contractor are members of EPF scheme, the Contractor shall provide appropriate facilitation to those employees who voluntarily opt for conversion from EPF Schemes to CMPF Schemes.

In addition to the above, the Contractor shall provide a copy of the updated passbook having entry made in the CMPF/EPF or Allied Scheme(s) of Provident fund as the case may be, to the Competent Authority annually or as and when asked. Bidder shall also submit copies of statutory returns.

The contractor shall also comply with the provisions of the CMPF/ EPF and regularly deposit the contributions in accordance with the same. The Company shall have no liability whatsoever in this regard.

13.6 The Contractor shall comply with statutory requirements of various acts including Child Labour (Prohibition & Regulation) Act, 1986 as amended from time to time and

all rules, regulations and schemes framed there under from time to time in addition to other applicable labour laws.

- 13.7 The payment to the contractor's labourers has to be made through Bank only.
- 13.8 Bonus is to be paid to the contract workers engaged by the Contractors as per the provisions of Payment of Bonus Act, 1965 as amended from time to time.
- 13.9 The contractors shall register themselves on the Contract Labour Payment Management Portal (CLPMP) of CIL within 30 days of issue of Letter of Acceptance/work order and will have to enter and update periodically the following details in the portal:
- a. LOA/Work Order details
 - b. Details of Contractor workers and payment of wages in respect of each Work Order each month.
- 13.10 All the contract workers shall be covered with the Bio-metric attendance system for payment of wages.
- 13.11 Contractors should deploy suitably experienced workers as mentioned in relevant Govt. circular.

14.0 FACILITIES TO BE PROVIDED BY THE OWNER

14.1 SPACE:

The contractor shall advise the owner within thirty (30) days from the date of acceptance of the letter of award, about his exact requirement of space for his office, mess-rooms storage area, pre-assembly and fabrication areas, labour colony area, toilets, etc. The above requirement shall be reviewed by the engineer and space will be allotted to the contractor for construction of his temporary structures like office, storage sheds, labour and staff colony and other utilities etc. for his own as well as his sub-contractor's use.

14.2 ELECTRICITY:

- The contractor shall submit to the Engineer I/C within thirty (30) days from the date of acceptance of the award letter, his electrical power requirements, if any, to allow the planning of the temporary electrical distribution by the Engineer I/C.
- The contractor shall be provided with supply of electricity for the purposes of the contract, only at one point in the project site. In extreme emergency, if more supply points are required due to non-feasibility of power supply from single point at another work place, the requirement to be evaluated by Engineer I/C for the work & PE(E&M) of the mine and approval of General Manager of the Area in writing to be taken, specifying the reason for providing more than 01 (One) supply point.
- The contractor shall make his own further distribution arrangement. All temporary wiring must comply with local regulations and will be subject to engineer's inspection and approval before connection to supply.
- Power supply for labour colonies (if any) shall also be provided at one point.
- The contractor shall be charged for the power supplied at work site and labour colonies as per the rate of respective Supply point of Distribution agency from where power is being received by the contractor.

- Engineer I/C of the work and PE(E&M) of the project is responsible for proper & timely meter reading, monthly bill raising against energy consumed and deduction from the bills of contractor on monthly basis
- The electricity rate may be calculated in the following way:

Total Monthly Bill Amount as raised by Distribution Agency (A)	Total KVAH consumed by the Area (B)	Unit Rate (C) = (A)/(B)	Total KVAH consumed by the contractor as per the energy meter reading (D)	Total Electricity charges of the Contractor for the month (E) = 1.05 * (C) * (D)

- The total electricity charges of the contractor for the month also includes 5% internal distribution loss charges / administrative charges.
- The derived rate will cover all the charges including electricity duty. Also, GST is to be charged at the applicable rate.
- At the point of metering, the contractor has to bear the cost for installation of energy meter, AB Switches, Changeover Switches etc., as and when required to maintain electrical safety.
- It is the responsibility of contractor to ensure maintenance of all the electrical equipment, as mentioned above. Breakdown of any equipment (As stated above) must be repaired/ rectified/ replaced by the contractor immediately, but not later than 30 days. If not repaired within the stipulated period, Engineer-In-Charge & PE(E&M) of the project will ensure that the repairing/ rectification/ replacement is done through them and the resultant cost is deducted from the bill of the contractor.

14.3 WATER:

The contractor shall arrange necessary water for the work and his own establishment and nothing extra will be paid for the same. Such water used by the contractor shall be fit for construction purposes. However, if available and feasible the company may arrange water, at the written request of the contractor, to the extent possible, at one point near the work site for which recovery @ 1% of the contract value of work done will be made from the contractor's bills. The contractor shall make his own arrangement of water connection and laying of pipe lines from main source of supply. Department do not guarantee to maintain uninterrupted supply of water. No claim of damage or refund of water charges will be entertained on account of such break down.

15.0 FACILITIES TO BE PROVIDED BY THE CONTRACTOR

15.1 Tools, tackles and scaffoldings

The contractor shall provide all the construction equipment, tools, tackles and scaffoldings required for pre-assembly, erection, testing and commissioning of the

equipment covered under the contract. He shall submit a list of all such materials to the engineer before the commencement of pre-assembly at site. These tools and tackles shall not be removed from the site without the written permission of the engineer.

15.2 Communication

The owner will extend the telephone & telex facilities, if available at site, for purposes of contract. The contractor shall be charged at actual for such facilities.

15.3 First – aid

15.3.1 The contractor shall provide necessary first-aid facilities for all his employees, representatives and workmen working at the site. Enough number of contractor's personnel shall be trained in administering first-aid.

15.3.2 The owner will provide the contractor, in case of an emergency, the services of an ambulance for transportation to the nearest hospital.

15.4 Cleanliness

15.4.1 The contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of contract. The contractor shall employ enough number of special personnel to thoroughly clean his work area at least once in a day. All such rubbish and scrap material shall be stacked or disposed in a place to be identified by the engineer. Materials and stores shall be so arranged to permit easy cleaning of the area in areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.

15.4.2 Similarly the labour colony, the offices and the residential areas of the contractor's employees and workmen shall be kept clean and neat to the entire satisfaction of the engineer. Proper sanitary arrangement shall be provided by the contractor, in the work areas, office and residential areas of the contractor.

16.0 LINES AND GRADES

All the works shall be performed to the lines, grades and elevations indicated on the drawings. The contractor shall be responsible to locate and layout the works. Basic horizontal and vertical control points will be established and marked by the engineer at site at suitable points. These points shall be used as datum for the works under the contract. The contractor shall inform the engineer well in advance of the times and places at which he wishes to do work in the area allotted to him, so that suitable datum points may be established and checked by the engineer to enable the contractor to proceed with his works. Any work done without being properly located may be removed and/or dismantled by the engineer at contractor's expense.

17.0 FIRE PROTECTION

17.1 The work procedures that are to be used during the erection shall be those which minimise fire hazards to the extent practicable. Combustible materials, combustible

waste and rubbish shall be collected and removed from the site at least once each day. Fuels, oils and volatile or flammable materials shall be stored away from the construction and equipment and materials storage areas in safe containers. Untreated canvas paper, plastic or other flammable flexible materials shall not at all be used at site for any other purpose unless otherwise specified. If any such materials are received with the equipment at the site, the same shall be removed and replaced with acceptable material before moving into the construction area or storage.

17.2 Similarly corrugated paper fabricated cartons etc. will not be permitted in the construction area either for storage or for handling of materials. All such materials used shall be water proof and flame resistant type. All the other materials such as working drawings, plants, etc. which are combustible but are essential for the works to be executed shall be protected against combustion resulting from welding sparks, cutting flames and other similar fire sources.

17.3 All the contractor's supervisory personnel and sufficient number of workers shall be trained for fire-fighting and shall be assigned specific fire protection duties. Enough of such trained personnel must be available at the site during the entire period of the contract.

17.4 The contractor shall provide enough fire protection equipment of the types and number for the ware-houses, office, temporary structures, labour colony area etc. Access to such fire protection equipment, shall be easy and kept open at all times.

18.0 SECURITY

The contractor shall have total responsibility for all equipment and materials in his custody stored, loose, semi-assembled and/or erected by him at site. The contractor shall make suitable security arrangements including employment of security personnel to ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss. All materials of the contractor shall enter and leave the project site only with the written permission of the engineer in the prescribed manner.

19.0 CONTRACTOR'S AREA LIMITS

The engineer will mark-out the boundary limits of access roads, parking spaces, storage and construction areas for the contractor and the contractor shall not trespass the areas not so marked out for him. The contractor shall be responsible to ensure that none of his personnel move out of the areas marked out for his operations. In case of such a need for the contractor's personnel to work out of the areas marked out for him, the same shall be done only with the written permission of the engineer.

20.0 CONTRACTOR'S CO-OPERATION WITH THE OWNER

In cases where the performance of the erection work by the contractor affects the operation of the system facilities of the owner, such erection work of the contractor shall be scheduled to be performed only in the manner stipulated by the engineer and the same shall be acceptable at all times to the contractor. The engineer may impose such restrictions on the facilities provided to the contractor such as electricity, water, etc. as he may think fit in the interest of the owner and the contractor shall strictly adhere etc. such restrictions and co-operate with the engineer. It will be the responsibility of the contractor to provide all necessary temporary instrumentation and other measuring devices required during start-up and operation of the equipment systems, which are erected by him. The contractor shall also be responsible for

flushing and initial filling of all the oil and lubricants required for the equipment furnished and erected by him, so as to make such equipment ready for operation. The contractor shall be responsible for supplying such flushing oil and other lubricants unless otherwise specified elsewhere in these documents & specifications.

21.0 PRE-COMMISSIONING TRIALS AND INITIAL OPERATIONS

The pre-commissioning trials and initial operations of the equipment furnished and erected by the contractor shall be the responsibility of the contractor as detailed in relevant clauses in section GTC. The contractor shall provide, in addition, test instruments, calibrating devices, etc. and the labour required for the successful performance of these trials. It is anticipated that the above test may prolong for a long time, the contractor's workmen required for the above test shall always be present at site during such trials.

22.0 MATERIALS HANDLING AND STORAGE

22.1 All the equipment furnished under the contract and arriving at site shall be promptly received, unloaded and transported and stored in the storage spaces by the contractor.

22.2 Contractor shall be responsible for examining all the shipment and notify the engineer immediately or any damage, shortage, discrepancy, etc. for the purpose of engineer's information only. The contractor shall submit to the engineer every week a report detailing all the receipts during the week. However, the contractor shall be solely responsible for any shortages or damage in transit, handling and/or in storage and erection of the equipment at the site. Any demurrage, wharfage and other such charges claimed by the transporters, railways etc. shall be to the account of the contractor.

22.3 The contractor shall maintain an accurate and exhaustive record detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the engineer at any time.

22.4 All equipment shall be handled very carefully to prevent any damage or loss. No bare wire ropes, slings, etc. shall be used for unloading and/or handling of the equipment without the specific written permission of the engineer. The equipment stored shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site.

22.5 All electrical panels, control gear, motors and such other devices shall be properly dried by heating before they are installed and energised. Motor bearings, slip rings, commutators and other exposed parts shall be protected against moisture ingress and corrosion during storage and periodically inspected. Heavy rotating parts in assembled conditions shall be periodically rotated to prevent corrosion due to prolonged storage.

22.6 All the electrical equipment such as motors, generators, etc. shall be tested for insulation resistance at least once in three months from the date of receipt till the date of commissioning and a record of such measured insulation values maintained by the contractor. Such records shall be open for inspection by the engineer.

22.7 The contractor shall ensure that all the packing materials and protection devices used for the various equipment during transit and storage are removed before the equipment are installed.

- 22.8 The consumable and other supplies likely to deteriorate due to storage must be thoroughly protected and stored in a suitable manner to prevent damage or deterioration in quality by storage.
- 22.9 All the materials stored in the open or duty location must be covered with suitable weather-proof and flameproof covering materials wherever applicable.
- 22.10 If the materials belonging to the contractor are stored in areas other than those earmarked for him, the engineer will have the right to get it moved to the area earmarked for the contractor at the contractor's cost.
- 22.11 The contractor shall be responsible for making suitable indoor storage facilities to store all equipment which require indoor storage. Normally, all the electrical equipment such as motors, control gear, generators, exciters and consumable like electrodes, lubricants etc. shall be stored in the closed storage space. The engineer, in addition, may direct the contractor to move certain other materials which in his opinion will require indoor storage, to indoor storage areas which the contractor shall strictly comply with.

23.0 CONSTRUCTION MANAGEMENT

- 23.1 The field activities of the contractors working at site, will be co-ordinated by the engineer and the engineer's decision shall be final in resolving any disputes or conflicts between the contractor and other contractors and tradesmen of the owner regarding scheduling and co-ordination of work. Such decision by the engineer shall not be a cause for extra compensation or extension of time for the contractor.
- 23.2 The engineer shall hold weekly meetings of all the contractors working at site, at a time and a place to be designated by the engineer. The contractor shall attend such meetings and take notes of discussions during the meeting and the decisions of the engineer and shall strictly adhere to those decisions in performing his works. In addition to the above weekly meetings, the engineer may call for other meetings either with individual contractors or with selected number of contractors and in such a case the contractor, if called will also attend such meetings.
- 23.3 Time is the essence of the contract and the contractor shall be responsible for performance of this works in accordance with the specified construction schedule. If at any time, the contractor is falling behind the schedule, he shall take necessary action to make good for such delays by increasing his work force or by working overtime or otherwise accelerate the progress of the work to comply with the schedule and shall communicate such actions in writing to the engineer, satisfying that his action will compensate for the delay. The contractor shall not be allowed any extra compensation for such action.
- 23.4 The engineer shall however not be responsible for provision of additional labour and/or materials or supply or any other services to the contractor except for the co-ordination work between various contractors as set out earlier.

24.0 FIELD OFFICE RECORDS

The contractor shall maintain at his site office up-to-date copies of all drawings, specifications and other contract documents and any other supplementary data complete with all the latest revisions thereto. The contractor shall also maintain in addition the continuous record of all changes to the above contract documents, drawings,

specifications, supplementary data, etc. effected at the field and on completion of his total assignment under the contract shall incorporate all such changes on the drawings and other engineering data to indicate as installed condition of the equipment furnished and erected under the contract. Such drawings and engineering data shall be submitted to the engineer in required number of copies. Daily work programme with progress of the previous day and deployment of labour related to work programme and attendance of workmen deployed during the previous day shall be maintained in a register. This register shall be signed by authorised representative of the contractor which will then be checked and signed by the owner's representative. Every three months this register shall be deposited to the owner which shall then be owners property.

25.0 CONTRACTOR'S MATERIALS BROUGHT ON TO SITE

25.1 The contractor shall bring to site all equipment, parts, materials, including construction equipment, tools and tackles for the purpose of the works with intimation to the engineer. All such goods shall, from the time of their being brought vest in the owner, but may be used for the purpose of the works only and shall not on any account be removed or taken away by the contractor without the written permission of the engineer. The contractor shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.

25.2 The owner shall have a lien on such goods for any sum or sums which may at any time be due or owing to him by the contractor, under, in respect of or by reasons of the contract. After giving a fifteen (15) days' notice in writing of his intention to do so, the owner shall be at liberty to sell and dispose of any such goods, in such manner as he shall think fit including public auction or private treaty and to apply the proceeds in or towards the satisfaction of such sum or sums due as aforesaid.

25.3 After the completion of the works, the contractor shall remove from the site under the direction of the engineer the materials such as construction equipment, erection tools and tackles, scaffolding etc. with the written permission of the engineer. If the contractor fails to remove such materials, within 15 days of issue of a notice by the engineer to do so then the engineer shall have the liberty to dispose of such materials as detailed under clause 25.2 above and credit the proceeds thereto the account of the contractor.

26.0 PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY

26.1 The contractor shall be responsible for any damage resulting from his operations. He shall also be responsible for protection of all persons including members of public and employees of the owner and the employees of other contractors and sub-contractors and all public and private property including structures, buildings, other plants and equipment and utilities either above or below the ground.

26.2 The contractor will ensure provision of necessary safety equipment such as barriers, sign-boards, warning lights and alarms, etc. to provide adequate protection to persons and property. The contractor shall be responsible to give reasonable notice to the engineer and the owners of public or private property and utilities when such property and utilities are likely to get damaged or injured during the performance of his works and shall make all necessary arrangements with such owners, related to removal and/or replacement or protection of such property and utilities.

27.0 PAINTING

All exposed metal parts of the equipment including pipings, structure railing etc. wherever applicable, after installation unless otherwise surface protected, shall be first painted with at least one coat of suitable primer which matches the shop primer paint used, after thoroughly cleaning all such parts of all dirt, rust, scales, greases, oils and other foreign materials by wire brushing, scarping or sand blasting, and the same being inspected and approved by the engineer for painting. Afterwards, the above parts shall be finished with two coats of alloyed resin machinery enamel paints. The quality of the finish paint shall be as per the standards of ISI or equivalent and to be of the colour as approved by the engineer.

28.0 INSURANCE

28.1 In addition to the conditions covered under the clause entitled insurance in general terms and conditions of contract of this volume-1, the following provisions will also apply to the portion of the works to be done beyond the contractor's own or his sub-contractor's works.

28.2 Workmen's compensation insurance

This insurance shall protect the contractor against all claims applicable under the Workmen's Compensation Act 1948 (Government of India). This policy shall also cover the contractor against claims for injury, disability disease or death of his or his sub-contractor's employees, which for any reason are not covered under the Workmen's Compensation Act 1948. The liabilities shall not be less than

Workmen's compensation	As per statutory
Employer's liability	provisions As per statutory provisions

The contractor shall directly pay the ex-gratia amount of Rs.15.00 (Fifteen) lakhs to the same dependent family members of the deceased contractor's worker, who died in mine accident as certified by DGMS, to whom the statutory benefits under Employee Compensation Act, Provident Fund etc. have been paid, as per the terms of contract or through Insurance Company by availing Group Personal Accident Insurance Policy for all its workers before commencement of the contract, which shall be renewed periodically to cover the entire duration of the contract. No reimbursement shall be made on this account by CIL.

In order to comply with the above provisions, contractor shall immediately on receipt of letter of acceptance/work order shall obtain group personal accident insurance in respect of all the workmen engaged in mining activities for payment of Rs.15.00(fifteen) lakhs in case of death in mine accident. A proof to such effect shall be produced to the satisfaction of the management before commencement of the work. However, the responsibility of payment of special relief/ex-gratia amount shall lie exclusively with the Contractor.

If the contractor fails to disburse the special Relief/Ex-gratia within the due date, the subsidiary concerned may make payment to the eligible dependent as mentioned herein above. However, such amount shall be recovered from the Contractor from his dues either in the same and/or other subsidiaries of CIL”.

28.3 Comprehensive Automobile Insurance

This insurance shall be in such a form to protect the contractor against all claims for injuries, disability, disease and death to members of public including the owner's men

and damage to the property of others arising from the use of motor vehicles during on or off the site operations, irrespective of the ownership of such vehicles.

28.4 Comprehensive General Liability Insurance

28.4.1 This insurance shall protect the contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act or omission on the part of the contractor, his agents, his employees, his representatives and sub-contractors or from riots, strikes and civil commotion. The insurance shall also cover all the liabilities of the contractor arising out of the clause entitled defense of suits under General Terms and Conditions of contracts.

28.4.2 The hazards to be covered will pertain to all the works which and areas where the contractor, his sub-contractors, his agents and his employees have to perform work pursuant to the contract.

28.5 The above are only illustrative list of insurance covers normally required and it will be the responsibility of the contractor to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect, in pursuance of the contract.

29.0 UNFAVOURABLE WORKING CONDITIONS

The contractor shall confine all his field operations to those works which can be performed without subjecting the equipment and materials to adverse effects, during inclement weather conditions, like monsoon, storms, etc. and during other unfavourable construction conditions. No field activities shall be performed by the contractor under conditions which might adversely affect quality and efficiency thereof, unless special precautions or measures are taken by the contractor in a proper and satisfactory manner in performance of such works and with concurrence of the engineer. Such unfavorable construction conditions will in no way relieve the contractor of his responsibility to perform works as per the schedule.

30.0 PROTECTION OF MONUMENTS AND REFERENCE POINTS

The contractor shall ensure that any finds such as relic, antiquity, coins, fossils, etc. which he might come across during the course of performance of his works either during excavation or elsewhere, are properly protected and handed over to the engineer. Similarly, the contractor shall ensure that the bench marks, reference points, etc., which are marked out either with the help of engineer or by the engineer shall not be disturbed in any way during the performance of his works. If any work is to be performed which disturb such references, the same shall be done only after these are transferred to other suitable locations under the direction of the engineer. The contractor shall provide all necessary materials and assistance for such relocation of reference points etc.

31.0 WORK AND SAFETY REGULATIONS

31.1 The contractor shall ensure proper safety of all the workmen, materials plant and equipment belonging to him or the Company or to others, working at or near the site. The contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislation and the engineer-in-charge as he may deem necessary.

31.2 The contractor will notify well in advance to the engineer-in-charge of his intention to bring to the site any container filled with liquid or gaseous fuel or explosive or petroleum substance or such chemicals which may involve hazards. The engineer-in-charge shall have the right to prescribe the conditions, under which such container is to be stored, handled and used during the performance of the works and the contractor shall strictly adhere to and comply with such instructions. The engineer-in-charge shall have the right at his sole discretion to inspect any such container or such construction plant/equipment for which material in the container is required to be used and if in his opinion, its use is not safe, he may forbid its' use. No claim due to such prohibition shall be entertained by the owner. Nor the owner shall entertain any claim of the contractor towards additional safety provisions/conditions to be provided for constructed as per engineer-in-charge's instructions.

Further any such decision of engineer-in-charge shall not, in any way, absolve the contractor of his responsibilities, and in case, use of such a container or entry thereof into the site area is forbidden by engineer-in-charge, the contractor shall use alternative methods with the approval of engineer-in-charge without any cost implication to Company or extension of work schedule.

31.3 Where it is necessary to provide and/or store petroleum products or petroleum mixtures and explosives, the contractor shall be responsible for carrying out such provision and/or storage in accordance with the rules and regulations laid down in Petroleum Act 1934, Explosives Act 1948, and Petroleum and Carbide of Calcium Manual Published by the Chief Inspector of Explosives of India. All such storage shall have prior approval of the engineer-in-charge. In case, any approvals are necessary from the Chief Inspector (Explosive) or any statutory authorities, the contractor shall be responsible for obtaining the same.

31.4 All equipment used in construction and erection by contractor shall meet Indian, International Standards and where such standards do not exist, the contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the contractor in accordance with manufacturer's operation manual and safety instructions and as per Guidelines/Rules of the Company in this regard.

31.5 Periodical Examinations and all tests for all lifting/hoisting equipment and tackles shall be carried out in accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated Laws/Rules enforced from time to time. A register of such examinations and tests shall be properly maintained by the contractor and will be promptly produced as and when desired by engineer-in-charge or by the person authorised by him.

31.6 The contract shall be fully responsible for the safe storage of his and his sub-contractors radio-active sources in accordance with BARC/DAE Rules and other applicable provisions. All precautionary measures stipulated by BARC/DAE in connection with use, storage and handling of such material will be taken by contractor.

31.7 The contractor shall provide suitable safety equipment of prescribed standard to all employee and workmen according to the need, as may be directed by engineer-in-charge who will also have right to examine these safety equipment to determine their suitability, reliability, acceptability and adaptability.

31.8 Where explosives are to be used, the same shall be used under the direct control and supervision of an expert, experienced, qualified and competent person strictly in

accordance with the code practices/rules framed under Indian Explosives Act pertaining to handling, storage and use of the explosives.

- 31.9 The contractor shall provide safe working conditions to all workmen and employees at the site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings, stairs, ladders etc. shall be erected under the control and supervision of an experienced and competent person. For erection, good and standard quality of material only shall be used by the contractor.
- 31.10 The contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the owner or other contractors under any circumstances, whatsoever, unless expressly permitted in writing by the Company to handle such fuses, wiring or electrical equipment.
- 31.11 Before the contractor connects any electrical appliances to any plug or socket belonging to the other contractor or owner, he shall:
- a satisfy the engineer that the appliances is in good working condition
 - b inform the engineer of the maximum current rating, voltage and phases of the appliances.
 - c obtain permission of the engineer detailing the sockets to which the appliances may be connected.
- 31.12 The engineer will not grant permission to connect until he is satisfied that:
- a. the appliance is in good condition and is fitted with a suitable plug.
 - b. the appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.
- 31.13 No electric cable in use by the contractor/owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.
- 31.14 No repair work shall be carried out on any live equipment. The equipment shall must be declared safe by engineer-in-charge and a permit to work shall be issued by engineer-in-charge before any repair work is carried out by the contractor. While working on electric lines/equipments whether alive or dead, suitable type and sufficient quantity of tools will have to be provided by contractor to electricians/workmen/officers.
- 31.15 The contractor shall employ necessary number of qualified, full time electricians/electrical supervisors to maintain in his temporary electrical installations.
- 31.16 The contractor employing more than 250 workmen whether temporary, casual, probationer, regular or permanent or on contract, shall employ at least one full time officer exclusively as safety officer to supervise safety aspects of the equipment and workmen who will co-ordinate with the project safety officer. In case of work being carried out through sub-contractor's, the sub-contractor's workmen/employees will also be considered as the contractor's employees/workmen for above purpose. The name and address of a such safety officer of contractor will be promptly informed in writing to engineer-in-charge with a copy to safety officer-in charge before he starts work or immediately after any change of the incumbent is made during currency of the contract.

- 31.17 In case any accident occurs during the construction/erection or other associated activities undertaken by the contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the contractor to promptly inform the same to the company's engineer-in-charge in prescribed form and also to all the authorities envisaged under the applicable laws.
- 31.18 The engineer-in-charge shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove short comings promptly. The contractor after stopping the specific work, can, if felt necessary, appeal against the order of stoppage of work to the General Manager of the project within 3 days of such stoppage of work and decision of the project G.M in this respect shall be conclusive and binding on the contractor.
- 31.19 The contractor shall not be entitled for any damages/compensation for stoppage of work due to safety reasons as provided in para 31.18 above and the period of such stoppage of work will not be taken as an extension of time for completion of work and will not be the ground for waiver of levy of liquidated damages.
- 31.20 The contractor shall follow and comply with all the Company safety rules relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment as may be prescribed from time to time without demur, protest or content or reservation. In case of any inconformity between statutory requirement and the Company safety rules referred above, the later shall be binding on the contractor unless the statutory provisions are more stringent.
- 31.21 If the contractor fails in providing safe working environment as per the Company safety rules or continues the work even after being instructed to stop work by engineer-in-charge as provided in para 31.18 above, the contractor shall promptly pay to the Company, on demand i.e. by the owner compensation at the rate of Rs. 5,000/= per day or part there of till the instructions are complied with and an so certified by engineer-in-charge. However, in case of accident taking place causing injury to any individual, the provisions contained in para 31.22 shall also apply in addition to compensation mentioned in this para.
- 31.22 If the contractor does not take all safety precautions and/or fails to comply with the safety rules as prescribed by the Company or under the applicable laws for the safety of the equipment and plant and for the safety of personnel and the contractor does not prevent hazardous conditions which cause injury to his own employees or employees of other contractors, or the Company employees or any other person who are at site or adjacent thereto, the contractor shall be responsible for payment of compensation under the relevant provisions of the workmen's compensation act and rules framed thereunder or any other applicable laws as applicable from time to time.

Permanent disablement shall have same meaning as indicated in workmen's compensation act. The compensation mentioned above shall be in addition to the compensation payable to the workmen/employees under the relevant provisions of the workmen's compensation act and rules framed thereunder or any other applicable laws as applicable from time to time.

In case the owner is made to pay such compensation then the contractor is liable to reimburse the owner such amount.

32.0 CODE REQUIREMENTS

The erection requirements and procedures to be followed during the installation of the equipment shall be in accordance with the relevant Indian Standard codes of practice or in their absence appropriate International Standard, Indian Boiler Regulations. ASME codes and accepted good engineering practice, the engineer's drawings and other applicable Indian recognised codes and the laws and regulations of the Government of India.

33.0 FOUNDATION DRESSING AND GROUTING

33.1 The surfaces of foundations shall be dressed to bring the top surface of the foundations to the required level, prior to placement of equipment/equipment bases on the foundations.

33.2 All the equipment bases and structural steel base plates shall be grouted and finished as per these specifications unless otherwise recommended by the equipment manufacturer.

33.3 The concrete foundation surfaces shall be properly prepared by chipping, grinding as required to bring the type of such foundation to the required level, to provide the necessary roughness for bondage and to assure enough bearing strength. All laitance and surface film shall be removed and cleaned.

33.4 GROUTING MIX

The grouting mixtures shall be composed of Portland cement, sand and water. The Portland cement to be used shall conform to ISI No. 269 or equivalent, sand shall conform to ISI No.383/2386 or equivalent. The grout proportions for flat based where the grouting space does not exceed 35 mm shall be 50 Kg bag of cement to 75 Kg of sand. Only the required quantity of water shall be added so as to make the mix quaky and flowable and the mix shall not show excess water on top when it is being puddled in place. For thicker grout beds upto 65 mm, the amount of sand shall be increased to 105 Kg per bag of cement. Bases which are hollow and are to be filed full of grouting shall be filled to a level of 25 mm above the outside rim with a mortar mix in the volumetric proportions of one bag of cement and 1.5 bags sand and 1.5 part 6 mm granite gravel. An acceptable plasticiser may be added to the grout mixes in a proportion recommended by the plasticisers manufacturer. All such grouts shall be thoroughly mixed for not less than five minutes in an approved mechanical mixer and shall be used immediately after mixing.

33.5 PLACING OF GROUT

33.5.1 After the base has been prepared, its alignment and level has been checked and approved and before actually placing the grout a low dam shall be set around the base at a distance that will permit pouring and manipulation of the grout. The height of such dam shall be at least 25 mm above the bottom of the base. Suitable size and number of chains shall be introduced under the base before placing the grout, so that such chains can be moved back and forth to push the grout into every part of the space under the base.

33.5.2 The grout shall be poured either through grout holes if provided or shall be poured at one side or at two adjacent sides giving it a pressure head to make the grout move in a solid mass under the base and out in the opposite side. Pouring shall be continued until the entire space below the base is thoroughly filled and the grout stands at least 25 mm higher all around than the bottom of the base. Enough care should be taken to avoid any air or water pockets beneath the bases.

33.6 FINISHING OF THE EDGES OF THE GROUT

The poured grout should be allowed to stand undisturbed until it is well set. Immediately thereafter, the dam shall be removed and grout which extends beyond the edges of the structural or equipment base plates shall be out off flush and removed. The edges of the grout shall then be pointed and finished with 1:2 cement mortar pressed firmly to bond with the body of the grout and smoothed with a tool to present a smooth vertical surface. The work shall be done in a clean and scientific manner and the adjacent floor spaces, exposed edges of the foundations, and structural steel and equipment base plates shall be thoroughly cleaned of any spillage of the grout.

33.7 CHECKING OF EQUIPMENT AFTER GROUTING

After the grout is set and cured, the contractor shall check and verify the alignment of equipment, alignment of shafts of rotating machinery, the slopes of all bearing pedestals, centring of rotors with respect to their sealing bores, couplings, etc. as applicable and the like items to ensure that no displacement had taken place during grouting. The values recorded prior to grouting shall be used during such post grouting check-up and verifications. Such pre and post grout records of alignment details shall be maintained by the contractor in a manner acceptable to the engineer.

34.0 SHAFT ALIGNMENTS

All the shafts of rotating equipment shall be properly aligned to those of the matching equipment to as perfect an accuracy as practicable. The equipment shall be free from excessive vibration so as to avoid over-heating of bearings or other conditions which may tend to shorten the life of the equipment. All bearings, shafts and other rotating parts shall be thoroughly cleaned and suitably lubricated before starting.

35.0 DOWELING

All the motors and other equipment shall be suitably doweled after alignment of shafts with tapered machined dowels as per the direction of the engineer.

36.0 CHECK OUT OF CONTROL SYSTEMS / POWER SUPPLY

After completion of wiring, cabling furnished under separate specifications and laid and terminated by the owner, the contractor shall check out the operation of all control systems for the equipment furnished and installed under these specifications and documents. The contractor shall get the drawings pertaining to the control system, power supply etc. approved from Directorate General of Mine Safety (DGMS) or any other appropriate authority as necessary, wherever required as per the rules and regulations of the of Indian Mines Act governed by D.G.M.S.

37.0 COMMISSIONING SPARES

The contractor shall make arrangement for an adequate inventory at site of necessary commissioning spares prior to commissioning of the equipment furnished and erected so that any damage or loss during this commissioning activities necessitating the requirements of spares will not come in the way of timely completion of the works under the contract.

38.0 CABLING

- 38.1 All cables shall be supported by conduits or cable tray run in air or in cable channels. These shall be installed in exposed runs parallel or perpendicular to dominant surfaces with right angle turn made of symmetrical bends or fittings. When cables are run on cable trays, they shall be clamped at a minimum interval of 2000 mm or otherwise as directed by the engineer.
- 38.2 Each cable, whether power or control, shall be provided with a metallic or plastic of an approved type, bearing a cable reference number indicated in the cable and conduit list (prepared by the contractor), at every 5 metre run or part there of and at both ends or the cable adjacent to the terminations. Cable routing is to be done in such a way that cables are accessible for any maintenance and for easy identification.
- 38.3 Sharp bending and kinking of cables shall be avoided. The minimum radii for PVC insulated cables 1100 V grade shall be $15D$, where D is the overall diameter of the cable. Installation of other cables like high voltage, coaxial, screened, compensating, mineral insulated shall be in accordance with the cable manufacturer's recommendations. Wherever cables cross roads and water, oil, sewage or gas lines, special care should be taken for the protection of the cables in designing the cable channels.
- 38.4 In each cable run some extra length shall be kept at a suitable point to enable one to two straight through joints to be made should the cable develop fault at a later date.
- 38.5 Control cable terminations shall be made in accordance with wiring diagrams, using identifying codes subject to engineer's approval. Multicore control cable jackets shall be removed as required to train and terminate the conductors. The cable jacket shall be left on the cable, as far as possible, to the point of the first conductor branch. The insulated conductors from which the jacket is removed shall be neatly twined in bundles and terminated. The bundles shall be firmly but not tightly tied utilising plastic or nylon ties or specially treated fungus protected cord made for this purpose. Control cable conductor insulation shall be securely and evenly cut.
- 38.6 The connectors for control cables shall be covered with a transparent insulating sleeve so as to prevent accidental contact with ground or adjacent terminals and shall preferably terminate Elmex terminals and washers. The insulating sleeve shall be fire resistant and shall be long enough to over-pass the conductor insulation. All control cables shall be fanned out and connection made to terminal blocks and test equipment for proper operation before cables are corded together.

SECTION -IV

GUIDELINES ON DEBARMENT OF FIRMS FROM BIDDING

SECTION- IV

GUIDELINES ON DEBARMENT OF FIRMS FROM BIDDING

CIL and its Subsidiary Companies shall follow the following guidelines for effecting 'Debarment of firms from Bidding' with a contracting entity in respect of Works and Services Contracts.

1. Observance of Principle of Natural Justice before debarment of firm from Bidding. The

Bidder /contractor shall not be debarred unless such bidder/contractor has been given a reasonable opportunity to represent against such debarment (including personal hearing, if requested by the bidder/contractor).

- 2 The terms 'banning of firm', 'Suspension', 'Blacklisting' etc. convey the same meaning as of 'Debarment'.
- 3 The order of debarment shall indicate the reasons(s) in brief that lead to debarment of the firm.
4. The contracting entity may be debarred from bidding in the following circumstances: -
 - i) Withdrawal of Bid as per relevant provisions of tender document. The contracting entity bidder/contractor may be debarred in the following circumstances: -
 - ii) If L-1 Bidder fails to submit PSD, if any and/or fails to execute the contract within stipulated period.
 - iii) If L-1 Bidder fails to start the work on scheduled time.
 - iv) In case of failure to execute the work as per mutually agreed work schedule.
 - v) Continued and repeated failure to meet contractual Obligations:
 - a. In case of partial failure on performance, agency shall be debarred from future participation in tenders keeping his present contract alive.
 - b. On termination of contract.
 - vi) Willful suppression of facts or furnishing of wrong information or manipulated or forged documents by the Agency or using any other illegal/unfair means.
 - vii) Formation of price cartels with other contractors with a view to artificially hiking the price.
 - viii) The contractor fails to maintain/repair/redo the work up to the expiry of performance guarantee period, when it is specifically brought to his notice.
 - ix) Contractor fails to use Mobilization advance given to him for the purpose it was intended.
 - x) Contractor fails to renew the securities deposited to the department.
 - xi) The contractor fails to rectify any lapse(s) in quality of the work done within defect liability period.
 - xii) Transgression of any clause(s) relating to Contractor's obligation defined in the Integrity Pact wherever such Pact exists.
 - xiii) Any other breach of Contract or misdeed which may cause financial loss or commercial disadvantage to the Company.
 - xiv) If it is determined that the bidder has breached the Code of Integrity for Public Procurement (CIPP) as provided in the tender document.
 - xv) False declarations w.r.t Make in India Order.

xvi) In case of supply of sub-standard materials, sub-standard quality of work, non-execution of work, non-supply of materials, failure to abide by bid securing declaration (if any) etc.

In case of price cartel, matter shall be reported to the Competition Commission and requesting, inter-alia, to take suitable strong actions against such firms.

5. Such 'Debarment, if any when effected, shall be with prospective effect only. The effect of 'Debarment' shall be for future tenders from the date of issue of such Order. No contract of any kind whatsoever shall be placed to debarred firm after the issue of a debarment order by DoE/MoC/CIL/Subsidiary (as applicable) if such debarment has been done before the last date of bid submission. Even in the case of risk purchase, no contract should be placed on such debarred firms.

In case, any debarred firms have submitted the bid, the same will be ignored. In case such firm is lowest (L-1), next lowest firm shall be considered as L-1. Bid security/ EMD submitted by such debarred firms shall be returned to them.

The contracts concluded i.e. issue of LOA/issue of work order, before the issue of the debarment order shall not be affected by the debarment orders.

6. In case CIL is of the view that a particular firm should be banned across all the Ministries/ Departments by debarring the firm from taking part in any bidding procedure floated by the Central Government Ministries/Departments, CIL may refer the case to MoC with the approval of Chairman, CIL for referring the case DoE with a self-contained note setting out all the facts of the case and the justification for the proposed debarment, along with all the relevant papers and documents.

This shall be done only in those case where debarment has been done across CIL and its Subsidiaries.

7. The debarment shall be for a minimum period of one year and shall be effective for the concerned Subsidiary for the tenders invited at Subsidiary level. Similarly, in case of tenders of CIL HQ, debarment shall be for CIL HQ. However, if such 'debarment' has to be made effective for entire CIL and its Subsidiaries then approval of Chairman, CIL shall be required. The period of debarment shall not exceed 02(Two) years. In case of clause (4)(vi) & (xv) above, period of debarment shall be 02(Two) years.
8. Once a contracting entity is debarred, it shall be extended to the constituents of that entity, i.e. partners (jointly and severally) in case of Joint Venture, all the partners (jointly and severally) in case of Partnership Firm, owner/proprietor in case of Proprietorship Firm. The names of partners should be clearly specified in the Debarment Order. If such debarred owner/Proprietor/ Partner make/form different Firms/entity and attempts to participate in tenders, the same shall not be entertained during the currency of such debarment. In case the contracting entity being debarred is a Company then only the Company shall be debarred.

Note: "Company" means a company incorporated under Company's Act 2013 or under any previous company law.

9. The above 'Debarment' shall be in addition to other penal provisions of NIT/Contract document.
10. Debarment in any manner does not impact any other contractual or other legal rights of CIL and/or its Subsidiaries.
11. In case of shortage of firms (less than three eligible firms) in a particular group, such debarments may also hurt the interest of CIL and/or its Subsidiaries. In such cases, endeavour

should be to pragmatically analyse the circumstances, try to reforms the firm and may get a written commitment from the firm that its performance will improve.

12. Approving Authority: The 'Debarment' of a contracting entity shall be done with the approval of the Competent Authority as per the details below:
 - a) In case the Accepting Authority of the work is Board or Empowered Committee or FDs or CMD of CIL/Subsidiary Company, then the Competent Authority for debarring shall be CMD of CIL/Subsidiary Company.
 - b) In case the Accepting Authority of the work is up to the level of Director of CIL/Subsidiary Company, then the Competent Authority for debarment shall be Director of CIL/Subsidiary Company.
13. An order for debarment passed shall be deemed to have been automatically revoked on the expiry of that period and it shall not be necessary to issue a specific formal order of revocation.

A debarment order may be revoked before the expiry of the Order, by the competent authority, if it is of the opinion that the disability already suffered is adequate in the circumstances of the case or for any other reason.
14. Appellate Authority for debarment orders shall be CMD of CIL/ Subsidiary Company. In case the debarment is done with the approval of CMD of the Subsidiary Company then Chairman, CIL shall be Appellate Authority. The appellate authority in case debarment is done with approval of Chairman CIL, shall be CFD of CIL.
15. Any change on the above may be done with approval of FDs of CIL.
16. All the orders of debarment or orders passed in appeal shall be marked to GM(CMC) / Civil / concerned HODs of CIL/Subsidiary Company/ Application Admin of e-procurement portal of CIL/Nodal officers of Subsidiaries. Application Admin of e-procurement portal of CIL/Nodal officers of Subsidiaries shall maintain the master data of such banned firms which shall be made available in the public domain (i.e. on the website of CIL/Subsidiaries/ e-Procurement portal of CIL).

SECTION -V
SAFETY CODE

SECTION – V
SAFETY CODE

The Contractor must ensure safety of workmen as well as safety for the general public during construction in and around work-site. The contractor must follow the laws, codes

and standards laid down in this regard. The workmen must be trained and provided protective gear, life-saving equipment and appropriate tools for their jobs. Special precautions must be used if hazardous chemicals are used or stored at workplace (lead, silica, asbestos and wood/stone that will be cut and generate dust, construction materials containing zinc, cadmium, beryllium and mercury). Besides protection from noise and environmental pollution, public must also be safeguarded from falling through dug-up area, electrocution, flooding, falling objects, bridge-span dropping/ failures, crane falling/ overturning and damage to building from vibrations/ cave-ins from construction activities. Engineer must ensure that contractor does not adopt any short-cut in this regard. Appointment of site safety engineer by the contractor is a mandatory requirement (in case estimated cost is Rs 100 Cr or more). In tenders with estimated cost is less than Rs 100 Cr, site in-charge of the contractor will also act as safety engineer. In case estimated cost of Rs 100 Cr or more, the engineer shall engage safety experts to carry out frequent safety audits and mandate correct measures.

1. Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable footholds and hand-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 ($\frac{1}{4}$ horizontal and 1 vertical).
2. Scaffolding of staging more than 3.6 m (12ft). above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm (3ft) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
3. Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6 m (12ft) above ground level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.
4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm (3ft).
5. Safety means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 m (30ft) in length while the width between side rails in rung ladder shall in no case be less than 20 cm (11 $\frac{1}{2}$ "") for ladder up to and including 3 m (10ft) in length. For longer ladders, this width should be increased at least $\frac{1}{4}$ " for additional 30 cm (1ft.) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defense of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit; action or proceedings to any such person or which may, with the consent of the contractor, be paid to compensate any claim by any such person.

6. Excavation and Trenching: All trenches 1.2 m (4ft) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 ft.) in length or fraction thereof. Ladder shall extend from bottom of the trench to at least 90 cm (3ft) above the surface of the ground. The side of the trenches which are 1.5 m (5ft) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m (5ft) of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances, undermining or undercutting shall be done.
7. Demolition: before any demolition work is commenced and also during the progress of the work,
 - i. All roads and open areas adjacent to the work site shall either be closed or suitably protected.
 - ii. No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.
 - iii. All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.
8. All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned: - The following safety equipment shall invariably be provided.
 - i) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
 - ii) Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes, shall be provided with protective goggles.
 - iii) Those engaged in welding works shall be provided with welder's protective eye-shields.
 - iv) Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
 - v) When workers are employed in sewers and manholes, which are in active use, the contractors shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public. In addition, the contractor shall ensure that the following safety measures are adhered to:-
 - a) Entry for workers into the line shall not be allowed except under supervision of the Engineering Assistant or any other higher officer.

- b) At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manhole for working inside.
- c) Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes colour in the presence of such gases and gives indication of their presence.
- d) Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.
- e) Safety belt with rope should be provided to the workers. While working inside the manholes, such rope should be handled by two men standing outside to enable him to be pulled out during emergency.
- f) The area should be barricaded or condoned of by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.
- g) No smoking or open flames shall be allowed near the blocked manhole being cleaned.
- h) The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.
- i) Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-in-Charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.
- j) Gas masks with Oxygen Cylinder should be kept at site for use in emergency.
- k) Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at least 2 meters away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.
- l) The workers engaged for cleaning the manholes / sewers should be properly trained before allowing to work in the manhole.
- m) The workers shall be provided with Gumboots or non-sparking shoes bump helmets and gloves non sparking tools safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.
- n) Workmen descending a manhole shall try each ladder stop or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

- o) If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him.
 - p) The extents to which these precautions are to be taken depend on individual situation but the decision of the Engineer-in-Charge regarding the steps to be taken in this regard in an individual case will be final.
- vi) The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, the following precaution should be taken: -
- a) No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
 - b) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.
 - c) Overalls shall be supplied by the contractors to the workmen and adequate facilities shall be provided to enable the working painters to wash during and on the cessation of work.
 - d) Measures shall be taken, wherever practicable, to prevent danger arising out of from dust caused by dry rubbing down and scraping.
 - e) Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.
 - f) Overall shall be worn by working painters during the whole of working period.
 - g) Suitable arrangement shall be made to prevent clothing put off during working hours being spoiled by painting materials.
- 9.** When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision, should be made for prompt first aid treatment of all injuries likely to be obtained during the course of the work.
- 10.** Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions: -
- i).(a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.
 - (b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.
 - ii) Every crane driver or hoisting appliance operator, shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding winch or give signals to operator.

- iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
 - iv) In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-Charge. As regards contractor's machines the contractors shall notify the safe working load of the machine to the Engineer-in-Charge whenever he brings any machinery to site of work and get it verified by the Electrical Engineer concerned.
11. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energized, insulating mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided. The worker should not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
 12. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.
 13. These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.
 14. To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the contractor shall be open to inspection by the Labour Officer or Engineer-in-Charge of the department or their representatives.
 15. Notwithstanding the above clauses from (1) to (14), there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

SECTION -VI
TECHINICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

Technical Specifications to be followed:

Civil Engineering Works

All workmanship, materials and work items shall conform to relevant IS / BIS / MORTH / NBC STANDARDS. In case of items not adequately covered by above mentioned Indian Standards, the CPWD / NBO practices shall be followed.

