

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, 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 instalments 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 technical specification of bid document.

## **15.0 LIQUIDATED DAMAGES FOR DELAY IN COMPLETION: ( Replaced by Clause 5 of Special Conditions of Contract)**

### **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 orders 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 registered letter duly certified by the local chamber of commerce or statutory authorities, the beginning and end of the clause 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 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 bidder shall be liable to pay extra costs (like increase in rates, remobilization advance, idle charges for labor 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 thereafter 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 AUTHORIZED AGENT**

18.1 In case the contractor's performance is delayed due to any act of omission on the part of the owner or his authorized 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 program 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 14 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 endeavours constantly as may be reasonably required of him to the satisfaction of the Engineer-in-charge.

19.4 Provisional 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 provisional 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.

#### **20.0 TERMINATION, SUSPENSION, CANCELLATION & FORECLOSURE OF CONTRACT**

20.1 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

- a. 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 offering 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 subcontracting 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 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 reorganization, 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.
- d. 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 and additional performance security, if any, 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 work - 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 here in 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 purposes of the said contract.

26.2 The contract shall in all respects be construed and governed accordingly 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 withholding 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 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 thereof 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 or pattern made or work done requires to be altered, a reasonable and agreed sum in respect thereof 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 the 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**

**( Replaced by Clause No 6 Of Special conditions of Contract)**

### **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 up to 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 wilful 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:** The contractor shall be liable and pay all- Indian taxes, (other than Goods and Services tax and GST Compensation Cess, if applicable) 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 12.3 of Instruction to Bidders.

The contractor, along with his bills, shall submit proper documents in the name of the Company to enable the Company to 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 subsidiary to claim Input tax credit benefit.

**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.

**40.0 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 Equipment 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 for additional sixty (60) calendar months after Sixty(60) calendar months excluding critical Equipment having Comprehensive AMC as specified in the Technical Specifications, 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. Defect Liability Period of 1 year and Comprehensive maintenance of 4 Years) excluding critical equipment having comprehensive AMC as specified in the Technical Specifications., 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 signing of contract agreement and it should be made a part of contract agreement.

**41.0 PAYMENT:** 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 fulfilment by the contractor of all his liabilities under the contract.

**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:-**

**( Replaced by Clause No 7 Of Special conditions of Contract)**

**42.0 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 GM or GM/HoD(E&M). 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 duties )/ 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)..

#### **42 A. 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 42.

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 there under 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.

**Applicable Law:** The contracts shall be interpreted in accordance with the laws of the Union of India.

**Contracts with Partnership firm/ Joint Venture/Consortium:** The Partnership firm /Joint Venture/Consortium is required to submit written consent of all the partners to above arbitration clause at the time of submission of bid.

**43.0** 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.

**44.0 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.

**45.0** In the event of recovery of any claim towards LD Charges, Penalty, fee, fine or any other charges 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.

#### **46. Discrepancies in contract documents & Adjustments thereof**

**46.1** 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.

**46.2** 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.

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**SUB-SECTION-3.2**

**ERECTION CONDITIONS OF CONTRACT**

## **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 coordinator, 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, the payment of wages act (both of the Government of India and the local State Government) and the wages notified by CIL for contract labourer from time to time and the rules made there under in respect of any employee or workman employed or engaged by him or his subcontractor.

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 owner shall have the necessary foundations to be provided by him ready, as per the agreed schedule for the execution of the individual phases of works.
- 5.3 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.
- 5.4 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 authorized representative for the purpose of the contract. Any written order or instruction of the engineer

or his duly authorized representative, shall be communicated to the said authorized 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 minimize, 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 disagreement 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 cooperation 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 The contractor will be expected to employ on the work only his regular skilled employees with experience of his particular work. 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 In case the owner becomes liable to pay any wages or dues to the labour or to any Government agency under any of the provisions of the Minimum Wages Act, Workmen compensation Act, Contract Labour Regulation Abolition Act, CMPF Act/EPF Act or any other law due to act of omission of the contractor, the owner may make such payments and shall recover the same from the contractor's bills.

### **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, storage area, pre-assembly and fabrication areas, 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 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 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. The contractor shall be provided with supply of electricity for the purposes of the contract, only at one point in the project site. 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 shall also be provided at one point. The contractor shall be charged for the power supplied at work site and labour colonies at prevalent rate of power supplied by State Electricity Board.

**14.3 WATER:** Supply of water will be made available for the construction purposes at an agreed single point within 100 metres of the work site. And further distribution will be the responsibility of the contractor. The contractor shall be charged for the water supplied at work site @ 1% of the value of civil works and shall be deducted from the contractor's running/final bills.

### **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. Material sand 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 losses. 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 of 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, wharf age 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 energized. 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-ordinate 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 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 authorized 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 owner's 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/o replacement or protection of such property and utilities.

**27.0 PAINTING:** All exposed metal parts of the equipment including piping, 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, 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 provisions |
| Employer's liability   | As per statutory provisions |

### **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 of this volume. 1.

- 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 unfavourable 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 benchmarks, 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, Inter -national 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 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 authorized by him.

- 31.6 The contractor 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 is 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/Equipment 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, 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 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 person sand/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 liquidate 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 above(31.18), 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 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 there under 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 hereunder 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 Regulations. ASME codes and accepted good engineering practice, the engineer's drawings and other applicable Indian recognized 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 up to 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 plasticizer may be added to the grout mixes in a proportion recommended by the plasticizers 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 cut 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 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 accuracy as practicable. The equipment shall be free from excessive vibration so as to avoid overheating 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 applicable agencies

**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 thereof 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.

### **39. SAFETY CODE.**

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 color 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 cordoned off 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 equipment 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 (15), 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.

### **SUB-CLAUSE– 3.3**

#### **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. 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.

## Sub Clause 3.4

# Special Conditions of the Contract

*The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Wherever there is a conflict, the provisions herein shall prevail over those in the GCC. The corresponding clause number of the GCC is indicated in parentheses*

|    |                    |   |
|----|--------------------|---|
| 1. | Definitions in GCC | “Facilities” means the Plant and Equipment to be supplied and installed, as well as all the Installation Services to be carried out by the Contractor under the Contract.   |
| 2. | GCC 3.0            | <p><b>Replace the clause 3.0 of GCC by the following:</b></p> <p><b>3.0 CONTRACT PERFORMANCE GUARANTEE/SECURITY DEPOSIT</b></p> <p>3.1</p> <p>3.1. 1 Performance Security should be 10% 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:</p> <ul style="list-style-type: none"><li>- a Bank Guarantee in the form given in the bid document from any schedule bank acceptable to the owner. Bank Guarantee issued by outstation bank shall be operative at its local branch at Ranchi (Jharkhand)</li><li>- Govt. Securities, FDR (Scheduled Bank) or any other form of deposit stipulated by the owner and duly pledged in favour of owner.</li><li>- Demand Draft drawn in favour of Central Coalfields Ltd. on any Scheduled Bank payable at its Branch at Ranchi.</li></ul> <p><b>Work shall commence only after submission of Performance Security.</b></p> <p>3.1.2 If performance security is provided by the successful bidder in the form of bank guarantee it shall be issued either -</p> <ul style="list-style-type: none"><li>a) at Bidder’s option by a Scheduled Bank as per provisions of Cl.3.1.1. The BG shall contain complete postal address, telephone number, fax number and email address of both out station bank issuing the BG as well as its local operating branch.</li><li>b) by a foreign bank located in India and acceptable to the employer.</li></ul> |