Electrical Engineering Works

Latest CPWD specification shall be adopted. Presently the following are in vogue:

Part No.	Description	Year of Issue
I	Internal	2013
III	Lifts and Escalators	2003
V	Wet Riser and Sprinklers System	2020
VI	Heating, Ventilation and Air Conditioning Works	2017

All latest version of relevant BIS Codes shall also be followed.

Public procurement (Preference to make in India) order 2017 with latest amendment(s) will have to be complied with by the contractor wherever applicable.

SECTION -VII

E-Tender PORTAL USER AGREEMENT

In order to create a user account and use the e-Tender portal you must read and accept this e-Tender portal User Agreement.

A. UNDERTAKINGS TO BE FURNISHED ONLINE BY THE BIDDER

I DO HEREBY UNDERTAKE

1. That all the information being submitted by me/us is genuine, authentic, true and valid on the date of submission of tender and if any information is found to be false at any stage of tendering or contract period, I/We will be liable to the following penal actions apart from other penal actions prescribed elsewhere in the tender document.
 - a. Cancellation of my/our bid/contract (as the case may be)
 - b. Forfeiture of EMD
 - c. Punitive action as per tender document
2. That I/we accept all terms and condition of NIT, including General Terms and Condition and Special/Additional Terms and Condition as stated there in the tender document as available on the website.
3. That I/we accept the Integrity Pact as given in the tender document (if applicable).
4. That I/we, am/are giving my/our consent for e-payment and submitting/ shall submit the mandate form for e-Payment in the format as prescribed in the document in case, the work is awarded to us.
5. That I/we do authorize CIL/Subsidiary for seeking information/clarification from my Bankers having reference in this bid.
6. That I/we will upload original/certified photo/scanned of all the relevant documents as prescribed in the tender document in support of the information and data furnished by me/us online.
7. I/We confirm that I/We have not been banned or de-listed by any Govt. or Quasi Govt. agencies or PSUs. In case We are banned or delisted this information shall be specifically informed to the tender issuing authority.
8. That I/We accept all the undertakings as specified elsewhere in the tender document.
9. That this online agreement will be a part of my bid and if the work is awarded to me/us, this will be a part of our agreement with CIL/Subsidiary Company.

B. TERMS AND CONDITIONS OF E-TENDER SERVICES AGREEMENT

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<https://coalindiaticenders.nic.in> is an e-procurement portal of Coal India Limited/its Subsidiary.

THIS E-TENDER PORTAL AND RELATED SERVICES SUBJECT TO YOUR COMPLIANCE WITH THE USER'S TERMS AND CONDITIONS SET FORTH BELOW:

PLEASE READ THE FOLLOWING INFORMATION CAREFULLY. YOU MAY NOT COMPLETE YOUR REGISTRATION AND USE THE E-TENDER PORTAL WITHOUT AGREEING TO COMPLY WITH ALL OF THE TERMS AND CONDITIONS SET FORTH BELOW.

BY REGISTERING THE USER NAME AND PASSWORD, YOU AGREE TO ABIDE BY ALL THE TERMS AND CONDITIONS SET FORTH BELOW:

Bidder Registration, Password and Security:

Upon successful completion of Registration online, User ID and Password will be registered. You can login, only by giving valid User ID and Password and then signing with your valid Digital Signature Certificate.

The Online registration/enrollment of bidder on the portal should be done in the name of the bidder. The person whose DSC is attached to the Registered Bidder should be either the bidder himself Or, duly authorized by the Bidder.

User ID and password are strictly personal to each Authorised User and non-transferable. The User shall ensure that its Authorised Users do not divulge or disclose their user ID or password to third parties. In the event that the Authorised User comes to know that the User ID/Password has been/ might have been divulged, disclosed or discovered by any third party, user or its authorized user shall immediately modify the password using "Change Password" option. CIL/subsidiary will have no responsibility or obligation in this regard.

At the time of enrollment in the e-Tendering portal of CIL/its Subsidiaries, the Bidders should ensure that the status of DSC is active on this site. The activation of newly issued DSC may take 24 hrs or more. Hence Bidders who are obtaining new DSC should register at least 24 hrs before the submission of Bid.

By registering in this portal you forthwith assume the responsibility for maintaining the confidentiality of the Password and account, and for all activities that occur under your Password or Account. You also agree to (a) immediately notify by e-mail to Application Administrator/Nodal officer, of any unauthorized use of your Password or Account or any other breach of security, and (b) ensure that you log-out from your account at the end of each session. CIL/its Subsidiaries shall not be liable for any loss or damage caused to you due to your failure to comply with the foregoing.

Registered user can modify or update some of the information in their profile as and when required at their own discretion. However, some information such as "User ID" are protected against changes by Bidder after enrollment and some other information such as "Bidder Name" etc. are protected against changes by Bidder after bid submission.

Modification of software:

With consent of Project Advisory Committee, e-procurement of CIL, the Administrator of e-Tender portal, reserves the right to modify, add, delete and/or change the contents, classification and presentation of the information on the market place at any time as it may in its absolute discretion find to be expedient and without giving any notice. It is the users responsibility to refer to the terms and/or any change or addition to the same while accessing the site.

Coal India Limited reserves right to interrupt/suspend the availability of the e-Tender system without any notice to the users.

System Requirements:

It is the users responsibility to comply with the system requirements: hardware, software, Internet connectivity at user premises to access the eTender portal as mentioned in the home page in the link "Resources Required".

Under any circumstances, CIL shall not be liable to the Users for any direct/indirect loss incurred by them or damages caused to them arising out of the following:

- (a). Incorrect use of the e-Tender System, or;

- (b). Internet Connectivity failures in respect of the equipments used by the Users or by the Internet Service Providers, or;

- (c). Inability of the Bidder to submit their bid due to any DSC related problems, hardware, software or any other factor which are personal/ special/local to the Bidder.

Contents of Tender Information:

Tenders shall be published by the authorized Tender Inviting Authorities of the respective Tendering entities of CIL/subsidiary. In case of any clarifications arising out of the tenders, the users have to contact the respective Tender Inviting Authority.

Bid Submission Acknowledgement:

The User should complete all the processes and steps required for Bid submission. The successful Bid submission can be ascertained once acknowledgement is given by the system through Bid Submission number i.e. Bid ID, after completion of all the processes and steps. Coal India Limited is not responsible for incomplete bid submission by users. Users may also note that the incomplete bids will not be saved by the system and so the same will not be available to the Tender Inviting Authority for processing. The acknowledgment is the only confirmation of submission of bid, which the bidder can show as a proof of participating in the tender. Other than this acknowledgement, no proof will be considered as a confirmation to the submission of a bid. If the bidder fails to produce this acknowledgement required for verification in case of dispute, his claim for submission of bid may not be considered.

Upload files:

The bidders have to ensure that the files being uploaded by them are free from all kinds of viruses and contain only the relevant information as stated by the Tender Inviting Authorities for the particular tender. It is not obligatory on the part of CIL/subsidiary to read each and every document uploaded by the Bidder. If any bidder/Company has uploaded/attached irrelevant data, bogus or fabricated certificates towards his qualification requirements to the respective tender then their User account will be liable for termination permanently or temporarily by CIL/subsidiary without any prior notice.

User Conduct:

You agree that all information, data, text, software, photographs, graphics, messages or other materials ("Content"), whether publicly posted or privately transmitted, are the sole responsibility of the person from which such Content is originated. This means that you are entirely responsible for all Content that you upload, post, email or otherwise transmit via the e-Tender portal.

CIL/subsidiary does not control the Content posted via the e-Tender portal and, as such, does not guarantee the accuracy, integrity or quality of such Content. Hence under no circumstances, CIL/subsidiary is liable in any manner for any Content, including, but not limited to, for any errors or omissions in any Content, or for any loss or damage of any kind incurred as a result of the use of any Content posted, e-mailed or otherwise transmitted via the Site.

Amendments to a tender published:

You agree that the CIL/ Subsidiary companies reserves the right to re-tender /cancel a tender or extend the closing date or amend the details of tender at any time by publishing corrigendum as applicable.

Special Admonitions For International Use:

Recognizing the global nature of the Internet, you agree to comply with all local rules regarding online content and acceptable Content. Specifically, you agree to comply with all applicable laws regarding the transmission of technical data to and from India or the country in which you reside.

Links:

The Site may provide, links to other World Wide Web sites or resources. Because CIL/subsidiary has no control over such sites and resources, you acknowledge and agree that the CIL/Subsidiary is not responsible for the availability of such external sites or resources, and does not endorse and is not responsible or liable for any Content, advertising, products, or other materials on or available from such sites or resources.

You further acknowledge and agree that the CIL/subsidiary shall not be responsible or liable, directly or indirectly, for any damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such Content, Goods or Services available on or through any such site or resources.

Miscellaneous:

This Agreement shall all be governed and construed in accordance with the laws of India & applicable to agreements made and to be performed in India. The e-Tender portal's failure to insist upon or enforce strict performance of any provision of this Agreement shall not be construed as a waiver of any provision or right. Neither the course of conduct between the parties nor trade practice shall act to modify any provision of this Agreement. CIL/subsidiary may assign its rights and duties under this Agreement to any party at any time without notice to you. Any rights not expressly granted herein are reserved.

Governing Law:

Terms shall be governed by, and construed in accordance with, Indian law. The parties agree that the principal civil court of the place where the registered office of Coal India/Subsidiary Company is situated shall have non-exclusive jurisdiction to entertain any dispute with Coal India/Subsidiary company. In case of dispute being with a regional Institute of CMPDIL, the principal Civil Court where the said regional Institute is situated shall be place of suing.

CIL/subsidiary reserves the right to initiate any legal action against those bidders violating all or any of the above mentioned terms & conditions of e-Tender services agreement.

Modification of terms of Agreement:

CIL/its Subsidiaries reserves the right to add to or change/modify the terms of this Agreement. Changes could be made by us after the first posting to the Site and you will be deemed to have accepted any change if you continue to access the Site after that time. CIL/its Subsidiaries reserves the right to modify, suspend/cancel, or discontinue any or all services/ make modifications and alterations in any or all of the content, at any time without prior notice.

Policy and Security:

General Policy:

CIL/its Subsidiaries is committed to protecting the privacy of our e-Tender site visitors. CIL/subsidiary does not collect any personal or business information unless you provide it to us voluntarily when conducting an online enrolment, bid submission etc. or any other transaction on the Site.

Information Collected:

When you choose to provide personal or business information to us to conduct an online transaction, we use it only for the purpose of conducting the specific online transaction that you requested. The information is also used for the purpose of vendor searches. For each online transaction, we require only a minimum amount of personal and business information required to process your transaction.

When you visit our portal to browse, read pages, or download information, we automatically collect and store only the following information:

The Internet domain and IP address from which you access our portal;

The date and time you access our portal;

The pages you visit

This information would help us to make our site more useful to visitors and to learn about the number of visitors to our site and the types of technology our visitors use.

We do not give, share, sell or transfer any personal information to a third party unless required to do so by law. If you do not want any personal or business information to be collected, please do not submit it to us ; however, without this required information we will be unable to process your online bid submission or any other online transaction. Review, update and correction of any personal or business information can be done directly on the Site.

Use of Cookies:

When you choose to enter into an online transaction, we use cookies to save the information that you input while progressing through the transaction. A cookie is a very small amount of data that is sent from our server to your computers hard drive. By enabling this feature, the cookie will remember the data entered by you and next time when you visit this site, the data stored in the cookie will be available in future.

Security:

The Site has security measures in place to protect against the loss, misuse and alteration of information under our control.

eMail / SMS Notifications:

The GePNIC eProcurement Server has functionality of automatically sending eMail / SMS alerts at various events as per the bidders preference. There is no manual intervention while sending these predefined eMail / SMS alerts. All events for which eMails / SMS being sent is also available to users on the Dash Board / the user login of the Bidder. Although all efforts will be

made to ensure timely delivery of eMail / SMS, due to dependency in various other external factors, the delivery of eMail / SMS may not be assured and bidders are requested to check the portal on a periodic basis for any such events. Non receipt of eMail / SMS cannot be quoted as a reason for failure of service as this is an added facility being provided to users.

SECTION – VIII

ANNEXURES

Annexure-I: PROFORMA FOR LETTER OF BID TO BE ACCEPTED UNCONDITIONALLY BY BIDDER DURING SUBMISSION OF BID ONLINE: (TO BE ACCEPTED THROUGH GTE)

Annexure-II: Proforma For Undertaking to Be Accepted Unconditionally By Bidder/S For Genuineness Of The Information Furnished Online And Authenticity Of The Documents Uploaded Online In Support Of His Eligibility (To Be Accepted Through GTE)

Annexure-III: Mandate Form for Electronic Fund Transfer / Internet Banking Payment.

Annexure-IV: Proforma For Execution of Agreement.

Annexure-V: Proforma Of Memorandum (To Be A Part of Contract Agreement)

Annexure-VI: Proforma Of Bank Guarantee for Performance Security Deposit (PSD)

Annexure-VII: Proforma Of Bank Guarantee for Mobilization Advance

Annexure-VIII: Pro forma Of Joint Venture Agreement

Annexure-IX: Pre-Contract Integrity Pact

Annexure-X: Proforma For Undertaking to Be Uploaded by Bidder/S (On Their Letter Head) Regarding Relatives as Employees of Company, Arbitration Clause (In Case Of Partnership Firm/JV/Consortium), Local Supplier Status Of The Bidder Etc.

Annexure XI: Proforma for Bank Guarantee against Release of Retention Money Deducted from Running on Account Bills.

Annexure XII: Invitation and Declaration for Negotiations

Annexure XIII: Format of Revised Offer in Negotiations

Annexure XIV: Format for No Claim Certificate

~~Annexure XV: Proforma For Written Consent for Arbitration Clause (Applicable for Partnership Firm & Joint Venture)~~

FORMAT FOR LETTER OF BID
PROFORMA FOR LETTER OF BID TO BE ACCEPTED UNCONDITIONALLY BY
BIDDER DURING SUBMISSION OF BID ONLINE:
(TO BE ACCEPTED THROUGH GTE)

FORMAT OF “Letter of Bid”

To,
The GM(E&M)/HOD
Central Coalfields Limited

Sub:Letter of Bid for the work “Planning, Design, Engineering, Construction, Fabrication, Supply, Erection, Installation, Testing, Trial Run and Commissioning of Renovation of Surface Belt Conveyor Consisting of all Electrical, Civil, Structural and all other accessories and facilities required to make it complete in all respects on Turnkey Basis at CHURI Underground Mines, N K AREA CCL

Ref: 1. NIT No.: “GM(E&M)/e-tender/24/722 dated 22.04.2024”

2. Tender Id No.: “2024_CCL_306863_1”

Dear Sir,

This has reference to above referred bid. I/we have read and examined the conditions of contract, Scope of Work, technical specifications, BOQ and other documents carefully.

I/We am/are pleased to submit our bid for the above work. I/We hereby unconditionally accept the bid conditions and bid documents as available in the website/e-Procurement portal, in its entirety for the above work and agree to abide by and fulfill all terms and conditions and specifications as contained in the bid document.

I/we here by submit all the documents as required to meet the eligibility criteria as per provision of the bid notice/document.

I/We hereby confirm that this bid complies with the Bid validity, Bid Security and other documents as required by the Bidding documents.

If any information furnished by me/us towards eligibility criteria of this bid is found to be incorrect at any time, penal action as deemed fit may be taken against me/us for which I/We shall have no claim against CIL/Subsidiary.

Until a formal agreement is prepared and executed, this bid and your subsequent Letter of Acceptance/Work Order shall constitute a binding contract between us and Central Coalfields Ltd.

Should this bid be accepted, we agree to furnish Performance Security within stipulated date and commence the work within stipulated date. In case of our failure to abide by the said provision Central Coalfields Ltd. shall, without prejudice to any other right or remedy, be at liberty to” cancel the letter of acceptance/ award and to forfeit the Earnest Money and also debar us from participating in future tenders for a minimum period 12 months” OR to act as specified in the NIT.

PROFORMA FOR UNDERTAKING TO BE ACCEPTED

UNCONDITIONALLY BY BIDDER/S FOR GENUINENESS OF THE
INFORMATION FURNISHED ONLINE AND AUTHENTICITY OF THE
DOCUMENTS UPLOADED ONLINE IN SUPPORT OF HIS ELIGIBILITY:
(TO BE ACCEPTED THROUGH GTE)

FORMAT OF UNDERTAKING

We solemnly declare that:

1. I/We am/are submitting Bid for the work “Planning, Design, Engineering, Construction, Fabrication, Supply, Erection, Installation, Testing, Trial Run and Commissioning of Renovation of Surface Belt Conveyor Consisting of all Electrical. Civil, Structural and all other accessories and facilities required to make it complete in all respects on Turnkey Basis at CHURI Underground Mines, N K AREA CCL” against Tender Ref. No GM(E&M)/e-tender/24/722 Dated 22.04.2024 and Tender ID No. 2024_CCL_306863_1 and I/we offer to execute the work in accordance with all the terms, conditions and provisions of the bid.
2. All information furnished by us in respect of fulfilment of eligibility criteria and qualification information of this Bid is complete, correct and true.
3. All copy of documents, credentials and documents submitted along with this Bid are genuine, authentic, true and valid.
4. I/ We hereby authorize department to seek references / clarifications from our Bankers.
5. We hereby undertake that we shall register and obtain license from the Competent Authority under the contract labour (Regulation & Abolition Act) as relevant, if applicable.
6. I/We have not been debarred by any procuring entity for violation of Preference to Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) dated 16.09.2020, issued by Govt. of India as amended from time to time.
7. I/We do not have relationship with any other participating Bidders, directly or through common third parties, that puts us in a position to have access to information about or influence on the bid of another Bidder, or
8. I/We or any of my/our affiliate has/have not participated as consultant in the preparation of the design or technical specification of the contract that is the subject of the bid.
9. Certificate regarding compliance to order no.F.No.6/18/2019-PPD dt 23/7/2020 as amended from time to time of Ministry of Finance, Dept of Expenditure, Public Procurement Division with respect to restrictions on procurement of goods, services or works from a Bidder of a country which shares a land border with India and on sub-contracting to Contractors from such countries - I/we have read the Clause regarding restrictions on procurement from a Bidder of a country which shares a land border with India and on sub-contracting to Contractors from such countries; I/we certify that I am/ we are not from such a country or, if from such a country, has/have been registered with the Competent Authority and will not sub-contract any work to a Contractor from such countries unless such Contractor is registered with the

Competent Authority. I hereby certify that I/we fulfil all requirements in this regard and I am/ we are eligible to be considered.

(Where applicable, evidence of Competent Authority shall be attached.)

10. If any information and document submitted is found to be false/ incorrect at any time, department may cancel my/our Bid and action as deemed fit may be taken against me/us, including termination of the contract, forfeiture of all dues and debarment of our firm and all partners of the firm etc. as per the tender document.

MANDATE FORM FOR ELECTRONIC FUND TRANSFER / INTERNET BANKING PAYMENT.

1. Name of the Bidder :.....
2. Address of the Bidder :
-
- City..... Pin Code.....
- E-mail Id
- Permanent Account Number

3. Particulars of Bank:

Bank Name		Branch Name	
Branch Place		Branch City	
PIN Code		Branch Code	
MICR No.			
(9 Digits code number appearing on the MICR Band of the cheque supplied by the Bank. Please attach Xerox copy of a cheque of your bank for ensuring accuracy of the bank name, branch name and code number)			
RTGS Code			
Account Type	Savings	Current	Cash Credit
Account Number (as appearing in the Cheque Book.			

4. Date from which the mandate should be effective :

I hereby declare that the particulars given above are correct and complete. If any transaction is delayed or not effected for reasons of incomplete or incorrect information. I shall not hold Company responsible. I also undertake to advise any change in the particulars of my account to facilitate updation of records for purpose of credit of amount through SBI Net / RTGS transfer. I agree to discharge responsibility expected of me as a participant under the scheme. Any bank charges levied by the bank for such e-transfer shall be borne by us.

Place :

Date :

Signature of the Party / Authorised Signatory

Certified that particulars furnished above are correct as per our records.

Banker's Stamp Date :

Signature of the Authorised official from the Bank)

PROFORMA FOR EXECUTION OF AGREEMENT

NON-JUDICIAL STAMP PAPER
(of appropriate value as per Stamp Act)

This agreement is made on day of between (Name of Company) having its registered office at (hereinafter called the ‘COMPANY’ which expression shall, unless repugnant to the subject or context, include its successors and assignees) of the one part and (Name of the Contractor) carrying on business as a (partnership/ proprietorship/ Ltd. Co. etc.) firm under the name and style (hereinafter called the ‘said Contractor’ which expression shall, unless the context requires otherwise include them and their respective heirs, executors, administrators and legal representatives) of the other part.

Whereas the Company invited tenders for the work of“ ” and whereas the said Contractor/ Firm submitted tender for the said work and deposited a sum of Rs..... as Earnest Money and whereas the tender of the said contract has been accepted by the Company for execution of the said work.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

- 1) In this agreement words and expressions shall have the same meaning as are respectively assigned to them in the tender papers hereinafter referred to.
- 2) The following documents which are annexed to this agreement should be deemed to form and be read and construed as part of this agreement viz.
 - i) Annexure-A Tender Notice (Page .. to ..)
 - ii) Schedule –A General Terms & Conditions, Special Conditions, General Technical Specification and Safety Code (Page to)
 - iii) Schedule-B The probable Quantities and Amount (Page to)
 - iv) Schedule-C Negotiation letters (Page to)
 - v) Schedule-D Letter of Acceptance/Work Order (Page to)
 - vi) Schedule-E Drawings (Page to)
- 3) In consideration for the payment of the sum of Rs.....(W/O Value; both in words and figures) or such other sum as may be arrived at under the clause of the specification relating to Payment by items measurements at unit prices by the Company, the said Contractor shall, subject to the terms & condition contained herein execute and complete the work as described and to the extent of probable quantities as indicated in Schedule B with such variations by way of alteration, addition to or reduction from the said works.

- 4) The company has received a sum of Rs..... towards Performance Security Deposit (1st part of Security Deposit) in the form of Demand Draft / Certified Cheque/ B.G./ other form (details to be furnished) .
- 5) The said contractor hereby covenants with the company that the company shall deduct at 5% of R/A Bills as Retention Money (2nd part of security deposit) to make the total Security as 10%(ten percent) of contract value, as per the terms & condition of the tender/ contract.

IN WITNESS WHEREOF THE parties herein have set their hands and seals the date and year above written.

1 Partner. Signature

2 Partner Signature

On behalf of M/S.....

The Contractor, as one of the constituted attorney,

In the presence of –

1. Name _____ Signature

Address :

Occupation :

Signed by Srion behalf of Signature
(Name of Company) in presence of -

1. Name : Signature

2. Address: .

PROFORMA OF MEMORANDUM (To be a Part of Contract Agreement)

TENDER FOR WORK

I/We hereby tender for the execution for the CENTRAL COALFIELDS LIMITED (CCL) of the work specified in the underwritten MEMORANDUM at rates specified in the Price-bid within a period of ----- Days as per Work Order and subject to the annexed conditions of Contract and with such materials as are provided for by and in all other respects in accordance with such conditions so far as applicable.

MEMORANDUM

1	Name of Work	
2	Agreement Value of Work	
3	Performance Security Deposit	
4	Additional Performance Security Deposit if any	
5	Percentage to be deducted from Bills	
6	Scheduled Date of Commencement of Work	
7	Scheduled Date of Completion of Work	

BANK GUARANTEE FOR PERFORMANCE SECURITY

To

.....

Re: Bank Guarantee in respect of Contract No.....Dated.....

Between.....(Name of the Company) and.....(Name of the Contractor)

WHEREAS

..... (Name and address of the Contractor) (herein after called “the Contractor”) has entered into a contract made as per letter of acceptance..... dated..... (herein after called the said contract) with (name of the Company) (hereinafter called “the Company”) to execute (name of the contract and brief description of work) on the terms and conditions contained in the said Contract.

It has been agreed that the Contractor shall furnish a Performance Security in the shape of Bank Guarantee from a Scheduled Bank for a sum of Rs..... as

security for due compliance and performance of the terms and conditions of the said Contract.

We..... (name of the Bank) having its Branch/Office at..... have, at the request of the Contractor, agreed to furnish this Bank Guarantee by way of Performance Security.

NOW, THEREFORE, we the..... Bank (herein after called The Bank)

hereby, unconditionally and irrevocably, guarantee and affirm as follows:

The Bank do hereby irrevocably guarantee and unconditionally agree with the Company that if the Contractor shall in any way fail to observe or perform the terms and conditions of the said Contract or shall commit any breach of its obligation thereunder, the Bank shall on its mere first written demand, and without any objection, demur and without any reference to the Contractor, pay to the Company the said sum of or such portion as shall then remain due

with interest without requiring the Company to have recourse to any legal remedy that may be available to it to compel the Bank to pay the sum, or failing on the Company to compel such payment by the Contractor.

Any such demand shall be conclusive as regards the liability of the Contractor to the Company and as regards the amount payable by the Bank under this Guarantee. The Bank shall not be entitled to withhold payment on the ground that the Contractor has disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between the Company and the Contractor regarding the claim.

The Bank further agree that the Guarantee shall come into force from the date hereof and shall remain in force and effect till the period that will be taken for the performance of the said Contract which is likely to be day of but if the period of Contract is extended either pursuant to the provisions in the said Contract or by mutual agreement between the Contractor and the Company, the Bank shall renew the period of the Bank Guarantee failing which it shall pay to the Company the said sum of or such lesser amount of the said sum of as may be due to the Company and as the Company may demand.

This Guarantee shall remain in force until the dues of the Company in respect of the said sum ofand interest are fully satisfied and the Company

certifies that the Contract has been fully carried out by the Contractor and discharged the guarantee.

The Bank further agrees with the Company that the Company shall have the fullest liberty without consent of the Bank and without affecting in any way the obligations hereunder to vary any of the terms and conditions of the said contract or to extend time for performance of the said contract 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 Contractor and to forebear to enforce any of the terms and conditions relating to the said Contract and the Bank shall not be relieved from its liability by reason of such failure or extension being granted to the Contractor or to any forbearance, act or omissions on the part of the Company or any indulgence by the Company to the Contractor or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of relieving or discharging the Guarantor.

The Bank further agrees that in case this Guarantee is required for a longer period and it is not extended by the Bank beyond the period specified above, the Bank shall pay to the Company the said sum of or such lesser sum as may then be deemed to the Company and as the Company may require.

This Bank Guarantee shall also be operative at our Branch located at(detailed address), from whom, confirmation regarding issue of this guarantee or extension/renewal thereof shall be made available on demand.

Any notice by way of request, demand or otherwise hereunder may be sent by post/e-mail/Fax addressed to the bank branch / operative branch, which shall be deemed to be a sufficient demand notice. Bank shall effect payment thereof forthwith.

The details of outstation Bank issuing the Bank Guarantee are as below. i) Complete

- Postal Address with PIN Code-
- ii) Branch Code-
- iii)IFSC Code –
- iv)SWIFT –
- v) Telephone No. –
- vi)Fax No. –
- vii) Email ID –

The details of Local Operating Branch of the Bank issued the Bank Guarantee are as below.

- i) Complete Postal Address with PIN Code-
- ii) Branch Code-
- iii) IFSC Code –
- iv) SWIFT –
- v) Telephone No. –
- vi) Fax No. –
- viii) Email ID –

Whenever there is change in postal address and/or other details of this branch issued the guarantee and/or the operative branch, we(the issuing

bank) will ensure to intimate respective Area, being the beneficiary, of such changed address, telephone number, fax number and e-mail ID.

Notwithstanding anything contained herein the liability of the Bank under this Guarantee is restricted to Rs..... The guarantee shall remain in force till the day*..... of*..... and unless the guarantee is renewed or claim

is preferred against the Bank on or before the said date all rights of the Company under this guarantee shall cease and the Bank shall be relieved and discharged from all liabilities hereunder except as provided in the preceding Clause.

* The date of guarantee shall cover a period of minimum one year or 90 days beyond the date of completion whichever is more.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

The Bank has under its constitution power to give this Guarantee and Sri..... who has signed it on behalf of the Bank has authority to do so.

Signed and sealed this..... day of.....at.....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code number)

(Address)

“The Bank Guarantee as referred above shall be operative at our branch at.....

payable at.....(NIT shall specify town/city of the operative

Branch. Bank Guarantee shall specify name of the branch with address of the specified town/city)

NOTE: - The department shall ensure extension of guarantee period in case of extension of time.

PROFORMA OF BANK GUARANTEE FOR MOBILISATION ADVANCE

(On Non-Judicial Stamp paper of appropriate value as per provision of the Stamp Act applicable in the concerned state)

To
CENTRAL COALFIELDS LIMITED,

Dear Sir,

In consideration of Coal India Limited/Subsidiary Company having its Registered Office at (hereinafter called "the Company" which expression shall unless repugnant to the subject or context includes its successors and assigns) having agreed under the terms and conditions of the Contract No..... dated..... Entered into between Coal India Limited/Subsidiary Company and M/s having its Registered Office at (hereinafter called "the Contractor" to make mobilisation advance/lump-sum advance to the tune of Rs..... subject to submission of the Bank Guarantee for equal amount from any Nationalized/ Schedule Bank, We Bank (hereinafter referred to as the said Bank) having its Registered Office at do hereby undertake and agree to pay the Company to the extent of Rs..... on demand stating that the amount claimed by the Company is due and payable by the contractor for the reasons of non-refund and or non-recovery of the amount with interest thereon and to unconditionally pay the amount claimed by the company on such demand without any demur to the extent aforesaid.

2. We, Bank agree that the Company shall be the sole judge as to whether the said Contractor has failed/neglected in refunding the amount advanced by the Company and/or extent of loss and damages caused to or suffered by the Company on account of the amount advanced not being recovered in full and non-utilisation of the said advanced amount or part thereof for the purpose of performance of the contract and interest payable thereon and the decision of the company in this behalf shall be final and binding on us.

3) We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect upto and any claim received after the said date shall in no case bind the Bank.

4) The Company shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee or indemnity from time to time vary any of the terms and conditions of the said contract or to extend the time of performance by the said contractor or to postpone any time and from time to time any of the powers exercisable by it against the said contractor and either to enforce or to forbear from enforcing any of the terms and conditions governing the said contract or securities available to the company and the said Bank shall not be released from its liability under these presents.

5. Notwithstanding anything contained herein the liability of the said Bank under this Guarantee is restricted to Rs..... and this Guarantee shall come into force from the date hereof and shall remain in full force and effect till unless the written demand or claim under this Guarantee is made by the Company with us on or before all rights of the Company under this Guarantee shall cease to have any effect and we shall be relieved and discharged our liabilities hereunder.

6. We, the said Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the company in writing and agree that any change in the constitution of the said contractor or the said Bank shall not discharge our liability hereunder.
7. This guarantee issued by Sri..... who is authorized by the Bank.
8. "The Bank Guarantee as referred above shall be operative/payable at our branch at..... (Name and address of the Branch)
9. The Contact details of the Bank issuing BG and the local operating Branch of the Bank at Ranchi (JH) are as under:

Particulars	Issuing Bank	Local Operating Branch at Ranchi
Branch Code		
Postal Address		
Telephone No.		
FAX No.		
Email Id		

Signed and sealed this.....day of.....at.....

SIGNED, SEALED AND DELIVERED
For and on behalf of the Bank by:

(Signature)
(Name)
(Designation)
(Code number)
(address)

Under jurisdiction of Ranchi (JH) court only.

NOTE:

- (i) The Bank Guarantee issued by a scheduled bank shall be operative at its branch situated at Ranchi (Jharkhand State) or if the issuing bank does not have any branch at Ranchi then Bank Guarantee shall be operative at any of its Kolkata Branch.
- (ii) The Bank Guarantee (BG) issued by the issuing Bank on behalf of contractor in favour of "CENTRAL COALFIELDS LIMITED" shall be in paper form as well as issued under "Structured Financial Messaging System (SFMS)".

The details of beneficiary for issue of Bank Guarantee (BG) under SFMS platform is furnished below:

A. State Bank of India as advising Bank of CCL:

	Name	Central Coalfields Limited
--	------	----------------------------

Name of beneficiary and details	Area	CCL HQ
	Bank A/C no. of beneficiary	10106155123
	Customer ID/CIF no of beneficiary	80288731402
	Department	E&M
Beneficiary's Bank, Branch and Address	Beneficiary's Bank	State Bank of India
	Branch and Address	SME Branch, Doranda, Ranchi - 834002
	SFMS Code/ IFSC Code	SBIN0009620
	In case of Foreign BG Swift Code	SBININBB387

PROFORMA OF JOINT VENTURE/CONSORTIUM AGREEMENT

(On Non-Judicial Stamp paper of appropriate value as per provision of the Stamp Act applicable in the concerned state)

This Joint Venture(JV)/Consortium agreement is made on thisday of.....

AMONGST/BETWEEN

M/s....., having its registered Office at
Represented by Shri..... (Name and Designation) of M/s....., who has power of Attorney to enter into JV/Consortium with.....and sign all documents/ agreements on behalf of M/s..... (hereinafter referred to as””)

AND

M/s....., having its registered Office at
Represented by Shri.....(Name and Designation) of M/s....., who has power of Attorney to enter into JV/Consortium with.....and sign all documents/agreements on behalf of M/s..... (hereinafter referred to as””).

AND

M/s....., having its registered Office at
Represented by Shri.....(Name and Designation) of M/s....., who has power of Attorney to enter into JV/Consortium with.....and sign all documents/agreements on behalf of M/s..... (hereinafter referred to as””).

The expressions M/s and M/s.....and M/sshall, wherever the context admits, mean and include their respective

legal representatives, successors-in-interest and assigns and shall collectively be referred to as “JV/Consortium /Parties” and individually as “JV/Consortium Partner/Party”.

WHEREAS M/s.....and M/s..... and M/sagreed to

form a JV/Consortium in order to join their forces to obtain best results from the combinations of their individual resources of technical and management skill, finance and equipment for the benefit of the project and in order to submit the Bid

for the work of
“” (Hereinafter referred to as “Project”) under.....
(Name of Company) (hereinafter referred to as “the Principal Employer”).

The Parties hereby enter into this JV/Consortium Agreement (hereinafter referred to as “JV/Consortium agreement”) to jointly prepare and submit the Bid for the Project and in the event of securing the Project from the Employer, to execute the Project in accordance with the Contract Terms and Conditions, to the satisfaction of the Principal Employer.

NOW THEREFORE, the parties, in consideration of the mutual premises contained herein, agree as follows:

1) FORMATION AND TERMINATION OF THE JV/CONSORTIUM.

The parties under this Agreement have decided to form a JV/Consortium to submit the Bid for the above Project and execute the Contract with the Principal Employer for the Project, if qualified and awarded.

- a) The name and style of the JV/Consortium shall be “.....” (hereinafter called the “JV/Consortium”)
- b) The Head Office of the JV/Consortium shall be located at..... and the site office will be located at the site of the Project. All communication regarding the Project will be made to..... Telephone Nos.....
- c) Neither of the parties of the JV/Consortium shall be allowed to assign, pledge, sell or otherwise dispose all or part of its respective interests in the JV/Consortium to any party including the existing partner of the JV/Consortium.
- d) The terms of the JV/Consortium shall begin as on the date first set forth above and shall terminate on the earliest of the following dates.
 - i) The JV/Consortium fails to obtain qualification from the Employer.
 - ii) The Contract for the Project is not awarded to the JV/Consortium.
 - iii)The Employer cancels the Project.
 - iv)Either Party commits material breach of this Agreement and fails to cure such breach within the period designated by the non-defaulting Party.
 - v) Both parties agree to terminate this Agreement in writing.
 - vi)The Project is completed including defects liability period to the satisfaction of the Employer and all the parties complete any and all duties, liabilities and responsibilities under or in connection with the Contract and the JV/Consortium agreement.

2) LEAD PARTNER.

M/s..... shall be the Lead Partner of the JV/Consortium and is In-charge for performing the contract management. M/s..... shall be attorney of the parties duly authorized to incur liabilities and receive instructions for and on behalf of any and all partners in the JV/Consortium and also all the partners of the JV/Consortium shall be jointly and severally liable during the bidding process and for the execution of the contract as per contract terms with the employer in accordance with the power of attorney annexed. All JV/Consortium Partners M/s....., M/s..... &

M/s..... nominate and authorize Shri..... (name and designation) of M/s..... to sign all letters,

correspondence, papers & certificates and to submit the Pre-qualification Application / Bid documents for and on behalf of the JV/Consortium.

3) REPRESENTATIVE OF THE PARTNERS OF THE JV/CONSORTIUM.

Each constituent party of the JV/Consortium appoints the following personnel

as the representative of the relevant party with full power of attorney from the Board of Directors of the concerned Company, or from the partners of the entity, or from the proprietor.

JV/CONSORTIUM	Name	Position in the respective Company
Partners		
M/s.....
M/s.....
M/s

4) PARTICIPATION SHARE & WORK RESPONSIBILITIES. (As per relevant clause of the NIT)

4.1 The parties agree that their respective participation share (hereinafter called 'Participation Share') in the JV/Consortium shall be as follows:

- M/s.....% (.....per cent)
- M/s.....% (.....per cent) and
- M/s.....% (.....per cent)

4.2 The Parties shall share the rights and obligations, risk, cost and expenses, working capitals, profits or losses or others arising out of or in relation to execution of the Project individually or collectively.

4.3 The parties shall jointly execute the works under the Project as an integrated entity and allocate responsibilities as regards division of work between themselves by organizing the adequate resources for successful completion of the Project. However, all parties shall remain jointly and severally responsible for the satisfactory execution of the Project in accordance with the Contract terms and conditions.

5) JOINT AND SEVERAL LIABILITIES.

All partner of JV/Consortium shall be liable jointly and severally during the Pre-qualification and Bidding process; and in the event the contract is awarded, during the execution of the Contract, in accordance with Contract terms.

6) WORKING CAPITAL

During the execution of work/service, the requirement of Working Capital shall be met by the JV/CONSORTIUM partners as per relevant clause of e-tender notice.

7) BID SECURITY:

Bid Security, Performance Security and other securities shall be paid by the JV/Consortium except as otherwise agreed.

8) PERSONNEL & EQUIPMENT

Team of Managers / Engineers of all the partners of the JV/Consortium will form part of the core management structure and assist in execution of the project. The list of personnel and equipment proposed to be engaged for the Project by each Party will be decided by the management committee.

9) NON-PERFORMANCE OF RESPONSIBILITY BY ANY PARTY OF JV/CONSORTIUM.

- a) As between themselves, each Party shall be fully responsible for the fulfillment of all obligations arising out of its scope of the work for the Project to be clarified subject to the Agreement between the Parties and shall hold harmless and indemnified against any damage arising from its default or non-fulfilment of such obligations.
- b) If any Party fails to perform its obligations described in this Agreement during the execution of the Project and to cure such breach within the period designated by the non-defaulting party, then the other party shall have the right to take up work, the interest and responsibilities of the defaulting party at the cost of the defaulting party.
- c) Stepping into the shoes of the existing partner of JV/Consortium with all the liabilities of the existing partner from the beginning of the contract with the prior approval of Company.
- d) Notwithstanding demarcation or allotment of work of between/amongst JV/Consortium partners, JV/Consortium shall be liable for non-performance of the whole contract irrespective of their demarcation or share of work.
- e) In case bid being accepted by Company, the payments under the contract shall only be made to the JV/Consortium and not to the individual partners.

10) BANK A/C.

Separate Bank A/c. shall be opened in the name of the JV/Consortium in a scheduled or Nationalized Bank in India as per mutual Agreement and all payments due to the JV/Consortium shall be received only in that account, which shall be operated jointly by the representative of the Parties hereto. The financial obligations of the JV/Consortium shall be discharged through the said JV/Consortium Bank Account only and also all the payments received or paid by Company to the JV/Consortium shall be through that account alone.

11) LIMIT OF JV/CONSORTIUM ACTIVITIES.

The JV/Consortium activities are limited to the bidding and in case of award, to the performance of the Contract for the Project according to the conditions of the Contract with the Employer.

12) TAXES.

Each Party shall be responsible for its own taxes, duties and other levies to be imposed on each party in connection with the Project. The taxes, duties and other levies imposed on the JV/Consortium in connection with the Project shall be paid from the account of the JV/Consortium.

13) EXCLUSIVITY

The Parties hereto agree and undertake that they shall not directly or indirectly either individually or with other party or parties take part in the Bid for the said Project. Each party further guarantees to the other party hereto that this undertaking shall also apply to its subsidiaries and companies under its direct or indirect control.

14) MISCELLANEOUS:

- a. Neither party of the JV/Consortium shall assign, pledge, sell or otherwise dispose all or part of its respective interests in the JV/Consortium to all third party without the Agreement of the other party in writing.
- b. Subject to the above Clause, the terms and conditions of this agreement shall be binding upon the parties, the Directors, Officers, Employees, Successors, Assigns and Representatives.

15) APPLICABLE LAW

This agreement shall be interpreted under laws and regulations of India.

IN WITNESS Whereof the parties hereto have hereunder set their respective hands and seals the day, month, year first above written.

For

For.....

Signature _____

Signature _____

(Name & Address)
(Official Seal)

(Name & Address)
(Official Seal)

Place

Place.....

Date

Date

Witness

Witness

Signature

Signature

(Name & Address)

(Name & Address)

PRE-CONTRACT INTEGRITY PACT

(To be signed on Plain Paper)

General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on.....day of the month of20..., between, on one hand, Coal India Limited/Subsidiary Cos. acting through Shri,

Designation of the officer, (hereinafter called the “BUYER / Principal”, which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s.

.....represented by Shri....., Chief Executive

Officer (hereinafter called the “BIDDER/Seller/Contractor” which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the BUYER proposes to execute(Name of the work) and the BIDDER/Seller is willing to offer/has offered the Services and

WHEREAS the BIDDER is a private Company / public Company / Government undertaking/ partnership/ proprietorship/ JV/Consortium constituted in accordance with the relevant law in the matter and the BUYER is a Ministry/ Department of the Govt. of India/ PSU performing its functions on behalf of the President of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to: -

Enabling the BUYER to complete the desired work at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement and Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the BUYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Section 1 – Commitments of the Principal

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

- a. 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.

- b. 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.
 - c. Principal will exclude from the process all known prejudiced persons.
- (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/ PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

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

- (1) The Bidder(s) / Contractor(s) commit themselves to take all measures necessary to prevent corruption. The Bidder(s) / Contractor(s) commit themselves to observe the following principles during participation in the tender process and during the contract execution.
- a. The Bidder(s) / Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person, any material or other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - b. The Bidder(s) / Contractor(s) will not enter with other Bidders into any 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.
 - c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant IPC/ PC Act; further the Bidder(s) / Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - d. The Bidder(s) / Contractors(s) of foreign origin shall disclose the name and address of the Agents/ representatives in India, if any. Similarly, the Bidder(s) /Contractors(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s) / Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/ representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" shall be as per the provisions at Annexure-A.
 - e. The Bidder(s) / Contractor(s) will, when presenting their bid, disclose any and all payments made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

f. Bidder(s) / Contractor(s) who have signed the Integrity Pact shall not approach the Courts while representing the matter to IEMs and shall wait for their decision in the matter.

(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, before contract award, has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or credibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

(1)If the Bidder / Contractor / Supplier has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is also entitled to exclude the Bidder / Contractor / Supplier from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressors within the Company, hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.

(2)A transgression is considered to have occurred if the Principal, after due consideration of available facts and evidences within his / her knowledge concludes that there is a reasonable ground to suspect violation of any commitment listed under Section 2 i.e “Commitments of Bidder(s) / Contractor(s)”.

(3)The Bidder accepts and undertakes to respect and uphold the Principal’s absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

(4)If the Bidder / Contractor / Supplier can prove that he has restored / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.

Section 4 - Compensation for Damages

(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.

(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 of the Contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 - Previous transgression

- (1) The Bidder declares that no previous transgressions occurred in the last three years with any other Company in any country conforming to the anti-corruption approach or with any Public Sector Enterprise in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Debarment of firms from Bidding".

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

- (1) In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-Contractor.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- (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 Bidder(s)/Contractor(s)/ Sub-Contractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Sub-Contractor, or of an employee or a representative or an associate of a Bidder, Contractor or Sub-Contractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8 - Independent External Monitor

- (1) The Principal appoints competent and credible Independent External Monitor for this Pact after approval by Central Vigilance Commission. 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.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his/ her functions neutrally and independently. The Monitor would have access to all Contract documents, whenever required. It will be obligatory for him / her to treat the information and documents of the Bidders/Contractors as confidential. He/ she reports to the Chairman, Coal India Limited / CMD, Subsidiary Companies.
- (3) The Bidder(s) / Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/ her request and demonstration of a valid interest, unrestricted and unconditional access to their project documentation. The same is applicable to Sub-Contractors.
- (4) The Monitor is under contractual obligation to treat the information and documents of the Bidder(s) / Contractor(s) / Sub-Contractor(s) with confidentiality. The Monitor has also signed declarations on 'Non-Disclosure of Confidential Information' and of 'Absence of Conflict of Interest'. In case of any conflict of interest arising at a later date, the IEM shall inform Chairman, Coal India Limited / CMD, Subsidiary Companies and recuse himself / herself from that case.
- (5) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project 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.

- (6) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he/ she will so inform the Management of the Principal and request the Management to discontinue or take corrective action, 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.
- (7) The Monitor will submit a written report to the Chairman, Coal India Limited / CMD, Subsidiary Companies 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) If the Monitor has reported to the Chairman, Coal India Limited / CMD, Subsidiary Companies, a substantiated suspicion of an offence under relevant IPC/ PC Act, and the Chairman, Coal India Limited / CMD, Subsidiary Companies has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
- (9) The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

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 above, unless it is discharged / determined by Chairman Coal India Limited / CMD, Subsidiary Companies.

Section 10 - Other provisions

- (1) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- (2) If the Contractor is a partnership or Joint Venture (JV/CONSORTIUM), this agreement must be signed by all partners or JV/CONSORTIUM members.
- (3) 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.
- (4) Issues like Warranty / Guarantee etc. shall be outside the purview of IEMs.
- (5) In the event of any contradiction between the Integrity Pact and its Annexure, the Clause in the Integrity Pact will prevail.

Section 11- Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

Section 12- Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the BUYER.

Section 13- Other Legal Actions.

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

(For & On behalf of the Principal)

(For & On behalf of Bidder/ Contractor)

(Office Seal)

(Office Seal)

Place -----

Date -----

Witness 1:

Witness 2:

(Name & Address)

(Name & Address)

Guidelines for Indian Agents for Foreign supplier (Part of Integrity Pact)

1. Authorized Indian Agent of a foreign manufacturer or indigenous manufacturer is also eligible to quote on behalf of its principal against the tender, in case manufacturer as a matter of corporate policy does not quote directly. However, in such case, authorized Indian Agent shall have to upload scanned copy of tender specific Manufacturer's Authorization, signed and stamped by the manufacturer to quote against the CIL Tender, indicating the Tender Reference No. and date along with the offer. The authorized Indian Agent is to upload scanned copies of details in respect of its organization along with the copies of document like certificate of incorporation / registration etc. along with the offer. The firm (Indian Agent) should be in existence for 3 years on the date of tender opening, irrespective of date of appointment as Indian Agent.

In case an Indian Agent is participating in a tender on behalf of one manufacturer, it is not allowed to participate / quote on behalf of another manufacturer in this tender or in a parallel tender for the same item. Further, in a tender, either manufacturer can quote or its authorized Indian Agent can quote but both are not allowed to participate/ quote in the same tender. Also, one manufacturer can authorise only one agent to quote in the same tender. All the bids, not quoted as per the above guidelines, will be rejected.

2. The Foreign manufacturer must indicate the name & address of its agent in India. It should also indicate the commission payable to them and the specific services rendered by them. The Indian Agency commission will be payable only on FOB prices of goods and it should be quoted as a percentage of the FOB price. In case, the foreign manufacturer does not have any Indian Agent, it should be clearly mentioned in the bid. In terms of Integrity Pact, the Bidder has also to disclose all payments to agents, brokers or any other intermediaries.

The amount of agency commission payable to Indian Agent should not exceed 5% or what is specified in agency agreement, whichever is lower.

3. In addition to above A certificate that no commission is payable by the principal supplier to any agent, broker or any other intermediary against this contract other than percentage as indicated in BOQ (not exciding 5% of FOB) of FOB value of the contract to Indian Agent. This certificate forms a part of letter of credit.
4. The payment of Indian Agency Commission, if any, involved, may be considered in case of necessity, subject to compliance of the Government of India guidelines issued from time to time. The name of the Indian Agent with their full address and the quantum of Agency commission if any, payable shall have to be mentioned in the offer by the foreign manufacturer.

The following documents shall be submitted by the Bidder in case of contract with foreign principals involving Indian agents:

- a. Foreign principal's pro-forma invoice or any other authentic document indicating the commission payable to the Indian agent, nature of after sales service to be rendered by the Indian Agent and the precise relationship between the Principal and the Agent and their mutual interest
- b. Copy of the agency agreement if any with the foreign principal stating the precise relationship between them and their mutual interest in the business.

However, if all the details given in Para – (i) are complied with, the requirement of submission of document mentioned at Para – (ii) may be waived.

5. Agency commission, if any, shall be paid in equivalent Indian Rupees.

PROFORMA FOR DECLARATION TOWARDS CODE OF INTEGRITY FOR PUBLIC
PROCUREMENT TO BE ACCEPTED UNCONDITIONALLY BY BIDDER/S

(To be signed on Plain Paper)

To

Tender Inviting Authority,

.....

Sub: Declaration towards CIPP by Bidder

Ref: NIT No.: GM(E&M)/e-tender/24/722, dated 22.04.2024

Tender Id No: 2024_CCL_306863_1

Dear Sir,

I, Sri,, proprietor, representative, partner ofI / We,

_____Proprietor/ Partner / Legal Attorney /Director/ Accredited

Representative of M/s Solemnly declare that:

1. I/we have read and examined the conditions of Code of Integrity for Public Procurement in respect to this contract as laid down in the General Terms and Conditions.
2. Without prejudice to and in addition to the rights of the Procuring Entity to other penal provisions as per the bid documents or contract, if the Tender Inviting Authority comes to a conclusion that a (prospective) bidder/contractor/ Supplier/ consultant/ service provider, directly or through an agent, has violated this code of integrity in competing for the contract or in executing a contract, actions deemed fit as per the punitive actions recommended in the tender document may be taken against me/us.
3. In-case the contract is awarded to me/us, I/we will submit a signed copy of Code of Integrity for Public Procurement, signed by All Partners/Authorized Signatory of the Bidder.

(For & On behalf of the Principal)

(For & On behalf of Bidder/ Contractor)

(Office Seal)

(Office Seal)

Place -----

Date -----

Witness 1:
(Name & Address)

Witness 2:
(Name & Address)

PROFORMA FOR UNDERTAKING
TO BE UPLOADED BY BIDDER/S (ON THEIR LETTER HEAD) REGARDING
RELATIVES AS EMPLOYEES OF COMPANY, ARBITRATION CLAUSE (IN CASE OF
PARTNERSHIP FIRM/JV/CONSORTIUM), LOCAL SUPPLIER STATUS OF THE
BIDDER ETC.:

I/We,.....,Proprietor/Partner/Legal
Attorney/Director/ Accredited Representative of M/s.
....., solemnly declare that:

1. Myself/Our Partners/Directors don't has/have any relative as employee of Coal India Limited.

OR

The details of relatives of Myself/Our Partners/Directors working as employee of Coal India Limited is as follows:

- a) Name of the employee
- b) Place of posting
- c) Department
- d) Designation
- e) Type of relation - Wife/Husband/ Father/ Step-Father/Mother / Step-Mother/ Son/Step-son/ Son's wife / Daughter / Daughter's Husband / Brother/ Step-Brother/ Sister / Stet-Sister.

2. *I/We hereby confirm that we have registration with CMPF / EPF Authorities. We shall make necessary payments as required under law.

OR

*I/We hereby undertake that we shall take appropriate steps for registration as relevant under CMPF / EPF authorities, if applicable. We shall make necessary payments as required under law.

*** Delete whichever is not applicable.**

3. ** I/We have not been banned or delisted by any Govt., or Quasi Govt. Agencies or PSUs.

OR

**I / Wehave been banned by the organization named

“ _____ ” for a period of..... year/s, effective from
..... to.....

**** Delete whichever is not applicable.**

4. We,.....
.....(Name of Partners of Partnership

Firm/JV/Consortium), partners of
.....(Name of
Partnership Firm/JV/Consortium) hereby consent to abide by the provisions of Clause
42 of General Terms and Conditions pertaining to arbitration.

(Applicable in case of Partnership firm/JV/Consortium)

5. We certify that the works/services offered by us against the tender for the work
“..... (Name of work)” against NIT No/Tender ID.

..... Dated....., meet the minimum local content requirement
and has local content:

* Equal to or more than 50% (Select this, in case of Class-I Local Suppliers)
i.e.....% (indicating the percentage of local content)

* More than 20% but less than 50% (Select this, in case of Class-II Local Suppliers)
i.e.....% (indicating the percentage of local content)

***Delete whichever is not applicable.**

6. **I/We have not been debarred by any procuring entity for violation of Preference to
Make in India (as applicable) vide Order No. P-45021/2/2017-PP (BE-II) dated
16.09.2020, issued by Govt. of India as amended from time to time.

OR

**I / Wehave been debarred by.....(name of

procuring entity) for violation of Preference to Make in India vide Order No. P-
45021/2/2017-PP (BE-II) dated 16.09.2020, issued by Govt. of India as amended
from time to time for a period of..... year/s,
effective from to.....

****Delete whichever is not applicable.**

Note: A bidder who has been debarred by any procuring entity for violation of
Preference to Make in India vide Order No. P-45021/2/2017-PP (BE-

II) dated 16.09.2020, issued by Govt. of India as amended from time to time shall
not be eligible for preference under this Order for procurement by any other
procuring entity for the duration of debarment.

7. I/we will abide by instructions laid down in the Code of Integrity for Public
Procurement (CIPP) as given in the tender document.

*I/we do not have any previous transgression of CIPP in last three years with any entity
in any country.

OR

*I / We have been debarred by.....(name of procuring entity) for

violation of Code of Integrity for Public Procurement (CIPP), for a period

of..... year/s, effective from
to.....

*Delete whichever is not applicable

8. I / We, _____Proprietor/ Partner / Legal Attorney /Director/
Accredited Representative of M/s_____, solemnly declare that
Myself/Our Partners/Directors don't has/have any work in washing of Coal as washery
operator and/or Transportation of coal to washery in _____Area of
_____ Coalfields Limited.

9. If any information and document submitted is found to be false/ incorrect at any time,
department may cancel my/our Bid and action as deemed fit may be taken against
me/us, including termination of the contract, forfeiture of all dues and debarment of
our firm and all partners of the firm etc as per the tender document.

ANNEXURE-XI

**PROFORMA FOR BANK GUARANTEE AGAINST RELEASE OF RETENTION
MONEY DEDUCTED FROM RUNNING ON ACCOUNT BILLS.**

To

.....

.....

Re: Bank guarantee in respect of contract
No..... Dated.....

between (Name of the)

And (Name of the
Contractor)

WHEREAS

..... (Name and address of the Contractor) (herein after called “the Contractor”) has entered into a contract dated.....(herein after called the said contract) with (name of the Company) (hereinafter called “the Company”) to execute (name of the contract and brief description of work) on the terms and conditions contained in the said contract.

It has been agreed that the Contractor shall furnish a Bank Guarantee from a Scheduled Bank for a sum of Rs..... as security for release of equivalent

amount of Retention Money/Bid Security as per Terms and Conditions of the said Contract.

We..... (name of the Bank) having its branch/Office at..... have, at the request of the Contractor, agreed to furnish this bank Guarantee by way of Bid Security.

NOW, THEREFORE, we the..... Bank (herein after called The Bank)

hereby, unconditionally and irrevocably, guarantee and affirm as follows:

The Bank do hereby irrevocably guarantee and unconditionally agree with the Company that if the Contractor shall in any way fail to observe or perform the Terms and Conditions

of the said Contract or shall commit any breach of its obligation thereunder, the Bank shall on its mere first written demand, and without any objection, demur and without any reference to the Contractor, pay to the Company the said sum of or such portion as shall then remain

due with interest without requiring the Company to have recourse to any legal remedy that may be available to it to compel the Bank to pay the sum, or failing on the Company to compel such payment by the Contractor.

Any such demand shall be conclusive as regards the liability of the Contractor to the Company and as regards the amount payable by the Bank under this guarantee. The Bank shall not be entitled to withhold payment on the ground that the Contractor has disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between the Company and the Contractor regarding the claim.

The Bank further agree that the Guarantee shall come into force from the date hereof and shall remain in force and effect till the period that will be taken for the performance of the said Contract which is likely to be day of

..... but if the period of Contract is extended either pursuant to the provisions in the said Contract or by mutual agreement between the Contractor and the Company, the Bank shall renew the period of the Bank Guarantee failing which it shall pay to the Company the said sum of Rs..... or such lesser amount of the said sum of Rs..... as may be due to the Company and as the Company may demand.

This Guarantee shall remain in force until the dues of the Company in respect of the said sum of Rs..... and interest are fully satisfied and the Company

certifies that the Contract has been fully carried out by the Contractor and he has discharged the guarantee.

The Bank further agrees with the Company that the Company shall have the fullest liberty without consent of the Bank and without affecting in any way the obligations hereunder to vary any of the Terms and Conditions of the said Contract or to extend time for performance of the said Contract 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 Contractor and to forebear to enforce any of the terms & conditions relating to the said Contract and the Bank shall not be relieved from its liability by reason of such failure or extension being granted to the Contractor or to any forbearance, act or omissions on the part of the Company or any indulgence by the Company to the Contractor or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of relieving or discharging the Guarantor.

The Bank further agrees that in case this Guarantee is required for a longer period and it is not extended by the Bank beyond the period specified above the Bank shall pay to the Company the said sum of Rs..... or such lesser sum as may then be deemed to the Company and as the Company may require. This Bank Guarantee shall also be operative at our Branch located

at(detailed address), from whom, confirmation regarding issue of this guarantee or extension/renewal thereof shall be made available on demand.

Any notice by way of request, demand or otherwise hereunder may be sent by post/e-mail/Fax addressed to the bank branch / operative branch, which shall be deemed to be a sufficient demand notice. Bank shall effect payment thereof forthwith.

The details of outstation Bank issuing the Bank Guarantee are as below.

- i) Complete Postal Address with PIN Code-
- ii) Branch Code-
- iii) IFSC Code –
- iv)SWIFT –
- v) Telephone No. –
- vi)Fax No. –
- vii) Email ID –

The details of Local Operating Branch of the Bank issued the Bank Guarantee are as below.

- i) Complete Postal Address with PIN Code-
- ii) Branch Code-
- iii) IFSC Code –
- iv)SWIFT –
- v) Telephone No. –
- vi)Fax No.
- vii) Email ID –

Whenever there is change in postal address and/or other details of this branch issued the guarantee and/or the operative branch, we(the issuing

bank) will ensure to intimate respective Area, being the beneficiary, of such changed address, telephone number, fax number and e-mail ID.

Notwithstanding anything contained herein the liability of the Bank under this Guarantee is restricted to Rs. The Guarantee shall remain in force till the day* of* and unless the Guarantee is renewed or

claim is preferred against the Bank on or before the said date all rights of the Company under this Guarantee shall cease and the Bank shall be relieved and discharged from all liabilities hereunder except as provided in the preceding Clause.

* The date of guarantee shall cover a period of minimum one year or 270 days beyond the date of completion whichever is more.

Any notice by way of request, demand or otherwise hereunder maybe sent by post/e-mail/Fax addressed to the bank branch/operative branch, which shall be deemed to be a sufficient demand notice. Bank shall effect payment thereof forthwith.

This Guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

The Bank has under it is constitution power to give this guarantee and Shri who has signed it on behalf of the Bank has authority to do so.

Signed and sealed this.....day of.....at.....

SIGNED, SEALED AND
DELIVERED

For and on behalf of the Bank

by:

(Signature)

(Name)

(Designation)

(Code number)

(Address)

“The Bank Guarantee as referred above shall be operative at our branch at..... payable at.....(NIT shall specify town/city of the

operative Branch. Bank Guarantee shall specify name of the branch with address of the specified town/city)”

NOTE:- The department shall ensure extension of guarantee period in case of extension of time.

Instructions to Bidders for both the above BGs

NOTES TO BANK GUARANTEES

While issuing the Bank Guarantee, the issuing bank may please note the following.

- i) The bank guarantees issued by the issuing bank on behalf of Contractor, supplier, customer in favor of Central Coalfields Limited shall be in paper form as well as Structured Financial Messaging System (SFMS).
- ii)(Company name) has chosen(Bank name) and(Bank name) to act advising/beneficiary bank of(Company name). The bank issuing the guarantee can choose either of these banks to send confirmation through SFMS.
- iii)The details of beneficiary for issue of bank guarantee in SFMS platform is as furnished as below.

1.	Name and details of the Beneficiary	i.	Name	
		ii.	Area	
		iii.	Name of Bank	
		iv.	Bank Account No.	***
		v.	Department	**
2.	Beneficiary’s Advising Bank, Branch and Address for Confirmation of BGs through SMFS	i.	Name of Bank	
		ii.	Bank Branch Name	***
		iii.	Branch Code	***
		iv.	Beneficiary Bank Branch IFSC	***
		v.	Beneficiary Bank Address	***

*Name of the Area/HQ, to which the NIT is concerned, is to be mentioned.

** Name of Department of the Area/ HQ, to which the NIT is concerned, is to be mentioned

*** Details of Bank Account, IFSC Code, Bank Address of the Area/HQ to which the NIT is concerned, is to be mentioned

- i) The Supplier / Contractor/ Customers are required to take note of it that above particulars are to be incorporated by the issuing bank properly while issuing the Bank Guarantee under SFMS mode to avoid any future problem in accepting the BGs.
- ii) The Guarantor (BG issuing bank) shall send information about issuance of this Guarantee through SFMS gateway to the(Bank name) (IFSC-_____) or(Bank name) (IFSC-_____), as the case may be, to aid in the process of confirmation of Bank Guarantee.

iii)The Guarantor (BG issuing bank) shall also send information about issuance of this Guarantee to its local operating branch at _____to aid in the process of confirmation as well as claim for encashment of Bank Guarantee.

iv)The Original Bank Guarantee issued by the outstation bank shall be sent by the Issuing Bank to the Concerned Department of Head Quarters or Area of

..... Coalfields Limited at (as the case may be) by Speed Post /Registered Post (AD).

Invitation and Declaration for Negotiations
Invitation for Negotiations
(On letterhead of the procuring entity)

No: _____ Dt: _____

To M/ s _____ Registered A/ D

Sub: Tender No ----- opened on -----for the supply of -----

Dear Sir,

The rates quoted in your tender are considered high. You are therefore, requested to come for negotiations of rates, on..... (date) at.. (time) at..... (venue).

You should, however, come for negotiations only in case you are prepared to furnish before such date the declaration appended herewith.

A copy of the form in which you may submit your revised offer after negotiations is enclosed.

Yours faithfully,

Enclosure:

(Authorised Officer)

- (1) Form of Declaration
- (2) Form of Revised Offer

FORM OF DECLARATION

(To be signed and submitted before start of negotiations)

(On company letterhead)

No: _____ Dt: _____

To _____

Sub: Tender No ----- Opened on -----for the supply of -----

Ref: Your invitation for negotiations No: dated:

Dear Sir,

I _____ duly authorised on behalf of M/ s. ____ do declare that in the event of

failure of the contemplated negotiations relating to Tender No.____ opened on ____my

original tender shall remain open for acceptance on its original terms and conditions. Yours faithfully,

Place: _____ Signatures of bidder, or officer

Date: _____ authorised to sign the bid documents

on behalf of the bidder

Format of Revised Offer in Negotiations

Revised Offer in Negotiations

(On company letterhead)

From.....

Full address.....

To

Sir,

Sub: Tender No ----- opened on -----for the supply of -----

Ref: Your invitation for negotiations no: dated:

1. On further discussions with your representatives onin
response to your letter no dated

We are not prepared to reduce the rates already quoted in the original tender, which will remain valid up to.....

Or

- 1. I/ we reduce my/ our rates as shown in the enclosed schedule of items.
- 2. I/ we am/ are aware that the provisions of the original bidding document remain valid and binding on me.
- 3. I/ we undertake to execute the contract as per following Schedule.....
- 4. I/ we agree to abide by this tender on the revised rate quoted by me/ us, it is open for acceptance for a period of 180 days from this date, i. e., up to

..... and in default of my/ our doing so, I/ we will forfeit the earnest money deposited with the original tender/ attached herewith. Eligibility as valid tenderers shall be deemed to be the consideration for the said forfeiture.

Yours faithfully,

Signatures of bidder or
Officer authorised to sign the bid
documents on behalf of the bidder

NO CLAIM CERTIFICATE

(On company letterhead)

To,

(Contract Executing Officer)

Procuring Entity _____

NO CLAIM CERTIFICATE

Sub: Contract Agreement no. ----- dated -----for the supply of -----

We have received the sum of Rs. (Rupees _____ only)

in full and final settlement of all the payments due to us for the supply of under the above mentioned contract agreement, between us and..... We hereby unconditionally, and without any reservation whatsoever, certify that with this payment, we shall have no claim whatsoever, of any description, on any account, against Procuring Entity, against aforesaid contract agreement executed by us. We further declare unequivocally, that with this payment, we have received all the amounts payable to us, and have no dispute of any description whatsoever, regarding the amounts worked out as payable to us and received by us, and that we shall continue to be bound by the terms and conditions of the contract agreement, as regards performance of the contract.

Yours faithfully,

Signatures of contractor or

Officer authorised to sign the contract documents on behalf of the contractor (Company stamp)

Date:

Place:

PROFORMA FOR WRITTEN CONSENT FOR ARBITRATION CLAUSE (Applicable for Partnership Firm & Joint Venture)

We, all the Partners of M/s
(Partnership Firm/
Joint Venture), do hereby give our written consent for acceptance of the following Arbitration Clause
of the NIT for the Work

“.....”
.....” tendered by CCL, vide NIT No.
..... dated
and Tender Id

A. Settlement of Disputes.

It is incumbent upon the contractor to avoid litigation and disputes during the course of execution. However, if such disputes take place between the contractor and the department, effort shall be made first to settle the disputes at the company level.

The contractor should make request in writing to the Engineer in charge for settlement of such disputes/ claims within 30 (thirty) days of arising of the cause of dispute/ claim failing which no disputes/ claims of the contractor shall be entertained by the company.

Effort shall be made to resolve the dispute in two stages

In first stage dispute shall be referred to Area CGM/GM. If difference still persist the dispute shall be referred to a committee constituted by the owner. The committee shall have one member of the rank of Director of the company who shall be chairman of the committee.

If differences still persist, the settlement of the dispute shall be resolved in the following manner:

Disputes relating to the commercial contracts with Central Public Sector Enterprises / Govt. Departments (except Railways, Income Tax, Customs & Excise)/ State Public Sector Enterprises shall be referred by either party for Arbitration to the PMA (Permanent Machinery of Arbitration) in the department of Public Enterprises.

In case of parties other than Govt. Agencies, the redressal of the dispute may be sought through Arbitration (THE ARBITRATION AND CONCILIATION ACT, 1996 as amended by AMENDMENT ACT of 2015).

B. Settlement of Disputes through Arbitration

If the parties fail to resolve the disputes/differences by in house mechanism, then, depending on the position of the case, either the employer/owner or the contractor shall give notice to other party to refer the matter to arbitration instead of directly approaching Court. The contractor shall, however, be entitled to invoke arbitration clause only after exhausting the remedy available under the clause 16.

In case of parties other than Govt. agencies, the redressal of disputes/differences shall be sought through Sole Arbitration as under.

Sole Arbitration:

~~In the event of any question, dispute or difference arising under these terms & conditions or any condition contained in this contract or interpretation of the terms of, or in connection with this Contract (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of a person, appointed to be the arbitrator by the Competent Authority of CIL / CMD of Subsidiary Company (as the case may be). The award of the arbitrator shall be final and binding on the parties of this Contract.~~

- ~~(a) In the event of the Arbitrator dying, neglecting or refusing to act or resigning or being unable to act for any reason, or his/her award being set aside by the court for any reason, it shall be lawful for the Competent Authority of CIL / CMD of Subsidiary Company (as the case may be) to appoint another arbitrator in place of the outgoing arbitrator in the manner aforesaid.~~
- ~~(b) It is further a term of this contract that no person other than the person appointed by the Competent Authority of CIL / CMD of Subsidiary Company (as the case may be) as aforesaid should act as arbitrator and that, if for any reason that is not possible, the matter is not to be referred to Arbitration at all.~~

~~Subject as aforesaid, Arbitration and Conciliation Act, 1996 as amended by Amendment Act of 2015, and the rules thereunder and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under this clause.~~

~~The venue of arbitration shall be the place from which the contract is issued or such other place as the Competent Authority of CIL / CMD of Subsidiary Company (as the case may be) at his discretion may determine.~~

Applicable Law: ~~The contracts shall be interpreted in accordance with the laws of the Union of India.~~

Signature of Partners of Partnership Firm/ Joint Venture:

- 1. **Name of Partner :** _____ **Signature :** _____
- 2. **Name of Partner :** _____ **Signature :** _____
- 3. **Name of Partner :** _____ **Signature :** _____
- 4. **Name of Partner :** _____ **Signature :** _____
- 5. **Name of Partner :** _____ **Signature :** _____
- 6.
- 7.

Note: This CONSENT has to be signed by each Partner of Partnership Firm/ Joint Venture

SECTION IX

CODE OF INTEGRITY FOR PUBLIC PROCUREMENT (CIPP)

SECTION IX

CODE OF INTEGRITY FOR PUBLIC PROCUREMENT (CIPP)

1. Introduction

Public procurement is perceived to be prone to corruption and ethical risks. To mitigate this, the officials of Procuring Entities involved in procurement and the bidders/ contractors must abide by the following Code of Integrity for Public Procurement (CIPP). All Procuring officials may be asked to submit sign declarations to this effect while processing PR on ERP of CIL. To implement it uniformly and mandatorily, this undertaking shall be in-built in the PR format in ERP of CIL. The bidders/ contractors should be asked to sign a declaration about abiding by a Code of Integrity for Public Procurement (including sub-contractors engaged by them) during submission of bid, with a warning that, in case of any transgression of this code, it would be liable for punitive actions such as cancellation of contracts, banning and blacklisting or action in Competition Commission of India, and so on.

2. Code of Integrity for Public Procurement

Procuring authorities as well as bidders, contractors and consultants should observe the highest standard of ethics and should not indulge in the following prohibited practices, either directly or indirectly, at any stage during the procurement process or during execution of resultant contracts:

- i) “Corrupt practice”: making offers, solicitation or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process or contract execution;
- ii) “Fraudulent practice”: any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits may be obtained or an obligation avoided. This includes making false declaration or providing false information for participation in a tender process or to secure a contract or in execution of the contract;
- iii) “Anti-competitive practice”: any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of The Competition Act, 2002, between two or more bidders, with or without the knowledge of the procuring entity, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels;
- iv) “Coercive practice”: harming or threatening to harm, persons or their property to influence their participation in the procurement process or affect the execution of a contract;
- v) “Conflict of Interest”--Participation by a bidding firm or any of its affiliates that are either involved in the consultancy contract to which this procurement is linked; or if they are part of more than one bid in the procurement; or if the bidding firm or their personnel have relationships or financial or business transactions with any official of procuring entity who are

directly related to tender or execution process of contract; or improper use of information obtained by the (prospective) bidder from the procuring entity with an intent to gain unfair advantage in the procurement process or for personal gain.

- vi) “Obstructive practice”: materially impede the procuring entity’s investigation into allegations of one or more of the above mentioned prohibited practices either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements to investigators and/ or by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or by impeding the procuring entity’s rights of audit or access to information;

3. Obligations for Proactive Disclosures

- i) Procuring authorities as well as bidders, contractors and consultants, are obliged under Code of Integrity for Public Procurement to suo-moto proactively declares any conflicts of interest (coming under the definition mentioned above – pre-existing or as and as soon as these arise at any stage) in any procurement process or execution of contract. Failure to do so would amount to violation of this code of integrity; and
- ii) Any bidder must declare, whether asked or not in a bid document, any previous transgressions of such a code of integrity with any entity in any country during the last three years or of being debarred by any other procuring entity. Failure to do so would amount to violation of this code of integrity.
- iii) To encourage voluntary disclosures, such declarations would not mean automatic disqualification for the bidder making such declarations. The declared conflict of interest may be evaluated and mitigation steps, if possible, may be taken by the procuring entity. Similarly voluntary reporting of previous transgressions of Code of Integrity elsewhere may be evaluated and barring cases of various grades of debarment, an alert watch may be kept on the bidder’s actions in the tender and subsequent contract.

4. Punitive Provisions

Without prejudice to and in addition to the rights of the procuring entity to other penal provisions as per the bid documents or contract, if the procuring entity comes to a conclusion that a (prospective) bidder/ contractor directly or through an agent, has violated this code of integrity in competing for the contract or in executing a contract, the procuring entity may take appropriate measures including one or more of the following:

- i) If his bids are under consideration in any procurement
 - a) Forfeiture or encashment of bid security;
 - b) calling off of any pre-contract negotiations; and

- c) rejection and exclusion of the bidder from the procurement process
- ii) If a contract has already been awarded
 - a) Cancellation of the relevant contract and recovery of compensation for loss incurred by the procuring entity;
 - b) Forfeiture or encashment of any other security or bond relating to the procurement;
 - c) Recovery of payments including advance payments, if any, made by the procuring entity along with interest thereon at the prevailing rate;
- iii) Provisions in addition to above:
 - a) / debarment of the bidder from participation in future procurements of the procuring entity for a period not less than one year;
 - b) In case of anti-competitive practices, information for further processing may be filed, with the Competition Commission of India;
- c) Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible.



cmpdi
A Mini Ratna Company

CENTRAL COALFIELDS LIMITED (CCL)

**FINAL e-TENDER DOCUMENT FOR
RENOVATION OF SURFACE BELT CONVEYOR
AT
CHURI UNDERGROUND MINES, CCL**

VOLUME – II & III

[TECHNICAL & DRAWINGS]

(JOB NO.)

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GONDWANA PLACE, KANKE ROAD, RANCHI – 834008,
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TECHNICAL SPECIFICATION

(MECHANICAL, ELECTRICAL & CIVIL)

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SUB-SECTION-7.1

PREAMBLE

SECTION- 7.1

PREAMBLE

1.0 Location

Churi U/G mine is located in the South-central part of North Karanpura coalfield between the latitudes 23°41'05" and 23°42'04" and the longitudes 85°03' and 85°04'20" covering an area of about 7.68 sq.kms. in Chatra district of Jharkhand state. Ray Bachra colliery and Ashok OCP of Piparwar area is situated to the North / North-east and Manki colliery (now exhausted) to the south/south-west of Churi project.

2.0 Communication

Churi UG mine is situated at a distance of 8 km on fair weather road connecting Khalari and Ray railway stations on the Gomoh-Dehri-on-Sone loop line of the East Central Railway. An all weathered 25 km long road links Khalari with Bijupara village on the state highway connecting Ranchi and Daltonganj. The P.W.D. road connecting Khalari and Barkagaon in Hazaribagh district also passes through the Churi block. CCL Hq. at Ranchi is situated at a distance of about 73km from Churi UG project.

3.0 About this tender

In the Churi Block, two seams namely Upper Bachra and Lower Bachra have been encountered.

The production of coal has started from 24.03.2019 with the help of Continuous Miner in conjunction with Battery Hauler. Continuous Miner (CM) is working effectively in the panel with battery hauler and feeder breaker for the purpose of production and transportation of the coal to the surface. Continuous miner cuts the coal and feeds it to the battery hauler through a chain conveyor which is provided along with CM.

The Continuous Miner is being operated by M/S JMS Mining Services Pvt.Ltd with an agreement with CCL for production of 0.4 MT in first year and thereafter at rate of 0.5 MT per year for 8 years. (Total agreement is for 9 years).

Existing Underground Coal Transport:

The existing UG coal evacuation system in Churi UG project is through a series of 1000 / 800 mm belt conveyors, which includes trunk conveyors (TB1 to TB4) covering entire length of trunk roadways in Incl. No.7 and gate belt conveyors. Coal from the working face is loaded either manually or by LHDs on to chain conveyors and Chain conveyors fed it to gate belt conveyors. The gate belt conveyors feed coal on to trunk belt conveyors, which in turn carries coal up to surface bunkers.

Existing Men & Material Transport:

A direct haulage of 65 KW rating is installed on surface for transport of material from surface along the Incline no. 6 to underground. Thereafter, endless rope haulages are used to haul the material trollies to the out bye of the existing panels. Within the panel, endless haulage is also used to supply material to in bye faces of the panels.

Surface Coal Transport Coal evacuated from UG is stored on surface in 5 overhead steel hoppers of 125 Te capacities, which directly loads either on to consumer's truck or side dumps on to surface, in case emergency arises.

The present tender document envisages turnkey assignment to renovate the plant the surface coal transportation to existing Loading hoppers through belt conveyors.

The work consists of design & engineering, supply, erection, commissioning for:

- Dismantling of existing Surface Main Belt conveyor and Shuttle / Trolley belt conveyor.
- Replacement of existing Surface main belt conveyor of 400 TPH (rated), 120 m length, 1000 mm belt width to enhance belt capacity 600 TPH (rated)
- Replacement / New Installation of drive structures, Motors, Gear Box, Couplings, Idlers, Pulleys with bearings, technological structure, Take up structure, Safety Switches (Pull cord, Zero speed switch, Belt Sway Switch, Rip detector), Primary and Secondary Scrapers etc. of Existing Surface main belt conveyor as per system requirement.
- Replacement / New Installation of existing Shuttle belt conveyor / Trolley belt conveyor with including electricals, Pulley assembly, tensioning arrangement,

- travel wheel, rails, frames and rollers, shuttle boom, chute replacement, brakes, necessary safety switches, Internal and external belt cleaners.
- Replacement of Belts for Existing Surface main belt conveyor and existing Shuttle / Trolley belt conveyor.
 - Installation of new Magnetic Separator and metal detector as per system requirement.
 - Installation of necessary lifting tools (motorized hoist, chain pulley block) and tackles.
 - Replacement/ New Installation of Liners over discharge chutes
 - Safety and dust control system under the scope of this work.
 - Firefighting system under the scope of this work.
 - Sump pumps
 - Electrical system
 - Fabrication along with construction of new civil/ structural/ developmental/ infrastructural facilities, repairing/ retrofitting/ strengthening of such existing facilities.
 - Any other item(s) not included in the above list but necessary required for renovation of surface belt conveyor.

The work also includes trial run, performance guarantee test, under scope of work and handing over all the revived/replaced equipment/circuit in satisfactory operational condition.

The tender document also covers all the associated sub-systems for dovetailing the operation of the proposed equipment/system with the existing system of the plant which includes conveying system, Chutes & Liners, piping system, power supply, illumination, dust suppression, Safety, fire-fighting, plant cleaning systems and other equipments necessary for operation of plant.

4.0 GENERAL

In case of any contradiction between these parts/sections of the NIT, the purchaser should be contacted for clarification. Also, where there are discrepancies in text and drawings, the text is to be followed. All the equipment and facilities are to be supplied by the successful bidder within the estimated time

period. All equipment / systems shall be supplied, designed, fabricated and selected as per relevant Indian standard / international standards and up to date engineering practices and necessary inspections / test certificates shall be submitted along with equipment supply to certify the quality and genuineness of critical components and capacity and other technical parameters of the equipment/systems.

5.0 PRICE BID:

The pricing format should be properly filled furnished in Excel format. **The Bidders will quote their bids as per the format described in Price Bid in separate excel sheet.**

The Price bid in Excel format under different heads and/ subheads will be downloaded by the bidder and they will quote for all items/heads/subheads on this excel file as per instruction. Thereafter, the bidder will upload the same Excel file during bid submission. The price bid of bidder will have no condition. The price bid which is incomplete and not submitted as per Instruction given (and also online) will be rejected. Any alteration / modification in the Excel format may lead to rejection of bid.

6.0 DRAWINGS

Volume-III consists of drawings like tentative coal flow diagram, single line diagram etc. The dimensions/parameters indicated in these drawings are indicative only and may change during detail engineering as per system and design requirements; these are provided as guideline for estimation only.

The bidders are requested to visit the site thoroughly for participating in the Tender. This being a turnkey contract, successful completion and commissioning of the plant under the scope of work shall be responsibility of the contractor.

Mutually agreed shut down time between owner and contractor may be given to contractor for renovation work as detailed above.

7.0 This document forming part of the contract are to be treated as mutually explanatory of one another and in case of discrepancy between schedule of quantity and/or drawing the following order of preference shall be observed.

Description in bill of quantities of work

- Particular specification and special conditions, if any.
- Drawings
- General Specifications
- BIS specifications.

In the event of varying or conflicting provision in any of the documents forming part of the contract, the Accepting Authority decision / clarification shall hold well with regard to the intention of the document or contract as the case may be.

Any error in description, quantity and rate in bill of quantities or any omission there from shall not vitiate the contract or release the contractor from discharging his obligations under the contract including execution of work according to the approved drawings and specifications forming the part of the contract document.

SUB-SECTION-7.2

SYSTEM DESCRIPTION AND BASIC DATA

SECTION-7.2 BASIC DATA AND EXISTING SYSTEM

1.0 GENERAL

- (a) Location : Churi U/G. N K Area, CCL
(b) CHP Commissioned in year : 1996

2.0 SPECIFICATION OF EXISTING TRUNK BELT TB-1 BELT CONVEYOR FEEDING SURFACE MAIN BELT CONVEYOR

- (a) Belt Capacity : 600 TPH (Rated)
(b) Belt Speed : 3 m/sec.
(c) Gradient : 1:4
(d) Conveyor Belt Length : 500 meters
(e) Motor capacity : 2 x 150 KW, 3.3 kV. One damaged 150 KW motor has been replaced with Motor capacity of 180 KW

3.0 SPECIFICATION OF EXISTING SURFACE MAIN BELT CONVEYOR FEEDING SHUTTLE / TROLLEY BELT CONVEYOR AND SUBSEQUENTLY TO LOADING HOPPER

- (a) Belt Capacity : 400 TPH (Rated)
(b) Belt Speed : 2.25 m/sec.
(c) Gear Ratio : 25:1
(d) Conveyor Belt Length : 120 meters
(e) Belt width : 1000 mm

4.0 SPECIFICATION OF EXISTING TROLLEY / SHUTTLE BELT CONVEYOR FEEDING LOADING HOPPER OF 5 X 125 Te. CAPACITY

- (a) Belt Length : 16 meters
(b) Installed motor capacity : 25 HP / 550 V and 15 HP / 440 V
(c) Belt width : 1000 mm

5.0 TRUCK LOADING SYSTEM

- Hopper capacity : 125 te.
- No. of hoppers : 5
- No. of outlet : 1 underneath each hopper
- Equipment for loading : Vibro feeder under each hopper

6.0 DESCRIPTION OF EXISTING SYSTEM

(REF.: DRAWINGS FOR TENTATIVE LAYOUT OF SURFACE MAIN BELT CHP ENCLOSED)

The target production of Churi U/G Mines is average 2000 t/day.

The existing UG coal evacuation system in Churi UG project is through a series of 1000 mm belt conveyors, which includes trunk conveyors (TB1 to TB4) covering entire length of trunk roadways in Incl. No.7 and gate belt conveyors. Coal from the working face is loaded either manually or by LHDs on to chain conveyors and Chain conveyors feed it to gate belt conveyors. The gate belt conveyors feed coal on to trunk belt conveyors, which in turn carries coal up to surface bunkers through Surface Main Belt conveyor and Trolley / shuttle conveyor. Existing dispatch is about 60% from bunker and about 40% directly to stockpile from TB-1 Conveyor belt. Approx. 90% dispatch is proposed through bunker and surface CHP in near future.

The existing Trunk Belt TB-1 conveyor is installed of rated capacity 600 TPH, 1000 mm belt width, belt length 500 meters and belt speed of 3 m/sec. The TB-1 belt discharge onto Surface Main Belt conveyor of rated capacity 400 TPH, belt speed of 2.25 m/sec, belt length of 120 meters and belt width 1000 mm which further discharge onto Trolley / shuttle conveyor of 400 TPH (Rated) capacity, 16 meters length and belt width of 1000 mm which further discharge into existing 5 x 125 Te. loading hoppers to load onto loading trucks through vibro feeders.

Since, there is mismatch of speed between Trunk Belt TB-1 and Surface Main Belt conveyor, as such surface CHP is unable to handle entire load of coal transported through truck belt TB-1.

- 7.0 Brief description of works:** The tender is for renovation of surface belt conveyor as shown in tender drawing.

The brief description of works is as under:

- a) Dismantling of existing Surface Main Belt conveyor and Shuttle / Trolley belt conveyor.
- b) Replacement of existing Surface main belt conveyor of 400 TPH (rated), 120 m length, 1000 mm belt width to enhance belt capacity 600 TPH (rated)
- c) Replacement / New Installation of drive structures, Motors, Gear Box, Couplings, Idlers, Pulleys with bearings, technological structure, Take up structure, Safety Switches (Pull cord, Zero speed switch, Belt Sway Switch, Rip detector), Primary and Secondary Scrapers etc. of Existing Surface main belt conveyor as per system requirement.
- d) Replacement / New Installation of existing Shuttle belt conveyor / Trolley belt conveyor with including electricals, Pulley assembly, tensioning arrangement, travel wheel, rails, frames and rollers, shuttle boom, chute replacement, brakes, necessary safety switches, Internal and external belt cleaners.
- e) Replacement of Belts for Existing Surface main belt conveyor and existing Shuttle / Trolley belt conveyor.
- f) Installation of new Magnetic Separator and metal detector as per system requirement.
- g) Installation of necessary lifting tools (motorized hoist, chain pulley block) and tackles.
- h) Replacement/ New Installation of Liners over discharge chutes.
- i) Safety and dust control system under the scope of this work.
- j) Firefighting system under the scope of this work.
- k) Sump pumps
- l) Electrical system
- m) Fabrication along with construction of new civil/ structural/ developmental/ infrastructural facilities, repairing/ retrofitting/ strengthening of such existing facilities.
- n) Any other item(s) not included in the above list but necessary required for renovation of surface belt conveyor.

The work also includes trial run, performance guarantee test and handing over all the revived/replaced equipment/circuit in satisfactory operational condition.

SUB-SECTION-7.3

SCOPE OF SUPPLY AND WORKS (MECHANICAL, ELECTRICAL & CIVIL)

SECTION-7.3**SCOPE OF SUPPLY AND WORKS****1.0 GENERAL**

- 1.1 In this tender, renovation of existing surface main belt conveyor is under scope. Considering the existing system to be old and also surface main belt conveyor of enhanced capacity is required to be installed to match the system requirement, it is proposed to replace the existing Surface Main Belt conveyor and Trolley / shuttle conveyor and provision of additional equipments is made.

This tender document for renovation of Surface belt conveyor at Churi U/G mine is for planning, design, engineering, manufacture, supply, shop fabrication, assembly, testing, packing, transportation to site, insurance, delivery to site, receipt, unloading, handling, storage at site, fabrication at site, installation and erection including all civil, structural works and associated electrical & mechanical works and other allied auxiliary facilities dust control system, firefighting etc. as per the scope of work.

- 1.2 The equipment and works mentioned hereinafter to be read in conjunction with preamble (Sub-Section-7.1), basic data and existing system (Sub-Section-7.2), and technical specification (Sub-Section-7.4) are indicative and not limited to the description and/or list given.
- 1.3 All mechanical & electrical equipment and systems and civil works are within the scope of supply and works of contractor.

2.0 SCOPE OF SUPPLY:**2.1 Equipment, Accessories and Facilities**

- 2.1.1 List of mechanical equipment, accessories Facilities is given in **Annexure-III.1**.
- 2.1.2 List of electrical equipment and accessories is given in **Annexure-III.2**

3.0 Scope of works and services:

- 3.1 The scope of work under this tender covers all the related civil and structural works, transportation, insurance, storage at site, erection and commissioning, performance tests, detailed engineering, PAT & FAT and handing over of plant and includes but not limited to the following:
- I. Design & engineering of all mechanical, electrical, civil and structural works of the plant.
 - II. Erection and commissioning of all the plants and equipment, Supervision at site and Inspection & testing.
 - III. PAT & FAT.
 - IV. Handing over all the revived/replaced equipment/circuit in satisfactory**

operational condition.

V. Performance and guarantee tests, Final acceptance.

VI. Any other works/services not mentioned but required for the completion and commissioning of the plant.

3.2 All the items and works specified in this document and any other equipment and work found necessary but omitted is deemed to have been covered in the scope of supply and works in the tender without any increase in the contract price.

3.3 Air, water and noise levels shall be within the permissible limits as specified in the bid document. Additional requirement and stipulation by State/ Central Pollution Control Board, if any, on the subject shall also be applicable.

3.4 Adherence to Indian Standards:

All the works including designs, drawings, construction, fabrication, testing, erection, etc. shall be done strictly as per Indian Standards. In absence of Indian standards, International standards like British, American, German or Russian may be used. A copy of the standard used shall be furnished along with the concerned drawing /document during approval.

3.5 The equipment list indicates only broad parameters and the accessories required for successful commissioning / operation of Plant shall be considered to be part of the total works. The other terms and conditions of works including technical, commercial, etc shall be governed by the clauses of the bid and contract.

3.6 The technical parameters to be furnished are subject to scrutiny/approval at the detailed design stage that may undergo minor changes keeping in view the system requirement and various codes of practices/regulation by the statutory bodies. This is also true for drawings. The parameters not specifically mentioned in the bid document shall be decided at the time of detailed engineering subject to owner's approval.

3.7 Discrepancies in Contract Documents & Adjustments Thereof

3.7.1 The documents forming part of the contract are to be treated as mutually explanatory of one another and in case of discrepancy between schedule of quantity, the specifications and/or drawing, the following order of preference shall be observed;

Description in Bill of Quantities of work.

Particular specification and special conditions, if any

Drawings.

General Specifications.

BIS Specifications.

3.7.2 In the event of varying or conflicting provision in any of the document(s) forming part of the contract, the Accepting Authority's decision/clarification shall hold good with regard to

the intention of the document or contract as the case may be.

3.7.3 Any error in description, quantity or rate in Bill of Quantities or any omission there from, shall not vitiate the contract or release the contractor from discharging his obligations under the contract including execution of work according to the Drawings and Specifications forming part of the particular contract document.

4.0 **Details of works and services:**

4.1 **Design Engineering**

- i) Elaboration and furnishing of system design/drawing, based on actual parameters of equipment to be supplied. The system design as proposed in the plant description shall form the basis of this elaboration.
- ii) Preparation and furnishing of all relevant detailed engineering drawings based on elaborated system design drawing duly approved by consultant in writing. This includes fabrication, assembly, installation and erection drawings.
- iii) Furnishing of detail design calculations in support of different design and equipment selection parameters.
- iv) Furnishing of equipment specification supported by manufacturer's illustrative pamphlets and literature.
- v) Furnishing of operational, maintenance and spare parts manual supported by the illustrative pamphlet and literature of manufacturers.
- vi) All approved drawings and documents shall be supplied in five copies in addition to one soft copy in AUTOCAD on CD. Final drawing/literature shall be presented in the form of document.
- vii) All drawings shall comply with current Indian Standard specifications and shall be sufficiently detailed with dimensions and shall be clear and legible.
- viii) The bidder shall submit detailed time schedule in the form of PERT NETWORK for complete plant and subsequently for each major activity for monitoring purpose. The same shall be updated from time to time. This is essential in view of maintaining time schedule. The successful bidder shall have to submit monthly/quarterly progress report of the various works being carried out.
- ix) Mutually agreed shut down time between owner and contractor may be given to contractor for renovation work as detailed above.

4.2 Erection and Commissioning

- 4.2.1 Erection & commissioning of tail end frame with drum, external cleaner, skirt board, intermediate structures, take-up, drive head including motor, gear box & couplings, discharge drum, conveyor rollers, single / two-way discharge chute for conveyors, safety switches, laying of suitable belting, vulcanising of conveyors etc.
- 4.2.2 Erection & commissioning of entire plant comprising of magnetic separator, metal detector, chain pulley block, electric hoist, manual hoist, fire-fighting system etc. along with associated accessories, erection and commissioning of dust suppression system.
- 4.2.3 Installation of lifting and hoisting devices.
- 4.2.4 Belt conveyors, two-way / one-way discharge chutes.
- 4.2.5 All Transfer / drive houses as indicated in the tender drawing, if applicable.
- 4.2.6 Any other item(s) not described above, but necessary for erection and commissioning of the entire plant.
- 4.2.7 **Replacement/Renovation of Existing Surface Main Belt Conveyor**

The existing Surface Main Belt conveyor of 400 TPH (Rated) capacity, 2.25 m/sec belt speed is proposed to be replaced with conveyor of suitable capacity, belt speed, belt width etc. to match the existing system and suit the system requirement.

Accordingly, other systems shall also be renovated and components shall be replaced to suit system requirement as per the scope of work.

4.2.8 Replacement/Renovation of Existing Trolley / Shuttle Belt Conveyor

The existing Trolley / shuttle conveyor of 400 TPH (Rated) capacity, is proposed to be replaced with suitable capacity, belt speed, belt width etc. to match the system requirement.

4.3 Miscellaneous Systems:

4.3.1 Safety devices

All the equipment and conveyors in the circuit shall be provided with necessary safety devices such as emergency stop switches, overload protection, wire-netting, railing type or guards, pull chords switches, belt sway switches, zero speed switches, brakes, holdback devices, etc. wherever applicable. The sequence of starting of drive will be in the reverse direction of coal flow, while stopping of the drives will be in the direction of coal flow. In case of stoppage of any equipment in the circuit for any reason, all the preceding equipment/conveyors shall be stopped automatically.

Pre-start hooters shall be blown to alarm the operating and maintenance personnel. All the floors and distant transfer houses shall be provided with audio-visual signals to alarm the working personnel locally. Necessary walkways and crossovers shall be provided/renovated along the conveyors, if not available. Under-netting shall be provided wherever conveyors cross any roads or working areas as elaborated elsewhere.

4.3.2 Pollution control

Dust suppression

Proper water supply arrangement for dust suppression will be made at dust generating points under the scope of this tender, so that all working space remains free of dust. For dust suppression water jets will have to be provided in truck loading area, transfer houses etc. For proper ventilation in all the working floors, arrangements for installing exhaust fans/ventilation fans with ducting will have to be made as detailed elsewhere in the tender document. All civil works pertaining to dust suppression and extraction shall be as per system requirement. Dust suppression system should be suitable for water which is available at Project.

Necessary measures shall also be taken for noise and vibration control.

4.3.3 Repair facilities

A drum of suitable diameter and slow speed drive arrangement shall be provided at each drive house of conveyor system, if applicable.

4.3.4 Chutes and liners

Chutes shall be designed for a smooth flow of coal and they shall be lined with suitable replaceable liners as detailed elsewhere in this tender document. Conveyor chutes shall be carefully designed with respect to the coal trajectory to minimise impingement and wear on lining plates.

4.3.5 Drinking water and other facilities

Facilities for distribution of drinking water shall be provided all along the plant with provision of toilet facilities at suitable points as detailed in civil section.

4.3.6 Plant cleaning and drainage

Suitable arrangements shall be made for cleaning of plant especially at the spillage point with the help of water hydrants and vacuum cleaners in case of electrical panels and plant equipment.

The effluent shall be discharged into a suitable location / ETP by drainage or through pumps, pipes, etc. These shall be served by portable compressors as envisaged in the bid document.

Proper drainage arrangement will have to be made all along the plant so that water or slush accumulation is avoided. At every probable spillage point suitable arrangement will have to be made for cleaning.

4.3.7 Fire fighting of new facilities and under the scope of the work

Fire fighting system shall comprise of (a) hydrant system (b) mobile fire extinguishers (c) water spray system comprising of automatic medium velocity water spray system

Fire fighting system shall be designed to meet the various requirements laid down in the fire protection manual by the Tariff Advisory Committee (TAC), India and National Fire Alarm Code by NFPA (USA).

Hydrant system: The fire hydrant system shall be designed considering generally as ordinary hazard as per TAC manual and shall consists of a network of over ground piping feeding pressurised water to a number of double headed hydrant valves located in the new facilities and at strategic points under the scope of this contract.

MVWS System: MVWS system shall be provided in all conveyors as detailed elsewhere.

Portable & Mobile Extinguishers: Suitable portable extinguishers shall be installed at suitable locations all along the plant under the scope of the work as per TAC manual. Mobile extinguishers of required number shall be provided.

Different types, as described above, shall conform to the latest BIS standards.

4.3.8 The proposed modification as per scope of work shall be done in compliance and dovetail with the existing facilities of the safety measures, pollution control measures, water supply arrangements, plant cleaning and drainage system, maintenance facilities, entry/approach/exit, dust suppression system, safety, communication system, fire-fighting arrangement etc. of Churi U/G mine.

4.4 POWER SUPPLY ARRANGEMENT

4.4.1 INCOMING POWER SUPPLY

Presently CHURI UG mine has incoming power at 33kV from Piparwar substation, where it is stepped down to 3.3kV at surface substation. Presently the surface CHP is supplied partly by 415V and partly by 550V. For this two transformer 1X500kVA, 3.3kV/415V and 1X315kVA,3.3kV/550V are used. Presently power at 415V through overhead line upto CHP room near bunker and subsequently through cables to the motors is being provided.

Present scope of work of proposed surface CHP renovation will have power supply at 415V to main belt conveyor(surface) and trolley conveyor. The power supply shall be achieved by means of existing 1X500kVA,3.3/415V transformer. However, power supply to vibro feeders (15hp capacity) will continue to operate at 550V.

The scope of this tender includes supply, erection and commissioning of power receiving arrangement at CHP room from the DP structure near CHP room (to be constructed), provision of required number of MCC panel in CHP room and other provisions as mentioned in the tender document.

4.4.2 POWER DISTRIBUTION ARRANGEMENT

It is proposed to establish one numbers of MCC in the CHP area for supplying power to different equipment working in the CHP. A tentative power supply scheme for the MCC (placed in CHP room) to be constructed beside Bunker is shown in the drawing separately. The power supply scheme is tentative and for reference only. However, the details along with number of panels, spare panels etc. have to be worked out by the Bidder and submitted along with the offer.

4.4.3 MCC NEAR BUNKER

A MCC will be provided near the Bunker to meet the power supply requirement of LT belt conveyor drives, dust suppression pumps, fire fighting, The MCC room shall accommodate, 415 V MCC, LT capacitor banks, battery bank etc.

4.4.3.1 MCC Room near Bunker comprising the following:

- a) 415 V sectionalized MCC for electric hoist blocks, surface conveyors, dust suppression pumps, firefighting system, trolley conveyor and other equipment operating in CHP comprising the following

Sr. No.	Description of MCC Modules	Feeder Type	Qty.
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Sr. No.	Description of MCC Modules	Feeder Type	Qty.
1.	415 V, Air Circuit Breaker Cubicle	Incoming Feeder Cubicle	1 no.
2.	415 V, Air circuit Breaker Cubicle	Outgoing feeder cubicle for control of capacitor Bank, and other such loads as indicated in the drawing referred above.	1no.
3.	415 V, LT motor controlling cubicle comprising Isolator, HRC Fuses, Contactor, Micro Processor based Overload Relay with built in Single Phasing prevention	Outgoing feeders for control of LT motors and other such loads as indicated in the drawing referred above.	6 no
4.	415 V, LT motor controlling cubicle comprising Isolator, HRC Fuses, Contactor, Micro Processor based Overload Relay with built in Single Phasing prevention	Spare Feeder	1 no
5.	415 V, , Air circuit Breaker Cubicle	Spare Feeder	1 no

- b) Lightning Protection System of entire main belt with bunker.
- c) Earthing System of entire main belt with bunker.
- d) 110 V, 120 AH Battery racks and charger for control circuit.
- e) 415/110V, 50 VA Transformer for AC control supply-1 no.
- f) LT- Power, Lighting and Control cabling.

4.4.4 The rating of equipment indicated in the drawings are minimum and bidders are required to assess the rating of equipment as per system requirement and quote accordingly.

4.4.5 All the electrical installations shall be as per Indian Electricity Rules and DGM Regulations. Approval of DGMS shall be obtained by the contractor along with submission of necessary Test certificates / drawings / circuit diagrams etc.

4.4.6 415V Power Distribution Boards (PDB/PSDB):

Required numbers of power distribution/Sub distribution boards will be installed as required. These boards will be of 415V, 3 Ph-N type of required capacity. These distribution boards will receive power from MCC installed. Each board will consist of the following:

- i) in coming feeder control modules having isolator, switch fuse unit, MCCB and other necessary protections - 1no
- ii) out going feeder control modules having isolator, contactor, switch fuse unit, Bi metallic over load relay and other protections - 4nos
- iii) spare modules for feeder - 1no

4.4.7 SUPPLY OF CONTROL CIRCUITS/ CONTROL VOLTAGES

Auxiliary Control circuit & Contactor Coil of MCC: 110 V AC

110 V AC shall be made available from control Transformer of required capacity. 110V DC shall be made available from Battery Bank

4.4.8 METERING

4.4.8.1 Metering at 415

All the 415 V incoming panels will be provided with digital Multi-Function Meter capable of recording and digitally displaying Voltage, Current, Power Factor, kW, kVAr, kVA & kWh.

All the 415 V outgoing feeders /modules of MCC controlling the motors of conveyors will also be provided with Multi-Function Meter capable of recording and digitally displaying Voltage, Current, Power Factor, kW, kVAr, kVA & kWh.

All the 415 V outgoing modules of MCC controlling motor rated 22 kW and above (other than the motors of conveyors) will be provided with digital Ammeter and Voltmeter with Selector switches. All LT, incoming and outgoing feeder shall have LED indicator for ON, OFF and TRIP position.

4.4.9 PROTECTION

4.4.9.1 Protection at 415 V

- a) All the 415 V incoming panels shall have combined digital IDMT microprocessor based overload protection with high instantaneous setting, instantaneous earth fault protection and earth leakage relays.
- b) All the 415 V outgoing panels supplying power to conveyor motors will be provided with Single Phasing protection, Over Current, Short Circuit and Earth Leakage Protection.

4.4.10 POWER FACTOR IMPROVEMENT

For the purpose of improving power Factor to 0.999 (approx.) lagging and maintaining the same, 1 no. of 415 Volts, suitably rated Capacitor Bank with APFC panel shall be provided in MCC room.

4.4.11 CABLES

All cables (including control cables) will be of 1100V grade. All the 1100 V grade will be of 3 1/2 or 4 core (or more in case of control cables) as per requirement. The Lighting cable (except 2 core cable) shall be of Copper conductor and control cables shall be of copper conductor & LT power cables shall also be of copper conductor. The LT power cables will be with double wire armoring, XLPE insulated with FRLS (outer sheathed) properties. The size of the cables shall be selected giving due consideration to continuous rating, de-rating factor, voltage drop limit, short circuit continuous current carrying capacity etc. as applicable.

In the conveyor gantries power cables will be installed in the walkway side on cable hangers/cable trays. In the other houses (transfer house and drive house) these cables shall be provided on separate hangers/trays fitted to the walls or structural members. In the MCC Room, these will be laid on cable hangers provided in the trenches. In the other places these will be laid in ground at a depth of 800 mm as per standards. In road crossings, the cables are to be run through the hume pipes. The LT cable and control cables shall be laid in the trenches separately.

The Bidder shall submit a single line diagram showing the details along with the offer. However detailed calculations in support of selection of circuit breakers, transformers, cables, MCC panels etc. shall be furnished after placement of order.

In the buildings, the wiring shall be concealed wiring with PVC insulated stranded copper conductor of required size for feeding power to luminaries, fans, etc.

4.4.12 EARTHING SYSTEM

The earthing system shall conform to the requirements of CEAR 2010 with latest amendments and the provisions of IS: 3043 (Current). Adequate earthing system shall be provided for safety of operating personnel as well as for proper system operation and performance of the protection device. The earthing system shall be designed to have impedance to ground as low as possible and shall not exceed 1 ohm and the step and touch potentials shall be within safe limits.

All the earth pits shall be constructed with earth electrodes and chemical earthing compound (Bentonite Clay).

Earthing grid shall have to be developed around the periphery of Loading complex and along the conveyors etc. The earth grid shall be formed by interconnecting GI strip of size not less than 65 mm x 8 mm.

All motors, 415V MCC, lighting panels, receptacles, push button stations, junction boxes and other electrical equipment should be earthed by two separate earthing strips. In addition all the motors will be earthed through the armouring of the connecting cable. Size of earthing strip and electrodes shall be as per requirement of relevant IS. However, the size of main earth bus strip shall not be less than 65 mm x 5 mm whereas that of the connecting earthing strip shall not be less than 25 mm x 5 mm.

Conveyor structure, cable tray supports, cable trays etc. shall not be considered as earthing conductors. Metallic sheath, screens/shields and armour of all cables shall be earthed at both the ends at the equipment where the cables are terminated. Suitable earthing clips shall be provided as required.

Cable trays shall be earthed at every 30m intervals. Adequate care shall be taken towards earthing of light-fittings, welding sockets etc.

Separate earth pits for earthing of neutral of transformers and lightning arrestors shall be provided. All joints and connections of earth lead shall be welded/bolted securely.

The resistance to earth as measured shall not exceed 1 ohm. Test pits shall be provided at all interconnecting grid connections. Interconnection with employer's earth grid if any shall be made at least at two points by using test electrodes.

4.4.13 LIGHTNING PROTECTION

Lightning protection against direct stroke shall be provided for all structures, buildings, conveyor gantries, silo etc having a height of 10m or more. The lightning protection shall conform to IS 2309. Earthing system for lightning protection shall be independent of the earthing system for electrical equipment. It may be noted that location of CHP is in heavily lightning prone zone.

4.4.14 SUBSTATION BUILDING / MCC ROOM NEAR BUNKER

In the substation building / MCC room, 415 V, 3 Ph, four wire MCC, etc. shall be installed. Suitable trenches with covers will be provided for laying cables and cable ducts inside the building. The plinth level of the substation will be 450 mm above general accepted ground level.

4.4.15 FIRE FIGHTING SYSTEM

Two nos of potable CO2 type fire extinguisher(4.5kg) to quench electric fires shall be provided

4.4.16 MAINTENANCE AND SAFETY

Suitable provision for maintenance of equipment and safety shall be made. General requirement for maintenance and safety is given elsewhere in this tender.

4.5 CIVIL AND STRUCTURAL WORKS

4.5.1 GENERAL

The scope of work under this contract shall include assessment of structural adequacy of the existing CHP elements as well as modification / strengthening of the structures if found necessary on the merit of the stability study and design, construction and successful commissioning of all civil and structural works, geo-technical investigation including the supply of geo-technical report, supply of detailed design, working drawings including all relevant calculations and all necessary works as may be needed for testing and commissioning, elimination of all teething trouble, performance test and handing over of the plant as envisaged in detailed scope of work and system description. The necessary construction, erection, commissioning of equipment related to civil engineering works shall be provided and transported to the site of work by the contractor. Due consideration shall be given for economy, architecture and functional utilities.

Battery Limit

For the purpose of defining the scope of work of this chapter within the CHP site, the battery limit of the CHP is defined as all areas wherever the proposed elements are located including all service buildings, infrastructural and developmental facilities proposed/required for successful execution and operation of the plant.

4.5.2 Adherence to Indian Standards

All the works including designs, drawings, construction, fabrication, testing, erection, etc. shall be done strictly as per relevant BIS Code of Practices. Wherever no Indian Standard is available, British, American, German, Soviet or other international standards may be used only as per its applicability and justification with approval from owner/Consultant.

4.5.3 BASIC SCOPE

The scope of work covers all the related civil and structural works, detail designing of the same and successfully commissioning of the civil and structural works for handing over the plant. This shall inter alia, include the following:

4.5.3.1 Design & engineering of all civil and structural works of the plant.

4.5.3.2 Execution of all civil/structural works consisting of the following:

- a) All the geo-technical investigation for the proposed new construction required for the work including furnishing the geo-technical report.

b) Preparation of construction site

The owner shall provide a hindrance free site as much as practicable in this respect. Any electrical line, elements of drainage/ sewage/ water supply system, buildings/ sheds/ temporary structures, pavements/yards etc. which may create problems in execution of the project shall be cleared by the owner, if not otherwise mentioned in this document, on written request from the contractor.

The scope of the tender does not include, if not otherwise mentioned particularly elsewhere in this document, removal of coal, scrap material, machineries, construction material etc. kept by the owner in the site.

Generally, the existing natural nallahs shall not be diverted. If required, such diversion of natural nallahs, if not otherwise mentioned in the document, shall be carried out by the contractor considering the catchment area and drainage requirement of the site and its surroundings as well as hydraulic design with approval of the owner.

Diversion of existing roads, to the extent possible shall be avoided. In case of crossovers of the system alignment and the existing roads, the existing roads shall not be diverted unless otherwise specifically mentioned in the NIT. Decision of the owner regarding such diversion shall be binding. Bidders may seek prior clarifications during bidding from the owner during the site visit. However minor diversions/repairing/reprofiling of a small part of the existing roads if required for execution or for safe and efficient operation of the plant shall be under the scope of this contract.

Unless otherwise noted elsewhere, Removal of all existing underground elements like foundations/ tunnels/ wells/retaining structures/sump/culverts etc. as per requirement shall be done by the contractor.

Existing Bushes, hedges and minor plantation shall be cleared by the contractor as per requirement, major plantations shall be cleared by the owner.

- c) Supply of fabricated structural steelwork and shaped rebars as required.
- d) Supply of all civil construction materials and other materials required.
- e) Execution of all civil works.
- f) Fabrication and erection of structural steel work.
- g) All civil and structural works required for equipment and accessories under supply.
- h) Excavation/ construction/ erection/ installation and commissioning of all auxiliary services such as sanitary, drainage, roads, retaining walls, pavements, office and service buildings, lighting towers, landscaping/ grading/ levelling/fencing/site clearing as detailed elsewhere. Where ever required provisions of Gabion/toe walls, side pitching, drains at u/s and d/s of trestles to

avoid damages from rain cuts, proper drainage system at various industrial/service facilities etc., are to be provided.

- i) Transportation of all construction materials to site, whether procured from within the country or from other countries.
- j) Water supply arrangement for potable, industrial and firefighting purposes INCLUDING DOVETAILING WITH THE EXISTING SYSTEM.
- k) Drainage and sewage treatment (for domestic and industrial sewage) including its dovetailing with the existing system.
- l) Firefighting arrangement.
- m) Roads, pavements, retaining walls, culverts, etc.
- n) All protective measures for proper drainage for safety of structures, against ingress of water / seepage due to seasonal nallahs and its tributaries which may be flowing through the construction site area as per actual site conditions and requirement.
- o) Erection and commissioning of all the plants and equipment.
- p) Inspection and testing.
- q) Performance guarantee.

4.5.3.3 Perception and remedial measures for the safety of entire CHP area under the scope keeping in view the adjoining natural and artificial features such as hill slopes, nallah, buildings, etc.

4.5.3.4 This being a turnkey contract, successful completion and commissioning of the plant shall be responsibility of the contractor.

4.5.4 DESIGN /ENGINEERING

4.5.4.1 Design Criteria

All detailed design and working drawings will be developed with proper co-ordination and inter-relation with mechanical and electrical equipment. Based on the Mechanical and Electrical approved system drawings with load data, the civil requirements shall be designed. The design criteria for civil engineering works shall be as per the latest (or otherwise as allowed by the owner) standards, codes & recommendations by Bureau of Indian Standards or Indian Road congress or MORTH specifications. In absence of suitable IS specifications, codes approved by other recognized international bodies may be used as per its applicability & justification.

The contractor shall be responsible for and shall pay for any alterations of the work due to any discrepancies, errors or omissions in the design and drawings

or other particulars supplied by him, whether such design, drawings or other particulars have been approved by customer or not.

All detailed design and working drawings will be developed with proper co-ordination and inter-relation with mechanical and electrical equipment. Based on the Mechanical and Electrical approved system drawings with load data, the civil requirements shall be designed. The design of RCC structure shall be carried out in general as per code of practice of plain and reinforced concrete for general buildings construction BIS 456-2000 (latest edition) and other relevant standards including up-to-date amendments. The steel structure shall be designed and fabricated as per Code of practice for use of structural steel in general building construction BIS 800 (latest edition or as approved by the owner/its consultant) with up to date amendments and other relevant IS standards. The building/ structure shall conform to local by-laws, rules and regulations for industrial buildings and as per relevant Indian Standards. Latest codes of practice with amendments up to date shall be strictly followed. In the absence of BIS codes, British standards Institution or the approved international codes could be considered for design as per its applicability and justification.

The contractor shall be responsible for and shall pay for any alterations of the work due to any discrepancies, errors or omissions in the design and drawings or other particulars supplied by him, whether such design, drawings or other particulars have been approved by customer or not.

4.5.4.2 DESIGN PARAMETERS

A. Loads

Loads to be considered in design shall be as per relevant BIS codes of practices. Generally, in design the effect of dead loads, live loads, load due to impact, vibration, erection, wind load, seismic loads, dust load and load due to surcharge and moving vehicles, effect of blasting etc. wherever applicable shall be considered. The loads due to equipment shall be supplied by the contractor. In general, live load, wind loads etc. shall be as per BIS-875 (latest edition or otherwise as allowed by the owner). Seismic loads to be considered in design shall be as per BIS 1893 (latest edition or otherwise as allowed by the owner). However minimum loads for different structures shall be as described hereunder:

i) Dead Load

Dead loads on the structure shall include self-weight of the complete structure with flooring, finishing, fixtures, partitions, wall panels and all equipment supporting structures, weight of equipment of semi-permanent nature etc. including all likely dead loads to be experienced by the structure during its life time.

The following unit weight of material shall be considered for computation of loads. Loads given in IS: 875 (part-I) shall be made use of for material not listed below.

Materials: Minimum Unit

Plain cement concrete:	2.40 t/cum
Reinforced cement concrete:	2.50 t/cum
Brick masonry:	2 t/cum
Floor Finish:	2.4 t/cum
Hollow block:	1.5 t/cum
Structural Steel:	7.85 t/cum

Coal: 1.2 t/cum for load calculation. However, this is to be verified through lab test and reports to be submitted by the bidder before approval of drawings

Dead loads for process materials shall be as per mechanical/ technological load data.

Note: For volume calculation of silos/bunkers/hoppers etc. maximum unit weight of coal shall be taken as 0.8T/cum.

ii) Imposed Load/ Live Load

a) Imposed loads in different areas shall include live loads, dust loads, equipment loads, coal load in conveyor, cable trays, small pipe racks /

hangers, erection loads, operation / maintenance loads etc. The loads considered shall not be less than that specified in IS: 875 (Part II). For special use areas live loads shall be revised upward as necessary as per the technological requirement.

The following minimum live loads shall be adopted for design of buildings / structures		
a)	Flat roof	Accessible roof – 200 kg/m ² (150 kg/m ² for LL and 50 kg/m ² for dust load)
		Non-accessible roof – 150 kg/m ² (75 kg/m ² for LL and 75 kg/m ² for dust load)
b)	Inclined Roof	As per IS:875 for live load plus 50 kg/m ² dust load.
c)	For building floors where equipment are located	500 kg/m ² for light duty 700 kg/m ² for medium duty 1000 kg/m ² for heavy duty or equipment load (when placed elsewhere) whichever is higher
d)	Maintenance platform	300 kg/m ²
e)	Walkway of conveyor gallery	300 kg/m ² (250 kg/m ² for LL & 50 kg/m ² for spillage load)
f)	Office room/ substation	300 kg/m ²
g)	Stair case	400 kg/m ²
h)	Equipment loads	As per Manufacturer's load data
i)	Toilet rooms	200 kg/m ²
k)	Culverts and their allied structures including RC Pipes	As per IRC standard for Class 'AA' loading or as per functional requirement whichever is higher
l)	Cable rack	As per Electrical/Structural load data
m)	Underground structures (including trenches / drains etc.)	500 kg/m ²
n)	Pre-cast trench covers	500 kg/m ²

b) Reduction of Live Load may be done in accordance with the provisions of IS: 875 and IS: 1893 in case of seismic analysis.

Note: In case the erection load on any particular area is higher than the specified live load of that area then the design of structure shall be done based on erection loads.

c) Impact Factor

If not specifically mentioned by the equipment manufacturer the following impact factors shall be considered.

Due to moving hoists etc.:

for electrically operated hoist – 1.25

for hand operated hoists- 1.1

For floor beams directly supporting drive machinery like head end / tail end / drive pulleys, motor, gear boxes etc. - 1.5.

iii) Wind Load

The design wind load shall be calculated as per provisions of IS: 875 (Part-3).

iv) Seismic Load

Structures shall to be designed as per code provisions of IS: 1893 latest for earthquake loads. The loads due to Earthquake are generated by the response of the structure to design spectrum as specified in IS1893. The mass to be considered in seismic analysis shall comprise of full dead load and minimum percentages of live loads for calculating inertia masses shall be as given below:

Sl. No.	Description	Percentage of Design Live load
1	Uniformly distributed Live loads on floors up-to and including 3 KN/ Sq.m.	25 %
2	Uniformly distributed Live loads on floors above 3 kN/Sq.m.	50 %
3	Roof	0 %

v) Earth pressure load

a) Earth pressure for all underground structures shall be calculated using coefficients of earth pressure (active/passive/at rest). Necessary load combination for water retaining structure to get worst loading for design shall also be considered.

b) In addition to earth pressure and ground water pressure, Surcharge load as calculated (minimum 10 KN/sqm) at ground level shall also be

considered for the design of all underground structures including channels, sumps, cable and pipe trenches, etc. to take into account the vehicular traffic in the vicinity of the structure.

vi) Blasting

Effect due to blasting is to be considered while designing the structures, as per the provision of BIS: 6922 with latest revision:

B. Load Combinations

All structures shall be designed for the most critical combinations of dead loads, live (imposed) loads, equipment loads, crane loads, erection loads, wind loads, seismic loads and any other loading conditions which can occur during the design life of the facility. Equipment specific loads shall be judiciously combined to provide worst effect.

Load Conditions for Underground Structures

Following loading conditions shall be considered in addition to the loading from super structure for the design of sumps, trenches and other underground structures.

- i) Only liquid pressure from inside and no earth pressure & ground water pressure from outside (applicable only to the structures which are liable to be filled with water)
- ii) Earth pressure & ground water pressure from outside and no water pressure from inside.

Structure shall be checked against buoyancy due to ground water during construction and operation stage considering ground water level at finished ground level and factor of safety shall be 1.2

C. Liquid Retaining Structures

RCC liquid retaining structure like water storage tanks/ sumps will be made leak proof and designed in accordance with IS : 3370 (Part I to IV) by using Limit state method.

The crack width shall be restricted to 0.2 mm for water retaining structures in case it is designed with limit state method.

However, the parts of such structures not coming in contact with storage liquid shall be designed according to IS : 456. The thickness of clear cover shall be as stipulated in IS: 3370.

All underground structures will be designed minimum for moderate exposure condition as per Table 3 of IS: 456-2000.

D. Machine Foundations

The design of machine / equipment foundation will be as per IS: 2974 and IS: 456. Frequency and amplitude criteria shall meet the requirement as laid down by the relevant codes or machine manufacturers.

It is desirable that Foundations of equipment subjected to dynamic loading including sizers are isolated from adjoining floors / foundations to prevent propagation of vibration to adjoining structures and shall be done as far as possible. However, for heavier Crushers, such isolation is compulsory.

E. Stability of Structures

Following minimum factor of safety will be followed: -

- a) Factor of safety against overturning: As per Cl 7.2 of IS 1904.
- b) Factor of safety against sliding: As per Cl 7.1.1 of IS 1904
- c) Factor of safety against uplift due to hydrostatic forces: 1.2

F. Minimum Thickness of Concrete Structural Elements

The following minimum thickness shall be provided: -

1	Suspended floor / slab / walkways / canopy slabs, etc.	125 mm.
2	Ground floor slab (non-suspended)	100 mm.
3	Ground floor for Bunker	200 mm.
4	Water Retaining slabs / walls	200 mm.
5	Cable / pipe trenches / underground pits / Launder walls and base slab	100 mm.
6	All footings (including raft foundations)	200 mm.
7	Parapets	125 mm.
8	Sunshades/ Chajja	100 mm. at edge
9	Pre-cast Louvers / fins	50 mm.
10	Pre-cast trench cover slabs / floor slabs	75 mm.
11	Paving	100 mm.
12	Basement walls and base slab	200 mm.

G. Concrete Mix

Minimum grade of concrete for different work shall be as follows unless otherwise stated elsewhere in this document:

Plain Cement Concrete (PCC)

- i) PCC in mud mat : M-10
- ii) PCC for mass filling : M-5
- iii) PCC for pavement for Railway track : M-20

Reinforced Cement Concrete (RCC)

- i) Grade slab : M20
- ii) Grade slab for Bunker : M25
- iii) General RCC members : M25
- iv) Retaining wall : M25
- v) Pre-cast RCC members : M25
- vi) Water retaining structure : M30
- vii) Silo, Ground Bunker,
Underground tunnels, RCC hoppers
and Other Important Structures : M30

H. Structural Steel

All the structural steel work shall be done as per relevant IS code. However minimum thickness of steel members shall not be less than 6mm except for hollow sections.

I. Foundation

Foundations for structures and equipment shall be designed to resist the worst conditions of loadings and shall be generally designed as per the provisions of IS: 1904. As per prevalent sub-soil condition, foundations shall be considered as open or deep foundations. The depth of foundation shall be determined based on loadings on foundation, safe bearing capacity at the founding level, constructional and technological requirements. The maximum allowable bearing pressure for design of foundation shall correspond to values recommended in the detailed soil investigation Report. Wherever any open foundation is recommended in virgin soil, minimum depth of open foundation shall be 1.5 m from finished ground level. subject to 1.0 m below bottom of any Fill and 500 mm in case of rocky strata. Small and lightly loaded foundations may be kept over fully compacted filled up soil.

Minimum size of pedestal shall be arrived by the following method & the maximum shall be considered

- i) Base plate size plus 50mm at all four sides,
- ii) Distance between two extreme bolts plus 5 times diameter of bolt from centre of extreme bolts at all four sides.

J. Brick Wall

Unsupported length of brick wall shall not be more than 3.3m. RCC band or beam shall be provided at every 3.3m level.

4.5.4.3 ANALYSIS & DESIGN

All RCC and steel structure shall be designed as per stipulations indicated here and relevant IS Codes of practice of latest (or as approved by the owner/its consultant) revision. In the analysis of structures, the worst loading combination of belt pulls, equipment loads, their impact, wind/seismic loads/blasting effect, coal and other loads as envisaged shall be considered.

4.5.4.4 DESIGN DRAWING & DETAILED ENGINEERING

Broadly all the dimensions as given in NIT document/drawings are to be followed for bidding purpose. In case of conflicting or varying provisions in the NIT Text vis-à-vis NIT drawings, the applicable provisions made in the Text shall be guiding. These dimensions are indicative & may require changes during detail design.

4.5.4.5 Preparation

All drawings shall be prepared in accordance with the provision of latest Indian Standards.

All drawings should be prepared on AutoCAD in standard format

All drawings shall be sufficiently detailed and dimensioned to help in speedy construction, fabrication and erection of structures.

Wherever, any structure is presented in more than one sheet of drawings, same scale and notations shall be used in all the sheets for linking the drawings with each other.

All modifications made in structure during various stages of construction should be duly incorporated in working drawings.

Bar bending schedule, detailed material list and specification of works shall be prepared / detailed.

Working drawing shall also include general arrangement drawings showing plans at different levels with sectional elevations.

Separate detailed drawing shall be prepared for inserts and anchor bolts including their fixing details.

The design drawings associated with steel structure should show the force in the members, complete details of all members, joints, gusset plates, welding, riveting, bolting, etc. The drawings should also show the weight of each assembly/sub-assembly as far as possible.

In addition to design drawings, fabrication drawings shall also to be prepared, showing item-wise details, erection units, materials list, details of fasteners with assembly, etc.

4.5.4.6 SUBMISSION/APPROVAL

4.5.4.6.1 Submission of Documents

All required documents including design calculations, drawings and other documents have to be submitted in hard copies as detailed hereunder. However, depending on necessity, the employer may permit submission of these documents in soft copies as well for scrutiny. The methodology of such soft copy submission has also been deliberated below.

Submittals from contractor have been classified in five categories. The details are provided in the following table. The documents shall be submitted as per the schedule furnished in the form of the PERT diagram during agreement.

Table 1

CATEGORY	TYPE OF DOCUMENTS	ACTION BY OWNER/ CONSULTANT OF OWNER
APPROVAL (A)	All Survey Drawings All GA/Layout/System/Utility drawings All construction drawings etc.	For scrutiny. Approval shall be communicated to contractor if found in order.

CATEGORY	TYPE OF DOCUMENTS	ACTION BY OWNER/ CONSULTANT OF OWNER
ACCEPTANCE (C)	Soil Report Laboratory Test Report Design Basis Report PERT Diagram etc.	For scrutiny. Acceptance shall be communicated to contractor if found in order to proceed with subsequent activities.
REFERENCE (R)	Detail Design Calculation Vendor drawings	For scrutiny. If felt necessary, comments to be communicated to contractor
INFORMATION (I)	Mix Design Fabrication Drawings Bar bending Schedule Bill of quantities etc.	For information. If felt necessary, shall be scrutinized and comments communicated to contractor.
AS-BUILT (B)	As built Drawing	For Final information

A. Hard copy submission:

- i) All required documents including design calculations, drawings and other documents as per requirement are to be submitted in hard copies as detailed hereunder.

Table 2

Category	No. of copies			
	For initial Scrutiny as per requirement	For final scrutiny as per requirement	Post Approval /Acceptance	Total required copies
(1)	(2)	(3)	(4)	(5) (2 or 3+4)
A	2	2	4	6
C	2	2	0	2
R	2	2	0	2

Category	No. of copies			
	For initial Scrutiny as per requirement	For final scrutiny as per requirement	Post Approval /Acceptance	Total required copies
I	2	2	0	2
B	6			

- ii) On submission of drawings/documents on standard size sheet in hard copies by contractor, the same shall be scrutinised by the owner/its consultant. If they are found in order, the same will be approved and the contractor shall be accordingly conveyed for submission of additional copies as per Table 2. If any revision is required, the contractor shall revise the same, and submit copies as deliberated in the same table for further scrutiny.
- iii) Detail design calculations shall include STAAD input file, analysis of force/stress in the structure along with the source (except BIS codes) from where data have been taken. Photocopies of such data shall be submitted along with the design.
- iv) In addition, contractor shall also submit soft copies of all above drawings/documents including STAAD input files, excel files with formula etc. Soft copies of the survey plan, General Layout drawings, and as well as all As-built drawings shall have to be submitted in both .pdf and AutoCAD format. Additionally, if the owner/its consultant requires any of the other system/construction drawings/ any other calculations and data in AutoCAD format/ as desired, the contractor shall submit the same. For other documents, soft copies in the relevant software format may also have to be provided by the contractor as per owner/consultant requirement. The As-built drawings in .pdf format as well as in AutoCAD format shall be submitted in a CD. None of the soft copies shall be restrictive in nature.
- v) The soft copies can be either mailed to the owner (or its consultant if asked by the owner or both) or submitted in storage devices like CD.

B. Soft copy submission:

- i) It has been clarified earlier that depending on situation, the owner may permit the contractor to submit all required documents including design calculations, drawings and other documents in soft copies as detailed hereunder.

- ii) Contractor shall submit soft copies of all 4 categories of above drawings/documents as detailed in Table 1, including STAAD input files, excel files with formula etc.
- iii) Soft copies of the survey plan, General Layout drawings as well as all As-built drawings shall have to be submitted in both .pdf and AutoCAD format. Additionally, if the owner/its consultant requires any of the other system/construction drawings in AutoCAD format, the contractor shall submit the same. For other documents, soft copies in the relevant software format may also have to be provided by the contractor as per owner requirement. The As-built drawings in .pdf format as well as in AutoCAD format shall be submitted in a CD. None of the soft copies shall be restrictive in nature.
- iv) All soft copies in .pdf format shall be duly signed and stamped by the contractor.
- v) The soft copies can be either mailed to the owner (or its consultant if asked by the owner or both) or submitted in storage devices like CD.
- vi) Additionally, Contractor shall submit Hard copies on standard size sheet/document for scrutiny as per Table 3 below.

Table 3

Category	No. of copies		
	For initial Scrutiny as per requirement	For final scrutiny as per requirement	Post Approval /Acceptance for final stamping
1	2	3	4
A	1	1	6
C	1	2	0
R	1	2	0
I	2	2	0
B	6		

- vii) These drawings/documents shall be scrutinised as per requirement by the owner/its consultant. If they are found in order, the same will be approved in

soft copy. The contractor will submit drawings approved and duly stamped by owner/its consultant as per Table 3 above. If any revision is required, the contractor shall revise the same, and submit the revised drawings/documents in soft copies as well as in hard copies as per Table 3 for further scrutiny as per requirement.

C. As Built Drawings

Contractor shall make necessary correction /modification in the drawing as per actual work and shall prepare as built drawing. The Contractor shall supply such 6 (six) sets of prints of as built drawing to the Owner along with one set of reproducible drawings on polyester paper in ink. The same will hold good for other documents also to be supplied by the Contractor under the heading of basic scope. All drawings should be prepared on AutoCAD in standard format and CD containing such drawing shall also be supplied along with hard prints.

D. PERT NETWORK

After the issue of letter of Intent, the bidder will prepare a master plan PERT NETWORK incorporating all the major activities for the successful installation and commissioning of plant on turnkey basis and submit it to customer for his approval and comments.

The detailed PERT NETWORK will be prepared for all major activities enlisted in the master PERT NETWORK. The detailed PERT NETWORK will be further discussed with customer and form the basis of monitoring of the project as a whole or activity wise. Necessary corrections will be carried out from time to time by the bidder in consultation with the representative of customer but within the overall limit of time as described in master NETWORK. All the activities of the contract will proceed on the line of approved PERT NETWORK.

4.5.4.6.2 Procedure of Approval of drawings under Category A

The Owner shall have the final say in the approval of drawings. Drawings so submitted will become the property of the owner. The approval of the drawings does not absolve the Contractor from the overall responsibility of the plant for its successful operation. The Contractor shall be responsible for and shall pay for any alterations of the work due to any discrepancy, errors or omissions in the drawings or particulars supplied by him, whether Owner has approved such drawings or other particulars.

Scrutiny and approval of drawings may be carried out by the owner/through the consultant engaged by owner. Approval process for Hard copy submission as well as for Soft-copy submission is deliberated below:

A. Hard copy submission:

If on scrutiny, the submitted drawings are found to be in order, the same will be conveyed to the contractor. Then the contractor will submit requisite no. of

additional copies as per table 2 above. All the finalised drawings (total six copies) shall be duly signed and stamped by the owner/its consultant. One copy of such signed/stamped drawing shall be returned to the contractor.

If on scrutiny, it was felt that the submitted drawings need revisions, the same will be conveyed to the contractor. The contractor shall carry out the necessary rectification in drawings after discussion with owner in a reasonable time as agreed upon mutually and re-submit such revised drawings for approval of owner. Revised drawings shall then again be scrutinised and if found in order, the same will be conveyed to the contractor. Then the contractor will submit requisite no. of additional copies as per table 2 above. All the finalised drawings (total six copies) shall be duly signed and stamped by the owner/its consultant. One copy of such signed/stamped drawing shall be returned to the contractor.

B. Soft copy submission:

If on scrutiny, the submitted drawings are found to be in order, the soft copies of the drawings shall be duly signed/stamped by the owner/its consultant and mailed back to the contractor. The contractor will take the prints of these signed and stamped drawings and will be conveyed to the contractor. Then the contractor will submit requisite no. of copies as per table 3 above to the owner. The owner will return one of these copies to the contractor after putting their signature on these drawings. The balance copies shall be kept by the owner for record.

If on scrutiny, it was felt that the submitted drawings need revisions, the same will be conveyed to the contractor. The contractor shall carry out the necessary rectification in drawings after discussion with owner in a reasonable time as agreed upon mutually and re-submit such revised drawings for approval of owner. Requisite no. of hard copies of these drawings as per Table 3 are also to be submitted.

Revised drawings shall then again be scrutinised and if found in order the soft copies of the drawings shall be duly signed/stamped by the owner/its consultant and mailed back to the contractor. The contractor will take the prints of these signed and stamped drawings and will submit requisite no. of copies as per table 3 above to the owner. The owner will return one of these copies to the contractor after putting their signature on these drawings. The balance copies shall be kept by the owner for record.

4.5.5 TECHNICAL SPECIFICATIONS

All workmanship, materials and work items shall confirm to relevant IS / BIS / MoRTH / NBC STANDARDS. In case of items not adequately covered by above mentioned Indian Standards, the CPWD / NBO practices shall be followed.

Safety Measures FOR CIVIL WORKS

In respect of safety, latest Constructional Practices & Safety of National Building Code shall be followed. Regulation no. 39 & 131 of CMR-2017 (or latest) is to be complied. All necessary safety measures to be adopted as recommended by relevant IS / BIS code to protect adjunct / nearby structure, workmen etc.

All works shall be carried out as per the item description and design & drawing supplied and as per the relevant IS / BIS / NBC and as per direction of the Engineer-in-Charge.

4.5.6 DETAILED SCOPE OF WORK

4.5.6.1 GENERAL

The civil and structural work under, its scope shall cover all aspects of work, including soil and hydrological investigation, collection of rainfall data, detailed survey, preparation of preliminary drawings with proper co-ordination and inter relation with equipment, detailed design and preparation of the complete civil and structural working drawings, execution and erection of the complete civil and structural works, including roads and pavements, sanitation, water supply for industrial, drinking and fire fighting purpose besides water supply to various buildings, drainage for storm water, development works and structure for dust suppression and extraction and cleaning as per system requirement and land development.

The execution of civil and structural work consists of providing all labour, supervision, materials, scaffolding, construction equipment, tools and plants, supply, transportation, and all incidental items not specified but implied for successful completion of the works in accordance with drawing and specification including any fee, tax, royalty as may be applicable in the work zone.

The nature of work shall generally involve chemical testing of construction water for corrosive action of chemical and other deleterious materials, earth work in filling and excavation in all types of soil and rock, dewatering, shoring, back filling around completed structures, disposal and form work, brick work, fabrication and erection of structural/miscellaneous steel, inserts, anchor bolts, RCC/chequered plates trench covers, laying of water pipe lines, sewerage system, roads, surface and storm water drainage, ventilation related to the coal handling plant, damp proofing and other ancillary works related to the coal handling plant.

The drawings as mentioned elsewhere in this contract documents give a general idea about the work to be performed. These are preliminary drawings

for bidding purpose only and are by no means the final drawings showing the full range of the work under the scope. Work has to be executed according to the approved working drawings, fabrications drawings with additions, alterations and modification made from time to time as required or approved by the customer.

4.5.6.2 MAIN COMPONENTS OF CHP- IN BRIEF

The requirements/specifications indicated hereunder are minimum and are to be synchronised with process/functional design/normative/codal/statutory/aesthetic and such other requirements expressly stated in this document/otherwise.

The civil and structural works are related mainly to the following areas (but not limited to):

A. Coal handling Facilities

Sl. No.	Facility	Basic requirement
1	CHP Main Belt Conveyor	As per system drawing/site conditions.
2	CHP Bunker	As per system drawing/site conditions.
3	Transfer house	As per system drawing/site conditions.

B. Service Buildings and other Developmental facilities

Sl. No.	Particulars	Minimum Requirement
	MCC Room	
(a)	One no. MCC Room shall be provided with separators for capacitor bank and battery bank. It shall be RCC-cum-brick Masonry structure.	Plinth area and other facilities as per system and functional requirement but not less than 60sqm.
(b)	One no. Pump House Room shall be provided. It shall be RCC-cum-brick Masonry structure	Plinth area and other facilities as per system and functional requirement.

Sl. No.	Particulars	Minimum Requirement
(c)	Drainage and sewerage including septic tank, soak pits etc.	As per requirement
(d)	Water supply arrangement including receiving, storage and distribution of water for firefighting, dust suppression and drinking purpose etc. Separate overhead tanks over substation shall be provided for drinking water.	As per requirement

Note – All Buildings/facilities are to be designed as per functional and other requirements but not less than the above mentioned Floor areas. Location of the facilities should be fixed as per functional and system requirement.

C. Other Works and Requirements

- i) Development works such as grading/levelling/dressing of the site etc.
- ii) Architectural requirements
- iii) Landscaping and Arboriculture
- iv) Fire fighting
- v) Dust suppression and extraction
- vi) Plant cleaning
- vii) Survey, Soil investigation and collection of rainfall and hydrological data
- viii) Earthwork in excavation
- ix) Construction, Fabrication, Erection and Commissioning of the plant
- x) Inspection and testing
- xi) Perception and remedial measures for safety and successful operation
- xii) Other miscellaneous works/services/requirements etc. as may be necessary for successful commissioning of the plant.

4.5.6.3 DETAILS OF MAIN COMPONENTS AND OTHER MISCELLANEOUS WORKS.

4.5.6.3.1 CHP MAIN BELT CONVEYOR (SURFACE):

Strengthening of the CHP main belt surface conveyor gantry and its supporting arrangements shall be carried out so that the structures remain safe against all loads including the additional loads, if any.

4.5.6.3.2 CHP BUNKER

Strengthening of the CHP Bunker shall be carried out so that the structures remain safe against all loads including the additional loads, if any.

4.5.6.3.3 Service Buildings

1. General Specification:

The following specifications are applicable for all the service building unless otherwise mentioned:

- i) All the service building except parking shed, workshop shed shall be of RCC frame
- ii) Pre-construction anti-termite treatment shall be done for all the buildings.
- iii) Minimum Plinth height shall be 600 mm for all buildings & 150 mm for parking sheds.
- iv) Minimum floor height shall be 3300 mm except for pump house room.
- v) RCC Flat Roof with proper drainage arrangement.
- vi) Chajja & Portico shall be provided as per functional & architectural requirement.
- vii) All the external brickwork shall be of minimum full brick thickness with 1:6 cement mortar. Internal partition shall be of half brick wall with 1:4 cement mortar. However Partly glazed half/ full partition with aluminium framing shall be provided in office portion as per architectural & functional requirement.
- viii) RCC staircase with mummy to approach the roof shall be provided for all the buildings which has more than one floor. Minimum width of each flight and tread of stair shall be 1.2m and 250mm respectively. Maximum height of riser shall be 150mm. Necessary railings shall be provided along the stair. Ladder shall be provided for access to mummy roof.
- ix) Ladder shall be provided in all the single storied building for access to roof.
- x) Minimum thickness and mix of cement plaster shall be as follows:
 - (a) Rough Side: 15 MM. Thick using 1:6 cement mortar
 - (b) Smooth Side: 12 MM. Thick using 1:6 cement mortar
 - (c) Ceiling: 6 MM. Thick using 1:4 cement mortar

- xi) Anti-skid Vitrified/ceramic tiles shall be provided in floors of all toilets.
- xii) Kota Stone flooring shall be provided in all staircases
- xiii) Dado shall be provided with Ceramic Glazed Tiles upto 2.1m height from floor in all first aid room, toilets, kitchen, pantry & kitchen wash.
- xiv) All the counter/ shelves shall be of minimum 40/50 MM. thick precast RCC slab (1:2:4).
- xv) Granite top shall be provided on counters.
- xvi) All the toilet doors shall have Angle iron/ MS Tube frame and PVC door shutters with required fittings.
- xvii) M.S. Grill with square bars shall be provided in windows. Size and arrangement of windows shall be such that it allows maximum natural light and ventilation into the buildings.
- xviii) All the wood work & steel work shall be painted with Synthetic enamel paint over a coat of ready mixed primer
- xix) All Internal water supply lines shall be of concealed CPVC pipes & External water supply lines shall be of G.I. pipes exposed on wall.
- xx) All water supply fixtures shall be of CP Brass.
- xxi) All the plumbing & electrical fixture/ fittings shall be approved by the EIC.
- xxii) Septic tank with soak pit of adequate capacity shall be provided to treat the sewage from toilet. Necessary pipe lines, inspection pit, manholes shall be provided as per requirement for collection and conveyance of sewage from toilet to septic tank.
- xxiii) All the internal wiring shall be concealed. All internal & external Electrifications, lighting arrangements, Ceiling Fans, power points shall be provided as per requirement. Sufficient no of Exhaust fans shall be provided in Kitchens & Toilets.
- xxiv) Roofs shall have minimum gradient of 1:100. Appropriate water proofing admixtures to be added with concrete. In Situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric membrane shall be done over roof. Provision of Gola, adequate rain water down comer shall be made.
- xxv) Minimum 1m wide plinth protection of adequate specification shall be provided all around the buildings.
- xxvi) Storm water drains shall be provided all around the buildings.

xxvii) Ramps shall be provided in all building to facilitate entry of differently-abled persons.

xxviii) Provision of Rain water harvesting shall be done for all the service buildings.

2. Other Minimum Specifications/Requirements:

A. PUMP HOUSE		
Requirements:		
The pump house shall be designed as per system requirement. Minimum 1.5m wide circulation space shall be provided around the equipment for maintenance purpose.		
Sl.	Items	Brief Description
1	Area	As indicated above
2	Type of Structure	The building shall be a single storied building of RCC frame structure
3	Flooring	
a)	<i>Rooms</i>	Cement Concrete flooring and minimum 25mm thick topping shall be done with quartzite hardener.
4	Frame & Shutter	
a)	<i>Doors</i>	<ul style="list-style-type: none"> i) Rolling shutters ii) Steel Door Above mentioned doors shall be provided with required fittings as per functional and architectural requirement.
5	Windows	i) Steel Window with 4 MM. thick glass & required fittings.
6	Wall Finishing	
a)	<i>External</i>	Acrylic Emulsion Exterior Paint with silicon additive over a coat of primer
b)	<i>Internal</i>	Water proofing cement paint

B. MCC ROOM		
Requirements:		
One No. electrical substation/MCC Room shall be provided as per system requirement.		
The Electrical Sub-station/MCC Room will have HT and LT switch board hall, control room, transformer rooms, Battery room, store room, maintenance room, Engineer-in-charge room etc. with toilet facilities. The details of equipment have been mentioned in the electrical sections of the document The layout of the cable trench will be as per system requirement. The top level of the cable trench shall be kept minimum 0.6 m above finished ground levels and the plinth of the building shall be fixed accordingly.		

B. MCC ROOM

There will be suitable arrangement for lifting the transformer in case of breakdown/ maintenance for which suitable RCC paved platform shall be constructed at same level outside the Substation building to facilitate handling of the transformer and other equipment. The scope covers construction of complete building with cable trench and foundation of the equipment in all respect.

Pressurisation in MCC rooms of sub-station shall be done. Air-conditioning facilities shall be provided in all control/PLC rooms of sub-station. The entrance to both the MCC room, control room/PLC room shall have double doors suitably designed to prevent sudden pressure loss.

Air required for pressurization of MCC room shall be free of dust. For this, adequate arrangements for cleaning, filtering and treatment of air to maintain the desired humidity shall be included with scope of work. In case of Control and MCC rooms, the sound level within the rooms should be kept below 60dB.

Ground floor of the building shall accommodate Transformer rooms, switchgear & Relay control panel room, Battery room, Capacitor room, Tools room, maintenance room, Operator/Attendant room, Toilet/wash room etc. First floor shall be provided with PLC & Control-monitoring room, Engineer-in-charge rooms. Staff room, Toilet/wash etc. One no attached toilet shall be provided with engineer-in-charge room.

Sl.	Items	Brief Description
1	Minimum Area	As indicated above
2	*Type of Structure	The buildings shall be a single/double storied building of RCC frame structure as described above.
3	Floor Height	4500 mm for Substation portion 3300 mm for office /control room portion
4	Flooring	
a)	<i>MCC Room & Switch gear room</i>	IPS with insulating rubber matting
b)	<i>Flooring in other areas</i>	As per functional requirement
5	Frame & Shutter	
a)	<i>Doors</i>	i) Angle iron frame, 35 MM. thick flush door shutters ii) Glazed door with aluminium framing iii) Rolling shutters iv) Steel Door v) Collapsible gate at main entry. Above mentioned doors shall be provided with

B. MCC ROOM		
		required fittings as per functional and architectural requirement.
6	Windows	i) 2 or 3 track Aluminium frame with 4 MM. thick glass & required fittings, ii) Steel Window with 4 MM. thick glass & required fittings. Above mentioned windows shall be provided as functional & architectural requirement.
7	Wall Finishing	
a)	<i>Cement putty</i>	1 MM. thick putty on Internal walls of offices
b)	<i>External</i>	Acrylic Emulsion Exterior Paint with silicon additive over a coat of primer
c)	<i>Internal</i>	Acrylic Emulsion Paint over a coat of primer
8	Sanitary	
a)	<i>Pipe</i>	CPVC pipes
b)	<i>Single user toilet</i>	Minimum 3 no. Minimum 1 no. ladies toilet shall be provided at first floor
c)	<i>Fixtures</i>	Wash basin, W.C., Mirror with towel ring

4.5.6.3.4 Services

i) Industrial Water/Dust Suppression/Fire Fighting Water

All piping and pumping arrangement including pump house from main reservoir to feeding points shall be in the scope of this contract. Bidder should visit the site to get first-hand information regarding the water source and the required length of the pipeline.

All pipe lines and pumping arrangement including pump house from water reservoir to feeding points is in the scope of this work. Bidder should visit the site to get first-hand information regarding the water source and the required length of the pipeline.

ii) Drinking Water

Individual PVC overhead tanks (6 layered food grade ISI marked suitable for external use) of required capacity but not less than 2 m³ shall be provided over each switching stations/MCC room and other service buildings as per requirement. Necessary receiving and distribution piping and pumping arrangement is covered in the scope of the work. Adequate drinking points with PVC tank, shall be provided. The distribution system for drinking water shall be done as per requirement.

iii) Drainage Arrangement

Proper surface drainage facilities of adequate dimensions, specifications and slope shall be provided to take care of all the storm water which is likely to be encountered considering the topography and the natural drainage of the construction sites and the adjoining area. Dimensions and specification of drains and culvert/cross drainage works shall be so engineered and constructed so as to receive and discharge all the storm water entering into the proposed plant area including run off from the area outside the proposed construction site which is likely to enter the proposed plant area. The storm water shall be disposed of to the nearest nallah or shall be taken to a suitable distance beyond the boundary of CHP without impacting mining activity and residential and industrial area, where it can be properly disposed. Drain shall be provided with pre- cast RCC covers, wherever necessary. All the drains shall be constructed with RCC as per design requirements.

iv) Sewerage

Proper sewerage shall be provided for handling of sewage. This will include provision of septic tank, soak pit, sewer line, man hole, inspection chamber and all other fittings and fixtures needed for the same.

4.5.6.3.5 Other Works/Requirements**i) Survey and Soil Investigation**

No data regarding the above are made available in this tender document. The bidder is required to inspect and examine the site and its surroundings and satisfy himself as to the nature of ground, rainfall and the soil, the availability and suitability of other requirements, as required for fair bidding purposes. The successful bidder shall have to undertake detailed survey, detailed soil investigation and submit a comprehensive soil report with recommendations for type of foundation, bearing capacities, method of deep excavation, probable settlement for foundations etc. for approval of the owner/consultant. Reports approved by the owner/consultant shall be finally adopted for design and engineering. Soil investigation should be done in the presence of the owner/consultant. No extra claim shall be made over contract price for variation in soil, which may result in change of design and type of foundation. All works related to site survey shall be conducted as per standard practice and also as per system requirement.

ii) Earthwork in Excavation

Excavation of earth for all types of soil for construction of all the civil structures is covered in the scope of this contract. Final dressing of ground area is under the

scope of this contract as drainage will be done by the contractor as per technical and functional requirement. After completion of work ground will be provided in as it is condition. Excavation for proper drainage of rain/ subsoil water is covered under the scope of this tender. The depth and size of the excavation will be as per approved system requirement and as per detail design drawings. All cuttings and fillings as per required level and profile including transportation/ disposal of soil within a distance of 2 km is included in the scope of this bid.

Necessary slope stability study and provisions for stability of sloped earth adjacent to all elements of CHP has to be done by the contractor.

If blasting is required, the contractors have to prepare the site and carry out blast hole drilling as per the requirement. The contractors will be responsible for drilling in all gradient/terrain as per requirement of the works. Blasting will be done departmentally by owner, However the drilling pattern and blast design parameters are to be decided mutually by the technical representative of the contractors and the project officials or their consultants on day to day basis so as to avoid any dispute on fragmentation of the rock and the powder factor.

iii) Development works such as Grading/levelling/dressing of site, etc.

Site grading/levelling shall be done by the bidder under the scope of this contract based on detailed survey to be done by the bidder as per technical/functional and drainage requirement.

The HFL, Bed level, water flow, etc. of the existing water courses, sub-soil water table shall be taken into consideration while designing the structures. Bidder shall undertake various remedial measures for protection of the area from streams/water courses as per requirement.

iv) Architectural requirements

The structures (under the scope of this contract) shall have appropriate industrial architectural look, with appropriate colour, shades and structural networks. All the structures should portray architectural excellence with due care to better utilisation of space, service requirements etc. and also encompass concerns as varied as contemporary design, area conservation and environmental issues. The buildings with brick work, concrete and plaster faces shall have paints in aesthetically sound shades as approved. Louvers and openings shall be provided in steel structures for ventilation and better use.

v) Landscaping and Arboriculture

The complex (under the scope of this contract) shall be designed keeping in view its proper aesthetic appearance. The perspective view of the plant with landscaping shall be submitted.

To provide better environment and arrest dust around CHP, intensive close planting of Casia Siamed, fruit plants or approved variety should be done to form impervious hedges around the plants and shall be maintained by bidder for the period of five years after plantation.

vi) Fire Fighting

Fire fighting system shall comprise of (a) hydrant system (b) mobile fire extinguishers (c) water spray system comprising of automatic medium velocity water spray system

Fire fighting system shall be designed to meet the various requirements laid down in the fire protection manual by the Tariff Advisory Committee (TAC), India and National Fire Alarm Code by NFPA (USA).

Hydrant system: The fire hydrant system shall be designed considering generally as ordinary hazard as per TAC manual and shall consist of a network of over ground piping feeding pressurised water to a number of double headed hydrant valves located in the new facilities and at strategic points under the scope of this contract.

MVWS System: MVWS system shall be provided in all conveyors as detailed elsewhere.

Portable & Mobile Extinguishers: Suitable portable extinguishers shall be installed at suitable locations all along the plant under the scope of the work as per TAC manual. Mobile extinguishers of required number shall be provided.

Different types, as described above, shall conform to the latest BIS standards.

vii) Dust Suppression

Proper water supply arrangement for dust suppression will be made at dust generating points so that all working space remains free of dust. For dust suppression water jets will have to be provided in truck loading area, transfer houses etc. For proper ventilation in all the working floors, arrangements for installing exhaust fans/ventilation fans with ducting will have to be made as detailed elsewhere in the tender document. All civil works pertaining to dust suppression and extraction shall be as per system requirement. Dust suppression system should be suitable for water which is available at Project.

viii) Plant Cleaning

Suitable arrangements shall be made for cleaning of plant especially at the spillage point with the help of water hydrants and vacuum cleaners in case of electrical panels and plant equipment.

Proper drainage arrangement will have to be made all along the plant so that water or slush accumulation is avoided. At every probable spillage point suitable arrangement will have to be made for cleaning.

4.5.6.4 CONSTRUCTION, FABRICATION, ERECTION AND COMMISSIONING, OVERHEADS AND SUPERVISION

i) Clearance of site before start of work

Site will be handed over to the contractor in 'as it is' condition, unless otherwise indicated in this document. Any site preparation work, unless otherwise mentioned, including cleaning, cutting, filling, levelling, grading, removal, etc. before start of the actual work shall be done by the contractor to the full satisfaction of Engineer-in charge.

ii) Site Clearance after completion of work

After the completion of work, the contractor shall remove scaffolding, sheds rubbish and surplus materials except which are required for rectification of defects. Contractor shall hand over the site in clean and tidy condition after cleaning the total area including floor, drains etc. fit for the use by the owner.

iii) Layout and Levels

The layout and levels of all structures, etc. shall be laid by the contractor at his own cost from the general grid of the plot and bench marks given by the Engineer-in-charge for checking the detailed layout and correctness of the layout and levels. But the contractor shall be solely responsible for correctness of layout and levels.

iv) Specifications

The specifications are intended for general description of the work, quality and workmanship. The specifications are not, however intended to cover minute details and the work shall be executed according to the relevant Indian Standard codes of practices or to the recommendations of relevant American and British Standard in cases where Indian Standard codes are not available for such works. These specifications shall have precedence in anything contrary to this stated anywhere in this document.

v) Construction Method and Equipment

The Contractor shall submit drawings and write ups indicating a broad outline of how he intends to execute the work.

vi) Installation/Erection and Supervision.

It will be the contractor's responsibility to bring, receive and keep the materials in safe custody in proper condition. Responsibility of handling the materials during manufacturing, transit and handling at site rests with the contractor. All the equipment will have to be installed and fitted with accessories as per approved drawing. Entire tools and tackles, manpower and any other material required for successful installation will be supplied by the contractor. The contractor shall furnish the list of requirement of engineers, supervisors and other skilled personnel to carry out the job properly.

vii) Inspection and testing

Test for Material/Workmanship

All tests required for materials, quality of work and any other tests as required/desired by the Engineer-in-charge shall be at Contractor's cost. The frequency and mode of testing shall be as per latest relevant BIS codes.

viii) Perception and remedial measures

Perception and remedial measures for the entire CHP area under the scope keeping in view the adjoining natural and artificial features such as hill slopes, nallah, buildings, loading complexes etc.

ix) Other miscellaneous works/services/requirements etc.

All brick work, doors, windows, finishes including architectural treatment, plinth protection, water proofing, damp proofing, glazing etc.

All brickwork shall be carried out as per relevant IS codes and shall be plastered on both faces. All external walls shall be of minimum full brick thick. The scope also includes providing and fixing all doors, windows, rolling shutters, finishes, damp proofing, inserts, anchor bolts, embedment, stairs nosing, railings ladders, edge protection angle, etc. Doors and windows shall be of aluminium frames and suitably glazed. Openings on external walls of the buildings shall be provided with sunshades

All equipment foundations, All inserts, anchor bolts and embedment, All railings, ladders and platforms. All necessary wind ties, Cable trenches shall be

provided with chequered plate or with pre-cast RCC covers. Cable trenches as well as pre-cast cover shall be provided with edge protection angles. All embedment/block cuts as required elsewhere in these specifications shall be provided, or cable tray can also be provided.

All external surface of underground concrete structure except receiving pit and underground tunnel in contact with earth shall be given a bitumen coat. 600 mm thick boulder packing shall be provided on the outside face of earth retaining structures. Weep holes shall be provided at suitable spacing in all earth retaining structure or as per design requirement. All corners and edges in openings shall be protected with angle of minimum size 75mm x 75 mm x 8 mm with suitable lugs embedded in concrete. Similarly, all edges of concrete members coming in contact with flow of coal or any other moving material shall be provided with similar edging for protection.

Floodlight towers and crossovers shall be provided wherever required. Monorail girders and fixtures shall be provided for monorails at locations required and described elsewhere in these specifications or drawings.

All RCC work to be done under this specification unless specified, otherwise, shall be of controlled concrete of grade not less than M-20 of IS 456 (Latest) and shall be made with fresh cement.

All structural steel work shall have one shop coat and one site coat of red oxide zinc chromate and two field coats of synthetic enamel paints as per relevant IS Code. However, contractor are to mention the thickness of painting in microns.

Gradient of the staircase should not exceed 40 degree and there should not be monkey ladders. Proper shed should also be provided above the staircases wherever the stairs are outside.

Any other works/services/requirements whether specifically indicated or not and found necessary to be incorporated on later date for safety and efficient operation of the plant shall also be deemed to have been covered within the scope of work of this tender.

4.5.6.5 GENERAL REQUIREMENTS

- a) Any other requirement related to construction and operation, whether specifically indicated or not, but found necessary to be incorporated at a later date for safe and efficient operation of the plant shall also be deemed to have been covered within the scope of work of this tender.
- b) Wherever required, dewatering shall be done by the contractor to avoid damage of equipment, structural, etc. and timely completion of work. This shall be carried out by contractor without any increase in the cost.

- c) If any certification or approvals are to be taken from electrical inspector/statutory bodies, DGMS, the same shall be the responsibility of the contractor.
- d) As per system requirement envisaged in the NIT documents, various parameters, specifications may undergo changes during detail engineering stage. This shall be carried out by the contractor without any increase in cost.
- e) All safety regulations, labour laws, code of practices for power supply, manufacturer, installation, erection, commissioning etc. envisaged by the State Govt. /Central Govt. or any authorities/bodies shall be strictly complied without any increase in cost.
- f) All Mines Acts and regulations will be followed during construction stage.

4.5.6.6 SAFETY

4.5.6.6.1 Safety Code – General

Suitable scaffolds shall be provided for workmen for work that cannot safely be done from the ground or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable foot holds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1/4 horizontal to 1 vertical. Scaffolding or staging more than 3.25 meters above the ground or floor, slung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1-meter-high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structures. Working platform, gangways and stairways shall be so constructed that they do not suddenly or unequally change level, and if height of a platform or gangway or stairway is more than 1.25 meter above ground level or floor level, it shall be closely boarded, have adequate width and be suitably fenced, as described above. Every opening in floor of a building or in a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing with a minimum height of 1 meter.

- Safe means of access shall be provided to all working platform and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 meters in length. Width between side rails in a rung ladder shall in no case be less than 30 cm for ladders up to and including 3 meters in length. For longer ladders this width shall be increased at least 6 mm for each additional 30 cm of length. Uniform step spacing shall not exceed 30 cm. All

scaffolding, ladders and other safety devices mentioned or described herein, shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it in use.

- Adequate precautions shall be taken to prevent danger from electrical equipment. When workers are employed on electrical installations which are already energised, insulating mats, working apparel such as gloves, sleeves and boots, as may be necessary shall be provided. Workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
- No materials on any of the sites shall be so stacked or placed as to cause danger of inconvenience to any person or the public.
- The contractor shall provide all necessary fencing and lights to protect public from accident and shall be bound to bear expenses of defence of every suit action or other proceedings at law that neglect of the above precautions and so pay any damages and costs which may be awarded in any such suit, action or proceeding in such persons or which may with the consent of the contractor be paid to compromise any claim by any such person.
- Excavation and Trenching - All trenches, 1.6 meters or more in depth, shall at all times be supplied with at least one ladder for each 20 meters in length or fraction thereof. Ladder shall be extended from bottom of trench to at least 1 meter above surface of the ground. Sides of a trench which is 1.5 meters or more in depth shall be stepped to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. Excavated materials shall not be placed within 1.5metre of edge of trench or half of depth of trench, whichever is more. Cutting shall be done from top to bottom. Under no circumstances shall undermining or undercutting be done.
- Demolition - Before any demolition work is commenced and also during the process of the work: All roads and open areas adjacent to the work-site shall either be closed or suitably protected. Electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by operator shall remain electrically charged. All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion, or flooding. No floor, roof or other part of a building shall be so overloaded with debris or materials as to render it unsafe.
- All necessary personnel safety equipment as considered adequate by the Engineer-in-charge shall be available for use of persons employed on the site and maintained in a condition suitable for immediate use, and the contractor shall take adequate steps to ensure proper use of equipment by these concerned.

- Workers employed on mixing asphaltic materials, cement and lime mortar / concrete shall be provided with protective gloves.
- Those engaged in handling any materials which is injurious to eyes shall be provided with protective goggles.
- Those engaged in welding works shall be provided with welder's protective eyes shield.
- When workers are employed in sewers and manholes which are in use, the contractor shall ensure that manhole covers are opened and manholes are ventilated at least for an hour before workers are allowed to get into them. Manholes so opened are cordoned off with suitable railing and provided with warning signal or boards to prevent accident to public.
- Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- The contractor shall not employ man below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 are employed on the work of lead painting, the following precautions shall be taken.
- No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
- Suitable face masks shall be supplied for use by workers when paint is applied in the form of spray or when a surface having lead paint is being dry rubbed and scraped.
- Overalls shall be supplied by the contractor to workmen and adequate facilities shall be provided to enable working painters to wash during and on recession of work. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following:
- These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept in good repair and in good working order. They shall be regularly tested and certified as appropriate.
- Every rope used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.
- Every crane driver of hoisting appliance/ operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine including any scaffold, winch or give signals to operator.
- In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of sub-tension, safe working load shall be ascertained by adequate means. Every

hoisting machine and all gear referred to above shall be plainly marked with safe working load. In case of a hoisting machine having a variable safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond safe working load except for the purpose of testing.

- In case of departmental machine, safe working load shall be notified by Engineer-in-charge. As regards contractor's machine, the contractor shall notify safe working load of each machine to the Engineer-in-charge wherever he brings it to site of work, and shall get it verified by the Engineer-in-charge.
- Motors, gearing, transmission, electric wiring and at near dangerous parts of hoisting appliance shall be provided with efficient safeguards.
- Hoisting appliances shall be provided with such means as will reduce to the minimum risk of accidental descent of load. Adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. Adequate washing facilities shall be provided at or near places of work.

4.5.6.6.2 Application

These safety provisions shall be brought to the notice of all concerned by display on notice board at a permanent place at the work spot. Persons responsible for ensuring compliance with the safety code shall be named by the contractor. To ensure effective enforcement of the rules and regulations relating to safety precautions, arrangements made by the contractor shall be open to inspection by the Engineer-in-charge or his representatives and the Inspecting Officers as defined in the contractor's Labor Regulations.

When work is done near any place where there is risk of drowning, all necessary safety and rescue equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision made for prompt first aid treatment for all injuries likely to be sustained during the course of the work.

Notwithstanding the above conditions 1 to 14 the contractor is not exempted from the operation of any other Act or Rules in force.

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Annexure-III.1**LIST OF MECHANICAL EQUIPMENT AND ACCESSORIES****A: LIST OF EQUIPMENT****(The design/peak capacity of the equipment will be 20% higher than rated / nominal)**

Sl.No	Particulars	Quantity
1	Replacement/New installation of existing drive structures and drive head including gearbox, motor with starter (75 KW), couplings etc.	Lot (As per system requirement)
2	Replacement/New installation of all existing pulleys (Head pulley – 630 mm dia.), Tail pulley (500 mm dia.), bend pulley (400 mm dia.), snub pulley (500 mm dia.), bearings, plummer blocks and sleeves. All the pulleys are to be provided with suitable lagging.	Lot (As per system requirement)
3	Replacement of existing NN belt with 630/4 rating.	Lot (As per system requirement)
4	Installation of new rip detector in Surface Main Belt conveyor.	Lot
5	Installation of new belt scrapper assemblies in discharge and tail of Surface Main Belt conveyor.	Lot
6	Replacement of existing impact idlers, rollers, troughing idlers & return idlers & their frames	Lot (As per system requirement)
7	Provision of safety system (pull chord, belt sway & zero speed) as per system requirement.	Lot
8	Replacement/ Renovation of existing technological structure (Stringers, deck plate, skirt board etc.) as per system requirement	Lot (As per system requirement)
9	Replacement / Renovation of all existing skirt boards	Lot (As per system requirement)
10	Installation of new S.A.C.I. & S.A.R.I	Lot (As per system requirement)

	Idlers with frames as per system requirement.	
11	Replacement / Renovation of existing take up structure as per system requirement	Lot
12	New installation of 1 no. Electric Hoist of suitable capacity at discharge of Surface Main Belt conveyor and 1 no. Electric hoist of suitable capacity at tail end with monorail.	Lot
13	New installation of cross belt magnetic separator and metal detector at Surface Main Belt conveyor including its control panel	Lot
14	Replacement of suitable liners inside discharge chute as per system requirement with provision of chute block switch.	Lot
15	Provision of new sump pump of required capacity as per system requirement	Lot
16	Fire Fighting, Dust suppression system. Plant cleaning system, etc.	Lot

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Proposed Scope in existing Trolley / shuttle conveyor is detailed under:

Sl. No	Equipment Inspected and is to be replaced
a	Replacement of existing Shuttle belt conveyor / Trolley belt conveyor with including electricals, Pulley assembly, tensioning arrangement, travel wheel, rails, frames and rollers, shuttle boom, chute replacement, brakes, necessary safety switches, Internal and external belt cleaners (As per system requirement) .
b	Replacement of existing NN belt with suitable rating.
c	Complete replacement of existing Rail of Trolley / shuttle conveyor above loading hopper.
d	New installation of 1 no. Manual Hoist / Chain Pulley block of suitable capacity above Trolley / shuttle conveyor.

B: LIST OF ACCESSORIES AND FACILITIES

	Nomenclature	Quantity
a)	Provision of new Portable compressor for plant cleaning 30 cfm capacity 6 kg/cm ² Pressure	1
b)	Special tools and tackles	As received along with the equipment supplied
c)	Noise abatement measures to reduce noise level	As required
d)	Measures to control vibration so as to keep its level within ISO limits	As required
e)	Items/accessories not specifically mentioned but needed for successful commissioning/operation of the plant.	As required

Annexure-III.2

**LIST OF ELECTRICAL EQUIPMENT, ACCESSORIES
AND TESTING EQUIPMENT**

LIST OF ELECTRICAL EQUIPMENT AND ACCESSORIES

Sl. No.	Equipment	Quantity
1	415 V sectionalized Motor Control Centre comprising 1 no. of Incomer ACB, 1 no of outgoing ACB for capacitor bank, 1 no. of outgoing ACB as spare and 8 nos. of outgoing Feeders for supply of power to Conveyor motor and trolley conveyor, Electrical Hoist, Dust Suppression/ Extraction, Fire-fighting system, etc. including spare	1 No.
2.	415 V Capacitor Bank of required capacity with APFC panel for improvement of Power Factor complete set	1 No.
3	Power cables (As per IS 7098 Part I & II)	
	1.1kV grade, XLPE, double wire armoured copper conductor FRLS cables of different sizes as per technical specification	lot
4	Lighting cables	
4.1	1100 V grade, XLPE insulated, PVC sheathed, single wire armoured, Copper conductor, FRLS cables of different sizes as per technical specification	lot
5	Control and Signalling cables	
5.1	1100 V grade, single/multi core XLPE insulated, PVC sheathed, Copper conductor, FRLS, control and signalling cables of 2.5 sq. mm cross-section having different no. of cores as per technical specification.	lot
5.2	Cable trays/cable racks (separate trays shall be used for power and control cables), cable trenches & cable vaults etc. as per technical specification	lot
6	Control Transformer – 415/110V for AC Control Supply	1 set
7	110V, 120 AH, Lead Acid Battery complete with Battery Charging unit and racks.	1 set
8	Earthing and Lightning protection system	
8.1	Galvanized earthing strips / wires / conductors for main earthing grid, sub earthing grid of buildings and structures, earthing of light fittings, welding sockets, pull chord switches, belt sway switches, zero speed switches and various electrical equipment, Ground electrodes and earthing pits with chemical compound as per technical specification	lot

Sl. No.	Equipment	Quantity
8.2	Equipment and accessories for Lightning protection system for building and structures having height of 10m and above with separate earth pits.	lot
9	Miscellaneous Equipment	
9.1	Fire extinguishers	2 set

NOTE:

- 1) Conveyor length, lift has been considered as per layout. However, the same may undergo minor changes during detail design stage as per prevailing ground conditions.
- 2) Drive powers, pulley diameters, belt length, belt rating given are minimum. If required, these may be increased during detail design stage.
- 3) Conveyor calculation as per Indian standard (IS 11592) to be followed.
- 4) Allowable maximum inclination for all conveyors shall be 1:4.5 (in general).
- 5) Stepped walkway without any intermediate landings shall be provided for inclinations as specified in IS 11592.
- 6) The bidder is requested to visit the site thoroughly before submitting the tender.
- 7) Specifications given in the technical data sheet/Annexures/Appendices are minimum and any value on the lower side shall not be acceptable in general. However, in exceptional circumstances such as compatibility problem etc., variation may be allowed with the approval of E.I.C.
- 8) Electric hoists/chain pulley blocks of suitable capacity and sufficient in numbers shall be provided at suitable locations for maintenance of drives, discharge pulleys, take-up, tail pulleys and other heavy equipment/components. The capacity of Electric Hoist/ Chain Pulley Block shall be at least 25% more than the heaviest assembly/ component to be lifted. At the same time, the rating of Electric Hoist/ Chain Pulley Block shall be standardized to minimize inventory for maintenance and interchangeability.

SUB-SECTION-7.4.1

TECHNICAL SPECIFICATION-MECHANICAL

SUB-SECTION-7.4.1
TECHNICAL SPECIFICATIONS
(MECHANICAL)

Spec. No.	Equipment
SP/M-1	- BELT CONVEYORS
SP/M-2	- BELTING
SP/M-3	- MAGNETIC SEPARATOR
SP/M-4	- METAL DETECTORS
SP/M-5	- MISCELLANEOUS EQUIPMENT
SP/M-6	- MAINTENANCE & SAFETY
SP/M-7	- INSPECTION & QUALITY CONTROL BEFORE DESPATCH

Note: Broad technical specifications of above Mechanical equipment have been indicated, Equipment specifications as per latest technology complying relevant standards may be proposed during detail design stage. Equipment's should be provided with all electrical accessories such as motor, starter/panel, connecting cable etc., so that it is ready to function after connecting supply power.

SP/M-1

BELT CONVEYOR

1.0 Scope of Supply

The scope of supply shall be as per requirement mentioned elsewhere in the tender document.

2.0 Duty Conditions

The conveyors may have to work in most adverse working conditions like heavy dust, exposed to sun-light, with high surface temperatures up to 50 °C, in rain, in relative humidity up to 100% etc. The conveyor will operate on average for 15 hours a day over 330 days per year in general, but the design is to be such that it can be operated for all the 365 days a year and all the 24 hours a day, if required. The conveyors will be able to start in full load conditions.

There should be minimum clearance of 0.5 m between ground and the return belt throughout the length of the conveyor i.e., including tail end and discharge end.

The minimum belt top height at tail end from floor shall be 1200mm and at head end it shall be 1500 mm. Also, in general, the conveyors layout shall be kept horizontal at tail end and discharge end with suitable transition lengths requirement as per standards.

3.0 Power Unit

3.1 Power supply

415V/6.6Kv, 3-phase, 50 Hz.

3.2. Motor

TEFC induction motor of squirrel cage type, synchronous speed – 1500 rpm, insulation– class 'F' high torque, foot mounted integral type, with IP-55 protection as per IS 2147 (Current). The motor power rating for conveyors shall be minimum as indicated in the conveyor schedule.

The motor will be capable of giving rated out put without reduction in the expected life span operated continuously in the system having the following particulars:

- | | |
|---------------------------|---------------------|
| i) Rated terminal voltage | |
| - 110 Kw & below | : 415 V. 3-phase, |
| - above 110 Kw | : 6.6 Kv, 3-phase, |
| ii) Variation in voltage | : ± 5% for 415 volt |
| | : ±10% for 6.6Kv. |
| iii) Frequency | : 50 Hz. |
| - Variation in frequency | : + 5%, -3% |

The motor will be suitable for full voltage DOL starting. This will be capable of starting and accelerating to the rated speed along with the fully loaded driven equipment without exceeding the acceptable winding temperature even when the supply voltage is 80% of rated voltage throughout the starting period.

The locked rotor current will not exceed six times rated full load current subject to tolerance as given in IS 325 (Current).

Space heaters suitable for 240 V, 50 Hz, single phase supply system will be provided for motor above 30 Kw capacity. For ratings below 30 Kw, space heaters will be provided if it is meant for specific use in damp areas.

Suitable temperature detector for detection of winding and bearing temperature will be provided for all 3300/6600 volt motors. These will be located at locations where high temperatures are expected during operation. The indications will be carried to the control desk.

Power terminal blocks will be suitable for receiving 3300/6600/11000-volt grade aluminium conductor single layer armoured cross linked polyethylene insulated cable.

Two independent earthing points will be provided in accordance with IS 3043(Current).

All motors will be provided with eye bolts, lugs or other means to facilitate lifting.

The design, manufacture, installation and performance testing will conform to the latest revisions of the Indian Standards or their equivalent IEC standards for the applicable motor type and rating, and to the latest Indian Electricity Acts, Indian Electricity Rules and IS 325(Current).

4.0 Conveyor Frame

The conveyor frame will consist of ISMC 150 mm (min.) stringers connected by 'N' shaped cross bracing of ISA 65 X 65 X 8mm. Individual sections will be of suitable lengths to facilitate easy assembly at site without any match marks and without having any reference to left and right of the conveyor. At the same time top and bottom idler frames when assembled on the stringer will have their position at right angles to the longitudinal axis of the conveyor. Provision will be made for jointing of sections with permitted play in the vertical plane of the order of 3 degrees to 4 degrees with nut and bolts system.

The conveyor frame will be complete with stools of size ISMC 100 mm for supporting stringers. Holes for fixing the supporting stools will be drilled on stringer channel for intermediate structures. Stools for support of conveyor frame will consist of vertical supports with suitable bracings and base plate to enable fixing of stools on foundation. The height of the stools will be such as to give clearance between return roller and ground of at least 500 mm. The plates of the stools and ground will be suitably drilled for grouting. In case the return roller is located at the centre of the trestle, conveyor frame below the return idler shall be covered/ sealed by chequered plate of 3 m (1.5 m to the either side from the centre of each trestle) to cover the gap below the return idler. Sufficient clearance between roller and chequered plate shall be

provided for cleaning.

However, the conveyor drive shall be suitable as per existing power arrangement of Churi U/G mines.

5.0 Idlers

Idlers will be made of ERW tubes as per IS-9295(Current). The diameter and thickness of roller tubes, spacing of idlers and the bearing bores for carrying idlers, return idlers, impact idlers, etc. should be mentioned clearly for different widths to suit the duty condition and will in all case conform to the following limits or requirements:

5.1 Minimum tube diameters and thickness

Details	Belt width (mm)								
	800-1000			1200 & 1400			1600 – 2000		
	Carrying idler (mm)	Return idler (mm)	Impact idler (mm)	Carrying idler (mm)	Return idler (mm)	Impact idler (mm)	Carrying idler (mm)	Return idler (mm)	Impact idler (mm)
OD of steel tube (mm)	127	127	101.6	152.4	152.4	108.6	168.3	168.3	108.6
Tube thickness (mm)-nominal	5.4	5.4	5.4	5.4	5.4	5.4	6.3	6.3	5.4
OD of Poly-urethane disc (mm) (For cushioning effect, the rubber disc shall have triangular holes along the idler axis)	-	-	180	-	-	190	-	-	190

5.2 Idlers Spacing (Maximum)

Belt width (mm)	Bulk density up to 1.15 t / m ³		
	Carrying (mm)	Return (mm)	Impact (mm)
800-2000	1000	3000	450

5.3 Bearing for Idler Rollers

Carrying idlers, impact idlers and return idlers will be provided with seize resistant / deep groove ball bearing of suitable size. Up to 30mm shaft dia, seize resistance bearing shall be provided and above 30mm dia deep groove ball bearing shall be provided.

The life of the bearing will be guaranteed for a minimum period of 30,000 working hours.

The bearing sizes will be as under:

Belt width (mm)	Minimum Bore of Bearing	
	Carrying/Return Idler (mm)	Impact Idler (mm)
1000 and below	25	25

1200- 1400	30	30
1600-2000	40	40

5.4 Idler Shaft

Idler shaft will be made of EN-8 of BS 970 or C-40 IS 1570 or equivalent quality steel and suitable size for the duty requirement.

5.5 Idler Arrangement

5.5.1 Carrying idler

The carrying idler set shall consist of three rollers of equal length. The troughing angle shall be as specified and shall be of the value 35° (as specified in schedule of conveyors), for all the conveyors irrespective of belt width. The angle of tilt will be as follows:

5.5.2 The angle of tilt of side idlers shall be function of troughing angle and belt speed and shall be as small as practicable and shall in no case exceed 2° .

ii) The angle of tilt of side idlers shall be in the direction of belt run for the unidirectional conveyors.

The direction of belt travel shall be marked on the frame by an arrow head.

5.6 Return Idlers

The return idler will be of single roll type.

5.7 Impact Pad

Impact pads are to be provided on the material discharge zone from the transfer chutes. The Impact pads are to be robust in construction, designed for heavy duty operation along the material flow. The individual impact pads would be of required number of layers (top layer of UHMWPE having hardness of $65 \pm 5^{\circ}$ shore D) with the thickness designed by the bidder but not less than 70 mm proper bonding, sandwiched together and additionally strengthened by mechanical fasteners. For effective function, the cross section of the impact pads would be solid without any hollow section. The number of pads required would be dependent upon the belt width of the individual conveyor.

The impact pad will cover minimum 1800 mm of conveyor length, ensuring that the conveyor belt is fully supported on impact zone. The pad shall be designed for heavy duty operation and shall be provided with heavy duty bolted frame.

5.8 Self Aligning Idlers

On the carrying side two sets of self aligning troughing idlers shall be placed at 5-meter spacing from head and tail pulleys. The spacing of intermediate self aligning troughing idler set shall be 15 meters. On the return side two sets of self aligning return idlers shall be placed at 10-meter spacing from head & tail pulleys. The spacing of intermediate self aligning return idler set shall be 30 m. Self aligning idler set shall also be provided near the drive and take-up pulleys. In case of short conveyors at least two set of self aligning idlers shall be provided on the carrying and return run. In case of Steel cord belting, the distance of self-aligning idlers on carrying run may be reduced to 10m.

5.9 Transition Idlers

Transition type idlers will be used adjacent to head and tail drums to permit proper support of loaded belt near the head and the tail drums without excessive stress and stretch of the belt edges. The transition length and the number of transition type and size of belt, number of plies and other necessary governing factors in steps of 5°, 10° and 15° troughing angles will be stated.

5.10 Impact idlers (Wherever necessary)

Required sets each of 3 impact rollers shall be provided at all loading and transfer points at the receiving of material after and before the impact pad. These idlers shall have rubber discs of suitable hardness to give longer life.

5.11 Clearances

Clearance, gaps, etc. for the carrying and return idlers will conform to the IS 8598(Current) to the extent possible. Lengths of individual rolls will conform to IS 1570 (Current).

5.12 Lubrication

The idlers will be sealed and greased for life. Idler bearings will be provided with suitable labyrinth seal on outer side and felt seal on inner side. Bearing should be of 'seize resistant' type.

5.13 Bearing Houses

The bearing housing of idler will be made of extra deep drawn quality pressed steel and will be press fitted and will preferably be completely welded with idler tube by simultaneous welding machine. The details of this will clearly be furnished in the tender.

5.14 Maximum Tolerance

Eccentricity/Ovality of the idler tube will be minimum and will be mentioned specifically for various sizes and in no case it should exceed 0.8 mm at any point along the shell. Idlers will be made of ERW tubes as per IS-9295. The space for greasing will be clearly indicated on the drawing and the quantity of grease should also be indicated. It should not be less than 16 cc approx. on either side of each idler.

5.15 Idler Brackets

The brackets for the carrying idlers will be of pressed steel frame construction to withstand shock loads resulting from large lumps. They will be made of formed sections.

5.16 Adjustment

The fixing arrangement of carrying and return idlers will be such as to permit adjustment of the idler sets for purposes of belt training. Allowance for such adjustments should be provided on both sides of the conveyor and the play will not be less than 10 mm either side. All idlers will be of the 'drop-in-slot' type.

5.17 Friction

The friction factor of idlers will not be more than 0.02

6.0 Conveyor Drive System

A minimum service factor of 1.6 will be taken from **absorbed** power for selection of the gearboxes. Also the selection of gear box shall be made one rank higher in the manufacturer's list.

For Motor power less than 300kW

Reduction Gears

These will be suitable for round the clock continuous operation at full load and will be suitable for moderate shock loads. The high-speed shaft will be extended on other side for accommodating electromagnetic/thruster brakes, where required. The selection of gear box will be done on the basis of natural cooling only, however, exceptionally, fan cooling may be accepted in case natural cooling gear box of required rating (as per calculations) is not available commercially or as per recommendation of manufacturer. Necessary calculation/justification from OEM shall be submitted for all gear boxes.

For drive up to 30 HP worm gears will be used and above that parallel shaft bevel / helical gears are to be used. Splash lubrication will be provided. Magnetic drain plugs and metallic breathers will be provided.

7.0 Couplings

Flexible/Geared Coupling will be used for power transmission on low-speed side and also on high speed side depending upon the duty requirement. The hub and sleeves of the geared coupling will be of forged C-40 steel and bolts will be of alloy steel. The hub teeth will be triple vary crown design.

Traction type fluid couplings with delayed chamber will be used on high-speed side for all motors rated 40 kW and above, but below 300 kW.

8.0 Drums/Pulleys

8.1 Features

All the drums shall be of welded steel construction and statically balanced and stress-relieved after welding before machining. The drive, discharge and other high tension pulleys shall be of integral hub type design. The diameters of the drums shall be as per IS 8531(Current). The machining tolerance of individual parts of the drums assembly should comply with IS 919 (Current) and the diameter of the drum will be maintained within the tolerances given in IS 8531(Current). The out of roundness will not exceed ± 0.5 percent of the drum diameter. The shaft diameter will be in multiples of tens.

Face widths of the drums will be as per IS 8531(Current). Shell thickness of the drums will be suitable for taking bending loads on the drums. This will not be less than 16 mm for drive and discharge drums, 12 mm for tail pulley and 10mm for other drums. No crowning will be provided with pulleys.

All drive/discharge drums will be lagged with ceramic lagging liners of minimum 12mm thickness. Other drums lagging will be vulcanised natural rubber and the thickness of the lagging will be 12 mm. The rubber lagging will have V-type herringbone pattern grooves (6 mm wide x 6 mm deep). The apex of the grooves will be in the belt travel direction. Alternatively, herringbone profiled wear resistant rubber bars moulded with aluminium reinforcement will be preferred for easy replacement. The rubber lagging will have a minimum durometer hardness of 55 degrees shore A-scale. Tail-end drum of all conveyors should have minimum ground clearance of 500mm.

8.2 Bearings and Plummer Blocks

All drums, except drive and discharge pulley, will be provided with self-aligning ball/ roller bearings to suit the loading conditions. For heavy duty conditions, where the shaft diameter exceeds 70 mm, spherical roller bearings will be provided. All bearings shall be adapter-mounted to the shafts. Plummer blocks of four holes will be of cast iron and provided with grease nipples for lubrication purpose.

All lubricating nipples will be readily accessible without removing the guards. Bearing will be protected against ingress of dust and moisture by providing suitable labyrinth/rubber seals on both sides. Guaranteed life of the bearings will not be less than 50,000 hrs. All drums of a given diameter will have similar size and type of bearings. The total stock of sizes will be kept to minimum. All the drive and discharge pulleys shall be provided with split cylindrical roller bearings with swivelling cartridge or cylindrical/spherical roller bearings.

8.3 Pulley Shafts

All pulley shafts shall be of C-40/EN-8 steel as per IS 1570 (Current). Key less locking element/ assemblies shall be used at each end of drive, discharge and other high tension pulleys. For other pulleys, taper lock system shall be used. The locking elements shall be sized to transmit the required torque and bending moment as per manufacturer's recommendations.

Shaft size shall be calculated with a design factor of safety of 1.5. The maximum free shaft deflection slope at the pulley hub shall be 0.0023 inch per inch.

Sizes of pulley shafts, locking devices and bearing sizes shall be rationalized to reduce inventory of spare parts and provide interchangeability.

9.0 Drive Arrangement

The drive arrangement has been indicated in scope of work.

10.0 Bed Frame and foundation Arrangement

The drive unit consisting of motor, reduction gear and the drive drums will have a common bed frame and be fabricated from heavy structural sections and plates. Suitable bracings should be provided wherever necessary on the drive unit bed frame and superstructure to make it rigid. Proper arrangements will be provided with gearboxes, motors and plummer blocks to maintain correct alignment.

The head drum unit, the drive unit, the take up unit and the tail unit will have separate houses with suitable foundation arrangement in conformity with the drawings (if any). Suitable bracings will be provided on the structures of these units wherever necessary. Dual drives will be grouted on suitable firm ground.

11.0 Decking Plate

Framed steel sheet decking plates to protect the bottom belt against spillage should be provided throughout the length of the conveyor. The thickness of decking plate shall not be less than 3.15 mm.

12.0 Skirt Board & Sealing System

Skirt board shall ensure centralised loading of conveyor belt to avoid coal spillage. Suitable 'Skirt Plates' of 5.0 meters (minimum) length shall be provided at each feeding point of conveyor. The width of the Skirt Boards shall be two-third the conveyor belt width. The gap between the bottom of the skirt board and the belt shall be made to increase uniformly in the direction of belt travel. Skirt board shall be suitably lined with ceramic cylinder embedded rubber liner with steel backing of minimum 20 mm thick.

The height of skirt board shall be sufficient to contain the material volume as it is loaded on the belt and shall not be less than 500mm. In addition, a covered hood of 500mm height shall be provided to contain dust pressure. The segmented rubber curtains shall be hung from the top of the hood at regular intervals in segmented manner. End of the skirt board shall be provided with rubber curtain. At the tail end, a sealing box shall be provided which shall be 750mm long and 500mm high. At the tail end/ rear side also, skirt sealing shall be provided.

To prevent material spillage at conveyor, transfer points, skirt board sealing systems consisting of rubber which tail into each other to provide a continuous sealing strip, will be provided. The fixing of skirt board rubber block shall be press-fit type between adjacent rubber to avoid leakage of dust. Equally spaced guides shall be provided for smooth vertical movements. The clamp shall be of serrated type to ensure uni-directional motion of the rubber block towards the belt. The shore hardness of rubber block shall be 55 ± 5^0 shore A. The clamps and fixing bolts shall be galvanized for longer life.

13.0 Belt Cleaners

Primary and secondary belt cleaners will be provided suitable for mounting on the Head Pulley conveyor to remove heavy residual layer of carry back from the conveyor belt. Primary belt cleaner shall be provided with polyurethane blade (having hardness of 90 ± 5^0 shore A) mounted on a carrier assembly with 'elastomount' or similar system to facilitate automatic blade adjustment. The blades of secondary belt cleaner shall be made of special tungsten carbide tip with SS-304 base.

Belt cleaners will have multi-sprung blades with suitable inclination to clean dirt layer efficiently and suitable sprung deflection on contact with an uneven surface on the belt. Each individual blade should have spring action so that constant contact with the belt is maintained while in operation. For automatic adjustment and to compensate for blade wear, the belt cleaner assembly should be mounted on 'elastomount' or similar suitable arrangement to ensure that constant contact between belt and blades is maintained.

A "V" type plough scraper (60° angle) will be provided on the return belt near the tail drum. In conveyors using loop/vertical gravity take up, 'V' type plough scraper will also be provided near the snub drum forming part of take up unit to prevent material spilled on the return belt, from damaging the belt at the take up drums.

The unit should be supplied with a locking system to prevent cleaning component from touching the belt and damaging the same. The complete system will be such that it can be installed on the conveyor's sub frame by means of modular support mounts.

14.0 Hold Back Device

Suitable hold back devices will be provided with Gear box for preventing running back of the conveyor belt in loaded conditions due to power failure or otherwise. This will be roller type and will be supplied wherever the conditions require the use of this device.

15.0 Electro Magnetic/thruster Brakes

Electromagnetic/thruster brakes will be provided with all the conveyors after calculating the coasting time. If required, necessary flywheels can also be used for smaller conveyors. The coasting time calculation will be submitted for approval. Any conveyor having downhill profile along the length of conveyor, suitable and sufficient capacity brake shall be provided as per design requirement.

16.0 Accessories

16.1 Pull Chord Switches

For stopping the conveyor from any point along the conveyor length, pull chord switches will be provided on both side of the walkway of the whole conveyor length. This will be a totally enclosed dust and vermin proof, cast metal unit with trip and reset levers mounted along the main walkway side at regular spacing of 30 metres (with min. one per conveyor). The pull chord rope will be of PVC sheathed galvanised steel wires. The switch should have inbuilt visual indication. Proper numbering of pull cords shall be ensured and incorporated in the control circuit.

16.2 Belt Sway Switch

Totally enclosed dust and vermin proof belt sway switches will be provided on both sides along the conveyor length at a regular interval of 50 metres. Belt sway switches will also be provided near head drums, tail drums and drive drums. These switches will be auto reset double contact type, one for advance indication of excessive belt sway and the other for hipping in conveyor. The switch should have inbuilt visual indication.

16.3 Zero Speed Switch/Belt Sequence Switch

One number belt speed monitoring switch per conveyor will be provided which will stop the conveyor in case of slippage or breakage of the belt, or in case the belt speed falls below 80% of the rated speed. These switches will also

serve as belt sequence switches for the starting of the preceding conveyor. The switch should have inbuilt visual indication.

17.0 Reversible shuttle conveyor

Reversible shuttle conveyor's travel shall be such that they can fill up the bunker with coal properly. Proper arrangement and accessories shall be provided for successful operation. The traveling shuttle conveyor shall be able to reverse its direction of travel while loading. The shuttle frame shall be made of structural steel, welded construction, designed to withstand maximum belt tension, providing ruggedness and resistance to shock. Adequate motor drive and braking arrangement must be provided for shuttle.

Suitable belt cleaner shall be provided on discharge pulley as has been described elsewhere.

Frame of traveling shuttle shall be mounted on flanged cast/ forged steel wheels with antifriction bearings housed in Plummer blocks with grease nipples for external lubrication.

The shuttle shall be moving on adequately sized rail tracks rigidly fixed to the supporting structures. The shuttle travels shall be limited by the provision of end buffers on both ends of the rails.

18.0 Take up devices

The design of take-up shall be such that the tension can be achieved by adding RCC blocks on the frame. A box with filled up weight is not acceptable, there shall be provision for increase/ decrease of tension as per requirement during dynamic condition of the conveyor. The location of counter weight for take-up devices will be such that it should not be above any other conveyor. Motorized PLC controlled loop take-up shall be offered for conveyors along the haul roads or wherever required.

In case of horizontal gravity take up the tail pulley will be mounted on a trolley or the bearing blocks of the tail pulley will be mounted in guides. The tail pulley frame will be connected to counter weights by means of rope. The rope will be guided by required number of sheaves. The weights will move in the guides supported in a vertical tower. The weights will be of modular sections made of C.I. These units will be connected by means of tie rods, weights can be added or detached depending on the requirements. Take up travel, counter weights shall suit the requirements.

In case of automatic loop system, this will consist of a fixed pulley, movable pulley, trolley, limit switches, sensors, power operated winch or any other mechanism. In case of some change in the belt tension from the required tension the sensors will sense the same and actuate the motor of the winch to move the moving pulley till proper slack side tension is created to avoid slippage. The take up travel, motor shall suit the requirements.

In case of screw take up the movement of tail pulley shall be by means of two screws with check/lock nuts.

The pulleys conform to the specifications as given elsewhere in this document.

19.0 Guards

Guards on the conveyor will comply with the relevant latest Indian Standards. The guards will be of expanded metal conforming to IS 412 (Current). The minimum clearance between the guards and moving parts at openings in guards will be as follows:

Size of opening in guard (mm)	Minimum clearance (mm)
Not exceeding 10	25
Over 10 up to and including 15	65
Over 15 up to and including 30	100
Over 30 up to and including 40	125

Slots 30 mm wide suitably reinforced may be provided in guards for insertion of bars for cleaning. The minimum distance between any moving part of the conveyor and any part of the slot will be 300 mm.

Guards will totally enclose all parts as far as practicable in order to prevent access to the part e.g. for an in running belt, the guard around which an operator can put his arm will extend at least 900 mm from the belt. In case of the travelling tripper conveyor, the following sub clauses will also apply.

Access

Where there is any danger of trapping a person between the moving tripper conveyor and any fixed object, other than its track, there will be minimum clearance of 500 mm.

Guards

Guards will be provided to prevent any trapping between the travelling wheels and the rails.

20.0 Inspection and Quality Control before Despatch

20.1 Special Materials

In addition to the prescribed inspection and quality control measures adopted by the conveyor manufacturers/Contractors during raw materials purchase, sub assembly and final assembly stages the manufacturers/Contractor should be prepared to furnish without extra charge test certificates covering mechanical properties and chemical composition for the materials used (e.g. materials for idler or drum shafts). This certificate should be from approved testing laboratories such as Small Industries Services, Institute Laboratories, CMERI, Durgapur or NPL, New Delhi, etc. Samples of such materials are to be selected as per relevant latest Indian Standards and Codes by purchaser's representative from manufactured components of the equipment.

20.2 Test Rig for Idlers After assembly before despatch

The idlers based on approved drawing should be tested after assembly for non-load run on a suitable test rig capable of running idlers to a suitable speed higher than rated speed for given time This test rig speed will not exceed 3 to 4 times the rated speed.

20.3 Bearings

A certain percentage of anti-friction bearing to be selected at random will be checked for boundary dimensions keeping in view the permissible tolerances as per AFBMA, USA standards or equivalent. The test certificate will also suitably certify bearings to be free from abnormal noise.

20.4 No Load Test Run Of Conveyor Drive Head

The conveyor drive head comprising of motor, reduction, gear, coupling, driving drum, etc. mounted on a composite rigid base frame will be subjected to a no load test run for few hours to check for abnormally high temperatures or abnormal conditions including too much noise. The conveyor manufacture will furnish a test certificate in duplicate for the above no load tests.

20.5 Additional Tests

The following additional tests also may be carried out, at the option of the employer, and all facilities for carrying out such tests will be extended by the Contractor at his own cost.

- a) Dimensional checking of all items.
- b) Materials test certificates for material of construction.
- c) For idlers the following tests will be carried out:
 - i) Friction factor test.
 - ii) Idler running test at high speed.
 - iii) Test for dust proof and water proof.
 - iv) Ovality test of finish idler.
 - v) Alignment and co-axially test of idler set assembly.
- d) For pulleys following tests will be carried out: -
 - i) Checking of out of roundness.
 - ii) Static balancing test.
- e) Test of bought out items.

All tests will be carried out in terms of relevant IS codes and standard engineering practices.

SP/M-2

BELTING (NYLON- NYLON)

1.0 Basic parameters

i. Carrying material

- i) Coal /shale of Maximum size 400 mm
- ii) Percentage of shale/sand stone up to 30%.
- iii) Percentage of moisture up to 20%.
- iv) Bulk density: 0.8 to 1.15 t/m³.
- v) Condition of material-wet & sticky.

ii.. Duty Conditions

Belting will be designed for heavy-duty condition and will be suitable for 24 effective working hour operations per working day and 365 working days per year. It will be suitable for installation over conveyor systems having 35° troughing angle, and will be suitable for operation at an ambient temperature from 4° to 50°C. It will have sufficient resistance against exposure to open sunlight so that its qualities do not deteriorate while working in open sun. It also may have to work in rain and/or in conditions where relative humidity goes up to 100%.

iii. Specification for N/N Belting

A. Constructional Features:

The belting shall consist of a carcass having rubber covers. The carcass will consist of number of plies. The specified construction of ply type belting will be full width ply only.

The fabric shall be of Nylon having grade Nylon-66, with minimum melting point 250°C.

The belting shall be with pre-stretched, straight ply, skim coated with open ends. It will have sufficient strength as specified elsewhere, to give required tension at safety factor of 10 and utilisation factor as 80% (maximum).

The belt shall have sufficient lateral flexibility so that it suits the troughing angle requirements even when it is empty. It will have sufficient lateral stiffness. The belt will have sufficient longitudinal flexibility so that it can easily flex around different pulleys of the conveyor system.

The belt shall have sufficient impact resistance to withstand impact at the loading points. The rubber cover used in the top and bottom cover of the belting will be of Fire Resistant Anti-Static (FRAS) grade. Rubber cover when removed from the belt and tested as described in relevant ISO-340 for FR code (as per DGMS circulation), the minimum tensile strength shall be 17 Mpa and minimum elongation at break will not be less than the 350% as specified in the IS. After ageing as per provision of IS, the variation in the original values of tensile strength and elongation should not exceed the value as specified in the IS.

The edges will be of cut edge construction.

On the carrying surface, at interval of maximum 12 m, the belting will be marked as follows: -

- (a) Manufactures name and trade mark, if any
- (b) Fabric designation as N/N.
- (c) Belt designation i.e. kN/m.
- (d) Grade of rubber cover shall be fire resistant and anti-static. i.e FRAS Grade as per IS-1891(part-5) (Current).
- (e) Last two digits of the year of manufacturing, say -99 for 1999 and 00 for 2000.
- (f) BIS Code reference i.e. 1891 (pt-1)- 1994

B. Packing

Belt will be packed in a wooden drum. This packing will enable the easy unreeling of the belting. On the body of the wooden drum the direction of belt and the location of end of the belting should be indicated so that belting can be properly placed while unreeling.

C. Compliance with standards:

The design, construction, testing and performance of the belting will comply with all applicable codes and as per IS 1891/1994 or equivalent. International standards.

D. Inspection and quality control:

i. Before despatch, the finished material will be subject to inspection by the authorities/representatives of the owner. The inspection will be carried out in the presence of the contractor, in terms of up-to date engineering practice and relevant Indian standards/International standards in this respect, for which all facilities will be provided by the contractor at his cost. This will inter-alia, include the following: -

a) Full thickness belt test:

- i) Breaking load, Kg/Sq.Cm. for warp and weft.
- ii) Elongation under reference load (%).
- iii) Elongation at break (%).

b) Rubber Cover test (Top/Bottom):

- i) Tensile strength of cover (Kg/Sq.Cm)
- ii) Elongation at break (%).
- iii) Adhesion between ply to ply and between covers and ply.
- iv) Abrasion loss of rubber cover.
- v) Drum friction test
- vi) Flame test
- vii) Electrical surface resistance test (Anti-static test)

c) Physical dimension check

d) Troughability test

ii. All relevant type test certificates will have to be produced during inspection and along with supply for necessary verification and approval.

CONVEYOR BELTING (STEEL CORD)

1.0 Basic parameters

1.1 Carrying material

- i) Coal /shale of Maximum size 100mm.
- ii) Percentage of shale/sand stone up to 30%.
- iii) Percentage of moisture up to 20%.
- iv) Bulk density: 0.8 to 1.2 t/m³.
- v) Condition of material-wet & sticky.

2.0 Duty Conditions

Belting will be designed for heavy-duty condition and will be suitable for 24 effective working hour operations per working day and 365 working days per year. It will be suitable for installation over conveyor systems having 35° troughing angle, and will be suitable for operation at an ambient temperature from 4° to 50°C. It will have sufficient resistance against exposure to open sunlight so that its qualities do not deteriorate while working in open sun. It also may have to work in rain and/or in conditions where relative humidity goes up to 100%.

3.0 Specification for Steel Cord Belting

3.1 Constructional features

The rubber conveyor belting of steel Cord will be with skim coated, open end and edge protected construction. It will have sufficient strength to give required tension at 7 safety factor and 80% tension utilisation (maximum).

The belt shall have sufficient lateral flexibility so that it suits the troughing angle requirements even when the belt is empty. It will have sufficient lateral stiffness.

The belt will have sufficient longitudinal flexibility so that it can easily flex around different pulleys of the conveyor. The belt will have sufficient impact resistance to withstand impact at the loading points.

The steel cords to be provided in the steel belt will have characteristic of high tensile strength in longitudinal direction, high flexibility for increased fatigue resistance, less elasticity for minimum elongation and galvanising for better adhesion of cords to rubber and toughness and protection against corrosion. Belt construction shall be as per Indian and International standards. To protect the belt against longitudinal slits, the belt shall have protection in any one of the following forms –

- a) Sensor Loop protection with electronic PLC system whereby sensor loops of special alloy are embedded at specified pitch along the belt length and any discontinuity in such loops due to belt cutting is identified by the PLC which commands the drive to stop & minimizes propagation of belt cut, OR
- b) Rip-check breaker protection where full length & full width synthetic fabric breaker, having high elongation weft members, is embedded in the belt above

the cords and provides protection against penetration of foreign objects and also resistance to cutting by bunching of the high elongation weft members to provide increased resistance to belt cutting, OR

- c) Anti-rip modules where 2-meter-long metal fabric reinforced breakers are embedded at specified intervals to provide strong resistance to belt ripping when encountering the cutting object but does not add excessively to the belt weight & flexibility because of its non-continuous presence along the belt length.

The belt cover at top and bottom will be made of rubber of fire resistant antistatic grade (FRAS) rubber as main material as per ISO-340 so that it is excellent in abrasion, impact and flexing and working suitable for surface operation. It will have sufficient thickness for protecting belt against damage and provide good protection.

The surface and edges of the finished belting will be free from blisters, pattering and other surface defects and will be completely sealed against ingress of moistures. The belt will be suitable for vulcanised joints.

3.1 Compliance with standards

The design, construction, testing and performance of the belting will comply with all applicable codes and latest applicable Indian and/ or equivalent International standards like EN-ISO15236 & AS1333 or DIN-22131 with the latest revision. The fire resistant steel cord belting shall conform to the standards recommended in DGMS circular no. 6 dt. 6/9/01 as reproduced below:

a)	Fire resistant properties of the cover	Conforming to ISO 340
b)	Drum friction test	Conforming to IS 1891(Part-V) (Current) i.e the belt shall show no sign of flame, spark or glow. The drum temperature shall not exceed 325 degree celcius within three hours test period for each test as per IS 1891 (Part-V)(Current)
c)	Max. surface electrical resistant	Conforming to IS 1891 (Part-V)(Current)
d)	Abrasion loss of rubber cover	To be tested as per DIN 53516

3.2 Steel Cord

Steel cord used in the belt shall be manufactured from high grade carbon steel to provide high flexibility for increased fatigue resistance, less elasticity and permanent elongation. Cord construction shall be 7 x 7 or 7 x 19 according to strength and pitch required. The steel cord shall be coated with adequate quantity of zinc to protect the steel from corrosion and to assist in adhesion between the wire and rubber.

3.3 Breaking Strength

The minimum breaking strength of the belt shall not be less than the values

given as follows:

ST rating	Min. breaking strength (Kn/m)	Max. cord dia.(mm)	ST rating	Min. breaking strength (Kn/m)	Max. cord dia.(mm)
630	630	3.3	1800	1800	5.9
720	720	3.5	2000	2000	6.4
800	800	3.5	2250	2250	6.8
1000	1000	4.1	2500	2500	7.4
1250	1250	4.9	3150	3150	8.6
1400	1400	5.0	3500	3500	9.2
1600	1600	5.6	4000	4000	9.8
1800	1800				

3.5 Belt length

The total length of belting shall be not less than the specified length. The length in the individual roll shall be within (+) 2% and (-) 0.5%.

3.6 Belt width

The width of the belting shall be within (+) 1.5% and (-) 0% of the specified nominal belt width.

3.7 Belt edges

At each edge of the belting the distance between the edges and the outer surface of the outer cord shall be not less than 15 mm and not more than 40 mm.

3.8 Belt thickness

The mean overall belt thickness shall be within (+) 1.5 mm and (-) 0.5 mm of the specified nominal belt thickness. The difference between any two measurements taken shall not exceed 10% of the mean belt thickness.

3.9 Cover thickness

The specified cover thickness shall be within (+) 1.5 mm and (-) 1.0 mm of the specified nominal cover thickness. The specified cover thickness shall include any transverse reinforcement.

3.10 Cord pitch

The cords shall be evenly spaced across the width of belting and shall lie in one plane subject to the following tolerance:

- 95% of all cord pitches shall be within (+/-) 1.5 mm of the specified nominal pitch.
- The distance between the centers of the two outer cords of the belting, when measured along the cord pitch, shall be within (+/-) 1.5% of the figure

calculated by multiplying the number of pitches in the belting by the specified nominal pitch.

- The steel cords of the belting shall lie in one plane. The permissible dislocation of cord vertically shall be within (+/-) 1.0 mm.

3.11 Cord diameter

The tolerance on the specified cord diameter shall be within (+/-) 5%.

3.12 Joints in Cord

Cord joints shall be avoided, as far as possible. In any length of finished belting the number of individual spliced cord joints permitted shall be as follows:

Not more than one joint in any one cord;

Not more than one cord joint per 10 meter of belting;

Not more than one cord joint in belts containing up to 50 cords;

Not more than two cord joints in belts containing 51 to 100 cords;

Not more than three cord joints in belts containing over 100 cords;

3.13 Freedom from defects

The belting shall be straight when rolled out flat. The surfaces and edges of finished belting shall be free from blisters, pitting and other surface defects and shall be completely sealed against the ingress of moisture. Surface blemishes that do not interfere with the performance of the belt may be left unattended at the discretion of the belt manufacturer.

3.14 Tensile Strength of Belts and Cords

The breaking strength of the belt shall be calculated from the breaking strength of the cords. The measured cord strength shall not be less than the minimum cord strength as stated by the manufacturer. The bidder shall submit cord manufacturer's Quality Assurance Certificate for the steel cord breaking force.

Belt strength kN / meter of belt width shall be calculated as follows: -

$$= \frac{\text{Cord strength (kN)} \times \text{No. of cords}}{\text{Belt width (m)}}$$

3.15 Adhesion

i) Pull-Out Strength:

The adhesion between rubber and steel cord shall be determined by pull-out force as per relevant standards. The values of pullout force shall not be less than the values specified in DIN 22131 or EN ISO 15236-1 & AS133.

ii) Cover Adhesion:

The mean adhesion strength between cover and bonder/core rubber shall be as per relevant standards.

3.16 Bonding/Core rubber

Bonding/Core Rubber used between rubber and steel cord shall provide high strength bonding between steel cords and rubber and also flow into the interstices of the cord during the vulcanizing process. The tensile strength of the bonding rubber, the elongation at break and the tearing strength shall be as per respective standards.

3.17 Cover rubber

The cover rubber shall be made of natural/synthetic rubber as main material so that it is excellent in abrasion, impact and flexing resistance and making it suitable for surface operation.

The cover rubber shall be of FRAS (Fire resistant Anti-static) type. The tensile strength of the cover rubber, the elongation at break, the tearing strength and the abrasion of cover rubber grade shall be as per respective DIN K or Grade K of EN ISO 15236-1 & AS1333.

3.18 Inspection and quality control

Before despatch, the finished material will be subject to inspection by the authorised representatives of the owner. Inspection will be carried out in the presence of the contractor at his cost. This will inter-alia include the following:

3.18.1 Belt strength / test

- a) Breaking, load, (Kg/sq. cm.) for warp and weft.
- b) Elongation under reference load (%)
- c) Elongation at break (%)

2.18.2 Rubber cover

- a) Tensile strength of cover (Kg./sq. cm.)
- b) Elongation at break (%).
- c) Adhesion between covers and steel reinforcement/pullout strength.
- d) Abrasion loss of Rubber cover.
- e) Drum friction test
- f) Flame test
- g) Electrical surface resistance test (Anti-static test)

2.18.3 Physical dimension check

3.18.4 Troughability Test

3.18.5 On the carrying surface at maximum interval of 12 m, the belting will be marked as under:

- a) Manufacturer's name & trade mark if any.
- b) Rating of the belting.
- c) Grade of Rubber cover.

- d) Last two digits of the year of manufacturing say 99 for 1999 & 00 for 2000.
- e) Relevant code reference: As mentioned above.
DIN/US/UK/Japan/Equivalent international standard.

The contractor will also make available to the owner's inspecting personnel all the relevant standards and codes of practices for manufacture, inspection and testing of the material. He will also make available a set of meters and gauges etc. as may be required for testing and inspection of the material. All relevant type test certificates will have to be produced during inspection/supply.

IN-LINE / CROSS BELT MAGNETIC SEPARATOR

1.0 Basic parameters

- 1.1 Width of conveyor belt : As per system requirement
- 1.2 Conveyor carrying capacity : As per system requirement
- 1.3 Belt speed : As per system requirement
- 1.4 Operating height : 500 mm
- 1.5 Lifting capacity of material : 50 kg of iron/ferrous

2.0 Duty condition

The equipment shall be installed on conveyor as shown in the layout flow diagram either on discharge of existing Trunk Belt TB-1 in case of Inline Magnetic separator or in suitable location in existing surface main belt conveyor. The selection of the magnetic separator shall be on the basis of ease of retrofitting in the existing system. The equipment shall have sufficient capacity to lift pieces of (a) Iron / Ferrous material of weight up to 50kg with L/D not exceeding 5 (b) MS cube of 20mm size (c) MS plate of 250x250x10 mm size (d) shovel teeth and spikes of carbon steel and (e) MS nuts and bolts, even while the same may be hidden under the coal bed on the conveyor. This shall be located before the tramp metal detector. Inline magnetic separator (suspended type)/cross belt type magnetic separator shall be provided for continuous and automatic extraction and discharge of tramp magnetic pieces from coal being discharged from conveyor as specified. The sets shall be complete in all respects with drives, magnets, hoppers, chutes, tramp-iron boxes and all electrical ancillaries like control panels etc.

3.0 Constructional features

- 3.1 In general, the equipment shall have all necessary technical features for its efficient and successful operation. It shall be complete with all accessories and facilities including, magnet coil, rectifier set, control panel along with supporting chain and power supply system. The equipment shall be self-cleaning type. A suitable arrangement shall be made to discharge the trapped iron pieces.
- 3.2 Magnetic core material shall be pure annealed iron or equivalent high permeability magnetic material. The coil shall be of aluminium wire Class-H insulation, to limit the absolute temperature of the winding to 140°C.
- 3.3 A minimum force index of 100,000 (product of flux density in gauss and rate of change of gauss) and a flux density of 1000 gauss shall be available at the lowest location (in hot running condition) in coal thickness all through the width of coal bed from where steel pieces are to be picked. Gauss visa distance curves of the magnet shall be submitted for CMPDI approval.
- 3.4 The cross section of magnet shall be suitably designed to provide sufficient area for magnetising the coil effectively covering full cross section of the discharged material.

- 3.5 The tramp magnetic piece picked up by the magnetic separator shall be discharged suitably to ensure that it falls into the tramp iron chute, which shall be provided up to ground level for discharge into a tyre-mounted trolley to facilitate disposal at designated place.
- 3.6 Bidder shall furnish justification supporting the selection of magnetic separator.
- 3.7 The chute work in the magnetic zone of the magnet shall be of nonmagnetic stainless steel.
- 3.8 The magnetic separator units shall be supported by suitable structural member from the top by taking support from the steel beams with turn buckle arrangement to facilitate the necessary adjustments during operation.
- 3.9 ON/ OFF control push button with indicating lamps shall be provided at the local station.
- 3.10 Suitable arrangement shall be provided in the magnet for keeping the coil of the magnet dry from atmospheric condensation when the magnetic separator is not in use.

4.0 Compliance with standard

The equipment design and construction shall comply with relevant IS or in its absence with equivalent international standard and up to date engineering practice.

SP/M-4**METAL DETECTOR****1.0 General**

The function of this unit will be to detect non-magnetic substances like manganese steel, brass, aluminium or any other metal that may come along with ROM coal. Metal Detector of coil type shall be provided. It should be capable of detecting the metal without obstructing the coal flow while the belt is running at its full capacity.

2.0 Compliance with standard

The equipment design and construction shall comply with relevant IS or in its absence with equivalent international standard and up to date engineering practice.

3.0 Duty requirement

Metal detectors shall have high reliability with enough sensitivity to detect 25mm aluminium sphere below the burden of coal in case of synthetic belting. However, for steel cord belting the sensitivity shall be 40mm. It shall also detect other metals, like brass, copper, stainless steel, manganese steel, bars, scraps etc. It should ignore magnetite/iron and shall distinguish between metal pieces and magnetite/iron.

4.0 Constructional requirement

- 4.1 Fibre glass enclosures shall be provided for all type of coils
- 4.2 Suitable tramp metal marker shall be provided
- 4.3 Local control panel shall be provided with IP-62 degree of protection

SP/M-5

MISCELLANEOUS EQUIPMENT

Compliance with Standards

The design, selection, and construction of equipment, components and material shall conform to relevant Indian Standard Specifications and Codes of Practice incorporating the latest revisions or in their absence to equivalent BS/DIN/AMERICAN Standards.

1. Hoists for Maintenance

1.1 Electric Hoist

These will be mono block type suitable for system requirement. They will be fitted on rollers travelling on suitable I – section.

The units will have two motions, one for lifting and lowering and the other for traversing forward and backward on I-section.

This device will be floor operated and will be placed over the overhead structures so that it covers the whole floor.

The capacity, lifting height, traversing distance, lifting speed and other technical parameters will be selected to suit the system designs. The supply will also include complete unit including power supply and structural portion.

The gear unit will consist of helical gear pinion. The gear unit provided shall be of reliable & maintenance free type. There will be a limit switch at highest and lowest positions of hook so that the hoist is protected from any damage due to over travel of the hook. The drum will be of fabricated steel construction having very high tensile strength. The drum should be provided with smooth machine-cut grooves. The hoist motor will be fan cooled rotor brake motor conforming to international standards.

This device will be floor operated and will be placed over the overhead structures so that it covers the whole floor.

The lifting height, traversing distance, lifting speed and other technical parameters will be selected to suit the system design. The supply will also include complete unit including power supply and structural travelling monorail portion.

1.1.1 Mechanical

1.1.1.1 Gear Box

The hoist shall be provided with a robust and compact gear boxes. The gears shall be EN8/EN9 and pinions of EN19/EN24 and made from precision hobbed gear cutting machine. The gear shall be fitted on solid pinion shaft rotating on Roller bearings of ample rating. The gear shall be combinations of

Spur/helical type. Hoist gear box shall be oil filled and the travel gear box grease filled type. Oil filled gear box shall be fitted with oil level indicator, breather etc.

1.1.1.2 Wire rope

The wire rope shall be of steel core, 6 x 37 construction, galvanized as per IS-2266(Current) shall be used. The size of wire rope used for hoisting operation shall meet the requirements of lifting of required weight.

1.1.1.3 Rope Drum

The rope drum shall be designed and machined as per Standard IS: 6938(Current). Proper rope guides shall be provided for proper rope receiving on the drum. The rope drum shall be manufactured from mild steel plates of suitable thickness. The drum shall be provided with smooth grooves for winding of rope. The drum dia. shall be as per relevant Indian standards.

1.1.1.4 Hook Block

The material shall be drop forged and mounted on the thrust roll bearings and heavy cross-head trunnions. The bottom block is enclosed safety type and guards against the rope jamming in normal usage. The sheaves shall be carried on suitable sealed or shield antifricition bearings. The hook shall be plain shank type. The Hook shall be proof load tested quality as per IS: 3815(Current).

1.1.2 Electrical

Hoists shall incorporate IEC frame size, squirrel cage induction motor, suitable for operation on 415V, 3phase, 50 Hz, AC power supply. Motor is TEFC, rated at 40% CDF, 150 Starts/ hr. and are of reputed make. Hoist motors shall be foot mounted type while the traverse motors will be of flange mounted. Hoist motors shall be coupled to the gear box through a flexible gear coupling.

1.1.2.1 Brakes

AC operated electro-magnetic fail safe type brakes rated as per IS: 3938(Current) shall be fitted. The hoist brake shall be from reputed make.

1.1.2.2 Operation & Control

The hoist shall be suitable to operate by means of pendant push-button station. The control circuit voltage shall be 24 V. The control panel shall be fitted on the hoist.

1.1.2.3 Control panel and switch gear

The switch gears shall consist of heavy duty Electro-magnetic over load relays, HRC fuses and step-down transformer. Wiring and terminal blocks shall be provided with properly numbered ferrules as per the circuit diagram.

1.1.2.4 Pendant - Push-button

Four button type; plastic molded, reputed make standard shall be used. The weight of the pendant push-button station shall be supported and independently from the cable by means of a wire rope.

1.1.2.5 Limit switches

Two nos. snap action limit switches to prevent over-hoisting and over-lowering shall be provided. Similarly limit switches shall be provided to avoid over traversing. The hoist shall be painted with two coats of Red-oxide primer and then with one coat of enamel paint. The hoist shall be suitably packed in a strong wooden case.

1.1.3 Load Test

All hoists and hoisting systems will be load tested to the relevant Indian Standards before use and test certificates provided. Necessary approval of the statutory authority will also be arranged by the bidder.

1.2. Chain pulley block

In addition to the provision of electric hoists, chain pulley blocks of suitable capacity will also be provided at take-ups and also at places wherever required for effective maintenance of equipment. The number and capacity will be fixed during detail design stage. The chain pulley block shall have chain & wheel facility to move in horizontal and vertical locations.

The effort required at pulling chain will not be more than 25 kg at full load and speed. The hanging structures will have an outside projection for easy handling of material. The supply will include complete chain pulley block with hanging structure.

All hoists and hoisting systems will be load tested to the relevant Indian Standards before use and test certificates provided.

Necessary approval of the statutory authority will also be arranged by the bidder.

2.0 Chutes and Liners

2.1 General

2.1.1 All the transfer chutes will have a sloping angle of 55° minimum. The chutes will be constructed in such a way that no off centre loading on the belt takes place and material is fed in the direction of the motion of belt. The chutes will be fabricated from 10 mm thick MS Plates by electric welding as per relevant IS Code of practices. These will be provided with necessary stiffeners and brackets for supporting from the adjacent structures.

The high impact zone (primary impact) of the chute, where material directly impacts from discharge pulley, shall be provided with abrasion resistant steel (having BHN 500) impregnated with rubber liner with steel backing plate. At secondary impact zone, the liner shall be provided with rubber liner with steel backing. In addition, all rubber liners shall be steel-backed. For the flow zone,

ceramic cylinder embedded rubber liner of minimum 25mm shall be provided to enhance flow area.

The minimum thickness of the rubber liner at high impact zone and secondary impact zone will be minimum 80mm & 60mm respectively with shore hardness of $68 \pm 5^{\circ}$ Shore A. The liner plate will be high pressure moulded to ensure uniform curing of thick sections. For all impact areas, the liner plates will be of standard size and replaceable plate wise for ease of maintenance. For non-impact areas, where only fine particles of coal are supposed to fall should be lined with polymer liner plates of 40mm thickness.

- 2.1.2 The liners will be fastened with a flexible system to minimise instantaneous impact and hence reduce the wear rate. The fastening system will be either through bolting or stud welded bolting for quick installation. For all impact areas the bolt heads will be protected by a rubber plug.
- 2.1.3 The liners are meant to be used in the chutes which may have to handle coal from Underground mines and lumps up to 150 mm in size. The other parameters like speed, capacity height of all etc. can be seen in data sheet of conveyors and drawings. The crushed coal may contain sandstone and shake up to 30%. During the rainy season the material will have considerable moisture. The liner should be designed keeping all the above things in view. The working atmosphere will be dusty, temperature will range between 4°C and 50°C and relative humidity up to 100%.

Care shall be taken so that the trajectory of coal coming from the belt does not impinge excessively on the side of the chute. Chute block switches shall be provided in all chutes.

2.2 Duty condition

Coal from underground mines of the given characteristics are required to be conveyed with speed, capacity and height of fall etc. as indicated in the enclosed drawings. Taking into consideration the above facts and the possible coal discharge profile, chutes and liners of suitable size, type and thickness are to be designed and offered. The coal also may be considerably wet during rainy season. The liner thickness etc. shall be designed to give a minimum guaranteed life of 15.0 Mt of coal handled or one-year production (Mty) which is more. The working atmosphere may be dusty and surface temperature up to 50°C. The relative humidity may be up to 100%. Care shall be taken so that the trajectory of coal coming from the belt does not impinge excessively on the side of the chute.

2.3 Codes & standards

Design and manufacture of the chutes & liners shall conform to relevant Indian Standards or in their absence with equivalent International standards applicable.

2.4 Hardware

- All bolts, nuts, washers, CSK bolts will be of high quality, only
- Unlock nuts and adequate thick washers will only be used, for jointing subassemblies.

- All hardware shall be procured from reputed suppliers and test certificates shall be submitted. No testing will be done on these items.

2.5 Design criteria for chutes

The main points to be considered while doing the design of chutes are as follows:

- The transfer chutes shall be properly designed for efficient flow of material keeping in view the elevations shown in the sectional drawings, trajectory of the material, speed of the belt etc.
- The chutes shall be fully enclosed. These shall include covering the full length of the skirt of the receiving conveyors and feeders with M.S plates.
- The chutes shall be bolted to the skirt boards for preventing any dust from escaping out from the transfer points. In case it is not possible to bolt the chute with skirt plates necessary dust seals shall be provided between the skirt plates and chute plates.
- In case of mechanical equipment, the in feed and off take chutes shall be bolted to the equipment body as per the equipment manufacturer's recommendations.
- The chutes shall match the supporting structures and skirt boards of the conveyors and other equipment in the coal handling plant into which either they feed or from which they collect.
- Due care shall be given to trajectory of the material from the discharge pulleys of the conveyors and also from other equipment.
- Chute angles must be sufficient to avoid any probable choking. For calculating such angles, factors like presence of surface moisture in coal because of climate, dust suppression arrangement, co-efficient of friction between coal and liners etc. shall be made. In any case, chute angles shall not be less than 55°.
- Discharge velocity and direction of flow of the material from the chute shall match to the extent possible to the speed and direction of the receiving conveyor to minimize drag and spillage of material at the transfer points.
- Chutes shall be designed in such a way that the material by and large is not discharged on the impact idlers of the conveyor. The loading shall be at least 100 to 200 mm away from the preceding impact idler of the belt conveyor to avoid any damage to the belt. The material shall be discharged centrally on the conveyor or equipment.
- Chute design shall be in co-ordination with the design of dust suppression system which are also within the scope of this tender.
- The design of chutes shall not allow any dust to escape from the transfer points while it is working in conjunction with dust suppression system.
- The chutes shall have proper brackets for fastening the same with structures.
- The skirt boards of the conveyor at transfer/loading point shall be as per conveyor manufactures' recommendations.
- Leather/belt flaps of bolted type shall be provided near the place where the material enters the chute to avoid any dust nuisance.
- Chutes shall be designed in such a way that belt cleaners/scrapers can be installed and replaced easily without need for dismantling the chutes.

2.6 Design criteria for chute liners

The main points to be considered while doing the design of chute liners are as follows:

- The liner thickness shall be so selected that it will give maximum working life. The contractor shall indicate the basis of liner thickness selected.

- The liner plates shall be fixed with the mother plates with adequately sized CSK bolts.
- By and large the contractor shall use minimum varieties of liners as far as sizes of liner plates are concerned to deal with either impact or abrasion as the case may be, but stick to only one thickness and size for each type to minimize inventory.
- All liners shall be of replaceable type. Welding or any type of permanent fixing with the mother plate shall not be used.

2.7 Fabrication and erection criteria of chutes

- The chutes shall be constructed / fabricated from M.S. plates of minimum 10 mm thick. These shall be adequately stiffened to meet the duty conditions. The M.S. plate shall conform to relevant IS Code of Practice.
- Each chute shall be divided into sub-assemblies for ease of transport, assembly, handling, erection, replacement of liners etc. sub-assemblies shall be connected to each other through flanges by bolts and nuts. The bolts shall not be less than M 12 size.
- Each sub-assembly shall be made up of basically two types of chute plates,
 - tray type and plate type.
- The chute plates shall be joined by continuous welds and flanges of the angles shall be joined together by intermittent welding of min. 6mm fillet, 50mm long leaving gaps of max. 100mm ensuring that welding starts from the ends. However, if the design requires, the length of welds may be increased.
- To avoid any leakage of dust and to prevent noise, at the joints between two sub-assemblies effective packing material shall be provided.
- There shall be adequate clearances from all moving/rotating parts of conveyors and other equipment into which the chutes will either feed or collect the material. This clearance shall be min. 50mm. Where it is not possible to have 50mm clearance, a clearance not less than 20mm shall be maintained.
- Hinged type inspection doors shall be provided on all the chutes. There shall not be any leakage of dust from the doors. The doors shall be easily accessible and shall be provided with rubber gaskets.
- Lifting hooks/lugs shall be attached at required places of heavy subassemblies for lifting them as a unit as and when required.

3.0. Sump Pump

Sump pump will be provided complete with drives, control system, pipes, valves etc. The pumps will be non-clogging type and will automatically stop and start at specified low and high levels of water in the drain pits respectively.

The pump will be slurry pump of minimum 50 m head and discharge 10 LPS with stainless steel impellers. The pumps should be also to draw water from specified locations and should be able to pump in to the drainage system of the project or plant.

The pumps should be capable of handling slurry mixed with coal particles up to max.15 mm size.

The casing will be of abrasive resistant casting with BHN not less than 300. The pump casing will be submerged in the sump while the motor would be placed on the floor above. However, a drawing showing the complete arrangement of the system should be furnished.

The suitable size of inlet and outlet, type of foot valve strainer, medium duty GI pipes, hoses and other valves should be used.

The sump pump shall be provided at suitable locations.

6.0 Noise and vibration control

It is a fact that noise pollution causes fatigue to operation personnel. Every effort will be made to keep down the noise Level to the extent it is feasible. All machine mounting will have suitable arrangement for reducing the vibration and thereby noise. All transfer chutes within synthetic/Rubber lining. The noise level near the noise generating points will be maintained below 75 dB as per relevant Indian/ International standards.

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MAINTENANCE & SAFETY

1.0 Safety Precautions and Provisions

- 1.1 Access Handrails, intermediate rails and toe-boards shall be fitted to all sloping walkways and walkways from which a person is likely to fall a distance of more than 2 m on the side remote from the conveyors in addition to any handrail which may be required to guard the conveyor. The top rail shall normally be 1 m above the level of the walkways. A toe board shall be placed at floor level, on walkways and stairways. With respect to the height of toe boards attention is drawn to the requirement of legislation relevant to the application.

Access underneath the conveyor, where the clearance is greater than 700 mm and less than 2 m or where there is a danger of person falling into an open space shall be prevented by suitably placed rails. Where access is allowed underneath the conveyor guarding shall be provided.

- 1.2 Guards shall be provided at all nip points where belts wrap around pulleys and at nip points occurring at accessible carrying and return idlers at or near convex curves and at other points where an upward movement of the belt may be restricted by means other than the load (such as at loading points chutes and skirt plates). Guards shall either prevent access to the nip point or extend at least 1 m from it.
- 1.3 Guards shall be provided at and shall totally enclose, rotating shafts and couplings, chains and chain wheels, gears and power transmission belts and pulleys.

Guards may be of perforated or imperforated construction and shall be of adequate rigidity and strength for the situation in which they are employed if of perforated construction, they shall comply with the requirements of 1.4 & 1.5. If any openings are provided for the insertion of cleaning bars they shall comply with the requirement of 1.4 If any openings are provided for the insertion of cleaning bars they shall comply with the requirements of 1.5

Guards shall be securely fixed in position and shall be capable of being removed and replaced without dismantling any other part.

- 1.4 **Size of mesh or openings (Other than for Cleaning Bars) and clearance:**

Perforate guards may be manufactured from perforated sheet, expanded metal woven wire, metal lattice or similar materials and the openings in such guards (other than for the insertion of cleaning bars) and the minimum clearance between the guards and any moving parts shall be in accordance with the requirements of table given below:

- 1.5 **Opening for Cleaning Bars:**

Slots not exceeding 30 mm wide and suitably reinforced, may be provided in guards for the insertion of bars for cleaning. The minimum distance between any moving part of the conveyor and any part of the slot shall be 300 mm.

1.6 Reversible shuttle conveyors:

1.4 & 1.5 apply to reversible shuttle conveyor. In addition, the following requirements apply:

Access: Where there would be danger of trapping a person between a moving tripper or shuttle conveyor and any fixed object other than its track, there shall be a minimum clearance of 500 mm

Size of opening	Minimum Clearance
Not exceeding 10 mm	25
Over 10 mm up to and including 13 mm	65
Over 13 mm up to and including 30 mm	100
Over 30 mm up to and including 38 mm	130

Guards: Provision shall be made to prevent any trapping between the travelling wheels and the rails. Rail clamps shall be provided for the trolley of tripper for safety purposes.

Emergency Stopping and Safe Re-Starting: Suitable means shall be provided for stopping the conveyor in an emergency at any point throughout its length. Provision shall also be made for safe re-starting.

- 1.7 The whole conveyor path, especially the loading, unloading and transfer points shall be designed to avoid spillage of conveyed material as much as possible. Zero spillage shall be aimed in places where the conveyor path is passing over areas in the steel plants in which personnel work or frequent.
- 1.8 Conveyor belts shall be of sufficient width to suit the designed load requirement for the material to be conveyed. Guiding and centring devices shall be provided for the material at the feed points and along the belt at suitable locations.

In case of inclined conveyors, the slopes and characteristics of conveyors shall be selected so as to avoid slipping and / or dropping of the conveyed product under normal working conditions.
- 1.9 To prevent running backward or forward of inclined/declined conveyors, a safety device shall be provided. Belt conveyor components shall be suitably guarded.
- 1.10 **Safe Access:** Provisions laid down in IS-7155: 1974 shall be followed. The design of galleries and tunnels shall be in accordance with civil scope of works. Sharp edges and corners shall be avoided in the areas normally accessible to personnel between the floor and a height of 2 m.
- 1.11 Sequence interlock shall be provided at every loading point, discharge point, etc. so that no conveyor is able to feed material to a conveyor or hopper which is in operative or has reached its full capacity.
- 1.12 Audible or visual signals shall be provided along the length of conveyors so that operator is able to give adequate warning to personnel in the vicinity of conveyor installation, about the imminent starting of conveyor system.
- 1.13 In case of mobile trippers and shuttle conveyors, the area of travel shall be suitably guarded and these shall be provided with warning signs and

appropriate audio visual warning system for use before starting the conveyor/tripper.

- 1.14 Inspection door shall be provided in hoppers and chutes.
- 1.15 Adequate lighting provision shall be provided in galleries and junction houses for natural lighting. For night operations, the lighting arrangements shall conform to IS:3646 –1986 'Code of Practice for interior illumination: Part 1 Principles of good lighting and aspects of design, IS:3646-1968 'Code of Practice for interior illumination Part 3 calculation of coefficients of utilization by the BZ method'
- 1.16 **Fire Protection:** Adequate fire protection facilities such as fire alarms and adequate no of fire extinguishers shall be provided at all junction houses, galleries, sub-stations etc.
- 1.17 Adequate ventilation facilities shall be provided to protect men and equipment.

2.0 Marking of Controls:

- 2.1 All controls shall be marked with the words appropriate to the function they control, such as stop, start, forward, reverse, raise or lower. Arrows indicating the direction of travel control shall be provided at all forward and reverse controls.
- 2.2 **Location of signs** – Each stop control shall be readily accessible and shall be indicated by a standard or uniform type signs erected in suitably conspicuous positions and shall have letters not less than 15 mm high.
- 2.3 For pull cord controls, signs shall be erected at suitably and clearly visible positions along the length of the conveyor, or at any other location where pull cord is installed, at intervals not greater than 30 m apart and labelled Conveyor Stop.
- 2.4 **Communication** – Suitable means for communication from each conveyor head end and junction tower to various offices shall be provided. For this public address system (speakers at various points with microphones at important locations) may be adopted.

3.0 SAFETY GUARDS:

- 3.1 Guards shall be designed to prevent injury to persons and shall be provided at every dangerous part of equipment normally accessible to personnel. They shall be designed to form part of the equipment and shall not in themselves create hazards.
- 3.2 Guards shall be provided to prevent accidental contact by persons or parts of clothing being caught in equipment. All guards shall comply fully with the requirements of the relevant statutory authority.
- 3.3 All sheet metal guards shall be aluminium. All guards shall be painted safety yellow.
- 3.4 Lifting handles or lugs shall be provided where required for the safe removal or opening of guards.
- 3.5 The tops of coupling guards and brake guards shall be readily removable by hand by one person without the use of tools.

- 3.6 It shall be possible to inspect brakes for adjustment, lining wear, etc., without prior removal of brake guards being necessary.
- 3.7 Name plates, warning signs or other data affixed to drive components shall not be obliterated or covered by parts of the guards.
- 3.8 Where removal of the guard is infrequent for inspection or maintenance purposes, it shall be fixed in position so that it can not readily be removed without the use of tools.
- 3.9 Fixed guards shall be provided where the equipment can be serviced without the removal of the guards. Removable guards or removable inserts to fixed guards shall be installed where normal maintenance, "V" belt tension inspection or cleaning is carried out. These shall be installed in a manner acceptable to the relevant Statutory Authorities and shall be clearly labelled: "DANGER ISOLATE DRIVE BEFORE REMOVING GUARD".
- 3.10 Design and construction of guards, personnel reach dimensions and acceptable distance between guards and danger points shall be as defined by relevant standards or statutory requirements.
- 3.11 Where required for inspection or maintenance purposes, hinged inspection doors may be provided in the guard, hinged in such a way that there will not be a tendency for the door to be left in the open position.
- 3.12 Guards shall provide for tachometer access to rotating shafts.
- 3.13 Guards with any dimensions in excess of 1800 mm shall be easily assembled in component parts that do not exceed 60 Kg mass. All component parts of the guard shall interlock together to form a rigid and safe assembly.
- 3.14 Guards on conveyors shall be designed, constructed and installed in accordance with relevant Indian Standard.
- 3.15 Solid sheet metal guards shall be provided for all fluid couplings which are provided with fusible plugs. A catch tray having a capacity of at least 125 % of the maximum fluid capacity of the coupling shall be provided beneath the guard and coupling. Should guard ventilation be necessary, this shall be provided on the opposite side to the fusible plug.

Other sheet metal guards shall be provided with at least one mesh panel at the upper part of the guard to allow ventilation and inspection of the guarded components. Location of this panel shall not allow water drip or splash to enter the guard. V- belt guards shall have solid edges and mesh sides to ensure V- belt ventilation.

4.0 SAFETY AND IDENTIFICATION SIGNS:

- 4.1 Safety and identification signs shall be placed on all equipment, conveyors and work areas. All signs shall be painted with luminous paint on 2.5 mm minimum thickness brass or stainless steel sheet.
- 4.2 Identification signs shall be bold lettering (minimum of 50 mm high) on a white background. Each item of equipment shall be clearly identified with a minimum of two signs.
- 4.3 Conveyors shall also have signs to identify (These signs shall be located on both sides of the conveyor)
 - a. Head location

- b. Tail location
- c. Take up mass tonnes
- d. Drive number
- e. Conveyor number at 20 m intervals along the conveyor

4.4.1 All equipment and work areas shall have signs for:

- a) Hearing protection
- b) Warning that equipment may start without notice
- c) High voltage
- d) Eye protection.

5.0 Maintenance facilities in conveyor system

5.1 Sufficient space shall be provided for replacement of pulley by lifting it vertically above its mounting. In case of constraint of head room sufficient space shall be provided on the non driving side of the pulley so that the replacement of the pulley can be done from that side of the pulley. In such case minimum clear space shall be equal in the length of the pulley over its shaft plus 500mm.

5.2 A minimum 1000mm clear space around drive mechanism shall be provided.

5.3 A suitable platform near expansion joint gallery for inspection and maintenance of supporting rollers and connected parts.

6.0 Hoisting Mechanism

6.1 Hoisting mechanism shall be used in activities such as replacement over haul of drive pulleys, gear boxes, motors, etc. the mechanism shall be appropriate for handling different heights.

6.2 At the tail end of the conveyors a suitable lifting beam shall be provided.

6.3 Suitable lifting facility at inter- mediate locations along the conveyor shall be provided if required.

6.4 Lifting beam shall be provided above the take-up pulley of vertical gravity take-up unit.

6.5 The individual weights of the take-up unit shall be easily replaceable by manual effort and shall not weigh more than 50 Kg. each.

7.0 Replacement of belts.

7.1 The methodology of replacement of belts in conveyor system shall vary for different layouts. Sufficient space behind the tail end shall be provided so that the new belt can be spread there suitably. In place where spreading of belt would not be necessary provision for anchoring the stand (for keeping the roll of the belt) shall be made. The roll stand shall be designed taking into consideration the width of the belt, the maximum diameter of the roll and the maximum weight of the roll.

7.2 Idlers and guide rollers shall be provided behind tail pulley, counter weights structures and opening through which the new belt would enter the gallery to ensure smooth mounting and minimising possibility of damage to the new belt.

- 7.3 The suspenders of the counter weights of the take up units shall be located at a distance not less than belt width plus 100 mm.
- 7.4 In case of under ground conveyor and other conveyors, where ever required suitable opening matching with the centre line of the conveyor shall be provided for introducing the new belt and removal of used belt.
- 8.0 **General Provisions:**
- 8.1 Suitable provision for suppression and extraction of dust shall be made
- 8.2 The design of the bearing blocks and the side cover permit visual inspection of the bearings
- 8.3 Suitable inspection schedule for preventive maintenance shall be furnished.
- 8.4 Provision of Sump, Pump for dewatering of under ground premises and suitable sweep chutes for disposal of fine dust from the floors shall be made.

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Inspection and Quality Control before Despatch

This is applicable for all the equipment to be supplied except conveyor & belting. Inspection and Quality Control before Despatch for conveyor and belting has been included along with their specifications.

1.0 Inspection and Quality Control before Despatch

i) Special Material

The manufacturer should furnish during inspection without extra charge test certificates covering mechanical properties and chemical composition for special raw materials used including that of liners. The certificates should be from the accredited testing laboratories like CMERI, Durgapur, NPL, New Delhi. etc. If considered necessary, samples for material may be selected as per IS: 1548 (Current) by the Employer's representative from amongst the raw materials and manufactured components of equipment and got tested in the approved laboratory. In case samples so selected fail to meet the standard specifications the whole lot of manufactured components will be rejected and disqualified for use again for any of the Employer's supplies.

ii) Stage Inspection

Employer reserves the right to carry out inspection at any stage of the process of manufacture and assembly for which all facilities will be provided by the Contractor. Before carrying out such inspection, necessary information will be given to the manufacturer by the Contractor.

iii) Availability of Standard Specification Meters, Gauges etc. for Testing & Inspection.

The manufacturer will maintain all relevant standards and codes of practice for manufacture, inspection and testing of components of the equipment ordered. He will also maintain a set of meters, gauges etc. as may be required for testing and inspection of components.

2.0 Checks during inspection

The details of the checks to be carried for various components are to be submitted by the contractor for Owner's approval. However, some indicative checks on different items are given below which should necessarily form part of the quality assurance programme to be agreed with the Owner.

2.1 All plates above 20mm thickness to be ultrasonically tested for laminations.

After forgings and castings to be checked for hardness, microstructure and ultrasonic testing in addition to check for chemical and mechanical properties

2.2 Following minimum NDT requirements to be ensured for welds.

i) Butt welds : 10 % Ultrasonic / Radiographic and 100 % MP/ DP test

ii) Fillet welds : 10% Magnetic Particle/ DP test

SUB-SECTION-7.4.2

TECHNICAL SPECIFICATION- ELECTRICAL

SUB-SECTION – 7.4.2

TECHNICAL SPECIFICATIONS (ELECTRICAL)

- 1.0 **GENERAL INFORMATION**
- 1.1 The supply and installation of electrical equipment specified herein are required for both indoor and outdoor.
- 1.2 The successful tenderer shall furnish all, but not limited to, equipment, materials and accessories and services specified herein to complete this work. The work shall have to be completed and operative in all details. Any item of work or material which may not have been specifically mentioned but incidental to or necessary for complete installations and operation shall be provided by the Bidder without any additional charge to the purchaser.
- 1.3 The successful tenderer shall supply and/or erect the addition or modification as will be agreed upon in writing after mutual discussion.
- 1.4 The equipment to be furnished under this specification shall be packaged for shipment so as to meet the space and weight limitations to transport facilities, right up to destination.
- 1.5 **STANDARDS**
- 1.5.1 The equipment and materials to be furnished shall be designed, manufactured and tested in accordance with the latest revisions of the Indian Standards (IS). Where Indian standards are not available International standards like British Standards (BS), ISO, DIN, JIS or Other standards and International Electro-Technical Commission (IEC) publications unless otherwise stated, which ensures performance equivalent or superior to Indian standard shall be followed.
- 1.5.2 The equipment conforming to any other national standard which ensures equivalent quality is also acceptable. In such cases the tenderers shall clearly indicate the standards adopted and furnish a copy of the English Version of the Standard along with the tender.
- 1.5.3 The equipment covered under these specifications shall comply with all the latest applicable statutory rules, regulations, acts and safety codes which may be in force during the period of execution and which are related with design, construction and operation of equipment in the locality where the equipment is to be installed.
- 1.5.4 The electrical installation shall meet the requirement of Indian Electricity Act 1910 and Indian Electricity Rules, 1956 as amended up-to-date, Mines Rules and Regulations (latest revision) and also the applicable section of the latest revision of the relevant IS code of practice.
- 1.5.5 Nothing in these specifications shall be construed as to relieve the supplier of the responsibility for correctness of the design and construction of the equipment. All the standards being followed shall be listed out in the bid. Where any foreign standard is being followed, the copy of the same shall be provided with the bid.

- 1.5.6 Wherever service conditions and requirements laid down in these specifications differ from applicable standards, the conditions specified herein shall prevail.
- 1.5.7 Distribution Transformers upto and including 200 kVA, Tubular Fluorescent Lamps, Ceiling Fans, Air Conditioners etc. shall bear minimum 3-star BEE labeling, whereas, LT motors shall be of 3-star rating specified by BEE or equivalent.
- 1.5.8 In addition, any relevant regulations applicable to the work shall be followed. In case of any discrepancy, the decision of purchaser will be final.

1.6 **SERVICE CONDITIONS**

Ambient air temperature :	4°C to 50°C.
Altitude :	Maximum upto 1000 M above MSL.
Relative Humidity :	100%.
Pollution degree :	Degree 4 as per IS: 13947 (Part I) (i.e. the pollution generates persistent conductivity caused by conductive dust)

1.7 **INSPECTION**

The manufacturer shall carry out a comprehensive inspection and testing program during manufacture for all bought out items and also workmanship during this stage. The manufacturer shall submit the inspection program at least four weeks prior to the purchaser.

The manufacturer shall carry out all standard routine tests in accordance with relevant IS. The manufacturer shall also carry out type tests in accordance with relevant IS on one piece of one rating. While the routine tests shall be carried out at manufacturer's works under prior information to purchaser, the type test certificates from reputed test houses shall be submitted for purchaser's approval giving details of each test and evaluation of test data.

Tests which are common to both type and routine tests may be covered under routine test in the presence of purchaser's representative, if required.

1.8 **TEST CERTIFICATE**

The equipment covered under these specifications shall be Type tested in accordance with relevant codes. The bidder shall supply at the time of execution the routine test certificates from the manufacturer indicating the type of tests conducted and the test results in accordance with relevant codes.

1.9 **OPERATING CONDITIONS**

Nominal system Voltage	415 V ($\pm 10\%$)
Supply Frequency	50 Hz ($\pm 3\%$)
Highest Fault Level	31 MVA
System earthing	Solid earthed

LIST OF SPECIFICATIONS- ELECTRICAL

Sl. No.	Item Description
SP/E-01	Motor Control Centers and Distribution Boards
SP/E-02	415 V kV Capacitor Banks
SP/E-03	Earthing & Lightning Protection System
SP/E-04	Local Control Station
SP/E-05	Local Motor Starter
SP/E-06	Main Lighting Distribution Boards (M.L.D.B.), LDBs
SP/E-07	MCCB
SP/E-08	MCB
SP/E-09	415 V Power Receptacles
SP/E-10	Lead Acid Battery with Charger
SP/E-11	Cables
SP/E-12	Accessories of Cabling
SP/E-13	Miscellaneous Items

Specification NO. SP/E-01**2.0 SPECIFICATION FOR 415 VOLT MOTOR CONTROL CENTRE AND DISTRIBUTION BOARDS****2.1 SCOPE**

This specification covers requirements for 415 V Switch Boards/Motor Control Centre (MCC) incorporating circuit breakers or fuse switch units or any combination of these.

The Boards/MCC shall comply with the latest version of IS 8623 & IEC 439-1 except where modified or extended by this specification and with the relevant parts of standards mentioned in clause 4.2.8.2

2.2 OTHER RELEVANT STANDARDS

The other relevant standards applicable are as under:

- IS: 13947 LV switch gear and control gear
- IS: 10118 Code of practice for selection, installation and maintenance of switchgear and control-gear
- IS: 4237 General requirements for Switchgear and Control gear for voltages not exceeding 1000 V.
- IS: 6875 Switches and push-buttons
- IS: 13703 LV fuses for voltages not exceeding 1000 V AC
- IS: 12021 Specification of control transformers
- IS: 2705 Current Transformers
- IS: 3156 Voltage Transformers
- IS: 11353 Guide for uniform system of marking and identification of conductors and apparatus terminals
- IS: 2147 Degree of protection provided by enclosures for low voltage switchgear and Control gear
- IS: 3043 Code of practice for earthing
- IS: 6005 Code of practice of phosphating iron and steel.
- IS: 3202 Code of practice for climate proofing of electrical equipment
- IS: 2629 Hot dip galvanising
- IS: 5082 Wrought Aluminium and Aluminium alloys for electrical purposes
- IS: 722 A C Electricity Meters
- IS: 1248 Electrical Indicating instruments
- IS: 3231 Electrical relays for power system protection

IS: 5	Colours for ready-mixed paints and enamels.
IS: 1554	PVC insulated cables for working voltages up-to and including 1100V
IS: 2551	Danger Notice Plates
IS: 8544	AC motor starters of voltage not exceeding 1000 volts
IS: 8686	Static Relays
IE Rules 1956	

2.3 CONSTRUCTIONAL DETAILS OF SWITCHBOARDS/MCC

- i. All Switchboards, i.e., 415 V Switchgears, Motor Control Centre (MCCs), A.C. Distribution Boards (ACDBs) shall be of metal enclosed, indoor, floor-mounted, single front, free-standing type. Each panel shall comprise one or more of the modules mentioned in Annexure-A.
- ii. All switchboard frames and load bearing members shall be fabricated using suitable mild steel structural sections or pressed and shaped cold-rolled sheet steel of thickness not less than 2.0 mm. Frames shall be enclosed in cold-rolled sheet steel of thickness not less than 1.6 mm. Doors and covers shall also be of cold rolled sheet steel of thickness not less than 1.6 mm. Stiffeners shall be provided wherever necessary. The gland plate thickness shall be 3.0 mm (minimum) for hot/cold rolled sheet steel and 4.0 mm (minimum) for non-magnetic material.
- iii. All panel edges and cover/door edges shall be reinforced against distortion by rolling, bending or by the addition of welded reinforcement members. The top covers of the panels should be designed such that they do not permanently bulge/bend by the weight of maintenance personnel working on it.
- iv. The complete structures shall be rigid, self-supporting, free from flaws, twists and bends. All cutouts shall be true in shape and devoid of sharp edges.
- v. All switchboards shall be of dust-proof and vermin-proof construction and shall be provided with a degree of protection of IP 52 as per IS: 2147. However, the busbar chambers having a degree of protection of IP 42 are also acceptable where continuous busbar rating is 1600 A and above. Provision shall be made in all compartments for providing IP 52 degree of protection, when circuit-breaker or module trolley has been removed. All cutouts shall be provided with synthetic rubber gaskets. The switchboards which are meant for outdoor duty shall be provided with degree of protection of IP 54 as per IS: 2147.
- vi. Provision of louvers on switchboards would not be preferred. However, louvers backed with metal screen are acceptable on the busbar chambers where continuous busbar rating is 1600 A and above.
- vii. The switchboard shall be of uniform height.
- viii. Switchboard shall be extendable on both sides by the addition of vertical sections after removing the end covers.

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- ix. Switchboard shall be supplied with base frames made of structural steel sections along-with all necessary mounting hardware.
- x. All switchboard shall be divided into distinct vertical sections (panels), each comprising of the following compartments.
- a) **Busbar Compartment**
- A completely enclosed bus bar compartment shall be provided for the horizontal and vertical busbars. Bolted covers shall be provided for access to horizontal and vertical busbars and all joints for repair and maintenance which shall be feasible without disturbing any feeder compartment. Auxiliary and power busbars shall be in separate compartments.
- b) **Switchgear/feeder Compartment**
- All equipment associated with incomer or outgoing feeder shall be housed in a separate compartment of the vertical section. The compartment shall be sheet steel enclosed on all sides with the withdraw-able units in position or removed. Insulating sheet at rear of the compartment is also acceptable. The front of the compartment shall be provided with the hinged single leaf door with captive screws for positive closure.
- c) **Cable Compartment or Cable Alley**
- A full-height vertical cable alley of required width shall be provided for power and control cables. Cable terminations located in cable alley shall be suitably shrouded to prevent accidental contact by falling of tools etc. For distribution boards, the partition between the feeder compartment and cable alley made of FRP sheet shall be provided. Cable alley door shall be hinged.
- d) **Control Compartment**
- A separate compartment shall be provided for relays and other control devices associated with a circuit breaker.
- xi. Sheet steel barriers shall be provided between two adjacent vertical panels running to the full height of the switchboard, except for the horizontal bus bar compartment.
- xii. After isolation of power and control circuit connections it shall be possible to safely carryout maintenance in a compartment with the bus bar and adjacent circuit live. Necessary shrouding arrangement shall be provided for this purpose. Wherever two breaker compartments are provided in the same vertical section, insulating barriers and shrouds shall be provided in the rear cable compartment to avoid accidental touch with the live parts of one circuit when working on the other circuit.
- xiii. 415 V MCCs and ACDBs shall be of single-front construction. All single-front switchboards shall be provided with single-leaf, hinged or bolted covers at the rear. The switchboard shall be provided with "DANGER" labels.

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- xiv. All 415 V circuit breaker modules shall be of draw-out type having distinct 'Service' and 'Test' positions. For modules of size more than half the panel height, double guides shall be provided for smooth removal or insertion of module.
- xv. Each switchboard shall be provided with undrilled, removable type gland plate which shall cover the entire cable alley. Sufficient cable glanding space shall be provided. The gland plate shall preferably be provided in two distinct parts for the ease of terminating additional cables in future. The gland plate shall be provided with gasket to ensure enclosure protection.

xvi. **Clearances**

The clearance and dimensions of all electrical component inside the module/ switchboard shall be as per relevant IS. All connections from the bus bars up-to switch/fuses shall be fully shrouded/insulated and securely bolted to minimise the risk of phase to phase and phase to earth short circuits.

2.4 POWER BUSBARS AND INSULATORS

- a. All 415 V Switchboards, MCC and ACDBs shall be provided with three phase and neutral bus bars.
- b. All bus bars and jumper connections shall be of high conductivity aluminium alloy/copper of adequate size.
- c. The cross-section of the bus bars shall be uniform throughout the length of switchboard and shall be adequately supported and braced to withstand the stresses due to the specified short circuit currents. Neutral bus bar short circuit strength shall be same as main bus bars.
- d. All bus bars shall be adequately supported by suitable non-hygroscopic insulators. Separate supports shall be provided, for each phase and neutral bus bar. The bus bar insulators shall be supported on the main structure.
- e. The overlap of the bus bars at each joint surface shall be such that the length of overlap shall be equal to or greater than the width of the bus bar. All copper to aluminium joints shall be provided with suitable bi-metallic washers.
- f. All bus bars shall be color coded as per IS: 375.
- g. The neutral bus in MCC shall be connected to earth bus at two points by separate vertical droppers which shall be insulated from MCC enclosure. The neutral bus shall not be earthed in all the other boards in which incomers are not from transformers.

2.5 AUXILIARY BUSBARS AND CONTROL TRANSFORMERS

- **Control Transformers and AC Control Supply Bus bar**

The bus-section of all Switchgears and MCC shall be provided with one (1) no. 415 V/110V control transformer dry type, of insulation class B or better. The 110 V AC control supply from the control transformer shall be run

through the MCC by means of one set of control supply bus bars of electrolytic copper. The control supply to different modules shall be tapped individually from the control supply bus bars. One pole of secondary winding of control transformer shall be solidly grounded through a test link. The transformer body shall be earthed at two points.

- **DC Control Supply**

415 V/220V control transformer with converter unit shall be provided for PLC based control system in the MCC.

2.6 EARTH BUS AND EARTHING

- i. A galvanized steel earth bus shall be provided at the bottom of each panel and shall extend throughout the length of each switchboard. It shall be welded/bolted to the framework of each panel and breaker earthing contact bar. Vertical earth bus shall be provided in each vertical section which shall in turn be bolted/welded to main horizontal earth bus.
- ii. The earth bus shall have sufficient cross section to carry the momentary short circuit and short time fault current to earth, without exceeding the allowable temperature rise.
- iii. Suitable arrangements shall be provided at each end of the horizontal earth bus for bolting to earthing conductors. The horizontal earth bus shall project out of the switchboard ends and shall have predrilled holes for this connection. All joint splices to earth bus shall be made through at-least two bolts and taps by proper lug and bolts connection.
- iv. All non-current carrying metal work of the switchboard shall be effectively bonded to the earth bus. Electrical conductivity of the whole switchgear enclosure framework and truck shall be maintained even after painting.
- v. All metallic cases of relays, instruments and other panel-mounted equipment shall be connected to earth by independent stranded copper wire of size not less than 2.5 sq. mm. All the equipment mounted on the door shall be earthed through flexible wire/braids. Insulation color code of earthing wires shall be green. Earthing wires shall be connected to terminals with suitable clamp connectors, soldering is not acceptable. Looping of earth connections which would result in loss of earth connections to other devices, when a device is removed, is not acceptable.
- vi. VT and CT secondary neutral point earthing shall be at one place only, i.e., on the terminal block. Such earthing shall be made through links so that earthing of one secondary circuit shall be removed without disturbing the earthing of other circuit.
- vii. All hinged doors having potential carrying equipment mounted on it shall be earthed by flexible wire/braid. For doors not having potential carrying equipment mounted on it, earth continuity through scraping hinges/hinge pins of proven design may also be acceptable. The Bidder shall establish earth continuity at site also.

2.7 AIR CIRCUIT BREAKER (ACB)

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- a. Circuit breakers shall be three pole, air break, horizontal draw-out type, and shall have fault making and breaking capacities. The operating duty shall be O-3 min-CO-3 min-CO.
 - b. Circuit breakers along-with its operating mechanism shall be provided with suitable arrangement for easy withdrawal.
 - c. There shall be "SERVICE", "TEST" and "ISOLATED" positions for the breakers. Locking facilities shall be provided so as to prevent movement of the circuit breaker from the "SERVICE", "TEST" or "ISOLATED" position. It shall be possible to close the door in "TEST" position.
 - d. All circuit breakers shall have short circuit releases and shunt trip coil irrespective of the type of operating mechanism.
 - e. All circuit breakers shall be provided with sufficient nos. of NO" and NC" potential free auxiliary contacts. These contacts shall be in addition to those required for internal mechanism of the breaker and should be directly operated from breaker operating mechanism.
 - f. Suitable mechanical indications shall be provided on all circuit breakers to show "OPEN", "CLOSE", "SERVICE", "TEST" and "SPRING CHARGED" positions.
 - g. All circuit breakers shall be provided with the following interlocks:
 - i) Movement of a circuit breaker between "SERVICE" and "TEST" position shall not be possible unless it is in open position.
 - ii) Closing of a circuit breaker shall not be possible unless it is in "SERVICE" position, "TEST" position or in "ISOLATED" position.
 - iii) Circuit-breaker cubicles shall be provided with safety shutters operated automatically by the movement of the circuit breaker carriage to cover the stationary isolated contacts when the breaker is withdrawn.
 - iv) A breaker of particular rating shall be prevented from insertion in a cubicle of a different rating.
 - v) Circuit breakers shall be provided with coded key/electrical interlocking devices.
 - h. Circuit breaker shall be provided with electrical anti-pumping and trip free feature even if mechanical anti-pumping feature is provided.
 - i. Mechanical tripping shall be possible by means of front mounted Red trip push button. In case of electrically operated breakers these push buttons shall be shrouded to prevent accidental operation.
 - j. Means shall be provided to slowly close the circuit breaker in "ISOLATED", if required, for inspection and setting of contacts.
 - k. Complete shrouding/segregation shall be provided between incoming and outgoing bus links of breakers.
 - l. Circuit breaker shall be provided with following mechanism:

2.7.1 Power Operated Mechanism

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- i) Power operated mechanism shall be provided with a universal motor suitable for operation on 110V AC Control supply, with voltage variation from 85% to 110% rated voltage. Motor insulation shall be class "E" or better.
 - ii) The mechanism shall be such that as long as power is available to the motor, a continuous sequence of closing and opening operations shall be possible. After failure of power supply at least one open-close-open operation shall be possible.
 - iii) Provision shall be made for emergency manual charging and as soon as this manual charging handle is coupled, the motor shall automatically get mechanically decoupled.
 - iv) All circuit breakers shall be provided with closing and trip coils. The closing coil shall operate correctly at all values of voltage between 85% to 110% of rated control voltage. The trip coil shall operate satisfactorily at all values of voltage between 70% to 110% of rated control voltage.
 - v) Provision for mechanical closing of the breaker only in "TEST" and "ISOLATED" positions shall be made.

2.8 AIR BREAK SWITCHES

- a. Air break switches shall be of heavy duty, single throw, group operated, load break, fault make type when associated with fuses and complying with IS: 4064. All switches for motor circuits shall be of utilisation category AC-23 with 1NO+1NC auxiliary contact which shall be wired to the control circuit as shown in the schematic drawings. All switches for other outgoing feeders shall be of utilisation category AC-22.
- b. The main switches shall be operable from outside the module door. The switch handle shall clearly indicate the position of switch. Switch operating handles shall be provided with padlocking facilities to lock them in "OFF" position. However, incomer switches of switchboards shall be provided with padlocking facility in both "ON" and "OFF" positions.
- c. Interlocks shall be provided such that the cubicle door will not open when the switch is in closed position and the switch will close only when the door is closed.
- d. Switches and fuses for AC control supply and heater supply wherever required, shall be mounted inside the cubicles.
- e. Even for a single feeder, TPN switch, fuse-bases and cable/link connections between switch/fuse and vertical bus bars for all the three phases shall be provided so that changing from single phase feeder to three phase feeder is possible without any modification other than inserting fuses at site.

2.9 CONTROL AND SELECTOR SWITCHES

- i. Control and Selector switches shall be of rotary type, with escutcheon plates clearly marked to show the function and positions. The switches shall be suitable for mounting on panel front.

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- ii. Circuit breaker control switches shall have three positions and shall be spring return to "NEUTRAL" from "CLOSE" and "TRIP" positions and shall have pistol grip handles. The control switch shall have at least two (2) contacts closing in 'Close' position, and two (2) contacts closing in 'Trip' position.
 - iii. Circuit breaker selector switches for motor feeders shall have three stay put positions. They shall have at least three contacts for each of the three positions Circuit breaker selector switches for other feeders shall have two stay put positions with two contacts for each of the two positions.
 - iv. Contacts of the switches shall be spring assisted.

2.10 CONTACTORS

- i. Motor starter contactors shall be of air break, electro-magnetic type rated for uninterrupted duty as per IS: 2959.
- ii. Contactors shall be double-break, non-gravity type and their main contacts shall be silver faced.
- iii. Direct-on-line contactors shall be of utilisation category AC3. Reversing starters shall comprise of Forward and Reverse contactors mechanically and electrically interlocked with each other. These contactors shall be of utilization category AC4.
- iv. The number of normally open (NO) and normally closed (NC) auxiliary contacts of a contactor shall be as per requirement shown in the respective module drawings. It shall, however, be not less than 2 NO+2NC.
- v. Operating coil of contactors shall be of 110 V AC unless otherwise specified elsewhere. The contactor shall operate satisfactorily between 85% and 110 % of the rated voltage. The contactor shall not drop out at 70% of the rated voltage but shall definitely drop out at 20% of the rated voltage.

2.11 FUSES

- i. All fuses shall be of HRC cartridge fuse link type. Fuses for AC circuits shall be rated for 80 KA rms (prospective) breaking capacity at 415 V AC.
- ii. Fuse shall have visible operation indicators. Insulating barriers shall be provided between individual power fuses.
- iii. Fuse shall be mounted on insulated fuse carrier which is mounted on fuse bases. Wherever it is not possible to mount fuses on carriers, fuses shall be directly mounted on plug - in type of bases. In such cases one set of insulated fuse pulling handles shall be supplied with each switchboard.
- iv. Fuse ratings shall be selected by the Bidder for various feeders.
- v. The Neutral links shall be mounted on fuse carriers which shall be mounted on fuse bases.

2.12 INSTRUMENT TRANSFORMERS

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- a. All current and voltage transformers shall be completely encapsulated cast resin insulated type suitable for continuous operation at the temperature prevailing inside the switchgear enclosure, when the switchboard is operating at its rated condition and the specified ambient temperature. The class of insulation shall be 'E' or better.
 - b. All instrument transformers shall be able to withstand the thermal and mechanical stresses resulting from the maximum r.m.s short circuit breaking and peak making current ratings of the associated switchgear.
 - c. All instrument transformers shall have clear indelible polarity markings. All secondary terminals shall be wired to separate terminals on an accessible terminal block where star point formation and earthing shall be done.
 - d. Current transformers may be single core type. All voltage transformers shall be single phase type.
 - e. The bus VTs shall be housed in separate compartment. All VTs shall have readily accessible HRC current limiting fuses on both primary and secondary sides.
 - f. All CTs shall be provided with supports independent of bus bar/ bus bar supports.
 - g. The metering CTs shall be of Class 1 accuracy and adequate VA burden. The Protection CTs shall be of 5P₁₀ accuracy class with adequate burden.

2.13 RELAYS & TIMERS

- i. All relays and timers in protective circuits shall be flush mounted on panel front with connections from the inside. They shall have transparent, dust tight covers removable from the front. All protective relays shall have a draw-out construction for easy replacement from the front. They shall either have built in test facilities or shall be provided with necessary test blocks and test switches located immediately below each relay.
- ii. All AC relays shall be suitable for operation at 50 Hz with 110 Volt VT secondary and 1A or 5A CT secondary.
- iii. Protective relays, auxiliary relays and timers shall be provided with hand reset operation indicators.
- iv. All releases in circuit breakers shall conform to IS: 13947.

2.14 INDICATING INSTRUMENTS

- a. All meters shall be of flush mounted on panel front, suitable sizes and shall have an accuracy class of 2.0 or better. The covers and cases of instruments and meters shall provide a dust and vermin proof construction.
- b. Ammeters provided for motor feeders shall have a suitable scale considering the starting current of the motor.

2.15 PUSH BUTTONS

- i. Push buttons shall be of spring return, push-to-actuate type. Their contacts shall be rated to make, continuously carry and break 10 A at 110 V AC.

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- ii. All push buttons shall have one normally open and one normally closed contact unless specified otherwise. The contact faces shall be of silver alloy.
 - iii. All push buttons shall be provided with integral escutcheon plates marked with its function.
 - iv. The colour of the button shall be as follows:
Green for motor START, breaker CLOSE, commands.
Red for motor TRIP, breaker OPEN, commands
Black for all annunciation functions, overload, reset and miscellaneous commands including reversal
 - v. All emergency push buttons shall have mushroom knobs.

2.16 INDICATING LAMPS

- a. Indicating lamps shall be of the panel mounting, LED type. The lamps shall have escutcheon plates marked with its function wherever necessary.
- b. Lamps shall have the following colours.
Red for motor ON, valve/damper OPEN, breaker CLOSE
Green for motor OFF, valve/damper CLOSE, breaker OPEN
White for motor AUTO TRIP
Blue for all healthy conditions (e.g. CONTROL SUPPLY ON, and also for "SPRING CHARGED")
Amber for all Alarm Conditions (e.g. overload). Also for "SERVICE" and "TEST" position indications.

2.17 SPACE HEATER

- i. Space heaters shall be provided in the switchboards wherever the manufacturer considers them necessary and recommends their provision for preventing harmful moisture condensation.
- ii. The space heaters shall be suitable for continuous operation on 240 V AC, 50 Hz, single phase supply and shall be automatically controlled by thermostats. Necessary switches and fuses shall also be provided.
- iii. The circuit for each panel and motor space heater should have an isolating switch, HRC fuse and isolating link. In addition, the space heater circuit of each panel shall also have a thermostat of suitable rating.

2.18 INTERNAL WIRING

- a. All switchboards shall be supplied completely wired internally up-to the terminals ready to receive external cables.
- b. All inter-cubicle and inter-panel wiring and connections between panels of same switchboard including all bus wiring for AC supplies shall be provided.
- c. All auxiliary wiring shall be carried out with 650 V grade, single core, stranded copper conductor, color coded, PVC insulated wires. Conductor

size shall be 1.5 mm² (min.) for control circuit wiring and 2.5 mm² (min.) for CT and space heater circuits.

- d. Engraved core identification ferrules marked to correspond with panel wiring diagram shall be fitted at both ends of each wire. The ferrule shall be of self-locking type. The wire identification marking shall be in accordance with IS: 375.
- e. Wiring for equipment, which are to be supplied by the Purchaser/Other Contractor and for which the Contractor has to provide mounting arrangement in his panels, shall also be provided by the Contractor, upto the terminal blocks.
- f. If the bus bar and the connecting cables are of different materials, bimetallic lugs will be used.

2.19 CONTROL TERMINAL BLOCKS

- i. Control terminal blocks shall be of 650 Volts grade, rated for 10 Amps and in one piece moulding. It shall be complete with insulating barriers, clip-on type terminals and identification strips. Marking on terminal strip shall correspond to the terminal numbering on wiring diagrams. It shall have insulating material conforming to relevant code.
- ii. Terminal blocks for CT & VT secondary leads shall be provided with test links and isolating facilities. CT secondary leads shall be provided with short circuit and earthing facilities.
- iii. In all circuit breaker panels at least 10% spare terminals for external connections shall be provided and these spare terminals shall be uniformly distributed on all terminal blocks.
- iv. All terminal blocks shall be suitable for terminating on each side two (2) nos. stranded copper conductors of size up-to 2.5 mm² each.
- v. All terminals shall be numbered for identification and grouped according to the function. Engraved white-in-black labels shall be provided on the terminal blocks.
- vi. Terminal blocks shall be arranged with at-least 100 mm clearance between two sets of terminal blocks. The minimum clearance between the first row of terminal blocks and the associated cable gland plate shall be 250 mm.

2.20 POWER CABLE TERMINATION

- a. Cable termination compartment and arrangement for power cables shall be suitable for heavy duty, 1.1 KV grade, stranded aluminium/copper conductor, PVC/XLPE insulated, armoured and PVC sheathed cables. All necessary cable terminating accessories such as supporting clamps and brackets, power cable lugs, hardware etc. shall be provided by the Bidder to suit the cable sizes.

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- b. All power cable terminals shall be of stud type and the power cable lugs shall be of tinned copper solder less crimping ring type conforming to IS: 8309. All lugs shall be insulated/sleeved.

2.21 NAME PLATES AND LABELS

- i) The MCC shall be provided with prominent, engraved identification plates. The module identification plate shall clearly indicate the feeder number and feeder designation as indicated elsewhere.
- ii) The name plates shall be of non-rusting metal with white non graved letterings on black back grounds. Inscriptions and lettering sizes shall be subject to purchaser's approval.
- iii) Suitable stenciled paint mark shall be provided inside the panel /module for identification of all equipment in addition to the plastic sticker labels, if provided. The labels shall be positioned so as to be clearly visible. The labels shall bear the device number as indicated in the approved module wiring drawing.
- iv) Caution plate with the inscription "WARNING LIVE TERMINALS" shall be provided at all joints where the terminals are likely to remain live and isolation is possible only at remote end.

2.22 PAINTING

The sheet steel work shall be pre-treated, in tanks, in accordance with relevant code. Finishing paint on panels shall be shade 692 (smoke grey) in accordance with relevant code. The inner surface of the panels shall be glossy white. All hardware shall be nickel chromium plated or zinc passivated.

2.23 GASKETS

The gaskets wherever specified shall be of good quality synthetic rubber with good ageing, compression and oil resistant characteristic suitable for panel application.

2.24 PERFORMANCE

i. PROTECTION & CO-ORDINATION

It shall be the responsibility of the Bidder to fully co-ordinate the overload and short circuit tripping of the circuit breakers with the upstream and downstream circuit breakers/fuses/motor starters, to provide satisfactory discrimination. Further the various equipment supplied shall meet the requirements of Type C class of Co-ordination as per IEC 292.

2.25 PROTECTION, INDICATION & METERING

Feeder wise requirement of switchgear, protection, indication and metering are as under:

Sl. No	Type of Feeder	Type of switchgear	Protection to be provided	Indication	Metering
1	Incomer	Air Circuit Breaker	Overload, short circuit and earth fault & CBCT operated earth leakage relay.	On, off, trip, spring charged, test, service position, control supply healthy.	Ammeter, Voltmeter, Energy meter, PF meter
		MCCB	Overload, short circuit, earth fault.	On/OFF/TRIP	Ammeter, Voltmeter
3	Bus coupler	Air Circuit Breaker	Overload, short circuit, earth fault	ON/OFF/TRIP	
4	Motor Feeder below 5 kW	SFU + DOL / R-DOL Starter with contactor.	Bimetallic overload Relay with built in Single Phase Preventer, Short circuit	On, Off	Ammeter
5	Motor Feeder 5 kW & below 45kW	SFU + DOL / R-DOL Starter with contactor.	Bimetallic overload Relay with built in Single Phase Preventer, Short circuit, Earth Leakage Protection	On, Off & Trip	Ammeter
6	Motor Feeder 45kW and above	SFU + DOL / R-DOL Starter with contactor	Motor Protection Relay (MPR), Short circuit.	On, Off, Trip	Ammeter
7	Capacitor bank	MCCB	Overload, short circuit, earth fault, Under voltage, Over voltage & Neutral displacement.	On, Off, Trip	Ammeter
8	Other Outgoing Feeders	SFU/	Short Circuit	On, Off	
		MCCB	Overload, short circuit and earth fault.	On, Off	

ANNEXURE I

TECHNICAL INFORMATION

1	Applicable Standard	:	IS 8623
2	Enclosure	:	Single Front
3	Protection of Enclosure	:	IP 52/42 (outdoor / indoor)
4	Location	:	Indoor
5	Rated voltage	:	415 V
6	Rated control voltage	:	110 V AC
7	Bus Bar system	:	TPN , Aluminium
8	Bus Bar rating	:	As Required
9	Short time rating	:	50 kA for 1 Sec
10	Interrupting capacity of breakers	:	P1 for MCCB & P2 for ACB
11	Duty of power contactors		AC 3 for non-reversible & AC 4 for reversible
12	Duty of auxiliary contactors	:	AC 1
13	Category of switches	:	AC 23 for fuse switches & AC 22 for auxiliary devices
14	Type of HRC fuses	:	Current limiting
15	Rating of HRC fuses	:	80 kA
16	Type of potential transformer	:	Dry type, 415/110 V of adequate rating
17	Cabling for power circuits	:	Cable alley for external cables
18	Cable entry	:	Bottom/Top
19	Cabling for control circuits	:	1.5 mm ² , 660 V PVC
20	Earthing	:	Aluminum bus bar of adequate size
21	Paint & Finish	:	Panel outer surface- Smoke Grey Panel inner surface -glossy White Chassis- Zinc passivated Command module-Aluminium anodised Name plate-Non rusting material Lettering-White non graved on black back ground

Specification No. SP/E-02**3.0 SPECIFICATION FOR CAPACITOR BANKS****3.1 SCOPE**

This specification covers requirements for 415 V shunt capacitor banks suitable for indoor installation.

The capacitor banks shall comply with the latest version of IS: 2834 and IEC-831-1 & 831-2 except where modified or extended by the provision of this specification and with the relevant parts of standards mentioned in clause 4.2.12.2

3.2 OTHER RELEVANT STANDARDS

The other relevant Indian Standards are as under:

IS: 12672 Internal fuses and internal over pressure disconnectors for shunt capacitors

IS: 9046 A.C. contactors of voltages above 1000 V up to and including 11000V

IS: 13118 General requirements for circuit breakers for voltages above 1000V

IS: 9920 Switches and switch isolators for voltages above 1000 V

IS: 13947 L.V. switch gear and control gear (Part 4 section 1- contactors)

IS: 13947 L.V. switch gear and control gear (Part 3 - switches)

IS: 13947 L.V. switch gear and control gear (Part 2 - circuit breakers)

IS: 9402 High voltage fuses for the external protection of shunt capacitors

IS: 13703 L.V. Fuses for voltages not exceeding 1000V A.C.

IS: 3043 Code of practice for earthing

3.3 DESIGN

The capacitor units shall be designed for the following:

- (a) Watt losses not more than 0.5 W per kVAR
- (b) Temperature withstand category of 55⁰ C
- (c) Output (kVAR) tolerance not exceeding 10 %
- (d) Capacitor - fuse co-ordination to reduce risk of tank rupture
- (e) Use of bio degradable ecofriendly dielectric compound
- (f) Switching life not less than 60,000 operations

3.4 CONSTRUCTION

- i. The basic units shall be made of suitable material for better heat dissipation and lower operating temperature.
- ii. The basic units shall be insulated for power frequency withstand voltages.
- iii. Each unit shall be supplied in a suitable container.
- iv. Each element of capacitor unit shall have its own built in special fuse. In case of fault in an element, the over voltage on the remaining elements shall not exceed 10%. Internal discharge resistance shall be provided to limit the residual voltage to less than 50 volt as per relevant standard.
- v. The capacitor banks shall be designed to withstand electro-dynamic and thermal stresses caused by transient over currents during switching.

3.5 PERFORMANCE

The Capacitor Banks shall be grouped in different kVAR rating, which shall be switched ON/OFF as required according to load connected. For this purpose capacitor kVAR shall be subdivided into a number of regulating stages.

3.6 APFC Panel

The APFC Panel shall be dust tight vermin proof sheet metal enclosed cubicle suitable for floor mounting. The regulating stages of required Capacitor Banks shall be switched ON/OFF by means of suitable relay to ensure the system power factor to 0.98 lagging. To eliminate unduly frequent switching when peak load of short duration occur a time delay relay shall be incorporated for stage to stage switching.

All internal wiring for control sensing instruments, relays etc. shall be done with 650V grade, PVC insulated copper conductor of size not less than 2.5 mm². The capacitor bank shall be rated for continuous operation and shall be suitable for indoor installation.

ANNEXURE – I

TECHNICAL SPECIFICATION

1.	Applicable Standard	:	IS : 2834
2.	System	:	415 V, 3 phase 50 Hz solid earthed system
3.	Location	:	
4.	No. of phases	:	Three
5.	Connection	:	Star/Delta
6.	Output kVAR	:	As required
7.	Insulation level	:	As per relevant IS
8.	Overload	:	1.3 times rated current continuously
9.	Losses	:	Less or equal to 0.5 W/ kVAR
10.	Output tolerance	:	10 % (Max)
11.	Inrush Current	:	Not exceeding 100 times rated current
12.	Peripherals to be supplied	:	Discharge resistors, HRC Fuse, Racks, Isolators
13.	Accessories (Optional)	:	Control Panel with Automatic P.F. Correction relay
14.	Discharge device	:	Discharge Resistor

Specification No. SP/E-03**4.0 SPECIFICATION FOR EARTHING & LIGHTNING PROTECTION SYSTEM****4.1 SCOPE**

This specification covers the requirements for earthing system.

Earthing system shall be in strict accordance with IS: 3043 and Indian Electricity Rules/Acts.

4.2 SYSTEM DESCRIPTION

The earthing system shall consist of earth pits and earthing conductors located in sub-station & proposed plant.

Independent pits shall be provided for earthing of transformer neutrals and down conductors of lightning masts. Inter connected pits shall be provided for frame earthing of all equipment and cable trays/ladders, metallic conduits, steel tubular poles, trusses & structures over which cables run.

4.3 CONSTRUCTION

The primary requirements of the earthing system are as follows:

- i. Neutral of a transformer shall be effectively connected to an independent earth pit by suitable GI flat.
- ii. Down conductor of a lightning mast shall be effectively connected to an independent earth pit by suitable GI flat.

Frame work of equipment shall be effectively connected to nearest pit by two separate GI flats or a combination of GI flats & wires of the sizes mentioned below:

Equipment	Earth conductor buried in earth	Earth conductor above ground level & in built up trenches
a) Main earth grid	40 mm dia MS Rod	65 x 8 mm GI flat
b) All H.T. Equipment	Not applicable	50 x 6 mm GI flat
c) 415 V/230 V Switch boards	Not applicable	50 x 6 mm GI flat
d) LT motors above 125 kW 31 kW to 125 kW 1 kW to 30 kW Fractional Horse Power	Not applicable Not applicable Not applicable Not applicable	50 x 6 mm GI flat 25 x 8 mm GI flat 25 x 6 mm GI flat 8 SWG GI wire
e) Columns, structures,	Not	25 x 8 mm GI flat

Equipment	Earth conductor buried in earth	Earth conductor above ground level & in built up trenches
cable trays, bus duct enclosures, steel tubular poles & Towers	applicable	
f) Crane gantries and other non-current carrying metal parts	Not applicable	25 x 6 mm GI flat

- iii. Each earth pit shall have GI pipe electrode not smaller than 40 mm. The buried length of the electrode shall not be less than 2.5 meters. Each electrode shall be buried vertically in an earth pit of minimum 300 mm x 300 mm area and 3 meters depth preferably by using homogenous mixture of bentonite clay and soil in the ratio of 1:3. The distance between two earth pits shall be maintained at least double the length of the electrode pipe and earth pits shall be constructed away from drains.
- iv. All conductors for earthing shall be made of Galvanised Iron (GI).
- v. The grids inter connecting the pits shall have an area not less than 300 Sq mm and be buried at a depth not exceeding 600 mm below the soil. Back filling shall be placed in layers of 150 mm. Earthing conductors embedded in the concrete floor of the building shall have approximately 50 mm concrete cover.
- a. Each pit shall be provided with a cast iron top cover for inspection & identification.
 - b. Metallic frame of all electrical equipment shall be earthed by two separate and distinct connections to earthing system each of 100% capacity. Crane rails, metal pipes and conduits shall be effectively earthed at two points.
 - c. Each continuous laid out lengths of cable tray shall be earthed at minimum two places by GI flats to the earthing system, the distance between earthing points shall not exceed 30 metre. Different sections of cable trays shall be connected by low resistance connecting links.
 - d. Neutral connections and metallic conduits/pipes shall not be used for the equipment earthing. Lightning protection system down conductors shall not be connected to other earthing conductors above the ground level.
 - e. Connections between earth leads and equipment shall normally be of bolted type.
 - f. A minimum earth coverage of 300 mm shall be provided between earth conductor and the bottom of trench/foundation/underground pipes at crossing. Earthing conductors crossing the road can be installed in hume pipes. Wherever earthing conductor crosses on runs at less than 300 mm distance along metallic structures such as air, water, pipe lines, steel reinforcement in concrete, it shall be bonded to the same.
 - g. Earthing conductors along their run on columns, walls, etc. shall be supported by suitable welding/cleating at interval of 1000 mm and 750 mm respectively.

4.4 LIGHTNING PROTECTION SYSTEM

Lightning protection system shall be in strict accordance with IS: 2309.

- i. Lightning spike/arrestor shall be provided on any structure having height 15 metre or more. The height of the spike/arrestor above its fixing point on the structure shall be 2 metre. The spacing between two adjacent spike/arrestor shall not be less than 20 metre.
- ii. Lightning conductor shall be of 25 x 6 mm GI strip when used above ground level. It shall be connected through test link with earth electrode/earthing system.
 - a) Down conductor shall not be connected to other earthing conductors above ground level. The size of down conductor shall not be lower than 25 X 6 mm. Each down conductor shall be effectively connected to independent earthing pit.
 - b) Each down conductor shall be provided with a test link at 1000 mm above ground level for testing.
 - c) All joints in the down conductors shall be bolted and welded.
 - d) Down conductors shall be cleated on outer side of building wall, at 750 mm interval or welded to outside building columns at 1000 mm interval.
 - e) Lightning conductor on roof shall not be directly cleated on surface. Supporting blocks of PCC/insulating material shall be used for conductor fixing.
 - f) All metallic structures within a vicinity of two meters of the conductors shall be bonded to conductors of lighting protection system.
 - g) The lightning protection system shall not be through cables, conduits and metal enclosures of electrical equipment.
 - h) Lightning conductors shall not pass through or run inside GI Conduits.
 - i) Testing link shall be made of galvanised iron of size 25 x 6 mm.

Specification No. SP/E-04**5.0 SPECIFICATION FOR LOCAL CONTROL STATION**

The Local Control Stations (LCS) shall be metal enclosed, suitable for outdoor/indoor mounting on wall or steel structures. The enclosure shall be die-cast aluminium or cold rolled sheet steel of atleast 1.6 mm thickness. The enclosure shall be provided with a hinged guard at the front, covering full length, to avoid inadvertent operation of pull chord switches/push buttons. LCS shall be painted to shade no. 692 of IS: 5 in accordance with relevant code. The LCS shall be dust and vermin proof and shall have a degree of protection of IP-53 as per relevant code.

The LCS shall be suitable for both top and bottom cable entry (either of which may be used depending on cabling convenience) and shall be provided with removable undrilled gland plates or knockouts. Adequate space shall be available inside the LCS enclosure for terminating external cables directly on pull cord/push button terminals. Overall size of LCS shall be subject to Purchaser's approval.

The Local Control Stations shall have the following functions:

- i) EMERGENCY STOP push button with one NO and one NC contact.
- ii) Self reset "Trial Run" and a self-reset "Trial Stop" push button each with one NO and one NC contact.
- i) "LOCAL" & "REMOTE" selector switch.
- ii) Required Indication Lamps

6.0 SPECIFICATION FOR LOCAL MOTOR STARTER

The Local Motor Starters shall be provided for manual switching of 415 V, 3 phase squirrel cage motors.

The starters shall be metal enclosed, suitable for outdoor/indoor mounting on wall or steel structures. The enclosure shall be die-cast aluminium or cold rolled sheet steel of atleast 1.6 mm thickness. The enclosure shall be provided with a hinged guard at the front, covering full length, to avoid inadvertent operation of push buttons. The starters shall be painted to shade no. 692 of IS:5 in accordance with relevant code and shall be dust and vermin proof and shall have a degree of protection of IP-52 as per relevant code.

The Starters shall be suitable for both top and bottom cable entry (either of which may be used depending on cabling convenience) and shall be provided with removable undrilled gland plates or knockouts. Adequate space shall be available inside the starter enclosure for terminating external cables directly on push button terminals. Overall size of Starters shall be subject to Purchaser's approval.

Each Starter shall comprise of :

- i) A 3-pole contactor, mechanically latched type
- ii) Start Push Button, colored GREEN
- iii) Stop Push Button, colored RED
- iv) Ambient temperature compensated thermal overload relay with single phasing protection. The continuously variable relay setting range shall be suitable for the motor rating.

The start push button when pressed shall preferably remain in depressed position and shall be released along the contactor when the stop push button is pressed or when thermal overload relay operates. Local starters shall be suitable for loop-in and loop-out of incoming cable and for one outgoing cable to a motor.

Specification No. SP/E-06**7.0 SPECIFICATION FOR MAIN LIGHTING DISTRIBUTION BOARDs (MLDB) & LIGHTING DISTRIBUTION BOARDs (LDB)****7.1 SCOPE**

This specification covers requirements for 230V(L-L) MLDB and LDBs, metal enclosed, dust and vermin proof to be installed in substations, conforming to the latest revision of IS:8623-1993 except where modified or extended by the provision of this specification.

7.2 OTHER RELEVANT STANDARDS

The other relevant Indian standards are as under:

- IS: 3043 : Code of practices for earthing.
- IS: 4237 : General requirements for switchgear and control gears for voltages not exceeding 1000V AC.
- IS: 12021 : Specification of Control transformers for switchgear and control gears for voltages not exceeding 1000 V AC
- IS: 722 : A.C electricity meters.
- IS: 1248 : Direct acting indicating analogue elect measuring instruments
- IS: 2551 : Danger Notice Plates
- IS: 5082 : Wrought Aluminium Alloys for electrical purpose
- IS: 6005 : Code of practice of phosphating iron and steel
- IS: 3202 : Code of practice for climate proofing of electrical equipment
- IS: 2147 : Degree of protection provided by industrial enclosures
- IS: 5 : Colours for ready mixed paints and enamels.

7.3 DESIGN CRITERIA

The boards shall operate on a 230V (L-L) (± 10 , 3 phase, 3 wire, 50 Hz (-3% to 3%) power supply. Fault withstand capacity shall not be less than 10 kA for one second.

The boards shall have power frequency withstand voltage of 3000V. All similar components shall be interchangeable and shall be of same type and rating for maintenance and low spare inventory.

7.4 CONSTRUCTIONAL FEATURES

- i. The boards shall consist of modular sections, extendible on either side. The boards shall be made of sheet steel enclosures on steel frames. The

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- thickness of steel sheets shall be 2 mm for load bearing sections and 1.6 mm for non-load bearing sections.
- ii. Degree of protection of the enclosure shall be IP 42 with coats of paints conforming to IS: 5.
 - iii. The bus bars shall be TP/DP, Aluminium and of adequate current rating for horizontal and vertical bus. The bus bars shall be mounted on non-hygroscopic, anti-tracking, flame retardant, self-extinguishing insulators. The bus bars shall be PVC insulated (sleeved).
 - iv. The cable termination shall be suitable for PVC SWA cable. All the cable entries shall preferably be from bottom.
 - v. The specification for MCCB, MCB, Switch fuse units etc. are given in subsequent clauses in this specification.
 - vi. The board shall have a mechanical safety door interlock device to prevent opening of the door if the switches are ON. Similarly, it shall be ensured that the switch cannot be switched ON unless the door is closed. There shall also be padlocking arrangement for the door to prevent unauthorized access.
 - vii. The MCCBs, Horizontal bus bars, extended chambers and the MCBs shall be housed in separate compartments.
 - viii. ON/OFF switches of the MCCBs and MCBs and knobs of Ammeters and Voltmeters shall be protruded for operation without opening the doors.
 - ix. The incoming feeders shall be provided with Ammeters and Voltmeter with selector switches (for MLDB only).
 - x. The boards shall have a display of Danger Notice and supply shall be made with front rubber mat.

ANNEXURE - I**TECHNICAL SPECIFICATION FOR 230 V(L-L) MLDB**

1	Installation	: Indoor
2	Enclosure	: Single front, IP 42
3	Rated voltage	: 230 V(L-L)
4	Bus bar	: TP/DP (Aluminium)
5	Horizontal bus bar rating	: Adequate Rating not less than current rating of Incoming MCCB / MCB
6	Vertical bus bar rating	: Adequate Rating
7	Short time rating	: 10 kA rms for 1 second
8	Withstand voltage	: 3000 V, 50 Hz, 1 min.
9	Cable termination	: Cable Gland
10	Cable types	: Three core PVCSWA (Al.) conductor
11	Cable entry	: Bottom
12	Metering Arrangement	: Ammeter and Voltmeter with selector switch on incomer (for MLDB only).
13	Indication	: LED Phase Indicator
14	Finish	: Two coats of primer and one coat of final paint as per IS : 5.

Specification No. SP/E-07**8.0 SPECIFICATION FOR MOULDED CASE CIRCUIT BREAKERS****8.1 SCOPE**

This specification covers requirements for Moulded Case Circuit Breakers suitable for installation in switchboards (MLDB).

The Moulded case circuit breakers shall comply with the latest revision of IS: 13947(Part I) and IEC: Publication 947 except where modified or extended by the provision of this specification and with the relevant parts of standards mentioned in clause 6.2.

8.2 OTHER RELEVANT STANDARDS

The other relevant Indian standards are as under:

- IS : 3072 : Code of practice for installation and maintenance of switchgear.
- IS : 4237 : General requirements for switchgear and control gears for voltages not exceeding 1000V AC.
- IS : 10118 : Code of practice for selection, installation and maintenance of Switchgear and Control gear.
- IS : 11353 : Guide for uniform system of marking and identification of conductors and apparatus terminals.

8.3 DESIGN CRITERIA

The Moulded Case Circuit Breakers shall operate on a 230V (L-L) ($\pm 10\%$), 3 phase, 50 Hz ($\pm 3\%$) power supply. Fault withstand capacity shall not be less than 25 kA.

All similar components shall be interchangeable and shall be of same type and rating for easy maintenance and low spare inventory.

The rated carrying capacity shall be sufficient at the rated voltage and frequency and the circuit breaker shall carry this current continuously while complying with this specification.

8.4 CONSTRUCTIONAL FEATURES

- 1) The Circuit breakers shall be three pole, moulded case air break type.
- 2) The circuit breaker shall have tripping mechanism for over load and short circuit irrespective of the type of operating mechanism. In addition, provision shall be made for manual tripping of the breaker. The breakers shall be fixed type.
- 3) Circuit Breaker shall be provided with anti-pumping and trip free feature.

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- 4) Tripping shall be possible by means of front mounted "OFF" switch. Making of the breaker shall be possible by means of "ON" switch.
 - 5) Suitable indications shall be provided on circuit breaker to show "ON", "OFF", conditions.
 - 6) The following protection (release type) shall be provided:
 - a) Ambient temperature compensated thermal overload trip with adjustable settings.
 - b) Magnetic Short circuit trip.

8.5 **PERFORMANCE**

- 1) The temperature rise of parts of the equipment like terminals, accessible parts, main circuit, windings of coils and electromagnets etc. measured during the test carried out in accordance with IS: 13947 (Part I) shall not exceed temperature rise limits specified in the said standard.
- 2) The dielectric property of the equipment, clearances and minimum creepage distance shall conform to IS: 13947 (Part I).
- 3) The equipment shall be capable of making and breaking load and overload currents without failure under the conditions stated in the relevant product standard for the required utilisation category.
- 4) The equipment shall be capable of withstanding thermal and electromagnetic stress from short circuit currents during current making, current carrying in the closed position and during current interruptions.

ANNEXURE - IA**TECHNICAL SPECIFICATION FOR MOULDED CASE CIRCUIT BREAKERS**

1	Installation	: Switch board
2	Number of Poles	: 3
3	Service Voltage	: 230V (L-L) ($\pm 10\%$)
4	Rated current (A)	: As Required
5	Making capacity	: 25 kA (peak)
6	Frequency	: 50 Hz ($\pm 3\%$)
7	Operating Mechanism	: Manual Trip free
8	Tripping arrangement	: Thermal overload and Short circuit electromagnetic release.
9	Protections to be provided	: i) Short circuit ii) Overload
10	Cable Terminal	: Suitable for PVC SWA with Aluminium conductor. Totally shrouded to avoid risk of electric shock to operating personnel.
11	Execution	: Fixed

Specification No. SP/E-08**9.0 SPECIFICATION FOR MINIATURE CIRCUIT BREAKERS****9.1 SCOPE**

This specification covers requirements for Miniature Circuit Breakers (MCBs) and Residual Current Circuit Breakers (RCCBs) suitable for installation in switchboards (MLDBs/LDBs).

The Miniature circuit breakers shall comply with the latest revision of IS: 8828-1993 except where modified or extended by the provision of this specification and with the relevant parts of standards mentioned in clause 7.2.

9.2 OTHER RELEVANT STANDARDS

The other relevant Indian standards are as under:

- IS : 3072 : Code of practice for Installation and Maintenance of switchgear.
- IS : 4237 : General requirements for switchgear and controlgears for voltages not exceeding 1000V AC.
- IS : 10118 : Code of practice for selection, installation and maintenance of Switchgear and Controlgear.
- IS : 11353 : Guide for uniform system of marking and identification of conductors and apparatus terminals.

9.3 DESIGN CRITERIA

The breakers shall operate on a 230V (L-L) ($\pm 10\%$), 2/3 phase, 50 Hz ($\pm 3\%$) power supply. Fault withstand capacity shall not be less than 9 kA for one second.

The rated carrying capacity shall be as specified in Annexure IB at the rated voltage and frequency and the breaker shall carry this current continuously while complying with this specification.

9.4 CONSTRUCTIONAL FEATURES

- i) The circuit breaker shall have current limiting devices with an inverse time delayed thermal trip device and an undelayed magnetic trip device to take care of steady overload and short circuit faults respectively. The breakers should be suitable for switching/ protection of lighting circuits.

iii) The technical data for Circuit breakers are given in Annexure-IB.

ANNEXURE -IB**TECHNICAL SPECIFICATION FOR
MINIATURECIRCUIT BREAKERS & RCCBs**

1	Application	: Switch board
2	Number of poles	: 2 / 3
3	Rated Current	: As Required
4	Breaking capacity	: 9 kA
5	System voltage	: 230V (L-L) ($\pm 10\%$)
6	Frequency	: 50 Hz ($\pm 3\%$)
7	Enclosure of the breakers	: Moulded self-extinguishing thermoset plastic.
8	Dolly (Switching lever)	: Can be locked in either OFF or ON position.
9	Fixing	: Snap fitting
10	Cable Terminal	: Suitable for PVCSWA with Aluminium conductor. Totally shrouded to avoid risk of electric shock to operating personnel.
11	Operating mechanism	: Manual Trip Free
12	Tripping Arrangement	: Magnetic Short Circuit Release. Thermal Overload Release.

Specification No. SP/E-09**10.0 SPECIFICATION FOR 415 V POWER RECEPTACLES****10.1 SCOPE**

This specification covers the requirements for 415V power receptacles incorporating switches, sockets and plugs.

The receptacles shall comply with the latest version of IS 8623 except where modified or extended by this specification and with the relevant parts of standards mentioned in clause 4.2.21.2.

10.2 OTHER RELEVANT STANDARDS

The other relevant standards applicable are as under:

IS: 6875	Switches and push-buttons
IS: 13703	LV fuses for voltages not exceeding 1000 V AC
IS: 2147	Degree of protection provided by enclosures for low voltage switchgear and control gear
IS: 3043	Code of practice for earthing
IS: 2629	Hot dip galvanising
IS: 5082	Wrought Aluminium and Aluminium alloys for electrical purposes
IS: 1248	Electrical Indicating instruments
IS: 5	Colours for ready-mixed paints and enamels.
IS: 1554	PVC insulated cables for working voltages upto and including 1100V
IS: 2551	Danger Notice Plates
IE Rules	1956

10.3 DESIGN**A. Electrical**

The receptacle shall be designed to ensure continuous operation at rated capacity at service condition and fault withstand capacity of 9 kA.

B. Mechanical

The receptacle shall be designed to ensure ready interchangeability of components and easy accessibility to components for inspection & maintenance.

10.4 CONSTRUCTION

- i. The receptacle shall comprise single front panel, metal enclosed, dust & vermin proof floor mounted and free standing type. The frame shall be fabricated from suitable mild steel sheets of thickness not less than 2.0 mm. The frames shall be covered by cold-rolled steel sheets of thickness not less than 1.6 mm. Doors and covers shall also be of cold rolled sheets of thickness not less than 1.6 mm.
- ii. The panels shall be provided with a degree of protection IP 55.
- iii. The panel shall be supplied with base frames made of mild steel section along with all necessary mounting hardware required for welding down the base frame to the foundation/steel insert plates. The base frame height shall be such that floor finishing (50 mm thick) after erection of the board does not obstruct the movement of doors, covers withdrawable modules etc.
- iv. The panel doors shall open by at least 90 degrees.
- v. The ON/OFF switches in a receptacle shall be rotary type, heavy duty, double break, AC 23 category, suitable for AC supply.
- vi. Plug and socket shall be of shrouded die cast Aluminium. Sockets shall be provided with lid safety cover.
- vii. Robust mechanical inter-lock shall be provided such that the switch can be put ON only when the plug is fully engaged. Plug can be withdrawn only when the switch is in OFF position. Additional inter-lock should be provided such that covers can be opened only when the switch is in off position.
- viii. Wiring inside the receptacles shall be carried out with 1100 V grade PVC insulated stranded Aluminium conductor.
- ix. Terminal block in the receptacles shall be of 1100 V grade, clip on stud type, moulded in Melamine, suitable for terminating specified cable size. All the terminals shall be shrouded.
- x. Receptacles shall include switches, sockets & plugs mentioned as under:
230V, 20A, SP, 2 Pin
415V, 20A, TP, 3 Pin
415V, 63A, TPN, 5 Pin
- xi. Galvanised steel earth bus shall be provided at the bottom welded / bolted to the bottom of a panel.
- xii. Suitable arrangement shall be made at each end of the earth bus for bolting to earthing conductors. All joint splices to earth bus shall be made through atleast two bolts and taps by proper lug and bolts connection.

xiii. All non-current carrying metal work in a panel shall be effectively bonded to the earth bus.

xiv. **Name plates and labels**

- a) The receptacle shall be provided with prominent, engraved identification plates.
- b) The name plates shall be of non-rusting metal with white non graved letterings on black back grounds. Inscriptions shall be subject to purchaser's approval.
- c) Caution plate with the inscription "WARNING LIVE TERMINALS" shall be provided on the front face of a receptacle.

xv. **Painting**

The sheet steel work shall be pre-treated in accordance with relevant code. Finishing paint on panels shall be shade 692 (smoke grey) in accordance with relevant code. The inner surface of the panels shall be glossy white. All hardware shall be nickel chromium plated or zinc passivated.

Specification No. SP/E-10**11.0 SPECIFICATION FOR LEAD ACID BATTERY****11.1 SCOPE:**

This specification covers requirement for procuring, commissioning and performance testing of lead acid battery for control, indication, alarm and protection circuit for 415V MCC located in proposed MCC Room in the CHP.

11.2 STANDARDS TO BE FOLLOWED:

- i. The Battery shall be designed to comply with all applicable provision of current Indian standards.
- ii. The battery shall comply with all the latest applicable statutory rules, regulations, acts and safety codes which may be in force during the period of execution and which are related with design, construction and operation of equipment in the locality where the equipment is to be installed.

The application acts and statutory regulations are as under:

- a) Fire Insurance Regulation
- b) Tariff Advisory Committee Regulations
- c) The Indian Electricity Act.
- d) Indian Electricity rules
- e) National Fire Code
- f) DGMS Regulations

11.3 BATTERY

- i. One bank of 110 volts battery unit for MCC of CHP has been envisaged. One bank of 110 V Battery unit along with associated charging unit comprising of transformer, rectifier etc. shall be provided for control, indication, alarm and protection circuit for 415 V MCC located in the Substation.
- ii. The D.C. voltage shall be obtained from 415V, three phase, 4 wire, 50 Hz, AC supply after necessary rectification by the battery charger.
- iii. The battery charger shall have dual provision of:
 - i) Boost charging the battery
 - ii) Float charging the battery and supply the full DC load.
- iv. The battery shall be floating on the DC bus during the normal operation. The battery shall supply the DC power during emergency operation i.e. during failure of AC input power to the battery charger for at least one hour. The battery shall be of suitable rating to meet the requirement. The scope of design, supply and installation also includes a suitable DC

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- Distribution Board along with necessary wiring, metering and protection arrangements.
- v. The unit shall also conform to the following specifications:
- 1 Set : 110 Volts lead acid stationary battery, each consisting of tubular sealed cells (each of 2 volts) in hard rubber boxes complete with tubular positive plate, pasted negative plates, lids, vent plug, acid level indicating floats, separators, bolts and nuts, cell insulators, inter cell connectors etc.
 - Capacity : 120 AH when discharged in 10 hrs. to 1.85 volts per cell at 27°C.
 - Trickle charge rate: Minimum 75 mA to maximum 300 mA to keep the cell at 2.25 to 2.30 volts.
 - 1 set : Connectors for the above battery.
 - 1 lot : Sufficient quantity of sulphuric acid for the first filling including spare acid 1.190 Sp. gr. at 27°C suitably packed.
 - 1 set : Suitable battery stands made of good quality teak wood finished with three coats of black anti-sulphuric paint and complete with cell number plates and fixing nails.
- vi. The battery shall be maintenance free and complete with all accessories like hydrometer, cell testing voltmeter, thermometer (glass type) with gravity correction chart, spanner, glass funnel, Rubber siphon, Rubber Apron and gloves etc.

ANNEXURE I**TECHNICAL PARAMETERS**

a) Service	:	Indoor
b) No. required	:	1 Sets, each having 55 nos. x 2 Volts for MCC Room
c) Number of phases:	:	Three phase
d) Frequency	:	50 Hz
e) Input supply	:	415V
f) Voltage variation in input supply	:	$\pm 10\%$
g) Frequency variation	:	$\pm 3\%$
h) Output nominal voltage	:	110V
i) Voltage regulation at output	:	$\pm 2\%$
j) Ripple without battery	:	$\pm 4\%$ RMS
k) Time required completing charging a discharged battery	:	8/10 Hours
l) Ambient temperature	:	50°C
m) Relative humidity	:	100%
n) Cooling	:	Natural

Specification No. SP/E-11**12.0 SPECIFICATION FOR CABLES****12.1 SPECIFICATION FOR 1100 V GRADE XLPE ARMoured CABLE****12.2.1 SCOPE**

12.2.1.1 This specification covers requirements for 1.1 kV grade XLPE insulated (Heavy duty) armoured Copper conductor electric cables.

12.2.1.2 The cable shall comply with the latest version of IS:1554 (Part 1) except where modified or extended by this specification and with the relevant parts of standards mentioned in clause 2.2.

12.2.2 CODES

The other relevant standards applicable are as under:

IS : 10418 : Specification of drums for electric cables

IS : 8130 : Conductors for insulated electric cables and flexible cords

IS : 3975 : Specification for mild steel wires, strips and tapes

IS : 5831 : PVC insulation for armouring cables and sheath of electric cables

IS : 10462 : Fictitious calculation method for determination of dimensions of protective covering of cables. Part I elastomeric and thermoplastic insulated cables

IS : 2 : Rules for rounding off values

IS : 10810 : Method of test for cables (Part 0 to Part 63)

IS : 1885 : Electro technical vocabulary part 32, cables, conductors and accessories

IS : 4905 : Methods for random sampling.

12.2.3 CONSTRUCTION**12.2.3.1 Material**

- (a) The conductor shall be copper wires conforming to relevant codes and the insulation used shall be XLPE compound conforming to the requirements of Type A and Type C compound conforming to relevant codes.
- (b) The outer sheath, fillers and inner sheath shall have FRLS property.
- (c) Armouring shall be Galvanised round steel wire. Galvanised steel wires shall comply with the requirements of relevant Code. A binder tape on the armour shall be provided.

12.2.3.2 Constructional features

The conductor shall be of stranded construction complying with class 2 of relevant codes. A protective barrier shall be provided between the conductor and the insulation and this shall be compatible with the insulating material and the operating temperature of 70⁰C.

The conductor with protective barrier shall be provided with PVC insulation applied by extrusion.

The average thickness of insulation shall be as per relevant IS.

Armouring shall be provided over the inner sheath.

The armour of the cables shall consist of galvanized round steel wires. The nominal diameter of round armour wire shall be as per relevant IS.

12.3.0 SPECIFICATION FOR 660 /1100 V GRADE UNARMoured CABLE

12.3.1 SCOPE

12.3.1.1 This specification covers requirements for 660 V/1.1 kV grade PVC insulated unarmoured Aluminium conductor electric cables for power supply to light & fan circuits.

12.3.1.2 The cable shall comply with the latest version of IS: 14449 except where modified or extended by this specification and with the relevant parts of standards mentioned in clause 3.2.

12.3.2 CODE

The other relevant standards applicable are as under:

IS : 3961 Recommended current ratings for PVC insulated cables

IS : 5831 PVC insulation and sheath of electric cables

IS : 8130 Conductors for insulated electric cables and flexible cables

IS : 10810 Methods of tests for cables

12.3.3 CONSTRUCTION

12.3.3.1 Material

(a) The conductor shall be stranded Aluminium wires conforming to relevant codes and the insulation used shall be Poly Vinyl Chloride (PVC) compound conforming to the requirements of Type A compound conforming to relevant codes.

(b) The fillers and sheath shall have FRLS property

12.3.3.2 Conductor

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- (a) The construction of the conductors shall be for fixed wiring and the conductor shall be of stranded construction.
 - (b) The conductor shall be provided with PVC insulation applied by extrusion.
 - (c) The sheath shall be applied by extrusion. It shall be applied over the laid up cores fitting closely and shall have FRLS property. It shall be possible to remove the sheath without damage to the sheath. The colour of the sheath shall be Black.

12.4.0 SPECIFICATION FOR 660/1100 V GRADE CONTROL CABLE

12.4.1 SCOPE

12.4.1.1 This specification covers requirements for 660 V/1.1 kV grade PVC insulated armoured copper conductor control cables.

12.4.1.2 The cable shall comply with the latest version of IS: 1554 (Part 1) except where modified or extended by this specification and with the relevant parts of standards mentioned in clause 4.2.

12.4.2 CODES

The other relevant standards applicable are as under:

- IS : 10418 : Specification of drums for electric cables
- IS : 8130 : Conductors for insulated electric cables and flexible cords
- IS : 3975 : Specification for mild steel wires, strips and tapes
- IS : 5831 : PVC insulation for armouring cables and sheath of electric cables
- IS : 10462 : Fictitious calculation method for determination of dimensions of protective covering of cables. Part I elastomeric and thermoplastic insulated cables
- IS : 2 : Rules for rounding off values
- IS : 10810 : Method of test for cables (Part 0 to Part 63)
- IS : 1885 : Electro technical vocabulary part 32, cables, conductors and accessories
- IS : 4905 : Methods for random sampling.

12.4.3 CONSTRUCTION

12.4.3.1 Material

- (a) The conductor shall be Copper wires conforming to relevant codes and the insulation used shall be Poly Vinyl Chloride (PVC) compound conforming to the requirements of Type A and Type C compound conforming to relevant codes.

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- (b) The outer sheath, fillers and inner sheath shall have FRLS property
 - (c) Armouring shall be Galvanised round steel wire. Galvanised steel wires shall comply with the requirements of relevant Code. A binder tape on the armour shall be provided.

12.4.3.2 **Constructional features**

The conductor shall be of stranded construction complying with class 2 of relevant codes. A protective barrier shall be provided between the conductor and the insulation and this shall be compatible with the insulating material and the operating temperature of 70⁰C.

The conductor with protective barrier shall be provided with PVC insulation applied by extrusion.

The average thickness of insulation shall be as per relevant IS.

Armouring shall be provided over the inner sheath.

The armour of the cables shall consist of galvanized round steel wires. The nominal diameter of round armour wire shall be as per relevant IS.

12.5.0 **FLEXIBLE TRAILING CABLES**

Flexible Trailing cables shall be 1.1 kV grades, shall have annealed tinned stranded copper conductor, EPR insulated, EPR inner sheathed, FRLS, GI wire braid armoured and CSP outer sheathed cables conforming to IS: 14494.

12.6.0 **SPECIAL CABLES**

Special cables shall be provided including but not limited to the following:

- a) Temperature detectors from LT motors to the selector switches,
 - b) Temperature detectors to associated electronic enclosure, etc.
- These cables shall be heavy duty Fire Retarding Low Smoke and self-extinguishing, colour coded, shielded, armoured copper conductor 650/1100 volts grade coaxial screwed compensating mineral insulated etc.

12.7.0 **PERFORMANCE**

The cables shall carry the rated current for the type of installation and ambient temperature in accordance with the relevant Code. The cable shall also be able to withstand the fault level in accordance with the relevant Code.

ANNEXURE I**TECHNICAL INFORMATION FOR 660/1100 V GRADE XLPE ARMoured CABLE**

Applicable Code	- IS 1554 (Part-1)
Cable Code	- AYWY
Voltage Grade	- 660/1100 V
Conductor Size	- As required
No. of Cores	-2 / 3 / 3.5 / 4

TECHNICAL INFORMATION 660 /1100 V GRADE UNARMoured CABLE

Applicable Code	- IS 694
Cable Code	- AYY
Voltage Grade	- 660/1100 V
Conductor Size	- As required
No. of Cores	- Two/Three/Four

TECHNICAL INFORMATION 660 /1100 V GRADE UNARMoured CABLE

Applicable Code	- IS 694
Cable Code	- AYY
Voltage Grade	- 660/1100 V
Conductor Size	- As required
No. of Cores	- Two/Three/Four

TECHNICAL INFORMATION FOR 660/1100 V GRADE CONTROL CABLE

Applicable Code	- IS 1554 (Part-1)
Cable Code	- YWY/YFY
Voltage Grade	- 660/1100 V
Conductor Size	- 1.5 mm ² (for internal wiring) / 2.5 mm ² (for external connections)
No. of Cores	- As required

Specification No. SP/E-12**13.0 SPECIFICATION FOR ACCESSORIES OF CABLING****13.1 SCOPE**

This covers requirements for accessories of cabling work like cable trays, cable ladders, PVC & Steel conduits and fittings, support systems.

13.2 CODE

The applicable codes are as under:

IS 732	Code of practice for electrical wiring
IS 513	Cold rolled low carbon steel and strips.
IS 1079	Hot rolled carbon steel and strips.
IS 9537	Conduits for electrical installation.
IS 2667	Fittings for rigid steel conduits for electrical wiring.
IS 8309	Compression type tubular terminal ends for Aluminium conductors of insulated cables .
IS 2629	Recommended practice for hot dip galvanizing.
IS 2633	Methods for testing uniformity of coating of Zinc coated articles.
IS 1367	Technical supply conditions for threaded steel fasteners.
IS 1663	Method for tensile testing of steel sheet & strip of thickness 0.5 mm to 3 mm.

13.3 CONSTRUCTION**A. Cable trays, fittings and accessories**

- i) In RCC trenches, the cable trays shall be of cantilever construction, with one or multi tiers complete with matching fittings (like elbows, bends, reducers, tees, crosses, etc.), accessories (like side coupler plates etc.) and hardware (like bolts, nuts, springs, washers, etc.) as may be required. In vertical sections the trays shall be of ladder construction with one or multi tiers complete with matching fittings (like elbows, bends, reducers, tees, crosses etc.), accessories (like side coupler plates etc.) and hardware (like bolts, nuts, springs, washers, etc.) as may be required.
- ii) Cable trays, fittings and accessories shall be fabricated out of rolled Mild Steel sheets free from flaws such as laminations, rolling marks, pitting etc. conforming to relevant codes. Minimum thickness of Mild Steel sheets used for fabrication of cable trays and fittings shall be 2mm. The thickness of side coupler plates shall be minimum 3 mm. These shall be hot dip galvanized.

- iii) Cable trays in the RCC trenches shall be of standard width 250 mm and of standard lengths 2.5 metre. Cable ladders shall be of widths varying between 150 to 250 mm and of standard lengths 2.5 metre.
- iv) Each size and type of cable tray / ladder of 2.5 metre length and 250 mm width simply supported at the ends and uniformly loaded @ 76 kg. per metre shall not have deflection at the mid span exceeding 7 mm.

B. Support System for Trays and Cables

The support system shall be fabricated from standard structural steel members. The cable trays and support system shall be painted after installation with one coat of red lead primer, one coat of oil primer followed by two finishing coats of Aluminium paint.

C. Conduits, Fittings and Accessories

Conduits offered shall be rigid steel & PVC complete with fittings and accessories (like bends, check nuts, sockets etc.). The size of the conduit shall be selected on the basis of maximum 40% fill factor and in accordance with relevant code.

i) Rigid Steel Conduits

Rigid steel conduits conforming to relevant codes shall be threaded on both sides and suitable for mechanical stresses. Conduits shall be smooth at inside and outside. Conduits shall be plugged by PVC caps at the ends for storage and transportation. Outer surface of conduit shall be hot dip galvanized and shall have high protection against corrosive and polluting substances. Inner surface of a conduit shall be protected against corrosion and polluting substances by hot dip galvanising. Fittings and accessories shall also be hot dip galvanized.

ii) Junction / Joint Boxes & power receptacles circuits

Junction Box/cable joint boxes with IP:55 degree of protection, shall comprise a case and a detachable cover or hinged doors constructed out of cold rolled steel sheet of minimum thickness 2 mm. Top of the boxes shall be arranged to slope towards rear of the box. Gland plate shall be 3 mm thick sheet steel with neoprene/synthetic rubber gaskets. All junction boxes shall be suitable for mounting on walls, columns & structures. The boxes shall include brackets, bolts, nuts, screws, glands, lugs, earthing stud required for erection. Terminal blocks inside a junction box shall be of 660 volts grade. It shall be complete with insulating barriers, clip-on-type terminal numbering for wiring diagrams & arranged to facilitate easy termination. Twenty percent spare terminals shall be provided in each terminal block.

iii) Cabling Accessories:

a) Cable Glands:

Cable glands shall be single compression type suitable for the voltage grade of cables and as per relevant codes. The glands shall be of robust construction capable of clamping cable and cable armour firmly. All washers and hardware shall be made of brass with nickel chrome plating. Rubber components shall be of neoprene.

b) Cable Lugs:

Cable lugs shall be tinned copper solder or crimping type suitable for the voltage grade of cables suitable for Aluminium conductor cables and copper conductor control cables.

c) Galvanising

Galvanising of steel components and accessories shall conform to relevant codes. The amount of zinc deposit over threaded portion of bolts, nuts, screws and washers shall be as per relevant codes.

d) Painting

Cable supports and cable trays mounting structures and all other non-galvanized parts shall be brushed before giving one coat of red lead primer, one coat of oil primer followed by two finishing coats of Aluminium paint.

Specification No. SP/E-13**14.0 SPECIFICATION FOR MISCELLANEOUS ITEMS**

The following general requirements shall be applicable to all the miscellaneous items furnished under these specifications.

14.1.0 Emergency Power Supply

For emergency power supply the following shall be provided:

- a) Air cooled type generator.
- b) Auto-cum-Manual starting of generator in case of power failure.
- c) Separate wiring should be provided from generator to strategic locations.
- d) Additional emergency lights shall be provided to other locations as per direction of site engineer, if felt necessary, within the maximum load of 5 kW.
- e) Inverter emergency lights shall be provided in all sub-stations.
- f) For emergency light, minimum requirement of illumination level shall be 10 Lux. However, actual requirement shall be worked out by bidder.

14.2.0 FIRE FIGHTING SYSTEM:

The MCC Room and all strategic points shall be provided with firefighting equipment of the following class:

Class B (Foam type) : IS : 933

Class A (Soda Acid) : IS : 934

Class BC (Dry Powder) : IS : 933

The equipment shall be portable, wall mounted with refilling and recharging facility from time to time.

14.3.0 MISCELLANEOUS:**14.4.1 Painting:**

All electrical equipment should be painted as per relevant code in accordance with respective manufacturer's standard practice.

14.4.2 Standards:

The electrical equipment included in this tender shall comply with relevant IS specifications and IS code of practice. In the absence of IS, BS, any other standard of repute shall be followed.

14.4.3 Tests:

The offer shall include all test certificates as required by ISS and Indian Electricity Rules.

14.4.4 Completeness of Offer:

The details given in the write-up/specifications (including drawings) in respect of electrical system/equipment are indicative, not exhaustive. The electrical system/equipment shall co-ordinate with mechanical system/equipment of the plant.

If any electrical component or equipment with associated wiring is considered necessary and desirable as per Indian Electricity Rules amended up to date read with various circulars issued by the Director General of Mines Safety, Dhanbad, or if the same is considered necessary and desirable to comply with the up-to-date engineering practices or with various Indian codes of Practices issued by the I.S.I. New Delhi from time to time the same shall be deemed to be a requirement of this tender specifications and same should consequently included in the offer notwithstanding the fact that such requirements are not clearly or specifically indicated in these specifications along with the associated drawings.

All the equipment attachments, required for the execution of works as per scope of work as envisaged in the document shall be designed, fabricated erected and maintained for efficient and satisfactory performance, and the bidder shall be solely responsible for the same and the same shall be deemed to be within the scope of the offer/work whether specifically mentioned or not in these documents and the bidder shall not be eligible for any extra claim on this issue.

SUB-SECTION-7.4.3

TECHNICAL SPECIFICATION- CIVIL

SUB-SECTION - 7.4.3

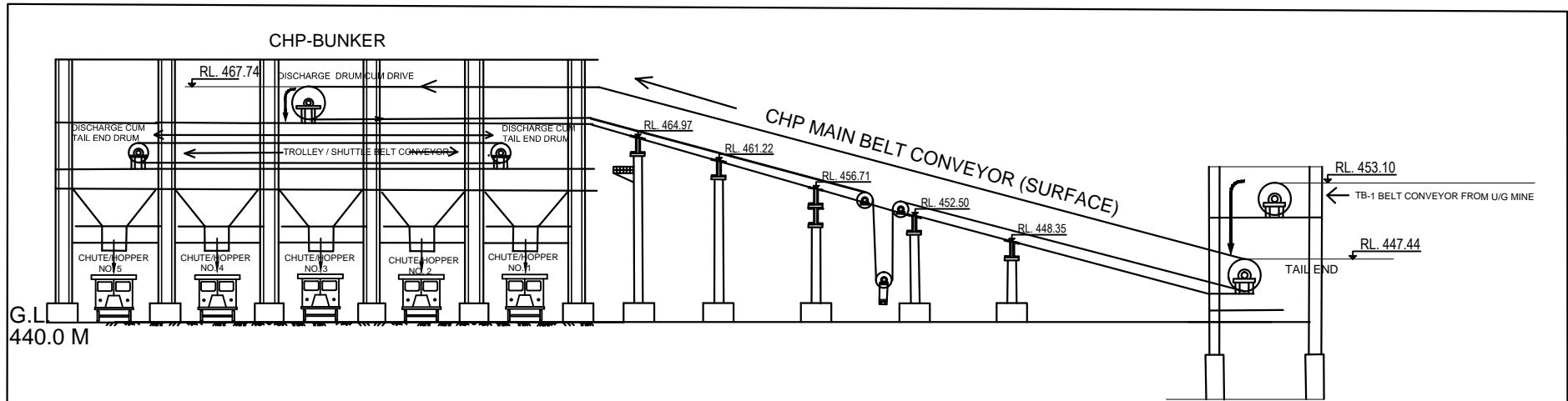
Technical Specification (Civil)

All workmanship, material and work items shall conform to relevant IS/ BIS/ MORTH/ IRC/ NBC standards. In case of items not adequately covered by above mentioned Indian Standards, the CPWD/ NBO practices shall be followed. Whenever no Indian Standard is available, British, American, German, Soviet or other International standards may be used only as per its applicability and Justification.

VOLUME - III (DRAWINGS)

Section-8

Tender Drawings



Surface Main Belt Conveyor

	BELT WIDTH (MM)	LENGTH / LIFT APPROX (M)	RATED CAPACITY (T P H)	MOTOR POWER (KW)	BELT SPEED (M/Sec)
Existing	1000	118 / 20.2	400	37	2.25

SHUTTLE / TROLLEY CONVEYOR

	BELT WIDTH (MM)	LENGTH APPROX (M)	RATED CAPACITY (T P H)	MOTOR POWER
Existing	1000	16	400	15 HP/25 HP

NOTES:

1. DIMENTIONS ARE NOT TO SCALE

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PLATE NO. - 1

Customer		CCL		
Job Title				Job No.
RENOVATION OF EXISTING MAIN BELT CHP (SURFACE CHP)				
Subject	TENTATIVE LAYOUT OF MAIN BELT CHP (SURFACE CHP)			
Activity	Name	Designation	Signature	Date
Prepared by	R. SINGH	DM/E&M		Mar-2024
Processed by	V.KUMAR	GM/E&M		Mar-2024
Checked by	V.KUMAR	GM/E&M		Mar-2024
Approved by	S.BISWAS	GM/HOD/E&M		Mar-2024
Scale	N T S		Sheet	1 OF 1
Dwg. No.	HQ E&M 302001		REV. No.	1

CMPDI
ISO 9001 Company

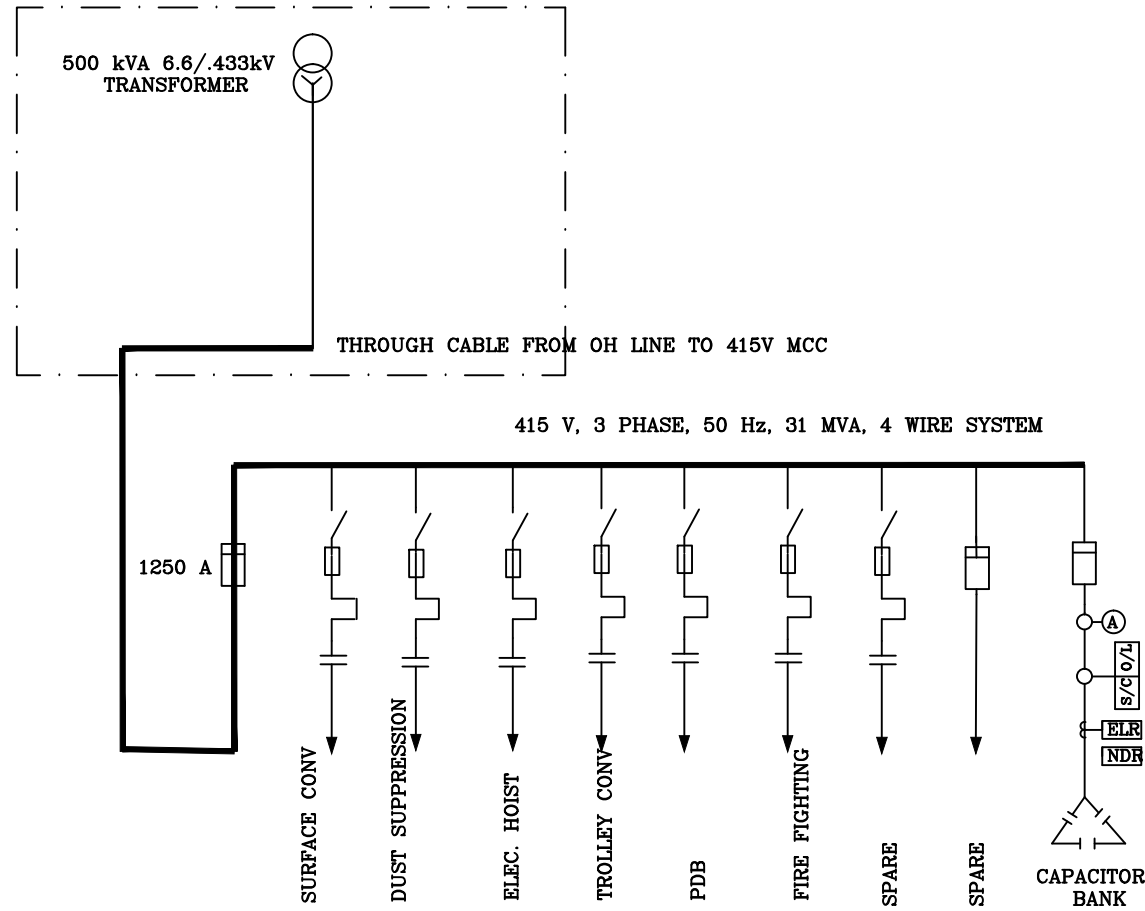


LEGEND

SL NO	SYMBOL	DESCRIPTION
1.	ⓧ	VOLTMETER
2.	Ⓐ	AMMETER
3.	NDR	NEUTRAL DIS-PLACEMENT RELAY
4.	PF	POWER FACTOR METER
5.	⌋	VACUUM CONTACTOR PANEL
6.	ⓧ	TRANSFORMER
7.	kWH	KILO WATT HOUR METER
8.	kW	KILO WATT INDICATOR
9.	MD	MAXIMUM DEMAND INDICATOR
10.	▶	LIGHTNING ARRESTER
11.	⏚	EARTHING
12.	⏚	EARTH SWITCH

SL NO	SYMBOL	DESCRIPTION
13.	MPR	MOTOR PROT. RELAY
14.	⊂	CORE BALANCE TRANSFORMER
15.	ELR	EARTH LEAKAGE RELAY.
16.	⚡	CAPACITOR BANK
17.	⏚	RECTIFIER
18.	⏚	AIR CIRCUIT BREAKER
19.	⊗	VACCUM CIRCUIT BREAKER
20.	⌋	CONTACTOR
21.	⏚	FUSE
22.	○	CT
23.	S/C	SHORT CIRCUIT RELAY
24.	O/L	OVER LOAD RELAY
25.	↔	INTERLOCKING
26.	⏚	SWITCH FUSE
27.	⏚	THERMAL O/L WITH SPP
28.	⏚	MOULDED CASE CIRCUIT BREAKER

EXISTING TRANSFORMER WITH OVERHEAD LINE TILL CHP ROOM NEAR BUNKER



NOTE :

1. THIS DRAWING IS FOR BIDDING PURPOSE ONLY
2. LT FEEDERS SHOWN ARE INDICATIVE ONLY, ACTUAL TO BE DECIDED DURING DETAILED DESIGN STAGE
4. ALL LT SWITCHGEARS & MCC MODULES SHALL BE OF DRAWOUT TYPE.
5. ALL MOTOR FEEDERS FOR MOTORS RATED 22 kW AND ABOVE SHALL BE PROVIDED WITH CT, AMMETER & SELECTOR SWITCH

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Customer		CENTRAL COALFIELDS LIMITED			
Job Title		RENOVATION OF EXISTING MAIN BELT(SURFACE CHP)		Job No. XXXXX	
Subject		SINGLE LINE DIAGRAM OF POWER SUPPLY ARRANGEMENT		Signature Date	
Activity		Name		Designation	
Prepared by		Amritanshu		DM(E&M)	
Processed by		Atul Kumar		CM(E&M)	
checked by		Atul Kumar		CM(E&M)	
Approved by		Subhash Biswas		HOD/GM(E&M)	
Scale		N.T.S.		Sheet	
Drg.No.		HQ E&M 2011462		REV. No. 0	



REGISTERED OFFICE

Gondwana Place, Kanke Road

Ranchi -834 031

(Jharkhand)

REGIONAL INSTITUTES

क्षेत्रीय संस्थान-I
वेस्ट एंड, जी.टी.रोड
आसनसोल-713 301
(पश्चिम बंगाल)

Regional Institute - I
West End, G.T Road
Asansol - 713 301
(West Bengal)

क्षेत्रीय संस्थान-II
कोयला भवन, कोयला नगर
धनबाद- 826 005
(झारखंड)

Regional Institute - II
Koyla Bhawan, Koyla Nagar
Dhanbad - 826 005
(Jharkhand)

क्षेत्रीय संस्थान-III
गोंदवाना प्लेस,काँके रोड
राँची- 834 031
(झारखंड)

Regional Institute - III
Gondwana Place, Kanke Road
Ranchi- 834 031
(Jharkhand)

क्षेत्रीय संस्थान-IV
जरीपटका, कस्तूरबा नगर
नागपुर-440 014
(महाराष्ट्र)

Regional Institute - IV
Jaripathka, Kasturba Nagar
Nagpur - 440 014
(Maharashtra)

क्षेत्रीय संस्थान-V
सीपत रोड
बिलासपुर-495 001
(छत्तीसगढ़)

Regional Institute - V
Seepat Road
Bilaspur - 495 001
(Chattisgarh)

क्षेत्रीय संस्थान-VI
पोस्ट :जयंत कॉलरी,
जिला : सिंगरौली
पिन नं०- 486 890
(मध्य प्रदेश)

Regional Institute - VI
P.O Jayant Colliery
Dist. - Singrauli
PIN - 486 890
Madhya Pradesh

क्षेत्रीय संस्थान-VII
गृह निर्माण भवन
सचिवालय मार्ग
भुवनेश्वर-751001
(उड़ीसा)

Regional Institute - VII
Grih Nirman Bhawan
Sachivalaya Marg
Bhubneswar - 751 001
(Orissa)

सेन्ट्रल माईन प्लानिंग एंड डिजाइन इन्स्टीच्यूट लिमिटेड

(कोल इंडिया की अनुषंगी कम्पनी)
एक मिनी रत्न कम्पनी

Central Mine Planning & Design Institute Limited

(A Subsidiary of Coal India Limited)

A Mini Ratna Company

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Fax : (91-0651) 2231447
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website : www.cmpdi.co.in